

| Command NAME  | ASCII command type       | ASCII command structure  | NEW REAL VALUE | NEW VALUE | DATA TYPE | DO WRITE |
|---|--------------------------|--|----------------|-----------|-----------|----------|
| <b>ASCII COMMANDS</b>   |                          |  |                |           |           |          |
| HEART BEAT  | ASCII<br>READ<br>COMMAND | #HB<CR><br>Result:<br>#HB<CR>  |                |           | ASCII     |          |
|   | TX                       | #1,HB<CR>  |                |           |           |          |
|   | RX                       | #1,HB<CR>  |                |           |           |          |
| Sends an Heartbeat to test the communication  |                          |  |                |           |           |          |
| GET VERSION   | ASCII<br>READ<br>COMMAND | #VERSION<CR><br>Result:<br>#VERSION:<VersionHi>,<VersionMed>,<VersionLo><CR> |                |           | ASCII     |          |
|   | TX                       | #1,VERSION<CR>   |                |           |           |          |
|   | RX                       | #1,VERSION:1.2.00<CR>  |                |           |           |          |
|   |                          | Current SW version:1.2.00  |                |           |           |          |
| Returns the version number of the module<br>VersionHi: Version number high (1..255)<br>VersionMed: Version number medium (1..255)<br>VersionLo: Version number low (1..255) |                          |  |                |           |           |          |
| GET TYPE  | ASCII<br>READ<br>COMMAND | #TYPE<CR><br>Result:<br>#TYPE:<Type><CR>                                     |                |           | ASCII     |          |
|   | TX                       | #1,TYPE<CR>  |                |           |           |          |
|   | RX                       | #1,TYPE:RESI-16RO-SIO<CR>  |                |           |           |          |
|   |                          | Current module type:RESI-16RO-SIO  |                |           |           |          |
| Returns the current module type   |                          |  |                |           |           |          |
| GET FEATURES  | ASCII<br>READ<br>COMMAND | #FTRS<CR><br>Result:<br>#FTRS:<Type><CR>                                     |                |           | ASCII     |          |
|   | TX                       | #1,FTRS<CR>  |                |           |           |          |
|   | RX                       | #1,FTRS:RESI-16RO-SIO,16RO<CR>   |                |           |           |          |
|   |                          | Current module type:RESI-16RO-SIO  |                |           |           |          |
| Returns the current module features   |                          |  |                |           |           |          |
| GET OWNER   | ASCII<br>READ<br>COMMAND | #OWNER<CR><br>Result:<br>#OWNER:<Owner><CR>                                  |                |           | ASCII     |          |
|   | TX                       | #1,OWNER<CR>   |                |           |           |          |
|   | RX                       | #1,OWNER:RESI<CR>  |                |           |           |          |
|   |                          | Current owner:RESI   |                |           |           |          |
| Returns the current owner of the module   |                          |  |                |           |           |          |

|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
| GET CREATOR  | ASCII<br>READ<br>COMMAND | #CREATOR<CR><br>Result:<br>#CREATOR:<Creator><CR>                | ASCII |  |
|  | TX                       | #1,CREATOR<CR>   |       |  |
|  | RX                       | #1,CREATOR:DI HC SIGL,MSC<CR>                                    |       |  |
|  |                          | Current creator:DI HC SIGL,MSC                                   |       |  |
| Returns the current creator of the module  |                          |  |       |  |
| GET COPYRIGHT  | ASCII<br>READ<br>COMMAND | #COPYRIGHT<CR><br>Result:<br>#COPYRIGHT:<Copyright><CR>          | ASCII |  |
|  | TX                       | #1,COPYRIGHT<CR>   |       |  |
|  | RX                       | #1,COPYRIGHT:2015-23 BY RESI AND DI HC SIGL,MSC WWW.RESI.CC<CR>  |       |  |
|  |                          | Current copyright:2015-23 BY RESI AND DI HC SIGL,MSC WWW.RESI.CC |       |  |
| Returns the current copyright of the module  |                          |  |       |  |
| GET SERIAL NUMBER  | ASCII<br>READ<br>COMMAND | #SN<CR><br>Result:<br>#SN:<Serial><CR>                           | ASCII |  |
|  | TX                       | #1,SN<CR>  |       |  |
|  | RX                       | #1,SN:31003E000A53554637303820<CR>                               |       |  |
|  |                          | Current serial number:31003E000A53554637303820                   |       |  |
| Returns the current serial number of the module  |                          |  |       |  |
| GET INTERNAL STATUS  | ASCII<br>READ<br>COMMAND | #INTSTAT<CR><br>Result:<br>#INTSTAT:<Status><CR>                 | ASCII |  |
|  | TX                       | #1,INTSTAT<CR>   |       |  |
|  | RX                       | #1,INTSTAT:I2C1:0,I2C2:0,FRAM:28<CR>                             |       |  |
| Returns the device specific internal status  |                          |  |       |  |
| GET DIP SWITCH   | ASCII<br>READ<br>COMMAND | #GDIP<CR><br>Result:<br>#GDIP:<DIPSwitchDec>,<DIPSwitchHex><CR>  | ASCII |  |
|  | TX                       | #1,GDIP<CR>  |       |  |
|  | RX                       | #1,GDIP:65,0x41<CR>  |       |  |
|  |                          | Current DIP SWITCH settings:0100.0001                            |       |  |
| Returns the current setting of the Dip switches as decimal number and as hexadecimal number.   |                          |  |       |  |
| DIPSwitchDec<br>DIPSwitchHex<br>The current value of the DIP switches:<br>Bit 0: DIP Switch 1 (=0:OFF, =1:ON)<br>Bit 1: DIP Switch 2 (=0:OFF, =1:ON)<br>Bit 2: DIP Switch 3 (=0:OFF, =1:ON)<br>Bit 3: DIP Switch 4 (=0:OFF, =1:ON)<br>Bit 4: DIP Switch 5, if available (=0:OFF, =1:ON)<br>Bit 5: DIP Switch 6, if available (=0:OFF, =1:ON)<br>Bit 6: DIP Switch 7, if available (=0:OFF, =1:ON)<br>Bit 7: DIP Switch 8, if available (=0:OFF, =1:ON) |                          |  |       |  |
| <b>ASCII COMMANDS</b>  |                          |  |       |  |

|   |                           |   |       |    |
|---|---------------------------|---|-------|----|
| SET MODBUS ADDRESS  | ASCII<br>WRITE<br>COMMAND | #SMBADR:<UNITID> <CR><br>Result:<br>#OK<CR>   | ASCII | NO |
|   | UNITID                    | 123   |       |    |
|   | TX                        | #1,SMBADR:123 <CR>                            |       |    |
|   | RX                        | N/A   |       |    |
| <p>Redefines the unit ID of the module. This change will affect the MODBUS/RTU communication immediately. As a Unit IO you can use the values 0dec to 255dec.</p> <p>HINT: The new settings are activated after a system reboot or power off on cycle!</p>  |                           |   |       |    |
| SET MODBUS BAUDRATE   | ASCII<br>WRITE<br>COMMAND | #SMBBAUD:<BAUD> <CR><br>Result:<br>#OK<CR>    | ASCII | NO |
|   | BAUD                      | 128000:128000BD                               |       |    |
|   | TX                        | #1,SMBBAUD:128000 <CR>                        |       |    |
|   | RX                        | N/A   |       |    |
| <p>Sets a new baud rate in the FLASH<br/>           For ULTRA SLIM IOs RESI-xxx-SIO: This baudrate is only used, if DIP switch mode DIP1=ON+DIP2=ON (BR) (default is 57600bd)<br/>           For BIG IOs RESI-xxx-SIO: This baudrate is only used, if DIP switch mode DIP7=ON (PARAMETER) (default is 57600bd)<br/>           The following baudrates are allowed:<br/>           300bd, 600bd, 900bd, 1200bd, 2400bd, 4800bd,<br/>           9600bd, 19200bd, 38400bd, 57600bd, 115200bd, 128000bd<br/>           230400bd, 250000bd, 256000bd</p> <p>HINT: The new setup parameters will be active after a restart of the module.</p> |                           |   |       |    |
| SET MODBUS PARITY   | ASCII<br>WRITE<br>COMMAND | #SMBPAR:<PARITY> <CR><br>Result:<br>#OK<CR>   | ASCII | NO |
|   | PARITY                    | ODD:ODD PARITY                                |       |    |
|   | TX                        | #1,SMBPAR:ODD <CR>                            |       |    |
|   | RX                        | N/A   |       |    |
| <p>Sets a new parity for the serial interface.<br/>           MBParity:<br/>           NONE: no parity<br/>           EVEN: even parity<br/>           ODD: odd parity</p> <p>HINT: The new setup parameters will be active after a restart of the module.</p>  |                           |   |       |    |
| SET MODBUS STOPS  | ASCII<br>WRITE<br>COMMAND | #SMBSTOP:<STOPBIT> <CR><br>Result:<br>#OK<CR> | ASCII | NO |
|   | STOPBIT                   | TWO:TWO STOPBITS                              |       |    |
|   | TX                        | #1,SMBSTOP:TWO <CR>                           |       |    |
|   | RX                        | N/A   |       |    |

Sets a new amount of stop bits for the serial interface.

MBStops

ONE: one stop bit

TWO: two stop bits

HINT: The new setup parameters will be active after a restart of the module.

|                   |                           |   |       |    |
|-------------------|---------------------------|---|-------|----|
| SET MODBUS PARAMS | ASCII<br>WRITE<br>COMMAND | #SMBPARAMS:<UNITID>,<BAUD>,<PARITY>,<STOPBIT> <CR><br>Result:<br>#OK <CR> | ASCII | NO |
|                   | UNITID                    | 3   |       |    |
|                   | BAUD                      | 115200:115200BD   |       |    |
|                   | PARITY                    | EVEN:EVENT PARITY   |       |    |
|                   | STOPBIT                   | TWO:TWO STOPBITS  |       |    |
|                   | TX                        | #1,SMBPARAMS:3,115200,EVEN,TWO <CR>                                       |       |    |
|                   | RX                        | N/A   |       |    |

Sets all parameters for serial interface

|                    |                          |   |       |  |
|--------------------|--------------------------|---|-------|--|
| GET MODBUS ADDRESS | ASCII<br>READ<br>COMMAND | #GMBADR <CR><br>Result:<br>#GMBADR:<MBUnitDec>,<MBFLASHDec>,<MBUnitHex>,<MBFLASHHex> <CR> | ASCII |  |
|                    | TX                       | #1,GMBADR <CR>  |       |  |
|                    | RX                       | #1,GMBADR:1,15,0x1,0xF <CR>   |       |  |
|                    |                          | Current MODBUS unit ID:1,15,0x1,0xF   |       |  |

Shows the current used MODBUS/RTU or ASCII unit address and shows also the stored unit address in the FLASH memory, which is only used if the DIP switch for the bus address is set to 0.

MBUnitDec,MBUnitHex

The current used MODBUS/RTU unit or ASCII address for communication

MBFLASHDec,MBFLASHHex

The internal stored MODBUS/RTU unit address or ASCII address from the FLASH memory, if the DIP switch DIP3 is OFF.

|                     |                          |  |       |  |
|---------------------|--------------------------|--|-------|--|
| GET MODBUS BAUDRATE | ASCII<br>READ<br>COMMAND | #GMBBAUD <CR><br>Result:<br>#GMBBAUD:<BaudRate> <CR> | ASCII |  |
|                     | TX                       | #1,GMBBAUD <CR>                                      |       |  |
|                     | RX                       | #1,GMBBAUD:115200,0x1C200 <CR>                       |       |  |
|                     |                          | Current baudrate:115200,0x1C200                      |       |  |

This is the current configured baud rate in the FLASH

For ULTRA SLIM IOs RESI-xxx-SIO: This baudrate is only used, if DIP switch mode DIP1=ON+DIP2=ON (BR) (default is 57600bd)

For BIG IOs RESI-xxx-SIO: This baudrate is only used, if DIP switch mode DIP7=ON (PARAMETER) (default is 57600bd)

The following baudrates are allowed:

300bd, 600bd, 900bd, 1200bd, 2400bd, 4800bd,

9600bd, 19200bd, 38400bd, 57600bd, 115200bd, 128000bd

230400bd, 250000bd, 256000bd

|                   |                          |  |       |  |
|-------------------|--------------------------|--|-------|--|
| GET MODBUS PARITY | ASCII<br>READ<br>COMMAND | #GMBPAR <CR><br>Result:<br>#GMBPAR:<MBParity> <CR> | ASCII |  |
|                   | TX                       | #1,GMBPAR <CR>                                     |       |  |
|                   | RX                       | #1,GMBPAR:NONE <CR>                                |       |  |

|   |                           |   |       |     |
|---|---------------------------|---|-------|-----|
|   |                           | Current parity:NONE   |       |     |
| Shows the current configured parity of the serial interface.<br>MBParity<br>NONE: no parity<br>EVEN: even parity<br>ODD: odd parity |                           |   |       |     |
| GET MODBUS STOP   | ASCII<br>READ<br>COMMAND  | #GMBSTOP<CR><br>Result:<br>#GMBSTOP:<MBStop> <CR>   | ASCII |     |
|   | TX                        | #1,GMBSTOP<CR>  |       |     |
|   | RX                        | #1,GMBPAR:ONE<CR>   |       |     |
|   |                           | Current stopbit(s):ONE  |       |     |
| Shows the current configured parity of the serial interface.<br>MBParity<br>NONE: no parity<br>EVEN: even parity<br>ODD: odd parity |                           |   |       |     |
| GET MODBUS PARAMS   | ASCII<br>READ<br>COMMAND  | #GMBPARAMS<CR><br>Result:<br>#GMBPARAMS:<MBUnitDec>,<MBFLASHDec>,<MBUnitHex>,<MBFLASHHex>,<br><MBBaudrateDec>,<MBBaudrateHex>,<MBParity>,<MBStops> <CR> | ASCII |     |
|   | TX                        | #1,GMBPARAMS<CR>  |       |     |
|   | RX                        | #1,GMBADR:1,0x1,15,0xF,115200,0x1C200,NONE,ONE <CR>   |       |     |
|   |                           | Current MODBUS unit ID used:1   |       |     |
|   |                           | Current MODBUS unit ID in FLASH:15  |       |     |
|   |                           | Current baudrate in FLASH:115200  |       |     |
|   |                           | Current parity in FLASH:NONE  |       |     |
|   |                           | Current stopbit(s) in FLASH:ONE   |       |     |
| Returns the complete settings for serial interface  |                           |   |       |     |
| <b>ASCII COMMANDS</b>   |                           |   |       |     |
| RESET   | ASCII<br>WRITE<br>COMMAND | #RST<CR><br>Result:<br>#OK<CR>  | ASCII | NO  |
|   | TX                        | #1,RST<CR>  |       |     |
|   | RX                        | N/A   |       |     |
| Executes a software reset (Reboot) of the module.   |                           |   |       |     |
| FACTORY RESET   | ASCII<br>WRITE<br>COMMAND | #FRST<CR><br>Result:<br>#OK<CR>   | ASCII | NO  |
|   | TX                        | #1,FRST<CR>   |       |     |
|   | RX                        | N/A   |       |     |
| Performs a factory reset of all internal saved parameters   |                           |   |       |     |
| SET MODBUS<br>WATCHDOG TIMER  | ASCII<br>WRITE<br>COMMAND | #SMBWATCHDOG:<WDTIME> <CR><br>Result:<br>#OK<CR>  | ASCII | YES |

|   |                          |   |       |  |
|---|--------------------------|---|-------|--|
|   | WDTIME                   | 100   |       |  |
|   | TX                       | #1,SMBWATCHDOG:100<CR>  |       |  |
|   | RX                       | #1,OK<CR>   |       |  |
| Enables or disables the WATCHDOG Timer for the IO module.<br>WDTIME:<br>1..65535: Time for Watchdog in 1/100s<br>=0: Watchdog is deactivated<br>HINT: The Watchdog is internally handled every 100ms. If the IO module receives no valid frame within this time period, the outputs are set to predefined values!                             |                          |   |       |  |
| GET MODBUS<br>WATCHDOG TIMER  | ASCII<br>READ<br>COMMAND | #GMBWATCHDOG<CR><br>Result:<br>#GMBWATCHDOG:<WDTIME> <CR>     | ASCII |  |
|   | TX                       | #1,GMBWATCHDOG<CR>  |       |  |
|   | RX                       | #1,GMBWATCHDOG:100,0x64<CR>                                   |       |  |
|   |                          | Current watchdog time:100 -> 10,0s                            |       |  |
| Shows the actual configured time for the telegram watchdog function of the IO module.<br>WDTIME:<br>1..65535: Time for Watchdog in 1/100s<br>=0: Watchdog is deactivated<br>HINT: The Watchdog is internally handled every 100ms. If the IO module receives no valid frame within this time period, the outputs are set to predefined values! |                          |   |       |  |
| <b>CPU PARAMETERS</b>   |                          |   |       |  |
| GET CPU VOLTAGE   | ASCII<br>READ<br>COMMAND | #GCPUTEMP<CR><br>Result:<br>#GCPUTEMP:<CPUTemp> <CR>          | ASCII |  |
|   | TX                       | #1,GCPUTEMP<CR>   |       |  |
|   | RX                       | #1,GCPUTEMP:38.7842<CR>                                       |       |  |
|   |                          | Current internal temperature of CPU:38.7842°C                 |       |  |
| Current internal temperature of CPU in ° Celsius.   |                          |   |       |  |
| GET CPU VOLTAGE   | ASCII<br>READ<br>COMMAND | #GCPUVOLT<CR><br>Result:<br>#GCPUVOLT:<CPUVoltage> <CR>       | ASCII |  |
|   | TX                       | #1,GCPUVOLT<CR>   |       |  |
|   | RX                       | #1,GCPUVOLT:3.3632<CR>  |       |  |
|   |                          | Current supply voltage of CPU:3.3632V                         |       |  |
| Current internal supply voltage of CPU in Volt.   |                          |   |       |  |
| GET CPU BACKUP  | ASCII<br>READ<br>COMMAND | #GCPUBACK<CR><br>Result:<br>#GCPUBACK:<CPUBackupVoltage> <CR> | ASCII |  |
|   | TX                       | #1,GCPUBACK<CR>   |       |  |
|   | RX                       | #1,GCPUBATT:3.1793<CR>  |       |  |
|   |                          | Current backup voltage of CPU:3.1793V                         |       |  |
| Current internal backup capacitor voltage of CPU in Volt.   |                          |   |       |  |

| Register NAME  | MODBUS Register               | Register VALUE          | NEW REAL VALUE | NEW VALUE | DATA TYPE     | DO WRITE |
|--|-------------------------------|-------------------------|----------------|-----------|---------------|----------|
| <b>CONVERTER STATUS</b>  |                               |                         |                |           |               |          |
| DIP SWITCH   | 3x10100<br>4x10100<br>I:10099 | 65,0x0041<br>B:00 41    |                |           | UINT16<br>R/O |          |
| Returns the current setting of the Dip switches.<br>For ULTRA SLIM IOs<br>The current value of the DIP switches:<br>Bit 0: DIP Switch 1 (=0:OFF, =1:ON)<br>Bit 1: DIP Switch 2 (=0:OFF, =1:ON)<br>Bit 2: DIP Switch 3 (=0:OFF, =1:ON)<br>Bit 3: DIP Switch 4 (=0:OFF, =1:ON)<br>For BIG IOs:<br>The current value of the DIP switches:<br>Bit 0: DIP Switch 1 (=0:OFF, =1:ON)<br>Bit 1: DIP Switch 2 (=0:OFF, =1:ON)<br>Bit 2: DIP Switch 3 (=0:OFF, =1:ON)<br>Bit 3: DIP Switch 4 (=0:OFF, =1:ON)<br>Bit 4: DIP Switch 5 (=0:OFF, =1:ON)<br>Bit 5: DIP Switch 6 (=0:OFF, =1:ON)<br>Bit 6: DIP Switch 7 (=0:OFF, =1:ON)<br>Bit 7: DIP Switch 8 (=0:OFF, =1:ON) |                               |                         |                |           |               |          |
| <b>PRODUCT DATA</b>  |                               |                         |                |           |               |          |
| HW_GROUP   | 3x65201<br>4x65201<br>I:65200 | 16384,0x4000<br>B:40 00 |                |           | UINT16<br>R/O |          |
| This is the group of hardware of the current product   |                               |                         |                |           |               |          |
| SW_GROUP   | 3x65202<br>4x65202<br>I:65201 | 32783,0x800F<br>B:80 0F |                |           | UINT16<br>R/O |          |
| This is the group of software of the current product   |                               |                         |                |           |               |          |
| SW_VERSION   | 3x65203<br>4x65203<br>I:65202 | 4608,0x1200<br>B:12 00  |                |           | UINT16<br>R/O |          |
| SW VERSION:1.2.0   |                               |                         |                |           |               |          |
| This is the current software version of the firmware   |                               |                         |                |           |               |          |
| SW_AUTHOR  | 3x65204<br>4x65204<br>I:65203 | 18771,0x4953<br>B:49 53 |                |           | UINT16<br>R/O |          |
| This is the current software author of the firmware  |                               |                         |                |           |               |          |
| <b>MODBUS SETTINGS</b>   |                               |                         |                |           |               |          |
| UNIT_ID  | 3x65222<br>4x65222<br>I:65221 | 1,0x0001<br>B:00 01     |                |           | UINT16<br>R/O |          |

|  |                               |                                    |       |                 |               |    |
|--|-------------------------------|------------------------------------|-------|-----------------|---------------|----|
|  |                               | UNIT ID:1                          |       |                 |               |    |
| If the host reads this register, the current defined unit ID is returned.  |                               |                                    |       |                 |               |    |
| FLASH UNIT_ID  | 3x65223<br>4x65223<br>l:65222 | 15,0x000F<br>B:00 0F               |       | 27              | UINT16<br>R/W | NO |
|  |                               | UNIT ID:15                         |       |                 |               |    |
| If the host reads this register, the current defined unit ID from the FLASH is returned. This UnitID is used if DIP switch for UnitID is set to 15   |                               |                                    |       |                 |               |    |
| <b>HINT:This settings will be active after you repower or reset your device !!</b>   |                               |                                    |       |                 |               |    |
| BAUD_RATE  | 3x65224<br>4x65224<br>l:65223 | 115200,0x0001C200<br>B:00 01 C2 00 | 57600 | 57600           | UINT32<br>R/W | NO |
|  |                               | 115200Bd                           |       | ENTER BAUD RATE |               |    |
| This is the current configured baud rate in the FLASH<br>For ULTRA SLIM IOs RESI-xxx-SIO: This baudrate is only used, if DIP switch mode DIP1=ON+DIP2=ON (BR) (default is 57600bd)<br>For BIG IOs RESI-xxx-SIO: This baudrate is only used, if DIP switch mode DIP7=ON (PARAMETER) (default is 57600bd)                    |                               |                                    |       |                 |               |    |
| Valid baud rates are:<br>300bd, 600bd, 900bd, 1200bd, 2400bd, 4800bd,<br>9600bd, 19200bd, 38400bd, 57600bd, 115200bd, 128000bd<br>230400bd, 250000bd, 256000bd   |                               |                                    |       |                 |               |    |
| <b>HINT:This settings will be active after you repower or reset your device !!</b>   |                               |                                    |       |                 |               |    |
| PARITY   | 3x65226<br>4x65226<br>l:65225 | 0,0x0000<br>B:00 00                |       | 1:EVENT PARITY  | UINT16<br>R/W | NO |
|  |                               | NO PARITY                          |       | SELECT PARITY   |               |    |
| If the register is read out, the currently set parity of the serial interface is returned.<br>Writing a value to this register will change the new parity in FLASH. This will only take effect after a restart of the module. This can be triggered by writing to the RESET SYSTEM register.                               |                               |                                    |       |                 |               |    |
| Parity values are<br>0: no parity<br>1: even parity<br>2: odd parity   |                               |                                    |       |                 |               |    |
| STOP BITS  | 3x65227<br>4x65227<br>l:65226 | 1,0x0001<br>B:00 01                |       | 2:TWO STOPBITS  | UINT16<br>R/W | NO |
|  |                               | ONE STOPBIT                        |       | SELECT STOPBITS |               |    |
| If the register is read out, the currently set number of stop bits of the serial interface is returned.<br>Writing a value to this register will change the new number of stop bits in the FLASH. This will only take effect after a restart of the module. This can be triggered by writing to the RESET SYSTEM register. |                               |                                    |       |                 |               |    |
| Values for stop bits are<br>1: one stop bit<br>2: two stop bits  |                               |                                    |       |                 |               |    |
| MODBUS TIMING  | 3x65228<br>4x65228<br>l:65227 | 0,0x0000<br>B:00 00                |       | 10              | UINT16<br>R/W | NO |



|   |                               |  |  |    |               |     |
|---|-------------------------------|--|--|----|---------------|-----|
|   |                               | Actual timing:0ms                          |  |    |               |     |
| If the host reads this register, the current defined timing for MODBUS telegrams is returned. This timing is a time in ms which extends the standard 1.5 character timeout between two consecutive bytes on the serial line.<br>If you write a new value to this register, the new settings are stored into the internal FLASH. Reboot the device to activate the new settings. |                               |  |  |    |               |     |
| MODBUS WATCHDOG TIME  | 3x65229<br>4x65229<br>I:65228 | 0,0x0000<br>B:00 00                        |  | 50 | UINT16<br>R/W | YES |
|   |                               | Actual watchdog time in 1/100s:0 -> 0,0s   |  |    |               |     |
| Writing a value onto this register defines a new time for the internal communication watchdog timer. The value is a timespan in 1/100s.<br>=0: The communication watchdog is disabled<br>=1..65535: Communication watchdog will be triggered after x 1/100s pause on communication line   |                               |  |  |    |               |     |
| In case of an communication watchdog, the module sets all outputs to the states defined in the configuration output registers   |                               |  |  |    |               |     |
| Reading this register will return the current stored time from the internal FLASH   |                               |  |  |    |               |     |
| <b>CPU DATA</b>   |                               |  |  |    |               |     |
| SERIAL1   | 3x65521<br>4x65521<br>I:65520 | 49,0x0031<br>B:00 31                       |  |    | UINT16<br>R/O |     |
| Serial number of module as 96 bit unsigned integer number   |                               |  |  |    |               |     |
| SERIAL2   | 3x65522<br>4x65522<br>I:65521 | 62,0x003E<br>B:00 3E                       |  |    | UINT16<br>R/O |     |
| SERIAL3   | 3x65523<br>4x65523<br>I:65522 | 21258,0x530A<br>B:53 0A                    |  |    | UINT16<br>R/O |     |
| SERIAL4   | 3x65524<br>4x65524<br>I:65523 | 18005,0x4655<br>B:46 55                    |  |    | UINT16<br>R/O |     |
| SERIAL5   | 3x65525<br>4x65525<br>I:65524 | 12343,0x3037<br>B:30 37                    |  |    | UINT16<br>R/O |     |
| SERIAL6   | 3x65526<br>4x65526<br>I:65525 | 8248,0x2038<br>B:20 38                     |  |    | UINT16<br>R/O |     |
|   |                               | SERIAL:31003E000A53554637303820            |  |    |               |     |
| Serial number of module as 96 bit unsigned integer number   |                               |  |  |    |               |     |
| CPU TEMPERATURE   | 3x65527<br>4x65527<br>I:65526 | 3865,0x0F19<br>B:0F 19                     |  |    | UINT16<br>R/O |     |
|   |                               | Current internal temperature of CPU:38,7°C |  |    |               |     |
| Current internal temperature of CPU in ° Celsius multiplied by 10.  |                               |  |  |    |               |     |
| CPU VOLTAGE   | 3x65528<br>4x65528<br>I:65527 | 336,0x0150<br>B:01 50                      |  |    | UINT16<br>R/O |     |
|   |                               | Current supply voltage of CPU:3,36V        |  |    |               |     |

|  |                               |                       |  |                         |               |    |
|--|-------------------------------|-----------------------|--|-------------------------|---------------|----|
| Current internal supply voltage of CPU in Volt multiplied by 1000.   |                               |                       |  |                         |               |    |
| CPU BACKUP VOLTAGE   | 3x65529<br>4x65529<br>I:65528 | 317,0x013D<br>B:01 3D |  |                         | UINT16<br>R/O |    |
| Current backup voltage of CPU:3,17V  |                               |                       |  |                         |               |    |
| Current internal backup capacitor voltage of CPU in Volt multiplied by 1000.   |                               |                       |  |                         |               |    |
| <b>CONVERTER STATUS</b>  |                               |                       |  |                         |               |    |
| CONVERTER STATUS   | 3x65534<br>4x65534<br>I:65533 | 0,0x0000<br>B:00 00   |  |                         | UINT16<br>R/O |    |
| Current status of the converter  |                               |                       |  |                         |               |    |
| FACTORY RESET  | 3x65535<br>4x65535<br>I:65534 | 0,0x0000<br>B:00 00   |  | 1:PERFORM FACTORY RESET | UINT16<br>R/W | NO |
| Performs a factory reset of all internal saved parameters  |                               |                       |  |                         |               |    |
| <b>SOFTWARE RESET</b>  |                               |                       |  |                         |               |    |
| RESET  | 1x65536<br>2x65536<br>I:65535 | 0,0x00<br>B:00        |  | N/A:NO CHANGE           | BIT<br>R/W    | NO |
| Performs a software reset, whenever 1 is written to this register. If the host writes to this register 1, the module executes a soft reset (reboot). |                               |                       |  |                         |               |    |
| RESET  | 3x65536<br>4x65535<br>I:65535 | 0,0x0000<br>B:00 00   |  | N/A:NO CHANGE           | UINT16<br>R/W | NO |
| Performs a software reset, whenever 1 is written to this register. If the host writes to this register 1, the module executes a soft reset (reboot). |                               |                       |  |                         |               |    |

| Register NAME<br>Command NAME  | MODBUS<br>Register<br>ASCII<br>Command | Register VALUE<br>ASCII Command   | NEW REAL<br>VALUE | NEW<br>VALUE | DATA TYPE | DO<br>WRITE |
|--|--|---|-------------------|--------------|-----------|-------------|
| <b>ASCII COMMANDS</b>  |  |   |                   |              |           |             |
| <b>AIOIX CONFIGURATION</b>   |  |   |                   |              |           |             |
| SET IO TYPES   | ASCII<br>WRITE<br>COMMAND              | #SIOTYPS:<IOTyp1>,<IOTyp2>,<IOTyp3>,<IOTyp4>,<IOTyp5>,<IOTyp6>,<IOTyp7>,<IOTyp8> <CR><br>Result:<br>#OK<CR> |                   |              | ASCII     | YES         |
|  | IOTyp1                                 | VO[0-10V]   |                   |              |           |             |
|  | IOTyp2                                 | VI[0-10V]   |                   |              |           |             |
|  | IOTyp3                                 | VO[0-10V]   |                   |              |           |             |
|  | IOTyp4                                 | VI[0-10V]   |                   |              |           |             |
|  | IOTyp5                                 | VO[0-10V]   |                   |              |           |             |
|  | IOTyp6                                 | VI[0-10V]   |                   |              |           |             |
|  | IOTyp7                                 | VO[0-10V]   |                   |              |           |             |
|  | IOTyp8                                 | VI[0-10V]   |                   |              |           |             |
|  | TX                                     | #1,SIOTYPS:VO[0-10V],VI[0-10V],VO[0-10V],VI[0-10V],VO[0-10V],VI[0-10V],VO[0-10V],VI[0-10V] <CR>             |                   |              |           |             |
|  | RX                                     | #255,OK<CR>   |                   |              |           |             |
| <p>This command defines for all 8 universal IOs a new type of IO:<br/>           IOTypx stands for the new type:<br/>           UU: Unused – high impedance<br/>           VI[0-10V]: VOLTAGE INPUT for 0 to 10V Signals<br/>           VI[2-10V]: VOLTAGE INPUT for 2 to 10V Signals<br/>           VO[0-10V]: VOLTAGE OUTPUT for 0 to 10V Signals<br/>           VO[2-10V]: VOLTAGE OUTPUT for 2 to 10V Signals<br/>           CI[0-20mA;LP]: CURRENT INPUT for 0 to 20mA Signals – loop powered<br/>           CI[4-20mA;LP]: CURRENT INPUT for 4 to 20mA Signals – loop powered<br/>           CI[0-20mA;EP]: CURRENT INPUT for 0 to 20mA Signals – external powered<br/>           CI[4-20mA;EP]: CURRENT INPUT for 4 to 20mA Signals – external powered<br/>           CO[0-20mA]: CURRENT OUTPUT for 0 to 20mA Signals<br/>           CO[4-20mA]: CURRENT OUTPUT for 4 to 20mA Signals<br/>           RTDI[OHM]: RTD SENSOR INPUT for Ohm measurement between 0 and 1MOhm<br/>           DI[24V;L]: DIGITAL INPUT for 24Vdc – logic, threshold 12V<br/>           DI[24V;LP]: DIGITAL INPUT for 24Vdc – loop powered</p> <p>HINT: The last IO type is automatically stored in FRAM and will be used after a system restart.</p> |  |   |                   |              |           |             |
| SET IO TYPx  | ASCII<br>WRITE<br>COMMAND              | #SIOTYP<IONR>:<IOTypx> <CR><br>Result:<br>#OK<CR>   |                   |              | ASCII     | YES         |
|  | IONR                                   | 1   |                   |              |           |             |
|  | IOTypx                                 | VO[0-10V]   |                   |              |           |             |
|  | TX                                     | #1,SIOTYP1:VO[0-10V] <CR>   |                   |              |           |             |
|  | RX                                     | #255,OK<CR>   |                   |              |           |             |

This command defines for the universal IO IONR a new type of IO:

IOTypx stands for the new type:

UU: Unused – high impedance

VI[0-10V]: VOLTAGE INPUT for 0 to 10V Signals

VI[2-10V]: VOLTAGE INPUT for 2 to 10V Signals

VO[0-10V]: VOLTAGE OUTPUT for 0 to 10V Signals

VO[2-10V]: VOLTAGE OUTPUT for 2 to 10V Signals

CI[0-20mA;LP]: CURRENT INPUT for 0 to 20mA Signals – loop powered

CI[4-20mA;LP]: CURRENT INPUT for 4 to 20mA Signals – loop powered

CI[0-20mA;EP]: CURRENT INPUT for 0 to 20mA Signals – external powered

CI[4-20mA;EP]: CURRENT INPUT for 4 to 20mA Signals – external powered

CO[0-20mA]: CURRENT OUTPUT for 0 to 20mA Signals

CO[4-20mA]: CURRENT OUTPUT for 4 to 20mA Signals

RTDI[OHM]: RTD SENSOR INPUT for Ohm measurement between 0 and 1MOhm

DI[24V;L]: DIGITAL INPUT for 24Vdc – logic, threshold 12V

DI[24V;LP]: DIGITAL INPUT for 24Vdc – loop powered

HINT: The last IO type is automatically stored in FRAM and will be used after a system restart.

| GET IO TYPES | ASCII<br>READ<br>COMMAND | #GIOTYPS<CR><br>Result:<br>#GIOTYPS:<IOTyp1Txt>,<IOTyp2Txt>.....<IOTyp8Txt><CR> | ASCII |
|--------------|--------------------------|---|-------|
|              | TX                       | #1,GIOTYPS<CR>  |       |
|              | RX                       | #1,GIOTYPS:UU,UU,UU,UU,UU,UU,UU<CR>   |       |
|              |                          | Actual type of IO1:UU   |       |
|              |                          | Actual type of IO2:UU   |       |
|              |                          | Actual type of IO3:UU   |       |
|              |                          | Actual type of IO4:UU   |       |
|              |                          | Actual type of IO5:UU   |       |
|              |                          | Actual type of IO6:UU   |       |
|              |                          | Actual type of IO7:UU   |       |
|              |                          | Actual type of IO8:UU   |       |

This command shows for all 8 universal IOs the current selected type of IO:

IOTypx stands for the types:

UU: Unused – high impedance

VI[0-10V]: VOLTAGE INPUT for 0 to 10V Signals

VI[2-10V]: VOLTAGE INPUT for 2 to 10V Signals

VO[0-10V]: VOLTAGE OUTPUT for 0 to 10V Signals

VO[2-10V]: VOLTAGE OUTPUT for 2 to 10V Signals

CI[0-20mA;LP]: CURRENT INPUT for 0 to 20mA Signals – loop powered

CI[4-20mA;LP]: CURRENT INPUT for 4 to 20mA Signals – loop powered

CI[0-20mA;EP]: CURRENT INPUT for 0 to 20mA Signals – external powered

CI[4-20mA;EP]: CURRENT INPUT for 4 to 20mA Signals – external powered

CO[0-20mA]: CURRENT OUTPUT for 0 to 20mA Signals

CO[4-20mA]: CURRENT OUTPUT for 4 to 20mA Signals

RTDI[OHM]: RTD SENSOR INPUT for Ohm measurement between 0 and 1MOhm

DI[24V;L]: DIGITAL INPUT for 24Vdc – logic, threshold 12V

DI[24V;LP]: DIGITAL INPUT for 24Vdc – loop powered

| GET IO TYPx | ASCII<br>READ<br>COMMAND | #GIOTYP<IONR><CR><br>Result:<br>#GIOTYP<IONR>:<IOTypxTxt><CR> | ASCII |  |
|-------------|--------------------------|---|-------|--|
|             | IONR                     | 1   |       |  |
|             | TX                       | #1,GIOTYP1<CR>  |       |  |
|             | RX                       | #1,GIOTYP1:UU<CR>   |       |  |
|             |                          | Actual type of IO1:UU   |       |  |

This command shows for the universal IO IONR the current selected type:

IOTypx stands for the types:

UU: Unused – high impedance

VI[0-10V]: VOLTAGE INPUT for 0 to 10V Signals

VI[2-10V]: VOLTAGE INPUT for 2 to 10V Signals

VO[0-10V]: VOLTAGE OUTPUT for 0 to 10V Signals

VO[2-10V]: VOLTAGE OUTPUT for 2 to 10V Signals

CI[0-20mA;LP]: CURRENT INPUT for 0 to 20mA Signals – loop powered

CI[4-20mA;LP]: CURRENT INPUT for 4 to 20mA Signals – loop powered

CI[0-20mA;EP]: CURRENT INPUT for 0 to 20mA Signals – external powered

CI[4-20mA;EP]: CURRENT INPUT for 4 to 20mA Signals – external powered

CO[0-20mA]: CURRENT OUTPUT for 0 to 20mA Signals

CO[4-20mA]: CURRENT OUTPUT for 4 to 20mA Signals

RTDI[OHM]: RTD SENSOR INPUT for Ohm measurement between 0 and 1MOhm

DI[24V;L]: DIGITAL INPUT for 24Vdc – logic, threshold 12V

DI[24V;LP]: DIGITAL INPUT for 24Vdc – loop powered

## VOLTAGE INPUTS

| GET VOLTAGE INPUTS<br>IN VOLT | ASCII<br>READ<br>COMMAND | #GVISV<CR><br>Result:<br>#GVISV:<IOVolt1Db1>,<IOVolt2Db1>,...,<IOVolt8Db1><CR>     | ASCII |  |
|-------------------------------|--------------------------|--|-------|--|
|                               | TX                       | #1,GVISV<CR>   |       |  |
|                               | RX                       | #1,GVISV:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99<CR> |       |  |
|                               |                          | Actual voltage on IO1:999.99V  |       |  |
|                               |                          | Actual voltage on IO2:999.99V  |       |  |
|                               |                          | Actual voltage on IO3:999.99V  |       |  |
|                               |                          | Actual voltage on IO4:999.99V  |       |  |
|                               |                          | Actual voltage on IO5:999.99V  |       |  |
|                               |                          | Actual voltage on IO6:999.99V  |       |  |
|                               |                          | Actual voltage on IO7:999.99V  |       |  |
|                               |                          | Actual voltage on IO8:999.99V  |       |  |

This command shows for all VOLTAGE INPUT IOs the current measurement in Volt.

The measurement range is 0.0 to 10.00V.

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

| GET VOLTAGE INPUT<br>IN VOLT | ASCII<br>READ<br>COMMAND | #GVIV<IONR><CR><br>Result:<br>#GVIV<IONR>:<IOxVoltDb1><CR> | ASCII |  |
|------------------------------|--------------------------|--|-------|--|
|                              | IONR                     | 1  |       |  |
|                              | TX                       | #1,GVIV1<CR>   |       |  |
|                              | RX                       | #1,GVIV1:999.99<CR>  |       |  |

|   |                          | Actual voltage on IO1:999.99V  |       |  |
|---|--------------------------|--|-------|--|
| <p>This command shows for the VOLTAGE INPUT IO &lt;IONR&gt; the current measurement in Volt.<br/>           The measurement range is 0.0 to 10.00V.<br/>           All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.</p>                         |                          |  |       |  |
| GET VOLTAGE INPUTS<br>IN PERCENT  | ASCII<br>READ<br>COMMAND | #GVISP<CR><br>Result:<br>#GVISP:<IOPercent1DbI>,<IOPercent2DbI>,...,<IOPercent8DbI> <CR> | ASCII |  |
|   | TX                       | #1,GVISP<CR>   |       |  |
|   | RX                       | #1,GVISP:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99<CR>                     |       |  |
|   |                          | Actual percentage on IO1:999.99%   |       |  |
|   |                          | Actual percentage on IO2:999.99%   |       |  |
|   |                          | Actual percentage on IO3:999.99%   |       |  |
|   |                          | Actual percentage on IO4:999.99%   |       |  |
|   |                          | Actual percentage on IO5:999.99%   |       |  |
|   |                          | Actual percentage on IO6:999.99%   |       |  |
|   |                          | Actual percentage on IO7:999.99%   |       |  |
|   |                          | Actual percentage on IO8:999.99%   |       |  |
| <p>This command shows for all VOLTAGE INPUT IOs the current measurement in Percent.<br/>           The measurement range is 0.0V -&gt; 0.0% to 10.00V -&gt; 100.0%.<br/>           All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.</p>         |                          |  |       |  |
| GET VOLTAGE INPUT<br>IN PERCENT   | ASCII<br>READ<br>COMMAND | #GVIP<IONR> <CR><br>Result:<br>#GVIP<IONR>:<IOxPercentDbI> <CR>                          | ASCII |  |
|   | IONR                     | 1  |       |  |
|   | TX                       | #1,GVIP1<CR>   |       |  |
|   | RX                       | #1,GVIP1:999.99<CR>  |       |  |
|   |                          | Actual percentage on IO1:999.99%   |       |  |
| <p>This command shows for VOLTAGE INPUT IO &lt;IONR&gt; the current measurement in Percent.<br/>           The measurement range is 0.0V -&gt; 0.0% to 10.00V -&gt; 100.0%.<br/>           All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.</p> |                          |  |       |  |
| <b>VOLTAGE DIGITAL INPUTS</b>   |                          |  |       |  |
| GET VOLTAGE DIGITAL INPUTS  | ASCII<br>READ<br>COMMAND | #GVDIS<CR><br>Result:<br>#GVDIS:<IODI1Dec>,<IODI2Dec>,...,<IODI8Dec> <CR>                | ASCII |  |
|   | TX                       | #1,GVDIS<CR>   |       |  |
|   | RX                       | #1,GVDIS:X,X,X,X,X,X,X,X<CR>   |       |  |
|   |                          | Actual voltage digital input state on IO1:X  |       |  |
|   |                          | Actual voltage digital input state on IO2:X  |       |  |
|   |                          | Actual voltage digital input state on IO3:X  |       |  |
|   |                          | Actual voltage digital input state on IO4:X  |       |  |
|   |                          | Actual voltage digital input state on IO5:X  |       |  |
|   |                          | Actual voltage digital input state on IO6:X  |       |  |
|   |                          | Actual voltage digital input state on IO7:X  |       |  |
|   |                          | Actual voltage digital input state on IO8:X  |       |  |

This command shows for all VOLTAGE DIGITAL INPUT IOs the current state.

The digital input can have the values 0 and 1.

All IOs with a different usage type will return X to indicate, that no measurement is done.

|                           |                          |  |       |  |
|---------------------------|--------------------------|--|-------|--|
| GET VOLTAGE DIGITAL INPUT | ASCII<br>READ<br>COMMAND | #GVDI<IONR> <CR><br>Result:<br>#GVDI<IONR>:<IOxDIDec> <CR> | ASCII |  |
|                           | IONR                     | 1  |       |  |
|                           | TX                       | #1,GVDI1<CR>   |       |  |
|                           | RX                       | #1,GVDI1:X<CR>   |       |  |
|                           |                          | Actual voltage digital input state on IO1:X                |       |  |

This command shows for VOLTAGE DIGITAL INPUT IO <IONR> the current state.

The digital input can have the values 0 and 1.

All IOs with a different usage type will return X to indicate, that no measurement is done.

|                                       |                          |   |       |  |
|---------------------------------------|--------------------------|---|-------|--|
| GET VOLTAGE DIGITAL INPUTS<br>CURRENT | ASCII<br>READ<br>COMMAND | #GVDISC<CR><br>Result:<br>#GVDISC:<IOmA1DbI>,<IOmA2DbI>,...,<IOmA8DbI> <CR> | ASCII |  |
|                                       | TX                       | #1,GVDISC<CR>   |       |  |
|                                       | RX                       | #1,GVDISC:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99 <CR>      |       |  |
|                                       |                          | Actual input current on IO1:999.99mA  |       |  |
|                                       |                          | Actual input current on IO2:999.99mA  |       |  |
|                                       |                          | Actual input current on IO3:999.99mA  |       |  |
|                                       |                          | Actual input current on IO4:999.99mA  |       |  |
|                                       |                          | Actual input current on IO5:999.99mA  |       |  |
|                                       |                          | Actual input current on IO6:999.99mA  |       |  |
|                                       |                          | Actual input current on IO7:999.99mA  |       |  |
|                                       |                          | Actual input current on IO8:999.99mA  |       |  |

This command shows for all VOLTAGE DIGITAL INPUT IOs the actual current in mA.

The measurement range is 0.0mA to 35mA.

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

|                                      |                          |  |       |  |
|--------------------------------------|--------------------------|--|-------|--|
| GET VOLTAGE DIGITAL INPUT<br>CURRENT | ASCII<br>READ<br>COMMAND | #GVDIC<IONR> <CR><br>Result:<br>#GVDIC<IONR>:<IOxmADbl> <CR> | ASCII |  |
|                                      | IONR                     | 1  |       |  |
|                                      | TX                       | #1,GVDIC1<CR>  |       |  |
|                                      | RX                       | #1,GVDIC1:999.99 <CR>  |       |  |
|                                      |                          | Actual input current on IO1:999.99mA                         |       |  |

This command shows for VOLTAGE DIGITAL INPUT IO <IONR> the actual current in mA.

The measurement range is 0.0mA to 35mA.

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

### VOLTAGE OUTPUTS

|                                |                           |   |       |     |
|--------------------------------|---------------------------|---|-------|-----|
| SET VOLTAGE OUTPUTS<br>IN VOLT | ASCII<br>WRITE<br>COMMAND | #SVOSV:<IO1VoltDbI>,<IO2VoltDbI>,<IO3VoltDbI>,<IO4VoltDbI>,<IO5VoltDbI>,<IO6VoltDbI>,<IO7<br>VoltDbI>,<IO8VoltDbI> <CR><br>Result:<br>#OK<CR> | ASCII | YES |
|                                | IO1Volt                   | 10,000  |       |     |

|  |         |  |  |  |
|--|---------|--|--|--|
|  | IO2Volt | 7,500                                      |  |  |
|  | IO3Volt | 5,500                                      |  |  |
|  | IO4Volt | 2,500                                      |  |  |
|  | IO5Volt | 10,000                                     |  |  |
|  | IO6Volt | 7,500                                      |  |  |
|  | IO7Volt | 5,500                                      |  |  |
|  | IO8Volt | 2,500                                      |  |  |
|  | TX      | #1,SVOSV:10,7.5,5.5,2.5,10,7.5,5.5,2.5<CR> |  |  |
|  | RX      | #255,OK<CR>                                |  |  |

This command sets for all VOLTAGE OUTPUT IOs the current output voltage in Volt.  
The range is 0.0 to 11.00V.

|                                |                           |   |       |    |
|--------------------------------|---------------------------|---|-------|----|
| SET VOLTAGE OUTPUTx<br>IN VOLT | ASCII<br>WRITE<br>COMMAND | #SVOV<IONR>:<IOxVoltDbI> <CR><br>Result:<br>#OK<CR> | ASCII | NO |
|                                | IONR                      | 1   |       |    |
|                                | IOxVolt                   | 2,000   |       |    |
|                                | TX                        | #1,SVOV1:2<CR>                                      |       |    |
|                                | RX                        | N/A   |       |    |

This command sets for VOLTAGE OUTPUT IO <IONR> the current output voltage in Volt.  
The range is 0.0 to 11.00V.

|                                   |                           |   |       |    |
|-----------------------------------|---------------------------|---|-------|----|
| SET VOLTAGE OUTPUTS<br>IN PERCENT | ASCII<br>WRITE<br>COMMAND | #SVOSP:<IO1PercentDbI>,<IO2PercentDbI>,<IO3PercentDbI>,<IO4PercentDbI>,<IO5PercentDbI>,<IO6PercentDbI>,<IO7PercentDbI>,<IO8PercentDbI> <CR><br>Result:<br>#OK<CR> | ASCII | NO |
|                                   | IO1Percent                | 110,000   |       |    |
|                                   | IO2Percent                | 100,000   |       |    |
|                                   | IO3Percent                | 75,000  |       |    |
|                                   | IO4Percent                | 50,000  |       |    |
|                                   | IO5Percent                | 110,000   |       |    |
|                                   | IO6Percent                | 100,000   |       |    |
|                                   | IO7Percent                | 75,000  |       |    |
|                                   | IO8Percent                | 50,000  |       |    |
|                                   | TX                        | #1,SVOSP:110,100,75,50,110,100,75,50<CR>  |       |    |
|                                   | RX                        | N/A   |       |    |

This command sets for all VOLTAGE OUTPUT IOs the current output voltage in Percent.  
The range is 0.0V -> 0.00% to 11.00V -> 110.00%.

|                                   |                           |  |       |    |
|-----------------------------------|---------------------------|--|-------|----|
| SET VOLTAGE OUTPUTx<br>IN PERCENT | ASCII<br>WRITE<br>COMMAND | #SVOP<IONR>:<IOxPercentDbI> <CR><br>Result:<br>#OK<CR> | ASCII | NO |
|                                   | IONR                      | 1  |       |    |
|                                   | IOxPercent                | 2,000  |       |    |
|                                   | TX                        | #1,SVOP1:2<CR>   |       |    |
|                                   | RX                        | N/A  |       |    |



This command sets for VOLTAGE OUTPUT IO <IONR> the current output voltage in Percent.  
The range is 0.0V -> 0.00% to 11.00V -> 110.00%.

| GET VOLTAGE OUTPUTS<br>IN VOLT | ASCII<br>READ<br>COMMAND | #GVOSV<CR><br>Result:<br>#GVOSV:<IO1VoltDbI>,<IO2VoltDbI>,...<IO8VoltDbI><CR> | ASCII |
|--------------------------------|--------------------------|---|-------|
|                                | TX                       | #1,GVOSV<CR>  |       |
|                                | RX                       | #1,GVOSV:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99<CR>          |       |
|                                |                          | Actual voltage output on IO1:999.99V  |       |
|                                |                          | Actual voltage output on IO2:999.99V  |       |
|                                |                          | Actual voltage output on IO3:999.99V  |       |
|                                |                          | Actual voltage output on IO4:999.99V  |       |
|                                |                          | Actual voltage output on IO5:999.99V  |       |
|                                |                          | Actual voltage output on IO6:999.99V  |       |
|                                |                          | Actual voltage output on IO7:999.99V  |       |
|                                |                          | Actual voltage output on IO8:999.99V  |       |

This command shows for all VOLTAGE OUTPUT IOs the current output voltage in Volt.

The range is 0.0V to 11.00V.

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

| GET VOLTAGE OUTPUT<br>IN VOLT | ASCII<br>READ<br>COMMAND | #GVOV<IONR><CR><br>Result:<br>#GVOV<IONR>:<IOxVoltDbI><CR> | ASCII |
|-------------------------------|--------------------------|--|-------|
|                               | IONR                     | 1  |       |
|                               | TX                       | #1,GVOV1<CR>   |       |
|                               | RX                       | #1,GVOV1:999.99<CR>  |       |
|                               |                          | Actual voltage output on IO1:999.99V                       |       |

This command shows for VOLTAGE OUTPUT IO <IONR> the current output voltage in Volt.

The range is 0.0V to 11.00V.

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

| GET VOLTAGE OUTPUTS<br>IN PERCENT | ASCII<br>READ<br>COMMAND | #GVOSP<CR><br>Result:<br>#GVOSP:<IO1PercentDbI>,<IO2PercentDbI>,...<IO8PercentDbI><CR> | ASCII |
|-----------------------------------|--------------------------|--|-------|
|                                   | TX                       | #1,GVOSP<CR>   |       |
|                                   | RX                       | #1,GVOSP:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99<CR>                   |       |
|                                   |                          | Actual percentage voltage output on IO1:999.99%  |       |
|                                   |                          | Actual percentage voltage output on IO2:999.99%  |       |
|                                   |                          | Actual percentage voltage output on IO3:999.99%  |       |
|                                   |                          | Actual percentage voltage output on IO4:999.99%  |       |
|                                   |                          | Actual percentage voltage output on IO5:999.99%  |       |
|                                   |                          | Actual percentage voltage output on IO6:999.99%  |       |
|                                   |                          | Actual percentage voltage output on IO7:999.99%  |       |
|                                   |                          | Actual percentage voltage output on IO8:999.99%  |       |

This command shows for all VOLTAGE OUTPUT IOs the current output voltage in Percent.

The range is 0.0V -> 0.00% to 11.00V -> 110.00% (10.00V -> 100.00%).

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

|                                  |                          |   |       |  |
|----------------------------------|--------------------------|---|-------|--|
| GET VOLTAGE OUTPUT<br>IN PERCENT | ASCII<br>READ<br>COMMAND | #GVOP<IONR> <CR><br>Result:<br>#GVOP<IONR>:<IOxPercentDbI> <CR> | ASCII |  |
|                                  | IONR                     | 1   |       |  |
|                                  | TX                       | #1,GVOP1<CR>  |       |  |
|                                  | RX                       | #1,GVOP1:999.99<CR>   |       |  |
|                                  |                          | Actual percentage voltage output on IO1:999.99%                 |       |  |

This command shows for VOLTAGE OUTPUT IO <IONR> the current output voltage in Percent.  
The range is 0.0V -> 0.00% to 11.00V -> 110.00% (10.00V -> 100.00%).  
All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

|                                |                          |   |       |  |
|--------------------------------|--------------------------|---|-------|--|
| GET VOLTAGE OUTPUTS<br>CURRENT | ASCII<br>READ<br>COMMAND | #GVOSC<CR><br>Result:<br>#GVOSC:<IOmA1DbI>,<IOmA2DbI>,...,<IOmA8DbI> <CR> | ASCII |  |
|                                | TX                       | #1,GVOSC<CR>  |       |  |
|                                | RX                       | #1,GVOSC:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99<CR>      |       |  |
|                                |                          | Actual output current on IO1:999.99mA                                     |       |  |
|                                |                          | Actual output current on IO2:999.99mA                                     |       |  |
|                                |                          | Actual output current on IO3:999.99mA                                     |       |  |
|                                |                          | Actual output current on IO4:999.99mA                                     |       |  |
|                                |                          | Actual output current on IO5:999.99mA                                     |       |  |
|                                |                          | Actual output current on IO6:999.99mA                                     |       |  |
|                                |                          | Actual output current on IO7:999.99mA                                     |       |  |
|                                |                          | Actual output current on IO8:999.99mA                                     |       |  |

This command shows for all VOLTAGE OUTPUT IOs the actual current in mA.  
The measurement range is 0.0mA to 35mA.  
All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

|                               |                          |  |       |  |
|-------------------------------|--------------------------|--|-------|--|
| GET VOLTAGE OUTPUT<br>CURRENT | ASCII<br>READ<br>COMMAND | #GVOC<IONR> <CR><br>Result:<br>#GVOC<IONR>:<IOxmADbI> <CR> | ASCII |  |
|                               | IONR                     | 1  |       |  |
|                               | TX                       | #1,GVOC1<CR>   |       |  |
|                               | RX                       | #1,GVOC1:999.99<CR>  |       |  |
|                               |                          | Actual output current on IO1:999.99mA                      |       |  |

This command shows for VOLTAGE OUTPUT IO <IONR> the actual current in mA.  
The measurement range is 0.0mA to 35mA.  
All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

### CURRENT INPUTS

|                             |                          |   |       |  |
|-----------------------------|--------------------------|---|-------|--|
| GET CURRENT INPUTS<br>IN mA | ASCII<br>READ<br>COMMAND | #GCISMA<CR><br>Result:<br>#GCISMA:<IO1mAdbI>,<IO2mAdbI>,...,<IO8mAdbI> <CR> | ASCII |  |
|                             | TX                       | #1,GCISMA<CR>   |       |  |
|                             | RX                       | #1,GCISMA:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99<CR>       |       |  |
|                             |                          | Actual current input on IO1:999.99mA  |       |  |
|                             |                          | Actual current input on IO2:999.99mA  |       |  |
|                             |                          | Actual current input on IO3:999.99mA  |       |  |

|  |  |                                      |  |  |
|--|--|--------------------------------------|--|--|
|  |  | Actual current input on IO4:999.99mA |  |  |
|  |  | Actual current input on IO5:999.99mA |  |  |
|  |  | Actual current input on IO6:999.99mA |  |  |
|  |  | Actual current input on IO7:999.99mA |  |  |
|  |  | Actual current input on IO8:999.99mA |  |  |

This command shows for all CURRENT INPUT IOs the current measured input current in mA.

The range is 0.00 to 25.00mA

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

|                            |                          |  |       |  |
|----------------------------|--------------------------|--|-------|--|
| GET CURRENT INPUT<br>IN mA | ASCII<br>READ<br>COMMAND | #GCIMA<IONR> <CR><br>Result:<br>#GCIMA<IONR>:<IOxmADbl> <CR> | ASCII |  |
|                            | IONR                     | 1  |       |  |
|                            | TX                       | #1,GCIMA1<CR>  |       |  |
|                            | RX                       | #1,GCIMA1:999.99<CR>   |       |  |
|                            |                          | Actual current input on IO1:999.99mA                         |       |  |

This command shows for CURRENT INPUT IO <IONR> the current measured input current in mA.

The range is 0.00 to 25.00mA

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

|                                  |                          |  |       |  |
|----------------------------------|--------------------------|--|-------|--|
| GET CURRENT INPUTS<br>IN PERCENT | ASCII<br>READ<br>COMMAND | #GCISP<CR><br>Result:<br>#GCISP:<IO1PercentDbl>,<IO2PercentDbl>,...,<IO8PercentDbl> <CR> | ASCII |  |
|                                  | TX                       | #1,GCISP<CR>   |       |  |
|                                  | RX                       | #1,GCISP:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99 <CR>      |       |  |
|                                  |                          | Actual percentage for current input on IO1:999.99%                                       |       |  |
|                                  |                          | Actual percentage for current input on IO2:999.99%                                       |       |  |
|                                  |                          | Actual percentage for current input on IO3:999.99%                                       |       |  |
|                                  |                          | Actual percentage for current input on IO4:999.99%                                       |       |  |
|                                  |                          | Actual percentage for current input on IO5:999.99%                                       |       |  |
|                                  |                          | Actual percentage for current input on IO6:999.99%                                       |       |  |
|                                  |                          | Actual percentage for current input on IO7:999.99%                                       |       |  |
|                                  |                          | Actual percentage for current input on IO8:999.99%                                       |       |  |

This command shows for all CURRENT INPUT IOs the current measured input current in Percent.

The range is 0.00mA -> 0.00% to 25.00mA -> 125.00% (20mA=100%)

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

|                                 |                          |   |       |  |
|---------------------------------|--------------------------|---|-------|--|
| GET CURRENT INPUT<br>IN PERCENT | ASCII<br>READ<br>COMMAND | #GCIP<IONR> <CR><br>Result:<br>#GCIP<IONR>:<IOxPercentDbl> <CR> | ASCII |  |
|                                 | IONR                     | 1   |       |  |
|                                 | TX                       | #1,GCIP1<CR>  |       |  |
|                                 | RX                       | #1,GCIP1:999.99<CR>   |       |  |
|                                 |                          | Actual percentage for current input on IO1:999.99%              |       |  |

This command shows for CURRENT INPUT IO <IONR> the current measured input current in Percent.

The range is 0.00mA -> 0.00% to 25.00mA -> 125.00% (20mA=100%)

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

## CURRENT OUTPUTS

|                              |                           |   |       |    |
|------------------------------|---------------------------|---|-------|----|
| SET CURRENT OUTPUTS<br>IN mA | ASCII<br>WRITE<br>COMMAND | #SCOSMA:<IO1mADbl>,<IO2mADbl>,<IO3mADbl>,<IO4mADbl>,<IO5mADbl>,<IO6mADbl>,<IO7mADbl>,<IO8mADbl><CR><br>Result:<br>#OK<CR> | ASCII | NO |
|                              | IO1mA                     | 2,000   |       |    |
|                              | IO2mA                     | 4,000   |       |    |
|                              | IO3mA                     | 6,000   |       |    |
|                              | IO4mA                     | 25,000  |       |    |
|                              | IO5mA                     | ,000  |       |    |
|                              | IO6mA                     | ,000  |       |    |
|                              | IO7mA                     | ,000  |       |    |
|                              | IO8mA                     | ,000  |       |    |
|                              | TX                        | #1,SCOSMA:2,4,6,25,0,0,0,0<CR>  |       |    |
|                              | RX                        | N/A   |       |    |

This command sets for all CURRENT OUTPUT IOs the actual output current in mA.  
The range is 0.00mA to 25.00mA

|                              |                           |   |       |    |
|------------------------------|---------------------------|---|-------|----|
| SET CURRENT OUTPUTx<br>IN mA | ASCII<br>WRITE<br>COMMAND | #SCOMA<IONR>:<IOxmADbl><CR><br>Result:<br>#OK<CR> | ASCII | NO |
|                              | IONR                      | 1   |       |    |
|                              | IOxVolt                   | 2,000   |       |    |
|                              | TX                        | #1,SCOMA1:<IOxmADbl><CR>                          |       |    |
|                              | RX                        | N/A   |       |    |

This command sets for CURRENT OUTPUT <IONR> IOs the actual output current in mA.  
The range is 0.00mA to 25.00mA

|                                   |                           |  |       |    |
|-----------------------------------|---------------------------|--|-------|----|
| SET CURRENT OUTPUTS<br>IN PERCENT | ASCII<br>WRITE<br>COMMAND | #SCOSP:<IO1PercentDbl>,<IO2PercentDbl>,<IO3PercentDbl>,<IO4PercentDbl>,<IO5PercentDbl>,<IO6PercentDbl>,<IO7PercentDbl>,<IO8PercentDbl><CR><br>Result:<br>#OK<CR> | ASCII | NO |
|                                   | IO1Percent                | 125,000  |       |    |
|                                   | IO2Percent                | 100,000  |       |    |
|                                   | IO3Percent                | 75,000   |       |    |
|                                   | IO4Percent                | 50,000   |       |    |
|                                   | IO5Percent                | ,000   |       |    |
|                                   | IO6Percent                | ,000   |       |    |
|                                   | IO7Percent                | ,000   |       |    |
|                                   | IO8Percent                | ,000   |       |    |
|                                   | TX                        | #1,SCOSP:125,100,75,50,0,0,0,0<CR>   |       |    |
|                                   | RX                        | N/A  |       |    |

This command sets for all CURRENT OUTPUT IOs the new output current in Percent.  
The range is 0.00mA -> 0.00% to 25.00mA -> 125.00% (20mA -> 100.00%)

|                                   |                           |   |       |    |
|-----------------------------------|---------------------------|---|-------|----|
| SET CURRENT OUTPUTx<br>IN PERCENT | ASCII<br>WRITE<br>COMMAND | #SCOP<IONR>:<IOxPercentDbl><CR><br>Result:<br>#OK<CR> | ASCII | NO |
|                                   | IONR                      | 1   |       |    |

|  |                                   |   |       |  |
|--|-----------------------------------|---|-------|--|
|  | <b>IOxPercent</b>                 | ,000  |       |  |
|  | <b>TX</b>                         | #1,SCOP1:0<CR>  |       |  |
|  | <b>RX</b>                         | N/A   |       |  |
| This command sets for CURRENT OUTPUT IO <IONR> the new output current in Percent.<br>The range is 0.00mA -> 0.00% to 25.00mA -> 125.00% (20mA -> 100.00%)  |                                   |   |       |  |
| GET CURRENT OUTPUTS<br>IN mA   | <b>ASCII<br/>READ<br/>COMMAND</b> | #GCOSMA<CR><br>Result:<br>#GCOSMA:<IO1mADbl>,<IO2mADbl>,...,<IO8mADbl><CR>              | ASCII |  |
|  | <b>TX</b>                         | #1,GCOSMA<CR>   |       |  |
|  | <b>RX</b>                         | #1,GCOSMA:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99<CR>                   |       |  |
|  |                                   | Actual value of current output on IO1:999.99mA  |       |  |
|  |                                   | Actual value of current output on IO2:999.99mA  |       |  |
|  |                                   | Actual value of current output on IO3:999.99mA  |       |  |
|  |                                   | Actual value of current output on IO4:999.99mA  |       |  |
|  |                                   | Actual value of current output on IO5:999.99mA  |       |  |
|  |                                   | Actual value of current output on IO6:999.99mA  |       |  |
|  |                                   | Actual value of current output on IO7:999.99mA  |       |  |
|  |                                   | Actual value of current output on IO8:999.99mA  |       |  |
| This command shows for all CURRENT OUTPUT IOs the actual output current in mA.<br>The range is 0.00mA to 25.00mA<br>All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.   |                                   |   |       |  |
| GET CURRENT OUTPUT<br>IN mA  | <b>ASCII<br/>READ<br/>COMMAND</b> | #GCOMA<IONR><CR><br>Result:<br>#GCOMA<IONR>:<IOxmADbl><CR>                              | ASCII |  |
|  | <b>IONR</b>                       | 1   |       |  |
|  | <b>TX</b>                         | #1,GCOMA1<CR>   |       |  |
|  | <b>RX</b>                         | #1,GCOMA1:999.99<CR>  |       |  |
|  |                                   | Actual value of current output on IO1:999.99mA  |       |  |
| This command shows for CURRENT OUTPUT IO <IONR> the actual output current in mA.<br>The range is 0.00mA to 25.00mA<br>All IOs with a different usage type will return 999.99 to indicate, that no measurement is done. |                                   |   |       |  |
| GET CURRENT OUTPUTS<br>IN PERCENT  | <b>ASCII<br/>READ<br/>COMMAND</b> | #GCOSP<CR><br>Result:<br>#GCOSP:<IO1PercentDbl>,<IO2PercentDbl>,...,<IO8PercentDbl><CR> | ASCII |  |
|  | <b>TX</b>                         | #1,GCOSP<CR>  |       |  |
|  | <b>RX</b>                         | #1,GCOSP:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99<CR>                    |       |  |
|  |                                   | Actual percentage of current output on IO1:999.99%                                      |       |  |
|  |                                   | Actual percentage of current output on IO2:999.99%                                      |       |  |
|  |                                   | Actual percentage of current output on IO3:999.99%                                      |       |  |
|  |                                   | Actual percentage of current output on IO4:999.99%                                      |       |  |
|  |                                   | Actual percentage of current output on IO5:999.99%                                      |       |  |
|  |                                   | Actual percentage of current output on IO6:999.99%                                      |       |  |
|  |                                   | Actual percentage of current output on IO7:999.99%                                      |       |  |
|  |                                   | Actual percentage of current output on IO8:999.99%                                      |       |  |

This command shows for all CURRENT OUTPUT IOs the actual output current in Percent.

The range is 0.00mA -> 0.00% to 25.00mA -> 125.00% (20mA -> 100.00%)

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

|                                  |                          |   |       |  |
|----------------------------------|--------------------------|---|-------|--|
| GET CURRENT OUTPUT<br>IN PERCENT | ASCII<br>READ<br>COMMAND | #GCOP<IONR><CR><br>Result:<br>#GCOP<IONR>:<IOxPercentDbI><CR> | ASCII |  |
|                                  | IONR                     | 1   |       |  |
|                                  | TX                       | #1,GCOP1<CR>  |       |  |
|                                  | RX                       | #1,GCOP1:999.99<CR>   |       |  |
|                                  |                          | Actual percentage of current output on IO1:999.99%            |       |  |

This command shows for CURRENT OUTPUT IO <IONR> the actual output current in Percent.

The range is 0.00mA -> 0.00% to 25.00mA -> 125.00% (20mA -> 100.00%)

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

|                                |                          |  |       |  |
|--------------------------------|--------------------------|--|-------|--|
| GET CURRENT OUTPUTS<br>VOLTAGE | ASCII<br>READ<br>COMMAND | #GCOSV<CR><br>Result:<br>#GCOSV:<IO1VoltsDbI>,<IO2VoltsDbI>,,,,<IO8VoltsDbI><CR> | ASCII |  |
|                                | TX                       | #1,GCOSV<CR>   |       |  |
|                                | RX                       | #1,GCOSV:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99<CR>      |       |  |
|                                |                          | Measured voltage of current output on IO1:999.99V                                |       |  |
|                                |                          | Measured voltage of current output on IO2:999.99V                                |       |  |
|                                |                          | Measured voltage of current output on IO3:999.99V                                |       |  |
|                                |                          | Measured voltage of current output on IO4:999.99V                                |       |  |
|                                |                          | Measured voltage of current output on IO5:999.99V                                |       |  |
|                                |                          | Measured voltage of current output on IO6:999.99V                                |       |  |
|                                |                          | Measured voltage of current output on IO7:999.99V                                |       |  |
|                                |                          | Measured voltage of current output on IO8:999.99V                                |       |  |

This command shows for all CURRENT OUTPUT IOs the actual output voltage in Volt.

The range is 0-10V

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

|                               |                          |  |       |  |
|-------------------------------|--------------------------|--|-------|--|
| GET CURRENT OUTPUT<br>VOLTAGE | ASCII<br>READ<br>COMMAND | #GCOV<IONR><CR><br>Result:<br>#GCOV<IONR>:<IOxVoltDbI><CR> | ASCII |  |
|                               | IONR                     | 1  |       |  |
|                               | TX                       | #1,GCOV1<CR>   |       |  |
|                               | RX                       | #1,GCOV1:999.99<CR>  |       |  |
|                               |                          | Measured voltage of current output on IO1:999.99V          |       |  |

This command shows for CURRENT OUTPUT IO <IONR> the actual output voltage in Volt.

The range is 0-10V

All IOs with a different usage type will return 999.99 to indicate, that no measurement is done.

#### RTD INPUTS OHM

|                          |                          |  |       |  |
|--------------------------|--------------------------|--|-------|--|
| GET RTD INPUTS<br>IN OHM | ASCII<br>READ<br>COMMAND | #GRTDISOHM<CR><br>Result:<br>#GRTDISOHM:<IO1OhmDbI>,<IO2OhmDbI>,,,,<IO8OhmDbI><CR> | ASCII |  |
|                          | TX                       | #1,GRTDISOHM<CR>   |       |  |

|  |                           |   |       |  |
|--|---------------------------|---|-------|--|
|  | <b>RX</b>                 | #1,GRTDISOHM:99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999<CR>                 |       |  |
|  |                           | Actual measured RTD input on IO1:99999999.999Ohm  |       |  |
|  |                           | Actual measured RTD input on IO2:99999999.999Ohm  |       |  |
|  |                           | Actual measured RTD input on IO3:99999999.999Ohm  |       |  |
|  |                           | Actual measured RTD input on IO4:99999999.999Ohm  |       |  |
|  |                           | Actual measured RTD input on IO5:99999999.999Ohm  |       |  |
|  |                           | Actual measured RTD input on IO6:99999999.999Ohm  |       |  |
|  |                           | Actual measured RTD input on IO7:99999999.999Ohm  |       |  |
|  |                           | Actual measured RTD input on IO8:99999999.999Ohm  |       |  |
| This command shows for RTD INPUT IOs the actual measured RTD value in Ohm.<br>The range is 0.000Ohm to 1000000.00Ohm<br>All IOs with a different usage type will return 99999999.999 to indicate, that no measurement is done.       |                           |   |       |  |
| GET RTD INPUT IN OHM   | <b>ASCII READ COMMAND</b> | #GRTDIOHM<IONR> <CR><br>Result:<br>#GRTDIOHM<IONR>:<IOxOhmDbl> <CR>   | ASCII |  |
|  | <b>IONR</b>               | 1   |       |  |
|  | <b>TX</b>                 | #1,GRTDIOHM1<CR>  |       |  |
|  | <b>RX</b>                 | #1,GRTDIOHM1:99999999.999<CR>   |       |  |
|  |                           | Actual measured RTD input on IO1:99999999.999Ohm  |       |  |
| This command shows for RTD INPUT IO <IONR> the actual measured RTD value in Ohm.<br>The range is 0.000Ohm to 1000000.00Ohm<br>All IOs with a different usage type will return 99999999.999 to indicate, that no measurement is done. |                           |   |       |  |
| GET AVERAGE RTD INPUTS IN OHM  | <b>ASCII READ COMMAND</b> | #GAVGRTDISOHM<CR><br>Result:<br>#GAVGRTDISOHM:<IO1OhmDbl>,<IO2OhmDbl>,...,<IO8OhmDbl> <CR>  | ASCII |  |
|  | <b>TX</b>                 | #1,GAVGRTDISOHM<CR>   |       |  |
|  | <b>RX</b>                 | #1,GAVGRTDISOHM:99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999,99999999.999<CR> |       |  |
|  |                           | Average measured RTD input on IO1:99999999.999Ohm   |       |  |
|  |                           | Average measured RTD input on IO2:99999999.999Ohm   |       |  |
|  |                           | Average measured RTD input on IO3:99999999.999Ohm   |       |  |
|  |                           | Average measured RTD input on IO4:99999999.999Ohm   |       |  |
|  |                           | Average measured RTD input on IO5:99999999.999Ohm   |       |  |
|  |                           | Average measured RTD input on IO6:99999999.999Ohm   |       |  |
|  |                           | Average measured RTD input on IO7:99999999.999Ohm   |       |  |
|  |                           | Average measured RTD input on IO8:99999999.999Ohm   |       |  |
| This command shows for RTD INPUT IOs the average measured RTD value in Ohm.<br>The range is 0.000Ohm to 1000000.00Ohm<br>All IOs with a different usage type will return 99999999.999 to indicate, that no measurement is done.      |                           |   |       |  |
| GET AVG RTD INPUT IN OHM   | <b>ASCII READ COMMAND</b> | #GAVGRTDIOHM<IONR> <CR><br>Result:<br>#GAVGRTDIOHM<IONR>:<IOxOhmDbl> <CR>   | ASCII |  |
|  | <b>IONR</b>               | 1   |       |  |
|  | <b>TX</b>                 | #1,GAVGRTDIOHM1<CR>   |       |  |

|   |                          |  |       |  |
|---|--------------------------|--|-------|--|
|   | RX                       | #1,GAVGRTDIOHM1:99999999.999<CR>   |       |  |
|   |                          | Average measured RTD input on IO1:99999999.999Ohm  |       |  |
| This command shows for RTD INPUT IO <IONR> the average measured RTD value in Ohm.<br>The range is 0.000Ohm to 1000000.00Ohm<br>All IOs with a different usage type will return 99999999.999 to indicate, that no measurement is done.   |                          |  |       |  |
| <b>RTD INPUTS PT100 CELSIUS</b>   |                          |  |       |  |
| GET RTD INPUTS<br>AS PT100 CELSIUS  | ASCII<br>READ<br>COMMAND | #GRTDISPT100C<CR><br>Result:<br>#GRTDISPT100C:<RTD1DbI>,<RTD2DbI>,...,<RTD8DbI> <CR>           | ASCII |  |
|   | TX                       | #1,GRTDISPT100C<CR>  |       |  |
|   | RX                       | #1,GRTDISPT100C:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR>    |       |  |
|   |                          | Actual measured RTD input as PT100 on IO1:9999.990°C   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO2:9999.990°C   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO3:9999.990°C   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO4:9999.990°C   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO5:9999.990°C   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO6:9999.990°C   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO7:9999.990°C   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO8:9999.990°C   |       |  |
| This command shows for RTD INPUT IOs the actual measured RTD value linearized as PT100 sensor in °Celsius.<br>-999.990: Temperature is lower than 50°C<br>+999.990: Temperature is higher than 130°C<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.      |                          |  |       |  |
| GET RTD INPUT<br>AS PT100 CELSIUS   | ASCII<br>READ<br>COMMAND | #GRTDIPT100C<IONR> <CR><br>Result:<br>#GRTDIPT100C<IONR>:<IOxDbl> <CR>                         | ASCII |  |
|   | IONR                     | 1  |       |  |
|   | TX                       | #1,GRTDIPT100C1<CR>  |       |  |
|   | RX                       | #1,GRTDIPT100C1:9999.990<CR>   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO1:9999.990°C   |       |  |
| This command shows for RTD INPUT IO <IONR> the actual measured RTD value linearized as PT100 sensor in °Celsius<br>-999.990: Temperature is lower than 50°C<br>+999.990: Temperature is higher than 130°C<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done. |                          |  |       |  |
| GET AVERAGE RTD INPUTS<br>AS PT100 CELSIUS  | ASCII<br>READ<br>COMMAND | #GAVGRTDISPT100C<CR><br>Result:<br>#GAVGRTDISPT100C:<RTD1DbI>,<RTD2DbI>,...,<RTD8DbI> <CR>     | ASCII |  |
|   | TX                       | #1,GAVGRTDISPT100C<CR>   |       |  |
|   | RX                       | #1,GAVGRTDISPT100C:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR> |       |  |
|   |                          | Average measured RTD input as PT100 on IO1:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT100 on IO2:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT100 on IO3:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT100 on IO4:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT100 on IO5:9999.990°C  |       |  |



|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
|  |                          | Average measured RTD input as PT100 on IO6:9999.990°C  |       |  |
|  |                          | Average measured RTD input as PT100 on IO7:9999.990°C  |       |  |
|  |                          | Average measured RTD input as PT100 on IO8:9999.990°C  |       |  |
| This command shows for RTD INPUT IOs the average measured RTD value linearized as PT100 sensor in °Celsius.<br>-999.990: Temperature is lower than 50°C<br>+999.990: Temperature is higher than 130°C<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.      |                          |  |       |  |
| GET AVG RTD INPUT<br>AS PT100 CELSIUS  | ASCII<br>READ<br>COMMAND | #GAVGRDIP100C<IONR><CR><br>Result:<br>#GAVGRDIP100C<IONR>:<IOxDbl><CR>                       | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GAVGRDIP100C1<CR>   |       |  |
|  | RX                       | #1,GAVGRDIP100C1:9999.990<CR>  |       |  |
|  |                          | Average measured RTD input as PT100 on IO1:9999.990°C  |       |  |
| This command shows for RTD INPUT IO <IONR> the average measured RTD value linearized as PT100 sensor in °Celsius<br>-999.990: Temperature is lower than 50°C<br>+999.990: Temperature is higher than 130°C<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done. |                          |  |       |  |
| <b>RTD INPUTS PT1000 CELSIUS</b>   |                          |  |       |  |
| GET RTD INPUTS<br>AS PT1000 CELSIUS  | ASCII<br>READ<br>COMMAND | #GRTDISPT1000C<CR><br>Result:<br>#GRTDISPT1000C:<RTD1Dbl>,<RTD2Dbl>,...<RTD8Dbl><CR>         | ASCII |  |
|  | TX                       | #1,GRTDISPT1000C<CR>   |       |  |
|  | RX                       | #1,GRTDISPT1000C:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR> |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO1:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO2:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO3:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO4:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO5:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO6:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO7:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO8:9999.990°C  |       |  |
| This command shows for RTD INPUT IOs the actual measured RTD value linearized as PT100 sensor in °Celsius.<br>-999.990: Temperature is lower than 50°C<br>+999.990: Temperature is higher than 130°C<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.       |                          |  |       |  |
| GET RTD INPUT<br>AS PT1000 CELSIUS   | ASCII<br>READ<br>COMMAND | #GRTDIP1000C<IONR><CR><br>Result:<br>#GRTDIP1000C<IONR>:<IOxDbl><CR>                         | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GRTDIP1000C1<CR>  |       |  |
|  | RX                       | #1,GRTDIP1000C1:9999.990<CR>   |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO1:9999.990°C  |       |  |

This command shows for RTD INPUT IO <IONR> the actual measured RTD value linearized as PT100 sensor in °Celsius  
 -999.990: Temperature is lower than 50°C  
 +999.990: Temperature is higher than 130°C  
 All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|   |                          |   |       |  |
|---|--------------------------|---|-------|--|
| GET AVERAGE RTD INPUTS<br>AS PT1000 CELSIUS | ASCII<br>READ<br>COMMAND | #GAVGRTDISPT1000C<CR><br>Result:<br>#GAVGRTDISPT1000C:<RTD1Db >,<RTD2Db >,...,<RTD8Db ><CR>     | ASCII |  |
|   | TX                       | #1,GAVGRTDISPT1000C<CR>   |       |  |
|   | RX                       | #1,GAVGRTDISPT1000C:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR> |       |  |
|   |                          | Average measured RTD input as PT1000 on IO1:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT1000 on IO2:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT1000 on IO3:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT1000 on IO4:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT1000 on IO5:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT1000 on IO6:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT1000 on IO7:9999.990°C  |       |  |
|   |                          | Average measured RTD input as PT1000 on IO8:9999.990°C  |       |  |

This command shows for RTD INPUT IOs the average measured RTD value linearized as PT100 sensor in °Celsius.  
 -999.990: Temperature is lower than 50°C  
 +999.990: Temperature is higher than 130°C  
 All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
| GET AVG RTD INPUT<br>AS PT1000 CELSIUS | ASCII<br>READ<br>COMMAND | #GAVGRTDIPT1000C<IONR><CR><br>Result:<br>#GAVGRTDIPT1000C<IONR>:<IOxDb ><CR> | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GAVGRTDIPT1000C1<CR>  |       |  |
|  | RX                       | #1,GAVGRTDIPT1000C1:9999.990<CR>   |       |  |
|  |                          | Average measured RTD input as PT1000 on IO1:9999.990°C                       |       |  |

This command shows for RTD INPUT IO <IONR> the average measured RTD value linearized as PT100 sensor in °Celsius  
 -999.990: Temperature is lower than 50°C  
 +999.990: Temperature is higher than 130°C  
 All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

#### RTD INPUTS NI1000-DIN43760 CELSIUS

|  |                          |   |       |  |
|--|--------------------------|---|-------|--|
| GET RTD INPUTS<br>AS NI1000 DIN43760 CELSIUS | ASCII<br>READ<br>COMMAND | #GRTDISNI1000DIN43760C<CR><br>Result:<br>#GRTDISNI1000DIN43760C:<RTD1Db >,<RTD2Db >,...,<RTD8Db ><CR> | ASCII |  |
|  | TX                       | #1,GRTDISNI1000DIN43760C<CR>  |       |  |
|  | RX                       | #1,GRTDISNI1000DIN43760C:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR>  |       |  |
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO1:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO2:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO3:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO4:9999.990°C  |       |  |
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO5:9999.990°C  |       |  |

|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO6:9999.990°C   |       |  |
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO7:9999.990°C   |       |  |
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO8:9999.990°C   |       |  |
| This command shows for RTD INPUT IOs the actual measured RTD value linearized as PT100 sensor in °Celsius.<br>-999.990: Temperature is lower than 50°C<br>+999.990: Temperature is higher than 130°C<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.       |                          |  |       |  |
| GET RTD INPUT<br>AS NI1000 DIN43760 CELSIUS  | ASCII<br>READ<br>COMMAND | #GRTDINI1000DIN43760C <IONR> <CR><br>Result:<br>#GRTDINI1000DIN43760C <IONR>:<IOxDbl> <CR>                   | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GRTDINI1000DIN43760C1<CR>   |       |  |
|  | RX                       | #1,GRTDINI1000DIN43760C1:9999.990<CR>  |       |  |
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO1:9999.990°C   |       |  |
| This command shows for RTD INPUT IO <IONR> the actual measured RTD value linearized as PT100 sensor in °Celsius.<br>-999.990: Temperature is lower than 50°C<br>+999.990: Temperature is higher than 130°C<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done. |                          |  |       |  |
| GET AVERAGE RTD INPUTS<br>AS NI1000 DIN43760 CELSIUS   | ASCII<br>READ<br>COMMAND | #GAVGRTDISNI1000DIN43760C <CR><br>Result:<br>#GAVGRTDISNI1000DIN43760C:<RTD1Dbl>,<RTD2Dbl>,...<RTD8Dbl> <CR> | ASCII |  |
|  | TX                       | #1,GAVGRTDISNI1000DIN43760C <CR>   |       |  |
|  | RX                       | #1,GAVGRTDISNI1000DIN43760C:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR>      |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO1:9999.990°C  |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO2:9999.990°C  |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO3:9999.990°C  |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO4:9999.990°C  |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO5:9999.990°C  |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO6:9999.990°C  |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO7:9999.990°C  |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO8:9999.990°C  |       |  |
| This command shows for RTD INPUT IOs the average measured RTD value linearized as PT100 sensor in °Celsius.<br>-999.990: Temperature is lower than 50°C<br>+999.990: Temperature is higher than 130°C<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.      |                          |  |       |  |
| GET AVG RTD INPUT<br>AS NI1000 DIN43760 CELSIUS  | ASCII<br>READ<br>COMMAND | #GAVGRTDINI1000DIN43760C <IONR> <CR><br>Result:<br>#GAVGRTDINI1000DIN43760C <IONR>:<IOxDbl> <CR>             | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GAVGRTDINI1000DIN43760C1<CR>  |       |  |
|  | RX                       | #1,GAVGRTDINI1000DIN43760C1:9999.990<CR>   |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO1:9999.990°C  |       |  |

This command shows for RTD INPUT IO <IONR> the average measured RTD value linearized as PT100 sensor in °Celsius  
 -999.990: Temperature is lower than 50°C  
 +999.990: Temperature is higher than 130°C  
 All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

**RTD INPUTS PT100 KELVIN**

| GET RTD INPUTS<br>AS PT100 KELVIN | ASCII<br>READ<br>COMMAND | #GRTDISPT100K<CR><br>Result:<br>#GRTDISPT100K:<RTD1DbI>,<RTD2DbI>,...<RTD8DbI><CR>          | ASCII |  |
|-----------------------------------|--------------------------|---|-------|--|
|                                   | TX                       | #1,GRTDISPT100K<CR>   |       |  |
|                                   | RX                       | #1,GRTDISPT100K:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR> |       |  |
|                                   |                          | Actual measured RTD input as PT100 on IO1:9999.990°K  |       |  |
|                                   |                          | Actual measured RTD input as PT100 on IO2:9999.990°K  |       |  |
|                                   |                          | Actual measured RTD input as PT100 on IO3:9999.990°K  |       |  |
|                                   |                          | Actual measured RTD input as PT100 on IO4:9999.990°K  |       |  |
|                                   |                          | Actual measured RTD input as PT100 on IO5:9999.990°K  |       |  |
|                                   |                          | Actual measured RTD input as PT100 on IO6:9999.990°K  |       |  |
|                                   |                          | Actual measured RTD input as PT100 on IO7:9999.990°K  |       |  |
|                                   |                          | Actual measured RTD input as PT100 on IO8:9999.990°K  |       |  |

This command shows for RTD INPUT IOs the actual measured RTD value linearized as PT100 sensor in °Kelvin  
 -999.990: Temperature is lower than 223.15°K  
 +999.990: Temperature is higher than 403.15°K  
 All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

| GET RTD INPUT<br>AS PT100 KELVIN | ASCII<br>READ<br>COMMAND | #GRTDIPT100K<IONR><CR><br>Result:<br>#GRTDIPT100K<IONR>:<IOxDbI><CR> | ASCII |  |
|----------------------------------|--------------------------|--|-------|--|
|                                  | IONR                     | 1  |       |  |
|                                  | TX                       | #1,GRTDIPT100K1<CR>  |       |  |
|                                  | RX                       | #1,GRTDIPT100K1:9999.990<CR>   |       |  |
|                                  |                          | Actual measured RTD input as PT100 on IO1:9999.990°K                 |       |  |

This command shows for RTD INPUT IO <IONR> the actual measured RTD value linearized as PT100 sensor in °Kelvin  
 -999.990: Temperature is lower than 223.15°K  
 +999.990: Temperature is higher than 403.15°K  
 All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

| GET AVERAGE RTD INPUTS<br>AS PT100 KELVIN | ASCII<br>READ<br>COMMAND | #GAVGRTDISPT100K<CR><br>Result:<br>#GAVGRTDISPT100K:<RTD1DbI>,<RTD2DbI>,...<RTD8DbI><CR>       | ASCII |  |
|---|--------------------------|--|-------|--|
|   | TX                       | #1,GAVGRTDISPT100K<CR>   |       |  |
|   | RX                       | #1,GAVGRTDISPT100K:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR> |       |  |
|   |                          | Average measured RTD input as PT100 on IO1:9999.990°K  |       |  |
|   |                          | Average measured RTD input as PT100 on IO2:9999.990°K  |       |  |
|   |                          | Average measured RTD input as PT100 on IO3:9999.990°K  |       |  |
|   |                          | Average measured RTD input as PT100 on IO4:9999.990°K  |       |  |
|   |                          | Average measured RTD input as PT100 on IO5:9999.990°K  |       |  |
|   |                          | Average measured RTD input as PT100 on IO6:9999.990°K  |       |  |

|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
|  |                          | Average measured RTD input as PT100 on IO7:9999.990°K  |       |  |
|  |                          | Average measured RTD input as PT100 on IO8:9999.990°K  |       |  |
| This command shows for RTD INPUT IOs the average measured RTD value linearized as PT100 sensor in °Kelvin<br>-999.990: Temperature is lower than 223.15°K<br>+999.990: Temperature is higher than 403.15°K<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.       |                          |  |       |  |
| GET AVG RTD INPUT<br>AS PT100 KELVIN   | ASCII<br>READ<br>COMMAND | #GAVGRDIP100K<IONR><CR><br>Result:<br>#GAVGRDIP100K<IONR>:<IOxDbl><CR>                       | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GAVGRDIP100K1<CR>   |       |  |
|  | RX                       | #1,GAVGRDIP100K1:9999.990<CR>  |       |  |
|  |                          | Average measured RTD input as PT100 on IO1:9999.990°K  |       |  |
| This command shows for RTD INPUT IO <IONR> the average measured RTD value linearized as PT100 sensor in °Kelvin<br>-999.990: Temperature is lower than 223.15°K<br>+999.990: Temperature is higher than 403.15°K<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done. |                          |  |       |  |
| <b>RTD INPUTS PT1000 KELVIN</b>  |                          |  |       |  |
| GET RTD INPUTS<br>AS PT1000 KELVIN   | ASCII<br>READ<br>COMMAND | #GRTDISPT1000K<CR><br>Result:<br>#GRTDISPT1000K:<RTD1Dbl>,<RTD2Dbl>,...,<RTD8Dbl><CR>        | ASCII |  |
|  | TX                       | #1,GRTDISPT1000K<CR>   |       |  |
|  | RX                       | #1,GRTDISPT1000K:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR> |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO1:9999.990°K  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO2:9999.990°K  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO3:9999.990°K  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO4:9999.990°K  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO5:9999.990°K  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO6:9999.990°K  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO7:9999.990°K  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO8:9999.990°K  |       |  |
| This command shows for RTD INPUT IOs the actual measured RTD value linearized as PT1000 sensor in °Kelvin<br>-999.990: Temperature is lower than 223.15°K<br>+999.990: Temperature is higher than 403.15°K<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.       |                          |  |       |  |
| GET RTD INPUT<br>AS PT1000 KELVIN  | ASCII<br>READ<br>COMMAND | #GRTDIPT1000K<IONR><CR><br>Result:<br>#GRTDIPT1000K<IONR>:<IOxDbl><CR>                       | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GRTDIPT1000K1<CR>   |       |  |
|  | RX                       | #1,GRTDIPT1000K1:9999.990<CR>  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO1:9999.990°K  |       |  |
| This command shows for RTD INPUT IO <IONR> the actual measured RTD value linearized as PT1000 sensor in °Kelvin<br>-999.990: Temperature is lower than 223.15°K<br>+999.990: Temperature is higher than 403.15°K<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done. |                          |  |       |  |

|  |                                   |   |       |  |
|--|-----------------------------------|---|-------|--|
| GET AVERAGE RTD INPUTS<br>AS PT1000 KELVIN | <b>ASCII<br/>READ<br/>COMMAND</b> | #GAVGRTDISPT1000K<CR><br>Result:<br>#GAVGRTDISPT1000K:<RTD1DbI>,<RTD2DbI>,...,<RTD8DbI><CR>     | ASCII |  |
|  | <b>TX</b>                         | #1,GAVGRTDISPT1000K<CR>   |       |  |
|  | <b>RX</b>                         | #1,GAVGRTDISPT1000K:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR> |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO1:9999.990°K  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO2:9999.990°K  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO3:9999.990°K  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO4:9999.990°K  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO5:9999.990°K  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO6:9999.990°K  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO7:9999.990°K  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO8:9999.990°K  |       |  |

This command shows for RTD INPUT IOs the average measured RTD value linearized as PT1000 sensor in °Kelvin

-999.990: Temperature is lower than 223.15°K

+999.990: Temperature is higher than 403.15°K

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|                                       |                                   |  |       |  |
|---------------------------------------|-----------------------------------|--|-------|--|
| GET AVG RTD INPUT<br>AS PT1000 KELVIN | <b>ASCII<br/>READ<br/>COMMAND</b> | #GAVGRTDIPT1000K<IONR><CR><br>Result:<br>#GAVGRTDIPT1000K<IONR>:<IOxDbI><CR> | ASCII |  |
|                                       | <b>IONR</b>                       | 1  |       |  |
|                                       | <b>TX</b>                         | #1,GAVGRTDIPT1000K1<CR>  |       |  |
|                                       | <b>RX</b>                         | #1,GAVGRTDIPT1000K1:9999.990<CR>   |       |  |
|                                       |                                   | Average measured RTD input as PT1000 on IO1:9999.990°K                       |       |  |

This command shows for RTD INPUT IO <IONR> the average measured RTD value linearized as PT1000 sensor in °Kelvin

-999.990: Temperature is lower than 223.15°K

+999.990: Temperature is higher than 403.15°K

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

### RTD INPUTS NI1000-DIN43760 KELVIN

|   |                                   |   |       |  |
|---|-----------------------------------|---|-------|--|
| GET RTD INPUTS<br>AS NI1000 DIN43760 KELVIN | <b>ASCII<br/>READ<br/>COMMAND</b> | #GRTDISNI1000DIN43760K<CR><br>Result:<br>#GRTDISNI1000DIN43760K:<RTD1DbI>,<RTD2DbI>,...,<RTD8DbI><CR> | ASCII |  |
|   | <b>TX</b>                         | #1,GRTDISNI1000DIN43760K<CR>  |       |  |
|   | <b>RX</b>                         | #1,GRTDISNI1000DIN43760K:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR>  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO1:9999.990°K  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO2:9999.990°K  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO3:9999.990°K  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO4:9999.990°K  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO5:9999.990°K  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO6:9999.990°K  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO7:9999.990°K  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO8:9999.990°K  |       |  |

This command shows for RTD INPUT IOs the actual measured RTD value linearized as NI1000 DIN43760 sensor in °Kelvin

-999.990: Temperature is lower than 223.15°K

+999.990: Temperature is higher than 403.15°K

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
| GET RTD INPUT<br>AS NI1000 DIN43760 KELVIN | ASCII<br>READ<br>COMMAND | #GRTDINI1000DIN43760K<IONR> <CR><br>Result:<br>#GRTDINI1000DIN43760K<IONR>:<IOxDbl> <CR> | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GRTDINI1000DIN43760K1<CR>   |       |  |
|  | RX                       | #1,GRTDINI1000DIN43760K1:9999.990<CR>  |       |  |
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO1:9999.990°K                           |       |  |

This command shows for RTD INPUT IO <IONR> the actual measured RTD value linearized as NI1000 DIN43760 sensor in °Kelvin

-999.990: Temperature is lower than 223.15°K

+999.990: Temperature is higher than 403.15°K

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|   |                          |  |       |  |
|---|--------------------------|--|-------|--|
| GET AVERAGE RTD INPUTS<br>AS NI1000 DIN43760 KELVIN | ASCII<br>READ<br>COMMAND | #GAVGRTDISNI1000DIN43760K<CR><br>Result:<br>#GAVGRTDISNI1000DIN43760K:<RTD1Dbl>,<RTD2Dbl>,...,<RTD8Dbl> <CR> | ASCII |  |
|   | TX                       | #1,GAVGRTDISNI1000DIN43760K<CR>  |       |  |
|   | RX                       | #1,GAVGRTDISNI1000DIN43760K:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR>      |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO1:9999.990°K  |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO2:9999.990°K  |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO3:9999.990°K  |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO4:9999.990°K  |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO5:9999.990°K  |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO6:9999.990°K  |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO7:9999.990°K  |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO8:9999.990°K  |       |  |

This command shows for RTD INPUT IOs the average measured RTD value linearized as NI1000 DIN43760 sensor in °Kelvin

-999.990: Temperature is lower than 223.15°K

+999.990: Temperature is higher than 403.15°K

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
| GET AVG RTD INPUT<br>AS NI1000 DIN43760 KELVIN | ASCII<br>READ<br>COMMAND | #GAVGRTDINI1000DIN43760K<IONR> <CR><br>Result:<br>#GAVGRTDINI1000DIN43760K<IONR>:<IOxDbl> <CR> | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GAVGRTDINI1000DIN43760K1<CR>  |       |  |
|  | RX                       | #1,GAVGRTDINI1000DIN43760K1:9999.990<CR>   |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO1:9999.990°K                                |       |  |

This command shows for RTD INPUT IO <IONR> the average measured RTD value linearized as NI1000 DIN43760 sensor in °Kelvin

-999.990: Temperature is lower than 223.15°K

+999.990: Temperature is higher than 403.15°K

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

## RTD INPUTS PT100 FAHRENHEIT

|   |                          |  |       |  |
|---|--------------------------|--|-------|--|
| GET RTD INPUTS<br>AS PT100 FAHRENHEIT   | ASCII<br>READ<br>COMMAND | #GRTDISPT100F<CR><br>Result:<br>#GRTDISPT100F:<RTD1DbI>,<RTD2DbI>,...<RTD8DbI><CR>             | ASCII |  |
|   | TX                       | #1,GRTDISPT100F<CR>  |       |  |
|   | RX                       | #1,GRTDISPT100F:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR>    |       |  |
|   |                          | Actual measured RTD input as PT100 on IO1:9999.990°F   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO2:9999.990°F   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO3:9999.990°F   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO4:9999.990°F   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO5:9999.990°F   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO6:9999.990°F   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO7:9999.990°F   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO8:9999.990°F   |       |  |
| This command shows for RTD INPUT IOs the actual measured RTD value linearized as PT100 sensor in °Fahrenheit<br>-999.990: Temperature is lower than -58°F<br>+999.990: Temperature is higher than 266°F<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.       |                          |  |       |  |
| GET RTD INPUT<br>AS PT100 FAHRENHEIT  | ASCII<br>READ<br>COMMAND | #GRTDIPT100F<IONR><CR><br>Result:<br>#GRTDIPT100F<IONR>:<IOxDbl><CR>                           | ASCII |  |
|   | IONR                     | 1  |       |  |
|   | TX                       | #1,GRTDIPT100F1<CR>  |       |  |
|   | RX                       | #1,GRTDIPT100F1:9999.990<CR>   |       |  |
|   |                          | Actual measured RTD input as PT100 on IO1:9999.990°F   |       |  |
| This command shows for RTD INPUT IO <IONR> the actual measured RTD value linearized as PT100 sensor in °Fahrenheit<br>-999.990: Temperature is lower than -58°F<br>+999.990: Temperature is higher than 266°F<br>All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done. |                          |  |       |  |
| GET AVERAGE RTD INPUTS<br>AS PT100 FAHRENHEIT   | ASCII<br>READ<br>COMMAND | #GAVGRTDISPT100F<CR><br>Result:<br>#GAVGRTDISPT100F:<RTD1DbI>,<RTD2DbI>,...<RTD8DbI><CR>       | ASCII |  |
|   | TX                       | #1,GAVGRTDISPT100F<CR>   |       |  |
|   | RX                       | #1,GAVGRTDISPT100F:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR> |       |  |
|   |                          | Average measured RTD input as PT100 on IO1:9999.990°F  |       |  |
|   |                          | Average measured RTD input as PT100 on IO2:9999.990°F  |       |  |
|   |                          | Average measured RTD input as PT100 on IO3:9999.990°F  |       |  |
|   |                          | Average measured RTD input as PT100 on IO4:9999.990°F  |       |  |
|   |                          | Average measured RTD input as PT100 on IO5:9999.990°F  |       |  |
|   |                          | Average measured RTD input as PT100 on IO6:9999.990°F  |       |  |
|   |                          | Average measured RTD input as PT100 on IO7:9999.990°F  |       |  |
|   |                          | Average measured RTD input as PT100 on IO8:9999.990°F  |       |  |



This command shows for RTD INPUT IOs the average measured RTD value linearized as PT100 sensor in °Fahrenheit

-999.990: Temperature is lower than -58°F

+999.990: Temperature is higher than 266°F

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
| GET AVG RTD INPUT<br>AS PT100 FAHRENHEIT | ASCII<br>READ<br>COMMAND | #GAVGRDIP100F<IONR><CR><br>Result:<br>#GAVGRDIP100F<IONR>:<IOxDbl><CR> | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GAVGRDIP100F1<CR>   |       |  |
|  | RX                       | #1,GAVGRDIP100F1:9999.990<CR>  |       |  |
|  |                          | Average measured RTD input as PT100 on IO1:9999.990°F                  |       |  |

This command shows for RTD INPUT IO <IONR> the average measured RTD value linearized as PT100 sensor in °Fahrenheit

-999.990: Temperature is lower than -58°F

+999.990: Temperature is higher than 266°F

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

### RTD INPUTS PT1000 FAHRENHEIT

|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
| GET RTD INPUTS<br>AS PT1000 FAHRENHEIT | ASCII<br>READ<br>COMMAND | #GRTDISPT1000F<CR><br>Result:<br>#GRTDISPT1000F:<RTD1Dbl>,<RTD2Dbl>,...,<RTD8Dbl><CR>        | ASCII |  |
|  | TX                       | #1,GRTDISPT1000F<CR>   |       |  |
|  | RX                       | #1,GRTDISPT1000F:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR> |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO1:9999.990°F  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO2:9999.990°F  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO3:9999.990°F  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO4:9999.990°F  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO5:9999.990°F  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO6:9999.990°F  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO7:9999.990°F  |       |  |
|  |                          | Actual measured RTD input as PT1000 on IO8:9999.990°F  |       |  |

This command shows for RTD INPUT IOs the actual measured RTD value linearized as PT1000 sensor in °Fahrenheit

-999.990: Temperature is lower than -58°F

+999.990: Temperature is higher than 266°F

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|                                       |                          |  |       |  |
|---------------------------------------|--------------------------|--|-------|--|
| GET RTD INPUT<br>AS PT1000 FAHRENHEIT | ASCII<br>READ<br>COMMAND | #GRTDIP1000F<IONR><CR><br>Result:<br>#GRTDIP1000F<IONR>:<IOxDbl><CR> | ASCII |  |
|                                       | IONR                     | 1  |       |  |
|                                       | TX                       | #1,GRTDIP1000F1<CR>  |       |  |
|                                       | RX                       | #1,GRTDIP1000F1:9999.990<CR>   |       |  |
|                                       |                          | Actual measured RTD input as PT1000 on IO1:9999.990°F                |       |  |

This command shows for RTD INPUT IO <IONR> the actual measured RTD value linearized as PT1000 sensor in °Fahrenheit

-999.990: Temperature is lower than -58°F

+999.990: Temperature is higher than 266°F

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|  |                                   |   |       |  |
|--|-----------------------------------|---|-------|--|
| GET AVERAGE RTD INPUTS<br>AS PT1000 FAHRENHEIT | <b>ASCII<br/>READ<br/>COMMAND</b> | #GAVGRTDISPT1000F<CR><br>Result:<br>#GAVGRTDISPT1000F:<RTD1Dbl>,<RTD2Dbl>,...,<RTD8Dbl><CR>     | ASCII |  |
|  | <b>TX</b>                         | #1,GAVGRTDISPT1000F<CR>   |       |  |
|  | <b>RX</b>                         | #1,GAVGRTDISPT1000F:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR> |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO1:9999.990°F  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO2:9999.990°F  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO3:9999.990°F  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO4:9999.990°F  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO5:9999.990°F  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO6:9999.990°F  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO7:9999.990°F  |       |  |
|  |                                   | Average measured RTD input as PT1000 on IO8:9999.990°F  |       |  |

This command shows for RTD INPUT IOs the average measured RTD value linearized as PT1000 sensor in °Fahrenheit

-999.990: Temperature is lower than -58°F

+999.990: Temperature is higher than 266°F

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|   |                                   |  |       |  |
|---|-----------------------------------|--|-------|--|
| GET AVG RTD INPUT<br>AS PT1000 FAHRENHEIT | <b>ASCII<br/>READ<br/>COMMAND</b> | #GAVGRTDIPT1000F<IONR><CR><br>Result:<br>#GAVGRTDIPT1000F<IONR>:<IOxDbl><CR> | ASCII |  |
|   | <b>IONR</b>                       | 1  |       |  |
|   | <b>TX</b>                         | #1,GAVGRTDIPT1000F1<CR>  |       |  |
|   | <b>RX</b>                         | #1,GAVGRTDIPT1000F1:9999.990<CR>   |       |  |
|   |                                   | Average measured RTD input as PT1000 on IO1:9999.990°F                       |       |  |

This command shows for RTD INPUT IO <IONR> the average measured RTD value linearized as PT1000 sensor in °Fahrenheit

-999.990: Temperature is lower than -58°F

+999.990: Temperature is higher than 266°F

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

### RTD INPUTS NI1000-DIN43760 FAHRENHEIT

|   |                                   |   |       |  |
|---|-----------------------------------|---|-------|--|
| GET RTD INPUTS<br>AS NI1000 DIN43760 FAHRENHEIT | <b>ASCII<br/>READ<br/>COMMAND</b> | #GRTDISNI1000DIN43760F<CR><br>Result:<br>#GRTDISNI1000DIN43760F:<RTD1Dbl>,<RTD2Dbl>,...,<RTD8Dbl><CR> | ASCII |  |
|   | <b>TX</b>                         | #1,GRTDISNI1000DIN43760F<CR>  |       |  |
|   | <b>RX</b>                         | #1,GRTDISNI1000DIN43760F:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR>  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO1:9999.990°F  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO2:9999.990°F  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO3:9999.990°F  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO4:9999.990°F  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO5:9999.990°F  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO6:9999.990°F  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO7:9999.990°F  |       |  |
|   |                                   | Actual measured RTD input as NI1000-DIN43760 on IO8:9999.990°F  |       |  |

This command shows for RTD INPUT IOs the actual measured RTD value linearized as NI1000 DIN43760 sensor in °Fahrenheit

-999.990: Temperature is lower than -58°F

+999.990: Temperature is higher than 266°F

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
| GET RTD INPUT<br>AS NI1000 DIN43760 FARENEHEIT | ASCII<br>READ<br>COMMAND | #GRTDINI1000DIN43760F<IONR><CR><br>Result:<br>#GRTDINI1000DIN43760F<IONR>:<IOxDbl><CR> | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GRTDINI1000DIN43760F1<CR>   |       |  |
|  | RX                       | #1,GRTDINI1000DIN43760F1:9999.990<CR>  |       |  |
|  |                          | Actual measured RTD input as NI1000-DIN43760 on IO1:9999.990°F                         |       |  |

This command shows for RTD INPUT IO <IONR> the actual measured RTD value linearized as NI1000 DIN43760 sensor in °Fahrenheit

-999.990: Temperature is lower than -58°F

+999.990: Temperature is higher than 266°F

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|   |                          |   |       |  |
|---|--------------------------|---|-------|--|
| GET AVERAGE RTD INPUTS<br>AS NI1000 DIN43760 FARENEHEIT | ASCII<br>READ<br>COMMAND | #GAVGRTDISNI1000DIN43760F<CR><br>Result:<br>#GAVGRTDISNI1000DIN43760F:<RTD1Dbl>,<RTD2Dbl>,...,<RTD8Dbl><CR> | ASCII |  |
|   | TX                       | #1,GAVGRTDISNI1000DIN43760F<CR>   |       |  |
|   | RX                       | #1,GAVGRTDISNI1000DIN43760F:9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990,9999.990<CR>     |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO1:9999.990°F   |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO2:9999.990°F   |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO3:9999.990°F   |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO4:9999.990°F   |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO5:9999.990°F   |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO6:9999.990°F   |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO7:9999.990°F   |       |  |
|   |                          | Average measured RTD input as NI1000-DIN43760 on IO8:9999.990°F   |       |  |

This command shows for RTD INPUT IOs the average measured RTD value linearized as NI1000 DIN43760 sensor in °Fahrenheit

-999.990: Temperature is lower than -58°F

+999.990: Temperature is higher than 266°F

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

|  |                          |  |       |  |
|--|--------------------------|--|-------|--|
| GET AVG RTD INPUT<br>AS NI1000 DIN43760 FARENEHEIT | ASCII<br>READ<br>COMMAND | #GAVGRTDINI1000DIN43760F<IONR><CR><br>Result:<br>#GAVGRTDINI1000DIN43760F<IONR>:<IOxDbl><CR> | ASCII |  |
|  | IONR                     | 1  |       |  |
|  | TX                       | #1,GAVGRTDINI1000DIN43760F1<CR>  |       |  |
|  | RX                       | #1,GAVGRTDINI1000DIN43760F1:9999.990<CR>   |       |  |
|  |                          | Average measured RTD input as NI1000-DIN43760 on IO1:9999.990°F                              |       |  |

This command shows for RTD INPUT IO <IONR> the average measured RTD value linearized as NI1000 DIN43760 sensor in °Fahrenheit

-999.990: Temperature is lower than -58°F

+999.990: Temperature is higher than 266°F

All IOs with a different usage type will return 9999.990 to indicate, that no measurement is done.

| Register NAME<br>Command NAME   | MODBUS<br>Register<br>ASCII<br>Command | Register VALUE<br>ASCII Command   | NEW REAL<br>VALUE | NEW<br>VALUE | DATA TYPE | DO<br>WRITE |
|---|--|---|-------------------|--------------|-----------|-------------|
| <b>ASCII COMMANDS</b>   |  |   |                   |              |           |             |
| <b>INTER PROCESSOR COMMUNICATION</b>  |  |   |                   |              |           |             |
| AIOX IS ONLINE  | ASCII<br>READ<br>COMMAND               | #G16AIOXISONLINE <CR><br>Result:<br>#G16AIOXISONLINE:<YesNo> <CR>                                 |                   |              | ASCII     |             |
|   | TX                                     | #1,G16AIOXISONLINE <CR>   |                   |              |           |             |
|   | RX                                     | #1,G16AIOXISONLINE:YES <CR>   |                   |              |           |             |
|   |  | Actual communication state co-processor to AIOX processor:YES                                     |                   |              |           |             |
| This command returns the actual state of the serial communication between the ARM co-processor and the additional processor for the AIOX.<br>YES: Currently the communication is fine<br>NO: There is a mayor problem/hardware fault between the two processors |  |   |                   |              |           |             |
| <b>CHIP COMMUNICATION</b>   |  |   |                   |              |           |             |
| ARE CHIPS ONLINE  | ASCII<br>READ<br>COMMAND               | #ARECHIPSONLINE <CR><br>Result:<br>#ARECHIPSONLINE:<Chip1IsOnline>,<Chip2IsOnline> <CR>           |                   |              | ASCII     |             |
|   | TX                                     | #1,ARECHIPSONLINE <CR>  |                   |              |           |             |
|   | RX                                     | #1,ARECHIPSONLINE:1,1 <CR>  |                   |              |           |             |
|   |  | Actual state of CHIP1:1   |                   |              |           |             |
|   |  | Actual state of CHIP2:1   |                   |              |           |             |
| This command shows the current SPI communication status with each chip.<br>=0: Currently there is a SPI error in the communication and the chip is offline<br>=1: The SPI communication with the chip is ok   |  |   |                   |              |           |             |
| IS CHIPx ONLINE   | ASCII<br>READ<br>COMMAND               | #ISCHIPONLINE <CHIPNR> <CR><br>Result:<br>#ISCHIPONLINE <CHIPNR>:<ChipxIsOnline> <CR>             |                   |              | ASCII     |             |
|   | CHIPNR                                 | 1   |                   |              |           |             |
|   | TX                                     | #1,ISCHIPONLINE1 <CR>   |                   |              |           |             |
|   | RX                                     | #1,ISCHIPONLINE1:1 <CR>   |                   |              |           |             |
|   |  | Actual state of CHIP1:1   |                   |              |           |             |
| This command shows the current SPI communication status with chip <CHIPNR>.<br>=0: Currently there is a SPI error in the communication and the chip is offline<br>=1: The SPI communication with the chip is ok   |  |   |                   |              |           |             |
| GET ALL SPI ERRORS  | ASCII<br>READ<br>COMMAND               | #GASPIERRS <CR><br>Result:<br>#GASPIERRS:<SPI1ErrDec>,<SPI2ErrDec>,<SPI1ErrHex>,<SPI2ErrHex> <CR> |                   |              | ASCII     |             |
|   | TX                                     | #1,GASPIERRS <CR>   |                   |              |           |             |
|   | RX                                     | #1,GASPIERRS:0,0,0x0,0x0 <CR>   |                   |              |           |             |
|   |  | Actual SPI errors of CHIP1:0  |                   |              |           |             |
|   |  | Actual SPI errors of CHIP2:0  |                   |              |           |             |

|   |                           |  |       |     |
|---|---------------------------|--|-------|-----|
| This command shows the acutal SPI errors since power up for every chip  |                           |  |       |     |
| GET SPI ERROR   | ASCII<br>READ<br>COMMAND  | #GSPERR<CHIPNR><CR><br>Result:<br>#GSPERR<CHIPNR>:<SPiErrDec>,<SPiErrHex><CR>  | ASCII |     |
|   | CHIPNR                    | 1  |       |     |
|   | TX                        | #1,GSPERR1<CR>   |       |     |
|   | RX                        | #1,GSPERR1:0,0x0<CR>   |       |     |
|   |                           | Actual SPI errors of CHIP1:0   |       |     |
| This command shows the acutal SPI errors since power up for chip <CHIPNR>   |                           |  |       |     |
| GET CHIP STATEMACHINES  | ASCII<br>READ<br>COMMAND  | #GCHIPSMS<CR><br>Result:<br>#GCHIPSMS:<Chip1StateMachine>,<Chip2StateMachine><CR>  | ASCII |     |
|   | TX                        | #1,GCHIPSMS<CR>  |       |     |
|   | RX                        | #1,GCHIPSMS:11010,12090<CR>  |       |     |
|   |                           | Actual state of CHIP1:11010  |       |     |
|   |                           | Actual state of CHIP2:12090  |       |     |
| This command shows the acutal state of the internal communication state machine for all chips                         |                           |  |       |     |
| GET CHIP STATEMACHINE   | ASCII<br>READ<br>COMMAND  | #GCHIPSM<CHIPNR><CR><br>Result:<br>#GCHIPSM<CHIPNR>:<ChipxStateMachine><CR>  | ASCII |     |
|   | CHIPNR                    | 1  |       |     |
|   | TX                        | #1,GCHIPSM1<CR>  |       |     |
|   | RX                        | #1,GCHIPSM1:11010<CR>  |       |     |
|   |                           | Actual state of CHIP1:11010  |       |     |
| This command shows the acutal state of the internal communication state machine for chip <CHIPNR>                     |                           |  |       |     |
| RESET CHIP STATEMACHINE   | ASCII<br>WRITE<br>COMMAND | #RCHIPSM<CHIPNR><CR><br>Result:<br>#OK<CR>   | ASCII | YES |
|   | CHIPNR                    | 1  |       |     |
|   | TX                        | #1,RCHIPSM1<CR>  |       |     |
|   | RX                        | N/A  |       |     |
| This command restarts the state machine for chip <CHIPNR>. The affected chip will be reseted & initialized completely |                           |  |       |     |
| <b>CHIP STATUS</b>  |                           |  |       |     |
| GET ALL LIVE STATES   | ASCII<br>READ<br>COMMAND  | #GALSTATES<CR><br>Result:<br>#GALSTATE:<Chip1LiveStateDec>,<Chip2LiveStateDec>,<br><Chip1LiveStateHex>,<Chip2LiveStateHex><CR> | ASCII |     |
|   | TX                        | #1,GALSTATES<CR>   |       |     |
|   | RX                        | #1,GALSTATES:27648,28672,0x6C00,0x7000<CR>   |       |     |
|   |                           | Actual live state of CHIP1:27648,0x6C00  |       |     |
|   |                           | Actual live state of CHIP2:28672,0x7000  |       |     |

Returns the actual chip status of all chips.

Each result bit stands for a different state:

Bit 0: VI\_ERR\_CURR\_A: Status of channel A:Voltage or current error detected on Channel A. This bit is interpreted differently depending on which of the following IO function selected:

Voltage output: short-circuit error. The error condition is debounced for 2 ms before the status bit is set.

Current output: open circuit error. The error condition is debounced for 2 ms before the status bit is set.

Current input, loop powered: short-circuit error. A short to ground is detected

Current input, externally powered: short-circuit error. A current source >25 mA is detected

Bit 1: VI\_ERR\_CURR\_B: Status of voltage input B. Same like VI\_ERR\_CURR\_A

Bit 2: VI\_ERR\_CURR\_C: Status of voltage input C. Same like VI\_ERR\_CURR\_A

Bit 3: VI\_ERR\_CURR\_D: Status of voltage input D. Same like VI\_ERR\_CURR\_A

Bit 4: HI\_TEMP\_STATUS: If the die temperature is typically at or above 115°C, the HI\_TEMP\_STATUS bit is asserted

Bit 5: CHARGE\_PUMP\_STATUS: Charge pump error detected.

Bit 6: ALDO5V\_STATUS: ALDO5V Power Supply Monitor Error. This bit is asserted when the ALDO5V pin falls below 4.05 V. Usually ~5V.

Bit 7: AVDD\_STATUS: AVDD Power Supply Monitor Error. This bit is asserted when the AVDD pin falls below 9.26 V. Usually ~17V.

Bit 8: DVCC\_STATUS: DVCC Power Supply Monitor Error. This bit is asserted when the DVCC pin falls below 1.93 V. Usually ~3.3V.

Bit 9: ALDO1V8\_STATUS: ALDO1V8 Power Supply Monitor Error. This bit is asserted when the ALDO1V8 pin falls below 1.35 V. Usually ~1.8V.

Bit 10-12: ADC\_CH\_CURR: Current converted channel of the ADC (0:A, 1:B, 2:C, 3:D, 4:Diagnostic 0, 5:Diagnostic 1, 6:Diagnostic 2, 7:Diagnostic 3)

Bit 13: ADC\_BUSY: ADC busy status bit.

Bit 14: ADC\_DATA\_RDY:ADC data ready. The ADC\_DATA\_RDY bit asserts when a conversion cycle has completed. The bit stays asserted until a user writes 1 to clear the bit. In single conversion mode, the ADC\_RDY pin follows the ADC\_DATA\_RDY bit and only deasserts when the ADC\_DATA\_RDY bit is cleared. In continuous conversion mode, the ADC\_RDY pin returns high after 24 µs.

Bit 15: RESERVED: Reserved

| GET LIVE STATE | ASCII<br>READ<br>COMMAND | #GLSTATE<CHIPNR> <CR><br>Result:<br>#GLSTATE<CHIPNR>:<ChipxLiveStateDec>,<ChipxLiveStateHex> <CR> | ASCII |  |
|----------------|--------------------------|---|-------|--|
|                | CHIPNR                   | 1   |       |  |
|                | TX                       | #1,GLSTATE1<CR>   |       |  |
|                | RX                       | #1,GLSTATE1:27648,0x6C00<CR>  |       |  |
|                |                          | Actual live state of CHIP1:27648,0x6C00   |       |  |
|                |                          | Live state bit 0: VI_ERR_CURR_A:0   |       |  |
|                |                          | Live state bit 1: VI_ERR_CURR_B:0   |       |  |
|                |                          | Live state bit 2: VI_ERR_CURR_C:0   |       |  |
|                |                          | Live state bit 3: VI_ERR_CURR_D:0   |       |  |
|                |                          | Live state bit 4: HI_TEMP_STATUS:0  |       |  |
|                |                          | Live state bit 5: CHARGE_PUMP_STATUS:0  |       |  |
|                |                          | Live state bit 6: ALDO5V_STATUS:0   |       |  |
|                |                          | Live state bit 7: AVDD_STATUS:0   |       |  |
|                |                          | Live state bit 8: DVCC_STATUS:0   |       |  |
|                |                          | Live state bit 9: ALDO1V8_STATUS:0  |       |  |
|                |                          | Live state bit 10-12: ADC_CH_CURR:3   |       |  |
|                |                          | Live state bit 13: ADC_BUSY:1   |       |  |
|                |                          | Live state bit 14: ADC_DATA_RDY:0   |       |  |
|                |                          | Live state bit 15: RESERVED:0   |       |  |

Returns the actual chip status of chip <CHIPNR>

Each result bit stands for a different state:

Bit 0: VI\_ERR\_CURR\_A: Status of channel A:Voltage or current error detected on Channel A. This bit is interpreted differently depending on which of the following IO function selected:

Voltage output: short-circuit error. The error condition is debounced for 2 ms before the status bit is set.

Current output: open circuit error. The error condition is debounced for 2 ms before the status bit is set.

Current input, loop powered: short-circuit error. A short to ground is detected

Current input, externally powered: short-circuit error. A current source >25 mA is detected

Bit 1: VI\_ERR\_CURR\_B: Status of voltage input B. Same like VI\_ERR\_CURR\_A

Bit 2: VI\_ERR\_CURR\_C: Status of voltage input C. Same like VI\_ERR\_CURR\_A

Bit 3: VI\_ERR\_CURR\_D: Status of voltage input D. Same like VI\_ERR\_CURR\_A

Bit 4: HI\_TEMP\_STATUS: If the die temperature is typically at or above 115°C, the HI\_TEMP\_STATUS bit is asserted

Bit 5: CHARGE\_PUMP\_STATUS: Charge pump error detected.

Bit 6: ALDO5V\_STATUS: ALDO5V Power Supply Monitor Error. This bit is asserted when the ALDO5V pin falls below 4.05 V. Usually ~5V.

Bit 7: AVDD\_STATUS: AVDD Power Supply Monitor Error. This bit is asserted when the AVDD pin falls below 9.26 V. Usually ~17V.

Bit 8: DVCC\_STATUS: DVCC Power Supply Monitor Error. This bit is asserted when the DVCC pin falls below 1.93 V. Usually ~3.3V.

Bit 9: ALDO1V8\_STATUS: ALDO1V8 Power Supply Monitor Error. This bit is asserted when the ALDO1V8 pin falls below 1.35 V. Usually ~1.8V.

Bit 10-12: ADC\_CH\_CURR: Current converted channel of the ADC (0:A, 1:B, 2:C, 3:D, 4:Diagnostic 0, 5:Diagnostic 1, 6:Diagnostic 2, 7:Diagnostic 3)

Bit 13: ADC\_BUSY: ADC busy status bit.

Bit 14: ADC\_DATA\_RDY:ADC data ready. The ADC\_DATA\_RDY bit asserts when a conversion cycle has completed. The bit stays asserted until a user writes 1 to clear the bit. In single conversion mode, the ADC\_RDY pin follows the ADC\_DATA\_RDY bit and only deasserts when the ADC\_DATA\_RDY bit is cleared. In continuous conversion mode, the ADC\_RDY pin returns high after 24 µs.

Bit 15: RESERVED: Reserved

|                      |                          |   |       |  |
|----------------------|--------------------------|---|-------|--|
| GET ALL ALERT STATES | ASCII<br>READ<br>COMMAND | #GAASTATES<CR><br>Result:<br>#GAASTATES:<Chip1AlertStateDec>,<Chip2AlertStateDec>,<br><Chip1AlertStateHex>,<Chip2AlertStateHex><CR> | ASCII |  |
|                      | TX                       | #1,GAASTATES<CR>  |       |  |
|                      | RX                       | #1,GAASTATES:33792,33792,0x8400,0x8400<CR>  |       |  |
|                      |                          | Actual alert state of CHIP1:33792,0x8400  |       |  |
|                      |                          | Actual alert state of CHIP2:33792,0x8400  |       |  |

Returns the actual alert states for all chips.

Each result bit stands for a different state:

Bit 0: VI\_ERR\_CURR\_A: Status of channel A: Voltage or current error detected on Channel A. This bit is interpreted differently depending on which of the following IO function selected:

Voltage output: short-circuit error. The error condition is debounced for 2 ms before the status bit is set.

Current output: open circuit error. The error condition is debounced for 2 ms before the status bit is set.

Current input, loop powered: short-circuit error. A short to ground is detected

Current input, externally powered: short-circuit error. A current source >25 mA is detected

Bit 1: VI\_ERR\_CURR\_B: Status of voltage input B. Same like VI\_ERR\_CURR\_A

Bit 2: VI\_ERR\_CURR\_C: Status of voltage input C. Same like VI\_ERR\_CURR\_A

Bit 3: VI\_ERR\_CURR\_D: Status of voltage input D. Same like VI\_ERR\_CURR\_A

Bit 4: HI\_TEMP\_STATUS: If the die temperature is typically at or above 115°C, the HI\_TEMP\_STATUS bit is asserted

Bit 5: CHARGE\_PUMP\_STATUS: Charge pump error detected.

Bit 6: ALDO5V\_STATUS: ALDO5V Power Supply Monitor Error. This bit is asserted when the ALDO5V pin falls below 4.05 V. Usually ~5V.

Bit 7: AVDD\_STATUS: AVDD Power Supply Monitor Error. This bit is asserted when the AVDD pin falls below 9.26 V. Usually ~17V.

Bit 8: DVCC\_STATUS: DVCC Power Supply Monitor Error. This bit is asserted when the DVCC pin falls below 1.93 V. Usually ~3.3V.

Bit 9: ALDO1V8\_STATUS: ALDO1V8 Power Supply Monitor Error. This bit is asserted when the ALDO1V8 pin falls below 1.35 V. Usually ~1.8V.

Bit 10: ADC\_CONV\_ERR: ADC Conversion Error. ADC results may be outside the selected measurement range.

Bit 11: ADC\_SAT\_ERR: ADC Saturation Error. ADC may be outside the user selected measurement range.

Bit 12: SPI\_SCLK\_CNT\_ERR: SPI SCLK count error detected. This bit is asserted if an SPI command is applied but 32 SCLKs are not provided.

Bit 13: SPI\_CRC\_ERR: SPI CRC error detected. This bit is asserted if an invalid CRC is received.

Bit 14: CAL\_MEM\_ERR: Calibration Memory Error. This flag asserts under the following two conditions: When a calibration memory CRC error or an uncorrectable error correcting code (ECC) error is detected on the calibration memory upload. It is not possible to clear this bit if there is a CRC error or uncorrectable ECC error. It is recommended to reset the device and check the supplies in this situation. When there is an attempted SPI access to a register before the calibration memory refresh is complete. Do not address the device until the calibration memory is refreshed. Writing 1 to this bit clears the flag, if the flag is asserted due to this condition.

Bit 15: RESET\_OCCURRED: Reset occurred. This bit is asserted after a reset event, which asserts the ALERT pin after the reset. Write a 1 to this bit to clear the flag. Note that a mask bit is not provided for this bit.

| GET ALERT STATE | ASCII<br>READ<br>COMMAND | #GASTATE<CHIPNR><CR><br>Result:<br>#GASTATE<CHIPNR>:<ChipxAlertState><CR> | ASCII |
|-----------------|--------------------------|---|-------|
|                 | CHIPNR                   | 1   |       |
|                 | TX                       | #1,GASTATE1<CR>   |       |
|                 | RX                       | #1,GASTATE1:33792,0x8400<CR>  |       |
|                 |                          | Actual alert state of CHIP1:33792,0x8400                                  |       |
|                 |                          | Alert state bit 0: VI_ERR_A:0   |       |
|                 |                          | Alert state bit 1: VI_ERR_B:0   |       |
|                 |                          | Alert state bit 2: VI_ERR_C:0   |       |
|                 |                          | Alert state bit 3: VI_ERR_D:0   |       |
|                 |                          | Alert state bit 4: HI_TEMP_ERR:0  |       |
|                 |                          | Alert state bit 5: CHARGE_PUMP_ERR:0                                      |       |
|                 |                          | Alert state bit 6: ALDO5V_ERR:0   |       |
|                 |                          | Alert state bit 7: AVDD_ERR:0   |       |
|                 |                          | Alert state bit 8: DVCC_ERR:0   |       |
|                 |                          | Alert state bit 9: ALDO1V8_ERR:0  |       |
|                 |                          | Alert state bit 10: ADC_CONV_ERR:1  |       |
|                 |                          | Alert state bit 11: ADC_SAT_ERR:0   |       |
|                 |                          | Alert state bit 12: SPI_SCLK_CNT_ERR:0                                    |       |
|                 |                          | Alert state bit 13: SPI_CRC_ERR:0   |       |
|                 |                          | Alert state bit 14: CAL_MEM_ERR:0   |       |
|                 |                          | Alert state bit 15: RESET OCCURED:0                                       |       |



Returns the actual alert states for chip <CHIPNR>.

Each result bit stands for a different state:

Bit 0: VI\_ERR\_CURR\_A: Status of channel A: Voltage or current error detected on Channel A. This bit is interpreted differently depending on which of the following IO function selected:

Voltage output: short-circuit error. The error condition is debounced for 2 ms before the status bit is set.

Current output: open circuit error. The error condition is debounced for 2 ms before the status bit is set.

Current input, loop powered: short-circuit error. A short to ground is detected

Current input, externally powered: short-circuit error. A current source >25 mA is detected

Bit 1: VI\_ERR\_CURR\_B: Status of voltage input B. Same like VI\_ERR\_CURR\_A

Bit 2: VI\_ERR\_CURR\_C: Status of voltage input C. Same like VI\_ERR\_CURR\_A

Bit 3: VI\_ERR\_CURR\_D: Status of voltage input D. Same like VI\_ERR\_CURR\_A

Bit 4: HI\_TEMP\_STATUS: If the die temperature is typically at or above 115°C, the HI\_TEMP\_STATUS bit is asserted

Bit 5: CHARGE\_PUMP\_STATUS: Charge pump error detected.

Bit 6: ALDO5V\_STATUS: ALDO5V Power Supply Monitor Error. This bit is asserted when the ALDO5V pin falls below 4.05 V. Usually ~5V.

Bit 7: AVDD\_STATUS: AVDD Power Supply Monitor Error. This bit is asserted when the AVDD pin falls below 9.26 V. Usually ~17V.

Bit 8: DVCC\_STATUS: DVCC Power Supply Monitor Error. This bit is asserted when the DVCC pin falls below 1.93 V. Usually ~3.3V.

Bit 9: ALDO1V8\_STATUS: ALDO1V8 Power Supply Monitor Error. This bit is asserted when the ALDO1V8 pin falls below 1.35 V. Usually ~1.8V.

Bit 10: ADC\_CONV\_ERR: ADC Conversion Error. ADC results may be outside the selected measurement range.

Bit 11: ADC\_SAT\_ERR: ADC Saturation Error. ADC may be outside the user selected measurement range.

Bit 12: SPI\_SCLK\_CNT\_ERR: SPI SCLK count error detected. This bit is asserted if an SPI command is applied but 32 SCLKs are not provided.

Bit 13: SPI\_CRC\_ERR: SPI CRC error detected. This bit is asserted if an invalid CRC is received.

Bit 14: CAL\_MEM\_ERR: Calibration Memory Error. This flag asserts under the following two conditions: When a calibration memory CRC error or an uncorrectable error correcting code (ECC) error is detected on the calibration memory upload. It is not possible to clear this bit if there is a CRC error or uncorrectable ECC error. It is recommended to reset the device and check the supplies in this situation. When there is an attempted SPI access to a register before the calibration memory refresh is complete. Do not address the device until the calibration memory is refreshed. Writing 1 to this bit clears the flag, if the flag is asserted due to this condition.

Bit 15: RESET\_OCCURRED: Reset occurred. This bit is asserted after a reset event, which asserts the ALERT pin after the reset. Write a 1 to this bit to clear the flag. Note that a mask bit is not provided for this bit.

| CLEAR ALERT STATE | ASCII WRITE COMMAND | #CALERTS<CHIPNR>:<AlertState> <CR><br>Result:<br>#OK<CR> | ASCII             | YES |
|-------------------|---------------------|--|-------------------|-----|
|                   | CHIPNR              | 1  |                   |     |
|                   | Bit 0               | 1:RESET FLAG   | 0:VI_ERR_A        |     |
|                   | Bit 1               | 1:RESET FLAG   | 1:VI_ERR_B        |     |
|                   | Bit 2               | 1:RESET FLAG   | 2:VI_ERR_C        |     |
|                   | Bit 3               | 1:RESET FLAG   | 3:VI_ERR_D        |     |
|                   | Bit 4               | 1:RESET FLAG   | 4:HI_TEMP_ERR     |     |
|                   | Bit 5               | 1:RESET FLAG   | 5:CHARGE_PUMP_ERR |     |
|                   | Bit 6               | 1:RESET FLAG   | 6:ALDO5V_ERR      |     |
|                   | Bit 7               | 1:RESET FLAG   | 7:AVDD_ERR        |     |
|                   | Bit 8               | 1:RESET FLAG   | 8:DVCC_ERR        |     |
|                   | Bit 9               | 1:RESET FLAG   | 9:ALDO1V8_ERR     |     |
|                   | Bit 10              | 1:RESET FLAG   | 10:ADC_CONV_ERR   |     |
|                   | Bit 11              | 1:RESET FLAG   | 11:ADC_SAT_ERR    |     |
|                   | Bit 12              | 1:RESET FLAG   | 12:SPI_SCLK_ERR   |     |
|                   | Bit 13              | 1:RESET FLAG   | 13:SPI_CRC_ERR    |     |
|                   | Bit 14              | 1:RESET FLAG   | 14:CAL_MEM_ERR    |     |
|                   | Bit 15              | 1:RESET FLAG   | 15:RESET_OCCURED  |     |
|                   | TX                  | #1,CALERTS1:65535<CR>                                    |                   |     |
|                   | RX                  | N/A  |                   |     |

With this command you can reset individual alert bits in the alert status register

## CHIP TEMPERATURES

|  |                          |   |       |  |
|--|--------------------------|---|-------|--|
| GET CHIP TEMPERATURES  | ASCII<br>READ<br>COMMAND | #GCHIPTemps<CR><br>Result:<br>#GCHIPTemps:<Chip1TempDbl>,<Chip2TempDbl><CR>       | ASCII |  |
|  | TX                       | #1,GCHIPTemps<CR>   |       |  |
|  | RX                       | #1,GCHIPTemps:44.02,44.92<CR>   |       |  |
|  |                          | Actual temperature of CHIP1:44.02°C   |       |  |
|  |                          | Actual temperature of CHIP2:44.92°C   |       |  |
| This command returns for every AIOX chip the actual chip temperature in °C     |                          |   |       |  |
| GET CHIP TEMPERATURE   | ASCII<br>READ<br>COMMAND | #GCHIPTemp<CHIPNR><CR><br>Result:<br>#GCHIPTemp<CHIPNR>:<ChipxTempDbl><CR>        | ASCII |  |
|  | CHIPNR                   | 1   |       |  |
|  | TX                       | #1,GCHIPTemp1<CR>   |       |  |
|  | RX                       | #1,GCHIPTemp1:44.02<CR>   |       |  |
|  |                          | Actual temperature of CHIP1:44.02°C   |       |  |
| This command returns for AIOX chip <CHIPNR> the actual chip temperature in °C  |                          |   |       |  |
| <b>AVERAGE CHIP TEMPERATURES</b>   |                          |   |       |  |
| GET AVERAGE CHIP TEMPERATURES  | ASCII<br>READ<br>COMMAND | #GAVGCHIPTemps<CR><br>Result:<br>#GAVGCHIPTemps:<Chip1TempDbl>,<Chip2TempDbl><CR> | ASCII |  |
|  | TX                       | #1,GAVGCHIPTemps<CR>  |       |  |
|  | RX                       | #1,GAVGCHIPTemps:44.03,44.95<CR>  |       |  |
|  |                          | Average temperature of CHIP1:44.03°C  |       |  |
|  |                          | Average temperature of CHIP2:44.95°C  |       |  |
| This command returns for every AIOX chip the average chip temperature in °C    |                          |   |       |  |
| GET AVERAGE CHIP TEMPERATURE   | ASCII<br>READ<br>COMMAND | #GAVGCHIPTemp<CHIPNR><CR><br>Result:<br>#GAVGCHIPTemp<CHIPNR>:<ChipxTempDbl><CR>  | ASCII |  |
|  | CHIPNR                   | 1   |       |  |
|  | TX                       | #1,GAVGCHIPTemp1<CR>  |       |  |
|  | RX                       | #1,GAVGCHIPTemp1:44.03<CR>  |       |  |
|  |                          | Average temperature of CHIP1:44.03°C  |       |  |
| This command returns for AIOX chip <CHIPNR> the average chip temperature in °C |                          |   |       |  |
| <b>CHIP SUPPLY VOLTAGES</b>  |                          |   |       |  |
| GET SUPPLY VOLTAGES  | ASCII<br>READ<br>COMMAND | #GVAVDDS<CR><br>Result:<br>#GVAVDDS:<Chip1VAVDDDBl>,<Chip2VAVDDDBl><CR>           | ASCII |  |
|  | TX                       | #1,GVAVDDS<CR>  |       |  |
|  | RX                       | #1,GVAVDDS:14.67,14.68<CR>  |       |  |
|  |                          | Actual supply voltage of CHIP1:14.67V   |       |  |
|  |                          | Actual supply voltage of CHIP2:14.68V   |       |  |

This command returns for every AIOX chip the actual supply voltage in Volts.  
This must be >14.5V, if not, there is a severe wiring or other hardware issue!

|                    |                          |  |       |  |
|--------------------|--------------------------|--|-------|--|
| GET SUPPLY VOLTAGE | ASCII<br>READ<br>COMMAND | #GVAVDD<CHIPNR><CR><br>Result:<br>#GVAVDD<CHIPNR>:<ChipxVAVDD><CR> | ASCII |  |
|                    | CHIPNR                   | 1  |       |  |
|                    | TX                       | #1,GVAVDD1<CR>   |       |  |
|                    | RX                       | #1,GVAVDD1:14.67<CR>   |       |  |
|                    |                          | Actual supply voltage of CHIP1:14.67V                              |       |  |

This command returns for AIOX chip <CHIPNR> the actual supply voltage in Volts.  
This must be >14.5V, if not, there is a severe wiring or other hardware issue!

#### AVERAGE CHIP SUPPLY VOLTAGES

|                                |                          |   |       |  |
|--------------------------------|--------------------------|---|-------|--|
| GET AVERAGE<br>SUPPLY VOLTAGES | ASCII<br>READ<br>COMMAND | #GAVGVAVDDS<CR><br>Result:<br>#GAVGVAVDDS:<Chip1VAVDDDBl>,<Chip2VAVDDDBl><CR> | ASCII |  |
|                                | TX                       | #1,GAVGVAVDDS<CR>   |       |  |
|                                | RX                       | #1,GAVGVAVDDS:14.67,14.68<CR>   |       |  |
|                                |                          | Average supply voltage of CHIP1:14.67V  |       |  |
|                                |                          | Average supply voltage of CHIP2:14.68V  |       |  |

This command returns for every AIOX chip the average supply voltage in Volts.  
This must be >14.5V, if not, there is a severe wiring or other hardware issue!

|                               |                          |  |       |  |
|-------------------------------|--------------------------|--|-------|--|
| GET AVERAGE<br>SUPPLY VOLTAGE | ASCII<br>READ<br>COMMAND | #GAVGVAVDD<CHIPNR><CR><br>Result:<br>#GAVGVAVDD<CHIPNR>:<ChipxVAVDD><CR> | ASCII |  |
|                               | CHIPNR                   | 1  |       |  |
|                               | TX                       | #1,GAVGVAVDD1<CR>  |       |  |
|                               | RX                       | #1,GAVGVAVDD1:14.67<CR>  |       |  |
|                               |                          | Average supply voltage of CHIP1:14.67V                                   |       |  |

This command returns for AIOX chip <CHIPNR> the average supply voltage in Volts.  
This must be >14.5V, if not, there is a severe wiring or other hardware issue!

#### CHIP GROUND VOLTAGES

|                     |                          |   |       |  |
|---------------------|--------------------------|---|-------|--|
| GET GROUND VOLTAGES | ASCII<br>READ<br>COMMAND | #GVAGNDS<CR><br>Result:<br>#GVAGNDS:<Chip1VAGNDDBl>,<Chip2VAGNDDBl><CR> | ASCII |  |
|                     | TX                       | #1,GVAGNDS<CR>  |       |  |
|                     | RX                       | #1,GVAGNDS:0.00,0.00<CR>  |       |  |
|                     |                          | Actual ground voltage of CHIP1:0.00V                                    |       |  |
|                     |                          | Actual ground voltage of CHIP2:0.00V                                    |       |  |

This command returns for every AIOX chip the actual ground voltage in Volts.  
This must be 0, if not, there is a severe wiring or other hardware issue!

|                    |                          |   |       |  |
|--------------------|--------------------------|---|-------|--|
| GET GROUND VOLTAGE | ASCII<br>READ<br>COMMAND | #GVAGND<CHIPNR><CR><br>Result:<br>#GVAGND<CHIPNR>:<ChipxVAGNDDBl><CR> | ASCII |  |
|--------------------|--------------------------|---|-------|--|

|   |                          |   |       |  |
|---|--------------------------|---|-------|--|
|   | CHIPNR                   | 1   |       |  |
|   | TX                       | #1,GVAGND1<CR>  |       |  |
|   | RX                       | #1,GVAGND1:0.00<CR>   |       |  |
|   |                          | Actual ground voltage of CHIP1:0.00V  |       |  |
| This command returns for AIOX chip <CHIPNR> the actual ground voltage in Volts.<br>This must be 0, if not, there is a severe wiring or other hardware issue!  |                          |   |       |  |
| <b>AVERAGE CHIP GROUND VOLTAGES</b>   |                          |   |       |  |
| GET AVERAGE<br>GROUND VOLTAGES  | ASCII<br>READ<br>COMMAND | #GAVGVAGNDS<CR><br>Result:<br>#GAVGVAGNDS:<Chip1VAGNDDbl>,<Chip2VAGNDDbl><CR> | ASCII |  |
|   | TX                       | #1,GAVGVAGNDS<CR>   |       |  |
|   | RX                       | #1,GAVGVAGNDS:0.00,0.00<CR>   |       |  |
|   |                          | Average ground voltage of CHIP1:0.00V   |       |  |
|   |                          | Average ground voltage of CHIP2:0.00V   |       |  |
| This command returns for every AIOX chip the average ground voltage in Volts.<br>This must be 0, if not, there is a severe wiring or other hardware issue!    |                          |   |       |  |
| GET AVERAGE<br>GROUND VOLTAGE   | ASCII<br>READ<br>COMMAND | #GAVGVAGND<CHIPNR><CR><br>Result:<br>#GAVGVAGND<CHIPNR>:<ChipxVAVGNDDbl><CR>  | ASCII |  |
|   | CHIPNR                   | 1   |       |  |
|   | TX                       | #1,GAVGVAGND1<CR>   |       |  |
|   | RX                       | #1,GAVGVAGND1:0.00<CR>  |       |  |
|   |                          | Average ground voltage of CHIP1:0.00V   |       |  |
| This command returns for AIOX chip <CHIPNR> the average ground voltage in Volts.<br>This must be 0, if not, there is a severe wiring or other hardware issue! |                          |   |       |  |

| Register NAME<br>Command NAME   | MODBUS<br>Register<br>ASCII<br>Command | Register VALUE<br>ASCII Command  | NEW REAL<br>VALUE | NEW<br>VALUE | DATA TYPE | DO<br>WRITE |
|---|--|--|-------------------|--------------|-----------|-------------|
| <b>ASCII COMMANDS</b>   |  |  |                   |              |           |             |
| SET CONFIG OUTPUT VALUES  | ASCII<br>WRITE<br>COMMAND              | #SCFGOVs:<IO1CfgValDbl>,<IO2CfgValDbl>,<IO3CfgValDbl>,<IO4CfgValDbl>,<IO5CfgValDbl>,<IO6CfgValDbl>,<IO7CfgValDbl>,<IO8CfgValDbl><CR><br>Result:<br>#OK<CR> |                   |              | ASCII     | YES         |
|   | IO1Value                               | ,000   |                   |              |           |             |
|   | IO2Value                               | ,000   |                   |              |           |             |
|   | IO3Value                               | ,000   |                   |              |           |             |
|   | IO4Value                               | ,000   |                   |              |           |             |
|   | IO5Value                               | ,000   |                   |              |           |             |
|   | IO6Value                               | ,000   |                   |              |           |             |
|   | IO7Value                               | ,000   |                   |              |           |             |
|   | IO8Value                               | ,000   |                   |              |           |             |
|   | TX                                     | #1,SCFGOVs:0,0,0,0,0,0,0,0<CR>   |                   |              |           |             |
|   | RX                                     | N/A  |                   |              |           |             |
| This command sets for all outputs the standard value in Volt or in mA, which are used when the controller is restarted or performing a watchdog reset and the channel is used as voltage output or current output.<br>For voltage outputs the range is 0 to 11,0V.<br>For current outputs the range is 0 to 25mA. |  |  |                   |              |           |             |
| SET CONFIG OUTPUT VALUEx  | ASCII<br>WRITE<br>COMMAND              | #SCFGOV<IONR>:<IOxCfgValueDbl><CR><br>Result:<br>#OK<CR>   |                   |              | ASCII     | YES         |
|   | IONR                                   | 8  |                   |              |           |             |
|   | IOxCfgValue                            | ,000   |                   |              |           |             |
|   | TX                                     | #1,SCFGOV8:0<CR>   |                   |              |           |             |
|   | RX                                     | N/A  |                   |              |           |             |
| This command sets for one outputs the standard value in Volt or in mA, which is used when the controller is restarted and the channel is used as voltage output or current output.<br>For voltage outputs the range is 0 to 11,0V.<br>For current outputs the range is 0 to 25mA.                                 |  |  |                   |              |           |             |
| GET CONFIG OUTPUT VALUES  | ASCII<br>READ<br>COMMAND               | #GCFGOVs<CR><br>Result:<br>#GCFGOVs:<IOVolt1Dbl>,<IOVolt2Dbl>,...,<IOVolt8Dbl><CR>   |                   |              | ASCII     |             |
|   | TX                                     | #1,GCFGOVs<CR>   |                   |              |           |             |
|   | RX                                     | #1,GCFGOVs:999.99,999.99,999.99,999.99,999.99,999.99,999.99,999.99<CR>   |                   |              |           |             |
|   |  | Actual config value on IO1:999.99V or mA   |                   |              |           |             |
|   |  | Actual config value on IO2:999.99V or mA   |                   |              |           |             |
|   |  | Actual config value on IO3:999.99V or mA   |                   |              |           |             |
|   |  | Actual config value on IO4:999.99V or mA   |                   |              |           |             |
|   |  | Actual config value on IO5:999.99V or mA   |                   |              |           |             |
|   |  | Actual config value on IO6:999.99V or mA   |                   |              |           |             |
|   |  | Actual config value on IO7:999.99V or mA   |                   |              |           |             |

|   |                           | Actual config value on IO8:999.99V or mA                        |       |    |
|---|---------------------------|---|-------|----|
| <p>This command shows for all channels the current saved startup values for use as voltage or current outputs<br/>           For voltage outputs the range is 0 to 11,0V.<br/>           For current outputs the range is 0 to 25mA.</p> <p>All IOs with a different usage type will return 999.99.</p> |                           |   |       |    |
| GET CONFIG OUTPUT VALUE   | ASCII<br>READ<br>COMMAND  | #GCFGOV<IONR><CR><br>Result:<br>#GCFGOV<IONR>:<IOxValueDbl><CR> | ASCII |    |
|   | IONR                      | 8   |       |    |
|   | TX                        | #1,GCFGOV8<CR>  |       |    |
|   | RX                        | #1,GCFGOV8:999.99<CR>   |       |    |
|   |                           | Actual config value on IO8:999.99V or mA                        |       |    |
| <p>This command shows for one channel the current saved startup value for use as voltage or current output.<br/>           For voltage outputs the range is 0 to 11,0V.<br/>           For current outputs the range is 0 to 25mA.</p> <p>All IOs with a different usage type will return 999.99.</p>   |                           |   |       |    |
| RESET 16AIOXCPU   | ASCII<br>WRITE<br>COMMAND | #R16AIOXCPU<CR><br>Result:<br>#OK<CR>                           | ASCII | NO |
|   | TX                        | #1,R16AIOXCPU<CR>   |       |    |
|   | RX                        | N/A   |       |    |
| <p>This command restarts the internal CPU of the 16AIOX addon print. All channels will be resetted &amp; initialized completely</p>   |                           |   |       |    |

| Register NAME<br>Command NAME   | MODBUS<br>Register<br>ASCII<br>Command | Register VALUE<br>ASCII Command | NEW REAL<br>VALUE | NEW<br>VALUE                 | DATA TYPE     | DO<br>WRITE |
|---|--|---------------------------------|-------------------|------------------------------|---------------|-------------|
| <b>AIOX IO TYPES</b>  |  |                                 |                   |                              |               |             |
| IO TYPE1  | 3x40001<br>4x40001<br>l:40000          | 0,0x0000<br>B:00 00             |                   | 13:RTDI[OHM]                 | UINT16<br>R/W | YES         |
|   |  | Actual IO type of AIOx:0:UU     |                   | CHOOSE NEW IO TYPE FROM LIST |               |             |
| <p>Current configured IO type for AIOXx<br/>           =0: UNUSED<br/>           =1: VOLTAGE INPUT[0-10V]<br/>           =2: VOLTAGE INPUT[2-10V]<br/>           =3: VOLTAGE OUTPUT[0-10V]<br/>           =4: VOLTAGE OUTPUT[2-10V]<br/>           =5: CURRENT INPUT LOOP POWERED[0-20mA]<br/>           =6: CURRENT INPUT LOOP POWERED[4-20mA]<br/>           =7: CURRENT INPUT EXTERNAL POWERED[0-20mA]<br/>           =8: CURRENT INPUT EXTERNAL POWERED[4-20mA]<br/>           =9: CURRENT OUTPUT[0-20mA]<br/>           =10: CURRENT OUTPUT[4-20mA]<br/>           =11: DIGITAL INPUT LOGIC 24V=<br/>           =12: DIGITAL INPUT LOOP POWERED<br/>           =13: RESISTANCE MEASUREMENT</p> |  |                                 |                   |                              |               |             |
| HINT: The last IO type is automatically stored in FRAM and will be used after a system restart.   |  |                                 |                   |                              |               |             |
| IO TYPE2  | 3x40002<br>4x40002<br>l:40001          | 0,0x0000<br>B:00 00             |                   | 12:DI[24V;LP]                | UINT16<br>R/W | YES         |
|   |  | Actual IO type of AIOx:0:UU     |                   | CHOOSE NEW IO TYPE FROM LIST |               |             |
| IO TYPE3  | 3x40003<br>4x40003<br>l:40002          | 0,0x0000<br>B:00 00             |                   | 1:VI[0-10V]                  | UINT16<br>R/W | NO          |
|   |  | Actual IO type of AIOx:0:UU     |                   | CHOOSE NEW IO TYPE FROM LIST |               |             |
| IO TYPE4  | 3x40004<br>4x40004<br>l:40003          | 0,0x0000<br>B:00 00             |                   | 1:VI[0-10V]                  | UINT16<br>R/W | NO          |
|   |  | Actual IO type of AIOx:0:UU     |                   | CHOOSE NEW IO TYPE FROM LIST |               |             |
| IO TYPE5  | 3x40005<br>4x40005<br>l:40004          | 0,0x0000<br>B:00 00             |                   | 3:VO[0-10V]                  | UINT16<br>R/W | NO          |
|   |  | Actual IO type of AIOx:0:UU     |                   | CHOOSE NEW IO TYPE FROM LIST |               |             |
| IO TYPE6  | 3x40006<br>4x40006<br>l:40005          | 0,0x0000<br>B:00 00             |                   | 3:VO[0-10V]                  | UINT16<br>R/W | NO          |
|   |  | Actual IO type of AIOx:0:UU     |                   | CHOOSE NEW IO TYPE FROM LIST |               |             |

|  |                               |                               |  |                              |               |    |
|--|-------------------------------|-------------------------------|--|------------------------------|---------------|----|
| IO TYPE7   | 3x40007<br>4x40007<br>I:40006 | 0,0x0000<br>B:00 00           |  | 3:VO[0-10V]                  | UINT16<br>R/W | NO |
|  |                               | Actual IO type of AIOx:0:UU   |  | CHOOSE NEW IO TYPE FROM LIST |               |    |
| IO TYPE8   | 3x40008<br>4x40008<br>I:40007 | 0,0x0000<br>B:00 00           |  | 3:VO[0-10V]                  | UINT16<br>R/W | NO |
|  |                               | Actual IO type of AIOx:0:UU   |  | CHOOSE NEW IO TYPE FROM LIST |               |    |
| <b>AIOX:VOLTAGE INPUTS</b>   |                               |                               |  |                              |               |    |
| VOLTAGE INPUT1<br>IN VOLTS   | 3x40009<br>4x40009<br>I:40008 | 65535,0xFFFF<br>B:FF FF       |  |                              | UINT16<br>R/O |    |
|  |                               | Actual value of Vlx:65535=N/V |  |                              |               |    |
| Current value of voltage input in x*100V, range 0-10V<br>=65535,0xFFFF: The channel is not configured as voltage input |                               |                               |  |                              |               |    |
| VOLTAGE INPUT2<br>IN VOLTS   | 3x40010<br>4x40010<br>I:40009 | 65535,0xFFFF<br>B:FF FF       |  |                              | UINT16<br>R/O |    |
|  |                               | Actual value of Vlx:65535=N/V |  |                              |               |    |
| VOLTAGE INPUT3<br>IN VOLTS   | 3x40011<br>4x40011<br>I:40010 | 65535,0xFFFF<br>B:FF FF       |  |                              | UINT16<br>R/O |    |
|  |                               | Actual value of Vlx:65535=N/V |  |                              |               |    |
| VOLTAGE INPUT4<br>IN VOLTS   | 3x40012<br>4x40012<br>I:40011 | 65535,0xFFFF<br>B:FF FF       |  |                              | UINT16<br>R/O |    |
|  |                               | Actual value of Vlx:65535=N/V |  |                              |               |    |
| VOLTAGE INPUT5<br>IN VOLTS   | 3x40013<br>4x40013<br>I:40012 | 65535,0xFFFF<br>B:FF FF       |  |                              | UINT16<br>R/O |    |
|  |                               | Actual value of Vlx:65535=N/V |  |                              |               |    |
| VOLTAGE INPUT6<br>IN VOLTS   | 3x40014<br>4x40014<br>I:40013 | 65535,0xFFFF<br>B:FF FF       |  |                              | UINT16<br>R/O |    |
|  |                               | Actual value of Vlx:65535=N/V |  |                              |               |    |
| VOLTAGE INPUT7<br>IN VOLTS   | 3x40015<br>4x40015<br>I:40014 | 65535,0xFFFF<br>B:FF FF       |  |                              | UINT16<br>R/O |    |
|  |                               | Actual value of Vlx:65535=N/V |  |                              |               |    |
| VOLTAGE INPUT8<br>IN VOLTS   | 3x40016<br>4x40016<br>I:40015 | 65535,0xFFFF<br>B:FF FF       |  |                              | UINT16<br>R/O |    |
|  |                               | Actual value of Vlx:65535=N/V |  |                              |               |    |
| <b>AIOX:VOLTAGE INPUTS</b>   |                               |                               |  |                              |               |    |



|  |                               |                               |      |    |                         |    |
|--|-------------------------------|-------------------------------|------|----|-------------------------|----|
| VOLTAGE INPUT1<br>IN PERCENT   | 3x40017<br>4x40017<br>I:40016 | 65535,0xFFFF<br>B:FF FF       |      |    | UINT16<br>R/O           |    |
|  |                               | Actual value of Vlx:65535=N/V |      |    |                         |    |
| Current value of voltage input in x*100%, range 0-100%<br>=65535,0xFFFF: The channel is not configured as voltage input  |                               |                               |      |    |                         |    |
| VOLTAGE INPUT3<br>IN PERCENT   | 3x40018<br>4x40018<br>I:40017 | 65535,0xFFFF<br>B:FF FF       |      |    | UINT16<br>R/O           |    |
|  |                               | Actual value of Vlx:65535=N/V |      |    |                         |    |
| VOLTAGE INPUT3<br>IN PERCENT   | 3x40019<br>4x40019<br>I:40018 | 65535,0xFFFF<br>B:FF FF       |      |    | UINT16<br>R/O           |    |
|  |                               | Actual value of Vlx:65535=N/V |      |    |                         |    |
| VOLTAGE INPUT4<br>IN PERCENT   | 3x40020<br>4x40020<br>I:40019 | 65535,0xFFFF<br>B:FF FF       |      |    | UINT16<br>R/O           |    |
|  |                               | Actual value of Vlx:65535=N/V |      |    |                         |    |
| VOLTAGE INPUT5<br>IN PERCENT   | 3x40021<br>4x40021<br>I:40020 | 65535,0xFFFF<br>B:FF FF       |      |    | UINT16<br>R/O           |    |
|  |                               | Actual value of Vlx:65535=N/V |      |    |                         |    |
| VOLTAGE INPUT6<br>IN PERCENT   | 3x40022<br>4x40022<br>I:40021 | 65535,0xFFFF<br>B:FF FF       |      |    | UINT16<br>R/O           |    |
|  |                               | Actual value of Vlx:65535=N/V |      |    |                         |    |
| VOLTAGE INPUT7<br>IN PERCENT   | 3x40023<br>4x40023<br>I:40022 | 65535,0xFFFF<br>B:FF FF       |      |    | UINT16<br>R/O           |    |
|  |                               | Actual value of Vlx:65535=N/V |      |    |                         |    |
| VOLTAGE INPUT8<br>IN PERCENT   | 3x40024<br>4x40024<br>I:40023 | 65535,0xFFFF<br>B:FF FF       |      |    | UINT16<br>R/O           |    |
|  |                               | Actual value of Vlx:65535=N/V |      |    |                         |    |
| <b>AIOX:VOLTAGE OUTPUTS</b>  |                               |                               |      |    |                         |    |
| VOLTAGE OUTPUT1<br>IN VOLTS  | 3x40025<br>4x40025<br>I:40024 | 65535,0xFFFF<br>B:FF FF       | 1100 | 11 | UINT16<br>R/W           | NO |
|  |                               | Actual value of VOx:65535=N/V |      |    | ENTER NEW VALUE FOR VOx |    |
| Current value of voltage output in x*100V, range 0-11V<br>=65535,0xFFFF: The channel is not configured as voltage output |                               |                               |      |    |                         |    |
| Writing a new value onto this register sets voltage output x to a new output value in Volt                               |                               |                               |      |    |                         |    |

|  |                               |                               |       |                         |               |    |
|--|-------------------------------|-------------------------------|-------|-------------------------|---------------|----|
| VOLTAGE OUTPUT2<br>IN VOLTS  | 3x40026<br>4x40026<br>I:40025 | 65535,0xFFFF<br>B:FF FF       | 1100  | 11                      | UINT16<br>R/W | NO |
|  |                               | Actual value of VOx:65535=N/V |       | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT3<br>IN VOLTS  | 3x40027<br>4x40027<br>I:40026 | 65535,0xFFFF<br>B:FF FF       | 1100  | 11                      | UINT16<br>R/W | NO |
|  |                               | Actual value of VOx:65535=N/V |       | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT4<br>IN VOLTS  | 3x40028<br>4x40028<br>I:40027 | 65535,0xFFFF<br>B:FF FF       | 1100  | 11                      | UINT16<br>R/W | NO |
|  |                               | Actual value of VOx:65535=N/V |       | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT5<br>IN VOLTS  | 3x40029<br>4x40029<br>I:40028 | 65535,0xFFFF<br>B:FF FF       | 1100  | 11                      | UINT16<br>R/W | NO |
|  |                               | Actual value of VOx:65535=N/V |       | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT6<br>IN VOLTS  | 3x40030<br>4x40030<br>I:40029 | 65535,0xFFFF<br>B:FF FF       | 1100  | 11                      | UINT16<br>R/W | NO |
|  |                               | Actual value of VOx:65535=N/V |       | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT7<br>IN VOLTS  | 3x40031<br>4x40031<br>I:40030 | 65535,0xFFFF<br>B:FF FF       | 1100  | 11                      | UINT16<br>R/W | NO |
|  |                               | Actual value of VOx:65535=N/V |       | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT8<br>IN VOLTS  | 3x40032<br>4x40032<br>I:40031 | 65535,0xFFFF<br>B:FF FF       | 1100  | 11                      | UINT16<br>R/W | NO |
|  |                               | Actual value of VOx:65535=N/V |       | ENTER NEW VALUE FOR VOx |               |    |
| <b>AIOX:VOLTAGE OUTPUTS</b>  |                               |                               |       |                         |               |    |
| VOLTAGE OUTPUT1<br>IN PERCENT  | 3x40033<br>4x40033<br>I:40032 | 65535,0xFFFF<br>B:FF FF       | 11000 | 110                     | UINT16<br>R/W | NO |
|  |                               | Actual value of VOx:65535=N/V |       | ENTER NEW VALUE FOR VOx |               |    |
| Current value of voltage output in x*100%, range 0-110% (100%=10V)<br>=65535,0xFFFF: The channel is not configured as voltage output |                               |                               |       |                         |               |    |
| Writing a new value onto this register sets voltage output x to a new output value in percent  |                               |                               |       |                         |               |    |
| VOLTAGE OUTPUT2<br>IN PERCENT  | 3x40034<br>4x40034<br>I:40033 | 65535,0xFFFF<br>B:FF FF       | 5000  | 50                      | UINT16<br>R/W | NO |
|  |                               | Actual value of VOx:65535=N/V |       | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT3<br>IN PERCENT  | 3x40035<br>4x40035<br>I:40034 | 65535,0xFFFF<br>B:FF FF       | 3000  | 30                      | UINT16<br>R/W | NO |
|  |                               | Actual value of VOx:65535=N/V |       | ENTER NEW VALUE FOR VOx |               |    |

|   |                               |  |      |                         |               |    |
|---|-------------------------------|--|------|-------------------------|---------------|----|
| VOLTAGE OUTPUT4<br>IN PERCENT   | 3x40036<br>4x40036<br>I:40035 | 65535,0xFFFF<br>B:FF FF                          | 7500 | 75                      | UINT16<br>R/W | NO |
|   |                               | Actual value of VOx:65535=N/V                    |      | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT5<br>IN PERCENT   | 3x40037<br>4x40037<br>I:40036 | 65535,0xFFFF<br>B:FF FF                          | 0    | 0                       | UINT16<br>R/W | NO |
|   |                               | Actual value of VOx:65535=N/V                    |      | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT6<br>IN PERCENT   | 3x40038<br>4x40038<br>I:40037 | 65535,0xFFFF<br>B:FF FF                          | 0    | 0                       | UINT16<br>R/W | NO |
|   |                               | Actual value of VOx:65535=N/V                    |      | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT7<br>IN PERCENT   | 3x40039<br>4x40039<br>I:40038 | 65535,0xFFFF<br>B:FF FF                          | 0    | 0                       | UINT16<br>R/W | NO |
|   |                               | Actual value of VOx:65535=N/V                    |      | ENTER NEW VALUE FOR VOx |               |    |
| VOLTAGE OUTPUT8<br>IN PERCENT   | 3x40040<br>4x40040<br>I:40039 | 65535,0xFFFF<br>B:FF FF                          | 0    | 0                       | UINT16<br>R/W | NO |
|   |                               | Actual value of VOx:65535=N/V                    |      | ENTER NEW VALUE FOR VOx |               |    |
| <b>AIOX:VOLTAGE OUTPUTS</b>   |                               |  |      |                         |               |    |
| VOLTAGE OUTPUT1<br>MEASURED CURRENT   | 3x40041<br>4x40041<br>I:40040 | -32768,0x8000<br>B:80 00                         |      |                         | SINT16<br>R/O |    |
|   |                               | Actual measured output current of VOx:-32768=N/V |      |                         |               |    |
| Returns the measured output current in x*100mA on voltage output VOx, Range -25mA..+25mA<br>=-32768,0x8000: The channel is not configured as voltage output |                               |  |      |                         |               |    |
| VOLTAGE OUTPUT2<br>MEASURED CURRENT   | 3x40042<br>4x40042<br>I:40041 | -32768,0x8000<br>B:80 00                         |      |                         | SINT16<br>R/O |    |
|   |                               | Actual measured output current of VOx:-32768=N/V |      |                         |               |    |
| VOLTAGE OUTPUT3<br>MEASURED CURRENT   | 3x40043<br>4x40043<br>I:40042 | -32768,0x8000<br>B:80 00                         |      |                         | SINT16<br>R/O |    |
|   |                               | Actual measured output current of VOx:-32768=N/V |      |                         |               |    |
| VOLTAGE OUTPUT4<br>MEASURED CURRENT   | 3x40044<br>4x40044<br>I:40043 | -32768,0x8000<br>B:80 00                         |      |                         | SINT16<br>R/O |    |
|   |                               | Actual measured output current of VOx:-32768=N/V |      |                         |               |    |
| VOLTAGE OUTPUT5<br>MEASURED CURRENT   | 3x40045<br>4x40045<br>I:40044 | -32768,0x8000<br>B:80 00                         |      |                         | SINT16<br>R/O |    |
|   |                               | Actual measured output current of VOx:-32768=N/V |      |                         |               |    |

|  |                               |  |  |  |               |  |
|--|-------------------------------|--|--|--|---------------|--|
| VOLTAGE OUTPUT6<br>MEASURED CURRENT  | 3x40046<br>4x40046<br>I:40045 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|  |                               | Actual measured output current of VOx:-32768=N/V |  |  |               |  |
| VOLTAGE OUTPUT7<br>MEASURED CURRENT  | 3x40047<br>4x40047<br>I:40046 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|  |                               | Actual measured output current of VOx:-32768=N/V |  |  |               |  |
| VOLTAGE OUTPUT8<br>MEASURED CURRENT  | 3x40048<br>4x40048<br>I:40047 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|  |                               | Actual measured output current of VOx:-32768=N/V |  |  |               |  |
| <b>AIOX:CURRENT INPUTS</b>   |                               |  |  |  |               |  |
| CURRENT INPUT1<br>IN MILLIAMPERE   | 3x40049<br>4x40049<br>I:40048 | 65535,0xFFFF<br>B:FF FF                          |  |  | UINT16<br>R/O |  |
|  |                               | Actual value of CIx:65535=N/V                    |  |  |               |  |
| Current value of current input in x*100mA, range 0-25mA<br>=65535,0xFFFF: The channel is not configured as current input |                               |  |  |  |               |  |
| CURRENT INPUT2<br>IN MILLIAMPERE   | 3x40050<br>4x40050<br>I:40049 | 65535,0xFFFF<br>B:FF FF                          |  |  | UINT16<br>R/O |  |
|  |                               | Actual value of VIx:65535=N/V                    |  |  |               |  |
| CURRENT INPUT3<br>IN MILLIAMPERE   | 3x40051<br>4x40051<br>I:40050 | 65535,0xFFFF<br>B:FF FF                          |  |  | UINT16<br>R/O |  |
|  |                               | Actual value of VIx:65535=N/V                    |  |  |               |  |
| CURRENT INPUT4<br>IN MILLIAMPERE   | 3x40052<br>4x40052<br>I:40051 | 65535,0xFFFF<br>B:FF FF                          |  |  | UINT16<br>R/O |  |
|  |                               | Actual value of VIx:65535=N/V                    |  |  |               |  |
| CURRENT INPUT5<br>IN MILLIAMPERE   | 3x40053<br>4x40053<br>I:40052 | 65535,0xFFFF<br>B:FF FF                          |  |  | UINT16<br>R/O |  |
|  |                               | Actual value of VIx:65535=N/V                    |  |  |               |  |
| CURRENT INPUT6<br>IN MILLIAMPERE   | 3x40054<br>4x40054<br>I:40053 | 65535,0xFFFF<br>B:FF FF                          |  |  | UINT16<br>R/O |  |
|  |                               | Actual value of VIx:65535=N/V                    |  |  |               |  |
| CURRENT INPUT7<br>IN MILLIAMPERE   | 3x40055<br>4x40055<br>I:40054 | 65535,0xFFFF<br>B:FF FF                          |  |  | UINT16<br>R/O |  |
|  |                               | Actual value of VIx:65535=N/V                    |  |  |               |  |

|   |                               |                               |     |   |                         |    |
|---|-------------------------------|-------------------------------|-----|---|-------------------------|----|
| CURRENT INPUT8<br>IN MILLIAMPERE  | 3x40056<br>4x40056<br>I:40055 | 65535,0xFFFF<br>B:FF FF       |     |   | UINT16<br>R/O           |    |
|   |                               | Actual value of VIx:65535=N/V |     |   |                         |    |
| <b>AIOX:CURRENT INPUTS</b>  |                               |                               |     |   |                         |    |
| CURRENT INPUT1<br>IN PERCENT  | 3x40057<br>4x40057<br>I:40056 | 65535,0xFFFF<br>B:FF FF       |     |   | UINT16<br>R/O           |    |
|   |                               | Actual value of CIx:65535=N/V |     |   |                         |    |
| Current value of current input in x*100%, range 0-125% (100%=20mA)<br>=65535,0xFFFF: The channel is not configured as current input |                               |                               |     |   |                         |    |
| CURRENT INPUT2<br>IN PERCENT  | 3x40058<br>4x40058<br>I:40057 | 65535,0xFFFF<br>B:FF FF       |     |   | UINT16<br>R/O           |    |
|   |                               | Actual value of CIx:65535=N/V |     |   |                         |    |
| CURRENT INPUT3<br>IN PERCENT  | 3x40059<br>4x40059<br>I:40058 | 65535,0xFFFF<br>B:FF FF       |     |   | UINT16<br>R/O           |    |
|   |                               | Actual value of CIx:65535=N/V |     |   |                         |    |
| CURRENT INPUT4<br>IN PERCENT  | 3x40060<br>4x40060<br>I:40059 | 65535,0xFFFF<br>B:FF FF       |     |   | UINT16<br>R/O           |    |
|   |                               | Actual value of CIx:65535=N/V |     |   |                         |    |
| CURRENT INPUT5<br>IN PERCENT  | 3x40061<br>4x40061<br>I:40060 | 65535,0xFFFF<br>B:FF FF       |     |   | UINT16<br>R/O           |    |
|   |                               | Actual value of CIx:65535=N/V |     |   |                         |    |
| CURRENT INPUT6<br>IN PERCENT  | 3x40062<br>4x40062<br>I:40061 | 65535,0xFFFF<br>B:FF FF       |     |   | UINT16<br>R/O           |    |
|   |                               | Actual value of CIx:65535=N/V |     |   |                         |    |
| CURRENT INPUT7<br>IN PERCENT  | 3x40063<br>4x40063<br>I:40062 | 65535,0xFFFF<br>B:FF FF       |     |   | UINT16<br>R/O           |    |
|   |                               | Actual value of CIx:65535=N/V |     |   |                         |    |
| CURRENT INPUT8<br>IN PERCENT  | 3x40064<br>4x40064<br>I:40063 | 65535,0xFFFF<br>B:FF FF       |     |   | UINT16<br>R/O           |    |
|   |                               | Actual value of CIx:65535=N/V |     |   |                         |    |
| <b>AIOX:CURRENT OUTPUTS</b>   |                               |                               |     |   |                         |    |
| CURRENT OUTPUT1<br>IN MILIAMPERE  | 3x40065<br>4x40065<br>I:40064 | 65535,0xFFFF<br>B:FF FF       | 500 | 5 | UINT16<br>R/W           | NO |
|   |                               | Actual value of COx:65535=N/V |     |   | ENTER NEW VALUE FOR COx |    |

Current value of current output in x\*100mA, range 0-25mA  
 =65535,0xFFFF: The channel is not configured as current output

Writing a new value onto this register sets current output x to a new output value in Milliampere

|   |                               |                               |      |                         |               |    |
|---|-------------------------------|-------------------------------|------|-------------------------|---------------|----|
| CURRENT OUTPUT2<br>IN MILIAMPERE  | 3x40066<br>4x40066<br>I:40065 | 65535,0xFFFF<br>B:FF FF       | 500  | 5                       | UINT16<br>R/W | NO |
|   |                               | Actual value of COx:65535=N/V |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT3<br>IN MILIAMPERE  | 3x40067<br>4x40067<br>I:40066 | 65535,0xFFFF<br>B:FF FF       | 500  | 5                       | UINT16<br>R/W | NO |
|   |                               | Actual value of COx:65535=N/V |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT4<br>IN MILIAMPERE  | 3x40068<br>4x40068<br>I:40067 | 65535,0xFFFF<br>B:FF FF       | 500  | 5                       | UINT16<br>R/W | NO |
|   |                               | Actual value of COx:65535=N/V |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT5<br>IN MILIAMPERE  | 3x40069<br>4x40069<br>I:40068 | 65535,0xFFFF<br>B:FF FF       | 500  | 5                       | UINT16<br>R/W | NO |
|   |                               | Actual value of COx:65535=N/V |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT6<br>IN MILIAMPERE  | 3x40070<br>4x40070<br>I:40069 | 65535,0xFFFF<br>B:FF FF       | 500  | 5                       | UINT16<br>R/W | NO |
|   |                               | Actual value of COx:65535=N/V |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT7<br>IN MILIAMPERE  | 3x40071<br>4x40071<br>I:40070 | 65535,0xFFFF<br>B:FF FF       | 500  | 5                       | UINT16<br>R/W | NO |
|   |                               | Actual value of COx:65535=N/V |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT8<br>IN MILIAMPERE  | 3x40072<br>4x40072<br>I:40071 | 65535,0xFFFF<br>B:FF FF       | 500  | 5                       | UINT16<br>R/W | NO |
|   |                               | Actual value of COx:65535=N/V |      | ENTER NEW VALUE FOR COx |               |    |
| <b>AIOX:CURRENT OUTPUTS</b>   |                               |                               |      |                         |               |    |
| CURRENT OUTPUT1<br>IN PERCENT   | 3x40073<br>4x40073<br>I:40072 | 65535,0xFFFF<br>B:FF FF       | 5000 | 50                      | UINT16<br>R/W | NO |
|   |                               | Actual value of COx:65535=N/V |      | ENTER NEW VALUE FOR COx |               |    |
| Current value of current output in x*100%, range 0-125% (100%=20mA)<br>=65535,0xFFFF: The channel is not configured as current output |                               |                               |      |                         |               |    |
| Writing a new value onto this register sets current output x to a new output value in percent   |                               |                               |      |                         |               |    |
| CURRENT OUTPUT2<br>IN PERCENT   | 3x40074<br>4x40074<br>I:40073 | 65535,0xFFFF<br>B:FF FF       | 5000 | 50                      | UINT16<br>R/W | NO |
|   |                               | Actual value of COx:65535=N/V |      | ENTER NEW VALUE FOR COx |               |    |

|  |                               |  |      |                         |               |    |
|--|-------------------------------|--|------|-------------------------|---------------|----|
| CURRENT OUTPUT3<br>IN PERCENT  | 3x40075<br>4x40075<br>I:40074 | 65535,0xFFFF<br>B:FF FF                      | 5000 | 50                      | UINT16<br>R/W | NO |
|  |                               | Actual value of COx:65535=N/V                |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT4<br>IN PERCENT  | 3x40076<br>4x40076<br>I:40075 | 65535,0xFFFF<br>B:FF FF                      | 5000 | 50                      | UINT16<br>R/W | NO |
|  |                               | Actual value of COx:65535=N/V                |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT5<br>IN PERCENT  | 3x40077<br>4x40077<br>I:40076 | 65535,0xFFFF<br>B:FF FF                      | 5000 | 50                      | UINT16<br>R/W | NO |
|  |                               | Actual value of COx:65535=N/V                |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT6<br>IN PERCENT  | 3x40078<br>4x40078<br>I:40077 | 65535,0xFFFF<br>B:FF FF                      | 5000 | 50                      | UINT16<br>R/W | NO |
|  |                               | Actual value of COx:65535=N/V                |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT7<br>IN PERCENT  | 3x40079<br>4x40079<br>I:40078 | 65535,0xFFFF<br>B:FF FF                      | 5000 | 50                      | UINT16<br>R/W | NO |
|  |                               | Actual value of COx:65535=N/V                |      | ENTER NEW VALUE FOR COx |               |    |
| CURRENT OUTPUT8<br>IN PERCENT  | 3x40080<br>4x40080<br>I:40079 | 65535,0xFFFF<br>B:FF FF                      | 5000 | 50                      | UINT16<br>R/W | NO |
|  |                               | Actual value of COx:65535=N/V                |      | ENTER NEW VALUE FOR COx |               |    |
| <b>AIOX:CURRENT OUTPUTS</b>  |                               |  |      |                         |               |    |
| CURRENT OUTPUT1<br>MEASURED VOLTS  | 3x40081<br>4x40081<br>I:40080 | 65535,0xFFFF<br>B:FF FF                      |      |                         | UINT16<br>R/O |    |
|  |                               | Actual measured output voltage COx:65535=N/V |      |                         |               |    |
| Current measured output voltage for current output x*100V, range 0-10V<br>=65535,0xFFFF: The channel is not configured as current output |                               |  |      |                         |               |    |
| CURRENT OUTPUT2<br>MEASURED VOLTS  | 3x40082<br>4x40082<br>I:40081 | 65535,0xFFFF<br>B:FF FF                      |      |                         | UINT16<br>R/O |    |
|  |                               | Actual measured output voltage COx:65535=N/V |      |                         |               |    |
| CURRENT OUTPUT3<br>MEASURED VOLTS  | 3x40083<br>4x40083<br>I:40082 | 65535,0xFFFF<br>B:FF FF                      |      |                         | UINT16<br>R/O |    |
|  |                               | Actual measured output voltage COx:65535=N/V |      |                         |               |    |
| CURRENT OUTPUT4<br>MEASURED VOLTS  | 3x40084<br>4x40084<br>I:40083 | 65535,0xFFFF<br>B:FF FF                      |      |                         | UINT16<br>R/O |    |
|  |                               | Actual measured output voltage COx:65535=N/V |      |                         |               |    |

|   |                               |  |  |  |               |  |
|---|-------------------------------|--|--|--|---------------|--|
| CURRENT OUTPUT5<br>MEASURED VOLTS   | 3x40085<br>4x40085<br>I:40084 | 65535,0xFFFF<br>B:FF FF                      |  |  | UINT16<br>R/O |  |
|   |                               | Actual measured output voltage COx:65535=N/V |  |  |               |  |
| CURRENT OUTPUT6<br>MEASURED VOLTS   | 3x40086<br>4x40086<br>I:40085 | 65535,0xFFFF<br>B:FF FF                      |  |  | UINT16<br>R/O |  |
|   |                               | Actual measured output voltage COx:65535=N/V |  |  |               |  |
| CURRENT OUTPUT7<br>MEASURED VOLTS   | 3x40087<br>4x40087<br>I:40086 | 65535,0xFFFF<br>B:FF FF                      |  |  | UINT16<br>R/O |  |
|   |                               | Actual measured output voltage COx:65535=N/V |  |  |               |  |
| CURRENT OUTPUT8<br>MEASURED VOLTS   | 3x40088<br>4x40088<br>I:40087 | 65535,0xFFFF<br>B:FF FF                      |  |  | UINT16<br>R/O |  |
|   |                               | Actual measured output voltage COx:65535=N/V |  |  |               |  |
| <b>AIOX:DIGITAL INPUTS</b>  |                               |  |  |  |               |  |
| DIGITAL INPUT1  | 3x40089<br>4x40089<br>I:40088 | 65535,0xFFFF<br>B:FF FF                      |  |  | UINT16<br>R/O |  |
|   |                               | Actual state of digital input Dlx:65535=N/V  |  |  |               |  |
| Current measured state of digital input Dlx<br>=0: Digital input is OFF or loop is closed<br>=1: Digital input is ON (+24V attached) or loop is open<br>=65535,0xFFFF: The channel is not configured as digital input |                               |  |  |  |               |  |
| DIGITAL INPUT2  | 3x40090<br>4x40090<br>I:40089 | 65535,0xFFFF<br>B:FF FF                      |  |  | UINT16<br>R/O |  |
|   |                               | Actual state of digital input Dlx:65535=N/V  |  |  |               |  |
| DIGITAL INPUT3  | 3x40091<br>4x40091<br>I:40090 | 65535,0xFFFF<br>B:FF FF                      |  |  | UINT16<br>R/O |  |
|   |                               | Actual measured output voltage COx:65535=N/V |  |  |               |  |
| DIGITAL INPUT4  | 3x40092<br>4x40092<br>I:40091 | 65535,0xFFFF<br>B:FF FF                      |  |  | UINT16<br>R/O |  |
|   |                               | Actual measured output voltage COx:65535=N/V |  |  |               |  |
| DIGITAL INPUT5  | 3x40093<br>4x40093<br>I:40092 | 65535,0xFFFF<br>B:FF FF                      |  |  | UINT16<br>R/O |  |
|   |                               | Actual measured output voltage COx:65535=N/V |  |  |               |  |
| DIGITAL INPUT6  | 3x40094<br>4x40094<br>I:40093 | 65535,0xFFFF<br>B:FF FF                      |  |  | UINT16<br>R/O |  |
|   |                               | Actual measured output voltage COx:65535=N/V |  |  |               |  |



|   |                               |  |  |  |               |  |
|---|-------------------------------|--|--|--|---------------|--|
| DIGITAL INPUT7  | 3x40095<br>4x40095<br>I:40094 | 65535,0xFFFF<br>B:FF FF                          |  |  | UINT16<br>R/O |  |
|   |                               | Actual measured output voltage COx:65535=N/V     |  |  |               |  |
| DIGITAL INPUT8  | 3x40096<br>4x40096<br>I:40095 | 65535,0xFFFF<br>B:FF FF                          |  |  | UINT16<br>R/O |  |
|   |                               | Actual measured output voltage COx:65535=N/V     |  |  |               |  |
| <b>AIOX:DIGITAL INPUTS</b>  |                               |  |  |  |               |  |
| DIGITAL INPUT1<br>MEASURED CURRENT  | 3x40097<br>4x40097<br>I:40096 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|   |                               | Actual measured output current of DIx:-32768=N/V |  |  |               |  |
| Returns the measured output current in x*100mA on DIGITAL INPUT VOx, Range -25mA..+25mA<br>=-32768,0x8000: The channel is not configured as DIGITAL INPUT |                               |  |  |  |               |  |
| DIGITAL INPUT2<br>MEASURED CURRENT  | 3x40098<br>4x40098<br>I:40097 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|   |                               | Actual measured output current of DIx:-32768=N/V |  |  |               |  |
| DIGITAL INPUT3<br>MEASURED CURRENT  | 3x40099<br>4x40099<br>I:40098 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|   |                               | Actual measured output current of DIx:-32768=N/V |  |  |               |  |
| DIGITAL INPUT4<br>MEASURED CURRENT  | 3x40100<br>4x40100<br>I:40099 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|   |                               | Actual measured output current of DIx:-32768=N/V |  |  |               |  |
| DIGITAL INPUT5<br>MEASURED CURRENT  | 3x40101<br>4x40101<br>I:40100 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|   |                               | Actual measured output current of DIx:-32768=N/V |  |  |               |  |
| DIGITAL INPUT6<br>MEASURED CURRENT  | 3x40102<br>4x40102<br>I:40101 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|   |                               | Actual measured output current of DIx:-32768=N/V |  |  |               |  |
| DIGITAL INPUT7<br>MEASURED CURRENT  | 3x40103<br>4x40103<br>I:40102 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|   |                               | Actual measured output current of DIx:-32768=N/V |  |  |               |  |
| DIGITAL INPUT8<br>MEASURED CURRENT  | 3x40104<br>4x40104<br>I:40103 | -32768,0x8000<br>B:80 00                         |  |  | SINT16<br>R/O |  |
|   |                               | Actual measured output current of DIx:-32768=N/V |  |  |               |  |

| Register NAME<br>Command NAME   | MODBUS<br>Register<br>ASCII<br>Command | Register VALUE<br>ASCII Command | NEW REAL<br>VALUE | NEW<br>VALUE | DATA TYPE     | DO<br>WRITE |
|---|--|---------------------------------|-------------------|--------------|---------------|-------------|
| <b>AIOX:RTD INPUTS OHM*10</b>   |  |                                 |                   |              |               |             |
| RTD INPUT1<br>IN OHM*10   | 3x41001<br>4x41001<br>I:41000          | 65534,0xFFFE<br>B:FF FE         |                   |              | UINT16<br>R/O |             |
| Actual measured ohm value of RTDIx:65534=OPEN   |  |                                 |                   |              |               |             |
| Current measured RTD in Ohm*10 between 0 and 600000<br>=0..60000: Current measured resistance in Ohm*10<br>=65534,0xFFFE: The sensor or cabling is open (broken, not connected, or out of range)<br>=65535,0xFFFF: The channel is not configured as RTD input |  |                                 |                   |              |               |             |
| RTD INPUT2<br>IN OHM*10   | 3x41002<br>4x41002<br>I:41001          | 65534,0xFFFE<br>B:FF FE         |                   |              | UINT16<br>R/O |             |
| Actual measured ohm value of RTDIx:65534=OPEN   |  |                                 |                   |              |               |             |
| RTD INPUT3<br>IN OHM*10   | 3x41003<br>4x41003<br>I:41002          | 65534,0xFFFE<br>B:FF FE         |                   |              | UINT16<br>R/O |             |
| Actual measured ohm value of RTDIx:65534=OPEN   |  |                                 |                   |              |               |             |
| RTD INPUT4<br>IN OHM*10   | 3x41004<br>4x41004<br>I:41003          | 65534,0xFFFE<br>B:FF FE         |                   |              | UINT16<br>R/O |             |
| Actual measured ohm value of RTDIx:65534=OPEN   |  |                                 |                   |              |               |             |
| RTD INPUT5<br>IN OHM*10   | 3x41005<br>4x41005<br>I:41004          | 65534,0xFFFE<br>B:FF FE         |                   |              | UINT16<br>R/O |             |
| Actual measured ohm value of RTDIx:65534=OPEN   |  |                                 |                   |              |               |             |
| RTD INPUT6<br>IN OHM*10   | 3x41006<br>4x41006<br>I:41005          | 65534,0xFFFE<br>B:FF FE         |                   |              | UINT16<br>R/O |             |
| Actual measured ohm value of RTDIx:65534=OPEN   |  |                                 |                   |              |               |             |
| RTD INPUT7<br>IN OHM*10   | 3x41007<br>4x41007<br>I:41006          | 65534,0xFFFE<br>B:FF FE         |                   |              | UINT16<br>R/O |             |
| Actual measured ohm value of RTDIx:65534=OPEN   |  |                                 |                   |              |               |             |
| RTD INPUT8<br>IN OHM*10   | 3x41008<br>4x41008<br>I:41007          | 65534,0xFFFE<br>B:FF FE         |                   |              | UINT16<br>R/O |             |
| Actual measured ohm value of RTDIx:65534=OPEN   |  |                                 |                   |              |               |             |
| <b>AIOX:RTD INPUTS OHM*1</b>  |  |                                 |                   |              |               |             |

|  |                               |                         |  |  |               |  |
|--|-------------------------------|-------------------------|--|--|---------------|--|
| RTD INPUT1<br>IN OHM   | 3x41009<br>4x41009<br>I:41008 | 65535,0xFFFF<br>B:FF FF |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                         |  |  |               |  |
| Current measured RTD in Ohm*1 between 0 and 60000<br>=0..60000: Current measured resistance in Ohm*1<br>=65534,0xFFFF: The sensor or cabling is open (broken, not connected, or out of range)<br>=65535,0xFFFF: The channel is not configured as RTD input   |                               |                         |  |  |               |  |
| RTD INPUT2<br>IN OHM   | 3x41010<br>4x41010<br>I:41009 | 65535,0xFFFF<br>B:FF FF |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                         |  |  |               |  |
| RTD INPUT3<br>IN OHM   | 3x41011<br>4x41011<br>I:41010 | 65535,0xFFFF<br>B:FF FF |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                         |  |  |               |  |
| RTD INPUT4<br>IN OHM   | 3x41012<br>4x41012<br>I:41011 | 65535,0xFFFF<br>B:FF FF |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                         |  |  |               |  |
| RTD INPUT5<br>IN OHM   | 3x41013<br>4x41013<br>I:41012 | 65535,0xFFFF<br>B:FF FF |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                         |  |  |               |  |
| RTD INPUT6<br>IN OHM   | 3x41014<br>4x41014<br>I:41013 | 65535,0xFFFF<br>B:FF FF |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                         |  |  |               |  |
| RTD INPUT7<br>IN OHM   | 3x41015<br>4x41015<br>I:41014 | 65535,0xFFFF<br>B:FF FF |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                         |  |  |               |  |
| RTD INPUT8<br>IN OHM   | 3x41016<br>4x41016<br>I:41015 | 65535,0xFFFF<br>B:FF FF |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                         |  |  |               |  |
| <b>AIOX:RTD INPUTS OHM/10</b>  |                               |                         |  |  |               |  |
| RTD INPUT1<br>IN OHM/10  | 3x41017<br>4x41017<br>I:41016 | 65535,0xFFFF<br>B:FF FF |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                         |  |  |               |  |
| Current measured RTD in Ohm/10 between 0 and 60000<br>=0..60000: Current measured resistance in Ohm/10<br>=65534,0xFFFF: The sensor or cabling is open (broken, not connected, or out of range)<br>=65535,0xFFFF: The channel is not configured as RTD input |                               |                         |  |  |               |  |

|  |                               |                          |  |  |               |  |
|--|-------------------------------|--------------------------|--|--|---------------|--|
| RTD INPUT2<br>IN OHM/10  | 3x41018<br>4x41018<br>I:41017 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                          |  |  |               |  |
| RTD INPUT3<br>IN OHM/10  | 3x41019<br>4x41019<br>I:41018 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                          |  |  |               |  |
| RTD INPUT4<br>IN OHM/10  | 3x41020<br>4x41020<br>I:41019 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                          |  |  |               |  |
| RTD INPUT5<br>IN OHM/10  | 3x41021<br>4x41021<br>I:41020 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                          |  |  |               |  |
| RTD INPUT6<br>IN OHM/10  | 3x41022<br>4x41022<br>I:41021 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                          |  |  |               |  |
| RTD INPUT7<br>IN OHM/10  | 3x41023<br>4x41023<br>I:41022 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                          |  |  |               |  |
| RTD INPUT8<br>IN OHM/10  | 3x41024<br>4x41024<br>I:41023 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured ohm value of RTDIx:65535=N/V   |                               |                          |  |  |               |  |
| <b>AIOX:RTD INPUTS PT100 CELSIUS</b>   |                               |                          |  |  |               |  |
| RTD INPUT1<br>AS PT100 IN CELSIUS  | 3x41025<br>4x41025<br>I:41024 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| Current measured RTD sensor value linearized as PT100 sensor in Celsius*100 in the range of -5000 to +13000 for -50.0 to +130.0 °C<br>-32766,0x8002: Measured value is below -50°C<br>-32767,0x8001: Measured value is above +130°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| RTD INPUT2<br>AS PT100 IN CELSIUS  | 3x41026<br>4x41026<br>I:41025 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT3<br>AS PT100 IN CELSIUS  | 3x41027<br>4x41027<br>I:41026 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |

|   |                               |                          |  |  |               |  |
|---|-------------------------------|--------------------------|--|--|---------------|--|
| RTD INPUT4<br>AS PT100 IN CELSIUS   | 3x41028<br>4x41028<br>I:41027 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT5<br>AS PT100 IN CELSIUS   | 3x41029<br>4x41029<br>I:41028 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT6<br>AS PT100 IN CELSIUS   | 3x41030<br>4x41030<br>I:41029 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT7<br>AS PT100 IN CELSIUS   | 3x41031<br>4x41031<br>I:41030 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT8<br>AS PT100 IN CELSIUS   | 3x41032<br>4x41032<br>I:41031 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| <b>AIOX:RTD INPUTS PT1000 CELSIUS</b>   |                               |                          |  |  |               |  |
| RTD INPUT1<br>AS PT1000 IN CELSIUS  | 3x41033<br>4x41033<br>I:41032 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| Current measured RTD sensor value linearized as PT1000 sensor in Celsius*100 in the range of -5000 to +13000 for -50.0 to +130.0 °C<br>-32766,0x8002: Measured value is below -50°C<br>-32767,0x8001: Measured value is above +130°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| RTD INPUT2<br>AS PT1000 IN CELSIUS  | 3x41034<br>4x41034<br>I:41033 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT3<br>AS PT1000 IN CELSIUS  | 3x41035<br>4x41035<br>I:41034 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT4<br>AS PT1000 IN CELSIUS  | 3x41036<br>4x41036<br>I:41035 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT5<br>AS PT1000 IN CELSIUS  | 3x41037<br>4x41037<br>I:41036 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |

|  |                               |                          |  |  |               |  |
|--|-------------------------------|--------------------------|--|--|---------------|--|
| RTD INPUT6<br>AS PT1000 IN CELSIUS   | 3x41038<br>4x41038<br>I:41037 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT7<br>AS PT1000 IN CELSIUS   | 3x41039<br>4x41039<br>I:41038 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT8<br>AS PT1000 IN CELSIUS   | 3x41040<br>4x41040<br>I:41039 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| <b>AIOX:RTD INPUTS NI1000-DIN43760 CELSIUS</b>   |                               |                          |  |  |               |  |
| RTD INPUT1<br>AS NI1000-DIN43760 IN CELSIUS  | 3x41041<br>4x41041<br>I:41040 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| Current measured RTD sensor value linearized as NI1000-DIN43760 sensor in Celsius*100 in the range of -5000 to +13000 for -50.0 to +130.0 °C<br>-32766,0x8002: Measured value is below -50°C<br>-32767,0x8001: Measured value is above +130°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| RTD INPUT2<br>AS NI1000-DIN43760 IN CELSIUS  | 3x41042<br>4x41042<br>I:41041 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT3<br>AS NI1000-DIN43760 IN CELSIUS  | 3x41043<br>4x41043<br>I:41042 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT4<br>AS NI1000-DIN43760 IN CELSIUS  | 3x41044<br>4x41044<br>I:41043 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT5<br>AS NI1000-DIN43760 IN CELSIUS  | 3x41045<br>4x41045<br>I:41044 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT6<br>AS NI1000-DIN43760 IN CELSIUS  | 3x41046<br>4x41046<br>I:41045 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT7<br>AS NI1000-DIN43760 IN CELSIUS  | 3x41047<br>4x41047<br>I:41046 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |

|  |                               |                          |  |               |  |
|--|-------------------------------|--------------------------|--|---------------|--|
| RTD INPUT8<br>AS NI1000-DIN43760 IN CELSIUS  | 3x41048<br>4x41048<br>I:41047 | -32768,0x8000<br>B:80 00 |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDIx:-32768=N/V   |                               |                          |  |               |  |
| <b>AIOX:RTD INPUTS PT100 KELVIN</b>  |                               |                          |  |               |  |
| RTD INPUT1<br>AS PT100 IN KELVIN   | 3x41049<br>4x41049<br>I:41048 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:65535=655,35°K   |                               |                          |  |               |  |
| Current measured RTD sensor value linearized as PT100 sensor in Kelvin*100 in the range of 22315 to 40315 for 223.15 to 403.15 °K<br>65533,0xFFFFD: Measured value is below 223,15°K<br>65534,0xFFFFE: Measured value is above 403,15°K<br>65535,0xFFFFF: The channel is not configured as RTD input |                               |                          |  |               |  |
| RTD INPUT2<br>AS PT100 IN KELVIN   | 3x41050<br>4x41050<br>I:41049 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:65535=655,35°K   |                               |                          |  |               |  |
| RTD INPUT3<br>AS PT100 IN KELVIN   | 3x41051<br>4x41051<br>I:41050 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:65535=655,35°K   |                               |                          |  |               |  |
| RTD INPUT4<br>AS PT100 IN KELVIN   | 3x41052<br>4x41052<br>I:41051 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:65535=655,35°K   |                               |                          |  |               |  |
| RTD INPUT5<br>AS PT100 IN KELVIN   | 3x41053<br>4x41053<br>I:41052 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:65535=655,35°K   |                               |                          |  |               |  |
| RTD INPUT6<br>AS PT100 IN KELVIN   | 3x41054<br>4x41054<br>I:41053 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:65535=655,35°K   |                               |                          |  |               |  |
| RTD INPUT7<br>AS PT100 IN KELVIN   | 3x41055<br>4x41055<br>I:41054 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:65535=655,35°K   |                               |                          |  |               |  |
| RTD INPUT8<br>AS PT100 IN KELVIN   | 3x41056<br>4x41056<br>I:41055 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:65535=655,35°K   |                               |                          |  |               |  |
| <b>AIOX:RTD INPUTS PT1000 KELVIN</b>   |                               |                          |  |               |  |
| RTD INPUT1<br>AS PT1000 IN KELVIN  | 3x41057<br>4x41057<br>I:41056 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |

|   |                               |   |  |  |               |  |
|---|-------------------------------|---|--|--|---------------|--|
|   |                               | Actual measured PT1000 temperature RTDIx:65535=655,35°K |  |  |               |  |
| Current measured RTD sensor value linearized as PT1000 sensor in Kelvin*100 in the range of 22315 to 40315 for 223.15 to 403.15 °K<br>65533,0xFFFF: Measured value is below 223,15°K<br>65534,0xFFFF: Measured value is above 403,15°K<br>65535,0xFFFF: The channel is not configured as RTD input          |                               |   |  |  |               |  |
| RTD INPUT2<br>AS PT1000 IN KELVIN   | 3x41058<br>4x41058<br>I:41057 | 65535,0xFFFF<br>B:FF FF                                 |  |  | UINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:65535=655,35°K   |                               |   |  |  |               |  |
| RTD INPUT3<br>AS PT1000 IN KELVIN   | 3x41059<br>4x41059<br>I:41058 | 65535,0xFFFF<br>B:FF FF                                 |  |  | UINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:65535=655,35°K   |                               |   |  |  |               |  |
| RTD INPUT4<br>AS PT1000 IN KELVIN   | 3x41060<br>4x41060<br>I:41059 | 65535,0xFFFF<br>B:FF FF                                 |  |  | UINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:65535=655,35°K   |                               |   |  |  |               |  |
| RTD INPUT5<br>AS PT1000 IN KELVIN   | 3x41061<br>4x41061<br>I:41060 | 65535,0xFFFF<br>B:FF FF                                 |  |  | UINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:65535=655,35°K   |                               |   |  |  |               |  |
| RTD INPUT6<br>AS PT1000 IN KELVIN   | 3x41062<br>4x41062<br>I:41061 | 65535,0xFFFF<br>B:FF FF                                 |  |  | UINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:65535=655,35°K   |                               |   |  |  |               |  |
| RTD INPUT7<br>AS PT1000 IN KELVIN   | 3x41063<br>4x41063<br>I:41062 | 65535,0xFFFF<br>B:FF FF                                 |  |  | UINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:65535=655,35°K   |                               |   |  |  |               |  |
| RTD INPUT8<br>AS PT1000 IN KELVIN   | 3x41064<br>4x41064<br>I:41063 | 65535,0xFFFF<br>B:FF FF                                 |  |  | UINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:65535=655,35°K   |                               |   |  |  |               |  |
| <b>AIOX:RTD INPUTS NI1000-DIN43760 KELVIN</b>   |                               |   |  |  |               |  |
| RTD INPUT1<br>AS NI1000-DIN43760 IN KELVIN  | 3x41065<br>4x41065<br>I:41064 | 65535,0xFFFF<br>B:FF FF                                 |  |  | UINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDIx:65535=655,35°K  |                               |   |  |  |               |  |
| Current measured RTD sensor value linearized as NI1000-DIN43760 sensor in Kelvin*100 in the range of 22315 to 40315 for 223.15 to 403.15 °K<br>65533,0xFFFF: Measured value is below 223,15°K<br>65534,0xFFFF: Measured value is above 403,15°K<br>65535,0xFFFF: The channel is not configured as RTD input |                               |   |  |  |               |  |
| RTD INPUT2<br>AS NI1000-DIN43760 IN KELVIN  | 3x41066<br>4x41066<br>I:41065 | 65535,0xFFFF<br>B:FF FF                                 |  |  | UINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDIx:65535=655,35°K  |                               |   |  |  |               |  |



|   |                               |                          |  |  |               |  |
|---|-------------------------------|--------------------------|--|--|---------------|--|
| RTD INPUT3<br>AS NI1000-DIN43760 IN KELVIN  | 3x41067<br>4x41067<br>I:41066 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDIx:65535=655,35°K  |                               |                          |  |  |               |  |
| RTD INPUT4<br>AS NI1000-DIN43760 IN KELVIN  | 3x41068<br>4x41068<br>I:41067 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDIx:65535=655,35°K  |                               |                          |  |  |               |  |
| RTD INPUT5<br>AS NI1000-DIN43760 IN KELVIN  | 3x41069<br>4x41069<br>I:41068 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDIx:65535=655,35°K  |                               |                          |  |  |               |  |
| RTD INPUT6<br>AS NI1000-DIN43760 IN KELVIN  | 3x41070<br>4x41070<br>I:41069 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDIx:65535=655,35°K  |                               |                          |  |  |               |  |
| RTD INPUT7<br>AS NI1000-DIN43760 IN KELVIN  | 3x41071<br>4x41071<br>I:41070 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDIx:65535=655,35°K  |                               |                          |  |  |               |  |
| RTD INPUT8<br>AS NI1000-DIN43760 IN KELVIN  | 3x41072<br>4x41072<br>I:41071 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDIx:65535=655,35°K  |                               |                          |  |  |               |  |
| <b>AIOX:RTD INPUTS PT100 FAHRENHEIT</b>   |                               |                          |  |  |               |  |
| RTD INPUT1<br>AS PT100 IN FAHRENHEIT  | 3x41073<br>4x41073<br>I:41072 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| Current measured RTD sensor value linearized as PT100 sensor in Fahrenheit*100 in the range of -5800 to +26600 for -58.0 to +266.0 °F<br>-32766,0x8002: Measured value is below -58°C<br>-32767,0x8001: Measured value is above +266°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| RTD INPUT2<br>AS PT100 IN FAHRENHEIT  | 3x41074<br>4x41074<br>I:41073 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT3<br>AS PT100 IN FAHRENHEIT  | 3x41075<br>4x41075<br>I:41074 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT4<br>AS PT100 IN FAHRENHEIT  | 3x41076<br>4x41076<br>I:41075 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |

|  |                               |                          |  |  |               |  |
|--|-------------------------------|--------------------------|--|--|---------------|--|
| RTD INPUT5<br>AS PT100 IN FAHRENHEIT   | 3x41077<br>4x41077<br>I:41076 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT6<br>AS PT100 IN FAHRENHEIT   | 3x41078<br>4x41078<br>I:41077 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT7<br>AS PT100 IN FAHRENHEIT   | 3x41079<br>4x41079<br>I:41078 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT8<br>AS PT100 IN FAHRENHEIT   | 3x41080<br>4x41080<br>I:41079 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| <b>AIOX:RTD INPUTS PT1000 FAHRENHEIT</b>   |                               |                          |  |  |               |  |
| RTD INPUT1<br>AS PT1000 IN FAHRENHEIT  | 3x41081<br>4x41081<br>I:41080 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| Current measured RTD sensor value linearized as PT1000 sensor in Fahrenheit*100 in the range of -5800 to +26600 for -58.0 to +266.0 °F<br>-32766,0x8002: Measured value is below -58°C<br>-32767,0x8001: Measured value is above +266°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| RTD INPUT2<br>AS PT1000 IN FAHRENHEIT  | 3x41082<br>4x41082<br>I:41081 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT3<br>AS PT1000 IN FAHRENHEIT  | 3x41083<br>4x41083<br>I:41082 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT4<br>AS PT1000 IN FAHRENHEIT  | 3x41084<br>4x41084<br>I:41083 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT5<br>AS PT1000 IN FAHRENHEIT  | 3x41085<br>4x41085<br>I:41084 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT6<br>AS PT1000 IN FAHRENHEIT  | 3x41086<br>4x41086<br>I:41085 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |

|   |                               |                          |  |  |               |  |
|---|-------------------------------|--------------------------|--|--|---------------|--|
| RTD INPUT7<br>AS PT1000 IN FAHRENHEIT   | 3x41087<br>4x41087<br>I:41086 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| RTD INPUT8<br>AS PT1000 IN FAHRENHEIT   | 3x41088<br>4x41088<br>I:41087 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured PT1000 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| <b>AIOX:RTD INPUTS NI1000-DIN43760 FAHRENHEIT</b>   |                               |                          |  |  |               |  |
| RTD INPUT1<br>AS NI1000-DIN43760 IN FAHRENHEIT  | 3x41089<br>4x41089<br>I:41088 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| Current measured RTD sensor value linearized as NI1000-DIN43760 sensor in Fahrenheit*100 in the range of -5800 to +26600 for -58.0 to +266.0 °F<br>-32766,0x8002: Measured value is below -58°C<br>-32767,0x8001: Measured value is above +266°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| RTD INPUT2<br>AS NI1000-DIN43760 IN FAHRENHEIT  | 3x41090<br>4x41090<br>I:41089 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT3<br>AS NI1000-DIN43760 IN FAHRENHEIT  | 3x41091<br>4x41091<br>I:41090 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT4<br>AS NI1000-DIN43760 IN FAHRENHEIT  | 3x41092<br>4x41092<br>I:41091 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT5<br>AS NI1000-DIN43760 IN FAHRENHEIT  | 3x41093<br>4x41093<br>I:41092 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT6<br>AS NI1000-DIN43760 IN FAHRENHEIT  | 3x41094<br>4x41094<br>I:41093 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT7<br>AS NI1000-DIN43760 IN FAHRENHEIT  | 3x41095<br>4x41095<br>I:41094 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| RTD INPUT8<br>AS NI1000-DIN43760 IN FAHRENHEIT  | 3x41096<br>4x41096<br>I:41095 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Actual measured NI1000-DIN43760 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |

| AIOX:RTD INPUTS OHM*100  |                               |  |  |  |                |
|--|-------------------------------|--|--|--|----------------|
| RTD INPUT1<br>IN OHM*100   | 3x41501<br>4x41501<br>I:41500 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |
| Actual measured ohm value of RTDIx:-1=N/V  |                               |  |  |  |                |
| Current measured RTD in Ohm*100<br>=0xFFFFFFFF: The channel is not configured as RTD input |                               |  |  |  |                |
| RTD INPUT2<br>IN OHM*100   | 3x41503<br>4x41503<br>I:41502 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |
| Actual measured ohm value of RTDIx:-1=N/V  |                               |  |  |  |                |
| RTD INPUT3<br>IN OHM*100   | 3x41505<br>4x41505<br>I:41504 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |
| Actual measured ohm value of RTDIx:-1=N/V  |                               |  |  |  |                |
| RTD INPUT4<br>IN OHM*100   | 3x41507<br>4x41507<br>I:41506 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |
| Actual measured ohm value of RTDIx:-1=N/V  |                               |  |  |  |                |
| RTD INPUT5<br>IN OHM*100   | 3x41509<br>4x41509<br>I:41508 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |
| Actual measured ohm value of RTDIx:-1=N/V  |                               |  |  |  |                |
| RTD INPUT6<br>IN OHM*100   | 3x41511<br>4x41511<br>I:41510 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |
| Actual measured ohm value of RTDIx:-1=N/V  |                               |  |  |  |                |
| RTD INPUT7<br>IN OHM*100   | 3x41513<br>4x41513<br>I:41512 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |
| Actual measured ohm value of RTDIx:-1=N/V  |                               |  |  |  |                |
| RTD INPUT8<br>IN OHM*100   | 3x41515<br>4x41515<br>I:41514 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |
| Actual measured ohm value of RTDIx:-1=N/V  |                               |  |  |  |                |
| AIOX:RTD INPUTS OHM*100  |                               |  |  |  |                |
| RTD INPUT1<br>IN OHM*100   | 3x41517<br>4x41517<br>I:41516 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32R<br>R/O |
| Actual measured ohm value of RTDIx:-1=N/V  |                               |  |  |  |                |
| Current measured RTD in Ohm*100<br>=0xFFFFFFFF: The channel is not configured as RTD input |                               |  |  |  |                |

|                          |                               |   |  |  |                |  |
|--------------------------|-------------------------------|---|--|--|----------------|--|
| RTD INPUT2<br>IN OHM*100 | 3x41519<br>4x41519<br>I:41518 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF    |  |  | UINT32R<br>R/O |  |
|                          |                               | Actual measured ohm value of RTDIx:-1=N/V |  |  |                |  |
| RTD INPUT3<br>IN OHM*100 | 3x41521<br>4x41521<br>I:41520 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF    |  |  | UINT32R<br>R/O |  |
|                          |                               | Actual measured ohm value of RTDIx:-1=N/V |  |  |                |  |
| RTD INPUT4<br>IN OHM*100 | 3x41523<br>4x41523<br>I:41522 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF    |  |  | UINT32R<br>R/O |  |
|                          |                               | Actual measured ohm value of RTDIx:-1=N/V |  |  |                |  |
| RTD INPUT5<br>IN OHM*100 | 3x41525<br>4x41525<br>I:41524 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF    |  |  | UINT32R<br>R/O |  |
|                          |                               | Actual measured ohm value of RTDIx:-1=N/V |  |  |                |  |
| RTD INPUT6<br>IN OHM*100 | 3x41527<br>4x41527<br>I:41526 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF    |  |  | UINT32R<br>R/O |  |
|                          |                               | Actual measured ohm value of RTDIx:-1=N/V |  |  |                |  |
| RTD INPUT7<br>IN OHM*100 | 3x41529<br>4x41529<br>I:41528 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF    |  |  | UINT32R<br>R/O |  |
|                          |                               | Actual measured ohm value of RTDIx:-1=N/V |  |  |                |  |
| RTD INPUT8<br>IN OHM*100 | 3x41531<br>4x41531<br>I:41530 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF    |  |  | UINT32R<br>R/O |  |
|                          |                               | Actual measured ohm value of RTDIx:-1=N/V |  |  |                |  |

| Register NAME<br>Command NAME   | MODBUS<br>Register<br>ASCII<br>Command | Register VALUE<br>ASCII Command | NEW REAL<br>VALUE | NEW<br>VALUE | DATA TYPE     | DO<br>WRITE |
|---|--|---------------------------------|-------------------|--------------|---------------|-------------|
| <b>AIOX:AVERAGE RTD INPUTS OHM*10</b>   |  |                                 |                   |              |               |             |
| AVERAGE RTD INPUT1<br>IN OHM*10   | 3x42001<br>4x42001<br>I:42000          | 65535,0xFFFF<br>B:FF FF         |                   |              | UINT16<br>R/O |             |
| Measured average ohm value of RTDix:65535=N/V   |  |                                 |                   |              |               |             |
| Measured average RTD in Ohm*10 between 0 and 600000<br>=0..60000: Measured average resistance in Ohm*10<br>=65534,0xFFFF: The sensor or cabling is open (broken, not connected, or out of range)<br>=65535,0xFFFF: The channel is not configured as RTD input |  |                                 |                   |              |               |             |
| AVERAGE RTD INPUT2<br>IN OHM*10   | 3x42002<br>4x42002<br>I:42001          | 65535,0xFFFF<br>B:FF FF         |                   |              | UINT16<br>R/O |             |
| Measured average ohm value of RTDix:65535=N/V   |  |                                 |                   |              |               |             |
| AVERAGE RTD INPUT3<br>IN OHM*10   | 3x42003<br>4x42003<br>I:42002          | 65535,0xFFFF<br>B:FF FF         |                   |              | UINT16<br>R/O |             |
| Measured average ohm value of RTDix:65535=N/V   |  |                                 |                   |              |               |             |
| AVERAGE RTD INPUT4<br>IN OHM*10   | 3x42004<br>4x42004<br>I:42003          | 65535,0xFFFF<br>B:FF FF         |                   |              | UINT16<br>R/O |             |
| Measured average ohm value of RTDix:65535=N/V   |  |                                 |                   |              |               |             |
| AVERAGE RTD INPUT5<br>IN OHM*10   | 3x42005<br>4x42005<br>I:42004          | 65535,0xFFFF<br>B:FF FF         |                   |              | UINT16<br>R/O |             |
| Measured average ohm value of RTDix:65535=N/V   |  |                                 |                   |              |               |             |
| AVERAGE RTD INPUT6<br>IN OHM*10   | 3x42006<br>4x42006<br>I:42005          | 65535,0xFFFF<br>B:FF FF         |                   |              | UINT16<br>R/O |             |
| Measured average ohm value of RTDix:65535=N/V   |  |                                 |                   |              |               |             |
| AVERAGE RTD INPUT7<br>IN OHM*10   | 3x42007<br>4x42007<br>I:42006          | 65535,0xFFFF<br>B:FF FF         |                   |              | UINT16<br>R/O |             |
| Measured average ohm value of RTDix:65535=N/V   |  |                                 |                   |              |               |             |
| AVERAGE RTD INPUT8<br>IN OHM*10   | 3x42008<br>4x42008<br>I:42007          | 65535,0xFFFF<br>B:FF FF         |                   |              | UINT16<br>R/O |             |
| Measured average ohm value of RTDix:65535=N/V   |  |                                 |                   |              |               |             |
| <b>AIOX:AVERAGE RTD INPUTS OHM*1</b>  |  |                                 |                   |              |               |             |

|  |                               |   |  |  |               |  |
|--|-------------------------------|---|--|--|---------------|--|
| AVERAGE RTD INPUT1<br>IN OHM   | 3x42009<br>4x42009<br>I:42008 | 65535,0xFFFF<br>B:FF FF                       |  |  | UINT16<br>R/O |  |
|  |                               | Measured average ohm value of RTDix:65535=N/V |  |  |               |  |
| Measured average RTD in Ohm*1 between 0 and 60000<br>=0..60000: Measured average resistance in Ohm*1<br>=65534,0xFFFF: The sensor or cabling is open (broken, not connected, or out of range)<br>=65535,0xFFFF: The channel is not configured as RTD input   |                               |   |  |  |               |  |
| AVERAGE RTD INPUT2<br>IN OHM   | 3x42010<br>4x42010<br>I:42009 | 65535,0xFFFF<br>B:FF FF                       |  |  | UINT16<br>R/O |  |
|  |                               | Measured average ohm value of RTDix:65535=N/V |  |  |               |  |
| AVERAGE RTD INPUT3<br>IN OHM   | 3x42011<br>4x42011<br>I:42010 | 65535,0xFFFF<br>B:FF FF                       |  |  | UINT16<br>R/O |  |
|  |                               | Measured average ohm value of RTDix:65535=N/V |  |  |               |  |
| AVERAGE RTD INPUT4<br>IN OHM   | 3x42012<br>4x42012<br>I:42011 | 65535,0xFFFF<br>B:FF FF                       |  |  | UINT16<br>R/O |  |
|  |                               | Measured average ohm value of RTDix:65535=N/V |  |  |               |  |
| AVERAGE RTD INPUT5<br>IN OHM   | 3x42013<br>4x42013<br>I:42012 | 65535,0xFFFF<br>B:FF FF                       |  |  | UINT16<br>R/O |  |
|  |                               | Measured average ohm value of RTDix:65535=N/V |  |  |               |  |
| AVERAGE RTD INPUT6<br>IN OHM   | 3x42014<br>4x42014<br>I:42013 | 65535,0xFFFF<br>B:FF FF                       |  |  | UINT16<br>R/O |  |
|  |                               | Measured average ohm value of RTDix:65535=N/V |  |  |               |  |
| AVERAGE RTD INPUT7<br>IN OHM   | 3x42015<br>4x42015<br>I:42014 | 65535,0xFFFF<br>B:FF FF                       |  |  | UINT16<br>R/O |  |
|  |                               | Measured average ohm value of RTDix:65535=N/V |  |  |               |  |
| AVERAGE RTD INPUT8<br>IN OHM   | 3x42016<br>4x42016<br>I:42015 | 65535,0xFFFF<br>B:FF FF                       |  |  | UINT16<br>R/O |  |
|  |                               | Measured average ohm value of RTDix:65535=N/V |  |  |               |  |
| <b>AIOX:AVERAGE RTD INPUTS OHM/10</b>  |                               |   |  |  |               |  |
| AVERAGE RTD INPUT1<br>IN OHM/10  | 3x42017<br>4x42017<br>I:42016 | 65535,0xFFFF<br>B:FF FF                       |  |  | UINT16<br>R/O |  |
|  |                               | Measured average ohm value of RTDix:65535=N/V |  |  |               |  |
| Measured average RTD in Ohm/10 between 0 and 60000<br>=0..60000: Measured average resistance in Ohm/10<br>=65534,0xFFFF: The sensor or cabling is open (broken, not connected, or out of range)<br>=65535,0xFFFF: The channel is not configured as RTD input |                               |   |  |  |               |  |

|   |                               |                          |  |  |               |  |
|---|-------------------------------|--------------------------|--|--|---------------|--|
| AVERAGE RTD INPUT2<br>IN OHM/10   | 3x42018<br>4x42018<br>I:42017 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average ohm value of RTDix:65535=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT3<br>IN OHM/10   | 3x42019<br>4x42019<br>I:42018 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average ohm value of RTDix:65535=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT4<br>IN OHM/10   | 3x42020<br>4x42020<br>I:42019 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average ohm value of RTDix:65535=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT5<br>IN OHM/10   | 3x42021<br>4x42021<br>I:42020 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average ohm value of RTDix:65535=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT6<br>IN OHM/10   | 3x42022<br>4x42022<br>I:42021 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average ohm value of RTDix:65535=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT7<br>IN OHM/10   | 3x42023<br>4x42023<br>I:42022 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average ohm value of RTDix:65535=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT8<br>IN OHM/10   | 3x42024<br>4x42024<br>I:42023 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average ohm value of RTDix:65535=N/V   |                               |                          |  |  |               |  |
| <b>AIOX:AVERAGE RTD INPUTS PT100 CELSIUS</b>  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT1<br>AS PT100 IN CELSIUS   | 3x42025<br>4x42025<br>I:42024 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V   |                               |                          |  |  |               |  |
| Calculated average value of RTD sensor value linearized as PT100 sensor in Celsius*100 in the range of -5000 to +13000 for -50.0 to +130.0 °C<br>-32766,0x8002: Measured value is below -50°C<br>-32767,0x8001: Measured value is above +130°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT2<br>AS PT100 IN CELSIUS   | 3x42026<br>4x42026<br>I:42025 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT3<br>AS PT100 IN CELSIUS   | 3x42027<br>4x42027<br>I:42026 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V   |                               |                          |  |  |               |  |



|   |                               |                          |  |  |               |  |
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| AVERAGE RTD INPUT4<br>AS PT100 IN CELSIUS   | 3x42028<br>4x42028<br>I:42027 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT5<br>AS PT100 IN CELSIUS   | 3x42029<br>4x42029<br>I:42028 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT6<br>AS PT100 IN CELSIUS   | 3x42030<br>4x42030<br>I:42029 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT7<br>AS PT100 IN CELSIUS   | 3x42031<br>4x42031<br>I:42030 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT8<br>AS PT100 IN CELSIUS   | 3x42032<br>4x42032<br>I:42031 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| <b>AIOX:AVERAGE RTD INPUTS PT1000 CELSIUS</b>   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT1<br>AS PT1000 IN CELSIUS  | 3x42033<br>4x42033<br>I:42032 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| <p>Calculated average value of RTD sensor value linearized as PT1000 sensor in Celsius*100 in the range of -5000 to +13000 for -50.0 to +130.0 °C<br/> -32766,0x8002: Measured value is below -50°C<br/> -32767,0x8001: Measured value is above +130°C<br/> -32768,0x8000: The channel is not configured as RTD input</p> |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT2<br>AS PT1000 IN CELSIUS  | 3x42034<br>4x42034<br>I:42033 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT3<br>AS PT1000 IN CELSIUS  | 3x42035<br>4x42035<br>I:42034 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT4<br>AS PT1000 IN CELSIUS  | 3x42036<br>4x42036<br>I:42035 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT5<br>AS PT1000 IN CELSIUS  | 3x42037<br>4x42037<br>I:42036 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |

|   |                               |                          |  |  |               |  |
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| AVERAGE RTD INPUT6<br>AS PT1000 IN CELSIUS  | 3x42038<br>4x42038<br>I:42037 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT7<br>AS PT1000 IN CELSIUS  | 3x42039<br>4x42039<br>I:42038 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT8<br>AS PT1000 IN CELSIUS  | 3x42040<br>4x42040<br>I:42039 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDlx:-32768=N/V  |                               |                          |  |  |               |  |
| <b>AIOX:AVERAGE RTD INPUTS NI1000-DIN43760 CELSIUS</b>  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT1<br>AS NI1000-DIN43760 IN CELSIUS   | 3x42041<br>4x42041<br>I:42040 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| Calculated average value of RTD sensor value linearized as NI1000-DIN43760 sensor in Celsius*100 in the range of -5000 to +13000 for -50.0 to +130.0 °C<br>-32766,0x8002: Measured value is below -50°C<br>-32767,0x8001: Measured value is above +130°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT2<br>AS NI1000-DIN43760 IN CELSIUS   | 3x42042<br>4x42042<br>I:42041 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT3<br>AS NI1000-DIN43760 IN CELSIUS   | 3x42043<br>4x42043<br>I:42042 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT4<br>AS NI1000-DIN43760 IN CELSIUS   | 3x42044<br>4x42044<br>I:42043 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT5<br>AS NI1000-DIN43760 IN CELSIUS   | 3x42045<br>4x42045<br>I:42044 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT6<br>AS NI1000-DIN43760 IN CELSIUS   | 3x42046<br>4x42046<br>I:42045 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT7<br>AS NI1000-DIN43760 IN CELSIUS   | 3x42047<br>4x42047<br>I:42046 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |  |               |  |

|   |                               |                          |  |               |  |
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| AVERAGE RTD INPUT8<br>AS NI1000-DIN43760 IN CELSIUS   | 3x42048<br>4x42048<br>I:42047 | -32768,0x8000<br>B:80 00 |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDlx:-32768=N/V   |                               |                          |  |               |  |
| <b>AIOX:AVERAGE RTD INPUTS PT100 KELVIN</b>   |                               |                          |  |               |  |
| AVERAGE RTD INPUT1<br>AS PT100 IN KELVIN  | 3x42049<br>4x42049<br>I:42048 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Measured average PT100 temperature RTDlx:65535=655,35°K   |                               |                          |  |               |  |
| Average value of measured RTD sensor linearized as PT100 sensor in Kelvin*100 in the range of 22315 to 40315 for 223.15 to 403.15 °K<br>65533,0xFFFFD: Measured value is below 223,15°K<br>65534,0xFFFFE: Measured value is above 403,15°K<br>65535,0xFFFFF: The channel is not configured as RTD input |                               |                          |  |               |  |
| AVERAGE RTD INPUT2<br>AS PT100 IN KELVIN  | 3x42050<br>4x42050<br>I:42049 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Measured average PT100 temperature RTDlx:65535=655,35°K   |                               |                          |  |               |  |
| AVERAGE RTD INPUT3<br>AS PT100 IN KELVIN  | 3x42051<br>4x42051<br>I:42050 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Measured average PT100 temperature RTDlx:65535=655,35°K   |                               |                          |  |               |  |
| AVERAGE RTD INPUT4<br>AS PT100 IN KELVIN  | 3x42052<br>4x42052<br>I:42051 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Measured average PT100 temperature RTDlx:65535=655,35°K   |                               |                          |  |               |  |
| AVERAGE RTD INPUT5<br>AS PT100 IN KELVIN  | 3x42053<br>4x42053<br>I:42052 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Measured average PT100 temperature RTDlx:65535=655,35°K   |                               |                          |  |               |  |
| AVERAGE RTD INPUT6<br>AS PT100 IN KELVIN  | 3x42054<br>4x42054<br>I:42053 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Measured average PT100 temperature RTDlx:65535=655,35°K   |                               |                          |  |               |  |
| AVERAGE RTD INPUT7<br>AS PT100 IN KELVIN  | 3x42055<br>4x42055<br>I:42054 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Measured average PT100 temperature RTDlx:65535=655,35°K   |                               |                          |  |               |  |
| AVERAGE RTD INPUT8<br>AS PT100 IN KELVIN  | 3x42056<br>4x42056<br>I:42055 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |
| Measured average PT100 temperature RTDlx:65535=655,35°K   |                               |                          |  |               |  |
| <b>AIOX:AVERAGE RTD INPUTS PT1000 KELVIN</b>  |                               |                          |  |               |  |
| AVERAGE RTD INPUT1<br>AS PT1000 IN KELVIN   | 3x42057<br>4x42057<br>I:42056 | 65535,0xFFFF<br>B:FF FF  |  | UINT16<br>R/O |  |

|  |                               |   |  |  |               |  |
|--|-------------------------------|---|--|--|---------------|--|
|  |                               | Measured average PT1000 temperature RTDIx:65535=655,35°K          |  |  |               |  |
| Average value of measured RTD sensor linearized as PT1000 sensor in Kelvin*100 in the range of 22315 to 40315 for 223.15 to 403.15 °K<br>65533,0xFFFF: Measured value is below 223,15°K<br>65534,0xFFFF: Measured value is above 403,15°K<br>65535,0xFFFF: The channel is not configured as RTD input          |                               |   |  |  |               |  |
| AVERAGE RTD INPUT2<br>AS PT1000 IN KELVIN  | 3x42058<br>4x42058<br>I:42057 | 65535,0xFFFF<br>B:FF FF   |  |  | UINT16<br>R/O |  |
|  |                               | Measured average PT1000 temperature RTDIx:65535=655,35°K          |  |  |               |  |
| AVERAGE RTD INPUT3<br>AS PT1000 IN KELVIN  | 3x42059<br>4x42059<br>I:42058 | 65535,0xFFFF<br>B:FF FF   |  |  | UINT16<br>R/O |  |
|  |                               | Measured average PT1000 temperature RTDIx:65535=655,35°K          |  |  |               |  |
| AVERAGE RTD INPUT4<br>AS PT1000 IN KELVIN  | 3x42060<br>4x42060<br>I:42059 | 65535,0xFFFF<br>B:FF FF   |  |  | UINT16<br>R/O |  |
|  |                               | Measured average PT1000 temperature RTDIx:65535=655,35°K          |  |  |               |  |
| AVERAGE RTD INPUT5<br>AS PT1000 IN KELVIN  | 3x42061<br>4x42061<br>I:42060 | 65535,0xFFFF<br>B:FF FF   |  |  | UINT16<br>R/O |  |
|  |                               | Measured average PT1000 temperature RTDIx:65535=655,35°K          |  |  |               |  |
| AVERAGE RTD INPUT6<br>AS PT1000 IN KELVIN  | 3x42062<br>4x42062<br>I:42061 | 65535,0xFFFF<br>B:FF FF   |  |  | UINT16<br>R/O |  |
|  |                               | Measured average PT1000 temperature RTDIx:65535=655,35°K          |  |  |               |  |
| AVERAGE RTD INPUT7<br>AS PT1000 IN KELVIN  | 3x42063<br>4x42063<br>I:42062 | 65535,0xFFFF<br>B:FF FF   |  |  | UINT16<br>R/O |  |
|  |                               | Measured average PT1000 temperature RTDIx:65535=655,35°K          |  |  |               |  |
| AVERAGE RTD INPUT8<br>AS PT1000 IN KELVIN  | 3x42064<br>4x42064<br>I:42063 | 65535,0xFFFF<br>B:FF FF   |  |  | UINT16<br>R/O |  |
|  |                               | Measured average PT1000 temperature RTDIx:65535=655,35°K          |  |  |               |  |
| <b>AIOX:AVERAGE RTD INPUTS NI1000-DIN43760 KELVIN</b>  |                               |   |  |  |               |  |
| AVERAGE RTD INPUT1<br>AS NI1000-DIN43760 IN KELVIN   | 3x42065<br>4x42065<br>I:42064 | 65535,0xFFFF<br>B:FF FF   |  |  | UINT16<br>R/O |  |
|  |                               | Measured average NI1000-DIN43760 temperature RTDIx:65535=655,35°K |  |  |               |  |
| Average value of measured RTD sensor linearized as NI1000-DIN43760 sensor in Kelvin*100 in the range of 22315 to 40315 for 223.15 to 403.15 °K<br>65533,0xFFFF: Measured value is below 223,15°K<br>65534,0xFFFF: Measured value is above 403,15°K<br>65535,0xFFFF: The channel is not configured as RTD input |                               |   |  |  |               |  |
| AVERAGE RTD INPUT2<br>AS NI1000-DIN43760 IN KELVIN   | 3x42066<br>4x42066<br>I:42065 | 65535,0xFFFF<br>B:FF FF   |  |  | UINT16<br>R/O |  |
|  |                               | Measured average NI1000-DIN43760 temperature RTDIx:65535=655,35°K |  |  |               |  |

|  |                               |                          |  |  |               |  |
|--|-------------------------------|--------------------------|--|--|---------------|--|
| AVERAGE RTD INPUT3<br>AS NI1000-DIN43760 IN KELVIN   | 3x42067<br>4x42067<br>I:42066 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDix:65535=655,35°K  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT4<br>AS NI1000-DIN43760 IN KELVIN   | 3x42068<br>4x42068<br>I:42067 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDix:65535=655,35°K  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT5<br>AS NI1000-DIN43760 IN KELVIN   | 3x42069<br>4x42069<br>I:42068 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDix:65535=655,35°K  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT6<br>AS NI1000-DIN43760 IN KELVIN   | 3x42070<br>4x42070<br>I:42069 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDix:65535=655,35°K  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT7<br>AS NI1000-DIN43760 IN KELVIN   | 3x42071<br>4x42071<br>I:42070 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDix:65535=655,35°K  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT8<br>AS NI1000-DIN43760 IN KELVIN   | 3x42072<br>4x42072<br>I:42071 | 65535,0xFFFF<br>B:FF FF  |  |  | UINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDix:65535=655,35°K  |                               |                          |  |  |               |  |
| <b>AIOX:AVERAGE RTD INPUTS PT100 FAHRENHEIT</b>  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT1<br>AS PT100 IN FAHRENHEIT   | 3x42073<br>4x42073<br>I:42072 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V  |                               |                          |  |  |               |  |
| Average value of measured RTD sensor value linearized as PT100 sensor in Fahrenheit*100 in the range of -5800 to +26600 for -58.0 to +266.0 °F<br>-32766,0x8002: Measured value is below -58°C<br>-32767,0x8001: Measured value is above +266°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT2<br>AS PT100 IN FAHRENHEIT   | 3x42074<br>4x42074<br>I:42073 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT3<br>AS PT100 IN FAHRENHEIT   | 3x42075<br>4x42075<br>I:42074 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT4<br>AS PT100 IN FAHRENHEIT   | 3x42076<br>4x42076<br>I:42075 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V  |                               |                          |  |  |               |  |

|   |                               |                          |  |  |               |  |
|---|-------------------------------|--------------------------|--|--|---------------|--|
| AVERAGE RTD INPUT5<br>AS PT100 IN FAHRENHEIT  | 3x42077<br>4x42077<br>I:42076 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT6<br>AS PT100 IN FAHRENHEIT  | 3x42078<br>4x42078<br>I:42077 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT7<br>AS PT100 IN FAHRENHEIT  | 3x42079<br>4x42079<br>I:42078 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT8<br>AS PT100 IN FAHRENHEIT  | 3x42080<br>4x42080<br>I:42079 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT100 temperature RTDix:-32768=N/V   |                               |                          |  |  |               |  |
| <b>AIOX:AVERAGE RTD INPUTS PT1000 FAHRENHEIT</b>  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT1<br>AS PT1000 IN FAHRENHEIT   | 3x42081<br>4x42081<br>I:42080 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDix:-32768=N/V  |                               |                          |  |  |               |  |
| Average value of measured RTD sensor value linearized as PT1000 sensor in Fahrenheit*100 in the range of -5800 to +26600 for -58.0 to +266.0 °F<br>-32766,0x8002: Measured value is below -58°C<br>-32767,0x8001: Measured value is above +266°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT2<br>AS PT1000 IN FAHRENHEIT   | 3x42082<br>4x42082<br>I:42081 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDix:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT3<br>AS PT1000 IN FAHRENHEIT   | 3x42083<br>4x42083<br>I:42082 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDix:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT4<br>AS PT1000 IN FAHRENHEIT   | 3x42084<br>4x42084<br>I:42083 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDix:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT5<br>AS PT1000 IN FAHRENHEIT   | 3x42085<br>4x42085<br>I:42084 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDix:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT6<br>AS PT1000 IN FAHRENHEIT   | 3x42086<br>4x42086<br>I:42085 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDix:-32768=N/V  |                               |                          |  |  |               |  |

|  |                               |                          |  |  |               |  |
|--|-------------------------------|--------------------------|--|--|---------------|--|
| AVERAGE RTD INPUT7<br>AS PT1000 IN FAHRENHEIT  | 3x42087<br>4x42087<br>I:42086 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT8<br>AS PT1000 IN FAHRENHEIT  | 3x42088<br>4x42088<br>I:42087 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average PT1000 temperature RTDIx:-32768=N/V   |                               |                          |  |  |               |  |
| <b>AIOX:AVERAGE RTD INPUTS NI1000-DIN43760 FAHRENHEIT</b>  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT1<br>AS NI1000-DIN43760 IN FAHRENHEIT   | 3x42089<br>4x42089<br>I:42088 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| Average value of measured RTD sensor value linearized as NI1000-DIN43760 sensor in Fahrenheit*100 in the range of -5800 to +26600 for -58.0 to +266.0 °F<br>-32766,0x8002: Measured value is below -58°C<br>-32767,0x8001: Measured value is above +266°C<br>-32768,0x8000: The channel is not configured as RTD input |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT2<br>AS NI1000-DIN43760 IN FAHRENHEIT   | 3x42090<br>4x42090<br>I:42089 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT3<br>AS NI1000-DIN43760 IN FAHRENHEIT   | 3x42091<br>4x42091<br>I:42090 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT4<br>AS NI1000-DIN43760 IN FAHRENHEIT   | 3x42092<br>4x42092<br>I:42091 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT5<br>AS NI1000-DIN43760 IN FAHRENHEIT   | 3x42093<br>4x42093<br>I:42092 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT6<br>AS NI1000-DIN43760 IN FAHRENHEIT   | 3x42094<br>4x42094<br>I:42093 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT7<br>AS NI1000-DIN43760 IN FAHRENHEIT   | 3x42095<br>4x42095<br>I:42094 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |
| AVERAGE RTD INPUT8<br>AS NI1000-DIN43760 IN FAHRENHEIT   | 3x42096<br>4x42096<br>I:42095 | -32768,0x8000<br>B:80 00 |  |  | SINT16<br>R/O |  |
| Measured average NI1000-DIN43760 temperature RTDIx:-32768=N/V  |                               |                          |  |  |               |  |

| <b>AIOX:RTD INPUTS OHM*100</b>   |                               |  |  |  |                |  |
|--|-------------------------------|--|--|--|----------------|--|
| AVERAGE RTD INPUT1<br>IN OHM*100   | 3x42501<br>4x42501<br>I:42500 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |  |
| Measured average ohm value of RTDix:-1=N/V   |                               |  |  |  |                |  |
| Measured average RTD in Ohm*100<br>=0xFFFFFFFF: The channel is not configured as RTD input |                               |  |  |  |                |  |
| AVERAGE RTD INPUT2<br>IN OHM*100   | 3x42503<br>4x42503<br>I:42502 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |  |
| Measured average ohm value of RTDix:-1=N/V   |                               |  |  |  |                |  |
| AVERAGE RTD INPUT3<br>IN OHM*100   | 3x42505<br>4x42505<br>I:42504 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |  |
| Measured average ohm value of RTDix:-1=N/V   |                               |  |  |  |                |  |
| AVERAGE RTD INPUT4<br>IN OHM*100   | 3x42507<br>4x42507<br>I:42506 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |  |
| Measured average ohm value of RTDix:-1=N/V   |                               |  |  |  |                |  |
| AVERAGE RTD INPUT5<br>IN OHM*100   | 3x42509<br>4x42509<br>I:42508 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |  |
| Measured average ohm value of RTDix:-1=N/V   |                               |  |  |  |                |  |
| AVERAGE RTD INPUT6<br>IN OHM*100   | 3x42511<br>4x42511<br>I:42510 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |  |
| Measured average ohm value of RTDix:-1=N/V   |                               |  |  |  |                |  |
| AVERAGE RTD INPUT7<br>IN OHM*100   | 3x42513<br>4x42513<br>I:42512 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |  |
| Measured average ohm value of RTDix:-1=N/V   |                               |  |  |  |                |  |
| AVERAGE RTD INPUT8<br>IN OHM*100   | 3x42515<br>4x42515<br>I:42514 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32<br>R/O  |  |
| Measured average ohm value of RTDix:-1=N/V   |                               |  |  |  |                |  |
| <b>AIOX:AVERAGE RTD INPUTS OHM*100</b>   |                               |  |  |  |                |  |
| AVERAGE RTD INPUT1<br>IN OHM*100   | 3x42517<br>4x42517<br>I:42516 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF |  |  | UINT32R<br>R/O |  |
| Measured average ohm value of RTDix:-1=N/V   |                               |  |  |  |                |  |
| Measured average RTD in Ohm*100<br>=0xFFFFFFFF: The channel is not configured as RTD input |                               |  |  |  |                |  |



|                                  |                               |  |  |  |                |  |
|----------------------------------|-------------------------------|--|--|--|----------------|--|
| AVERAGE RTD INPUT2<br>IN OHM*100 | 3x42519<br>4x42519<br>I:42518 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF     |  |  | UINT32R<br>R/O |  |
|                                  |                               | Measured average ohm value of RTDix:-1=N/V |  |  |                |  |
| AVERAGE RTD INPUT3<br>IN OHM*100 | 3x42521<br>4x42521<br>I:42520 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF     |  |  | UINT32R<br>R/O |  |
|                                  |                               | Measured average ohm value of RTDix:-1=N/V |  |  |                |  |
| AVERAGE RTD INPUT4<br>IN OHM*100 | 3x42523<br>4x42523<br>I:42522 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF     |  |  | UINT32R<br>R/O |  |
|                                  |                               | Measured average ohm value of RTDix:-1=N/V |  |  |                |  |
| AVERAGE RTD INPUT5<br>IN OHM*100 | 3x42525<br>4x42525<br>I:42524 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF     |  |  | UINT32R<br>R/O |  |
|                                  |                               | Measured average ohm value of RTDix:-1=N/V |  |  |                |  |
| AVERAGE RTD INPUT6<br>IN OHM*100 | 3x42527<br>4x42527<br>I:42526 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF     |  |  | UINT32R<br>R/O |  |
|                                  |                               | Measured average ohm value of RTDix:-1=N/V |  |  |                |  |
| AVERAGE RTD INPUT7<br>IN OHM*100 | 3x42529<br>4x42529<br>I:42528 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF     |  |  | UINT32R<br>R/O |  |
|                                  |                               | Measured average ohm value of RTDix:-1=N/V |  |  |                |  |
| AVERAGE RTD INPUT8<br>IN OHM*100 | 3x42531<br>4x42531<br>I:42530 | 4294967295,0xFFFFFFFF<br>B:FF FF FF FF     |  |  | UINT32R<br>R/O |  |
|                                  |                               | Measured average ohm value of RTDix:-1=N/V |  |  |                |  |

| Register NAME<br>Command NAME   | MODBUS<br>Register<br>ASCII<br>Command | Register VALUE<br>ASCII Command | NEW REAL<br>VALUE | NEW<br>VALUE | DATA TYPE     | DO<br>WRITE |
|---|--|---------------------------------|-------------------|--------------|---------------|-------------|
| <b>AIOX CHIP TEMPERATURE</b>  |  |                                 |                   |              |               |             |
| TEMPERATURE CHIP 1<br>IN CELSIUS  | 3x43001<br>4x43001<br>l:43000          | 464,0x01D0<br>B:01 D0           |                   |              | UINT16<br>R/O |             |
| Actual measured temperature of CHIPx:46,4°C   |  |                                 |                   |              |               |             |
| Current measured chip temperature for CHIPx in x*10 °C. Each CHIP supports 4 AIOX channels.   |  |                                 |                   |              |               |             |
| TEMPERATURE CHIP 2<br>IN CELSIUS  | 3x43002<br>4x43002<br>l:43001          | 475,0x01DB<br>B:01 DB           |                   |              | UINT16<br>R/O |             |
| Actual measured temperature of CHIPx:47,5°C   |  |                                 |                   |              |               |             |
| <b>AIOX CHIP TEMPERATURE</b>  |  |                                 |                   |              |               |             |
| AVERAGE TEMPERATURE CHIP 1<br>IN CELSIUS  | 3x43003<br>4x43003<br>l:43002          | 464,0x01D0<br>B:01 D0           |                   |              | UINT16<br>R/O |             |
| Measured average temperature of CHIPx:46,4°C  |  |                                 |                   |              |               |             |
| Measured average chip temperature for CHIPx in x*10 °C. Each CHIP supports 4 AIOX channels.   |  |                                 |                   |              |               |             |
| AVERAGE TEMPERATURE CHIP 2<br>IN CELSIUS  | 3x43004<br>4x43004<br>l:43003          | 475,0x01DB<br>B:01 DB           |                   |              | UINT16<br>R/O |             |
| Measured average temperature of CHIPx:47,5°C  |  |                                 |                   |              |               |             |
| <b>AIOX CHIP VOLTAGES</b>   |  |                                 |                   |              |               |             |
| Vavdd CHIP 1<br>IN VOLT   | 3x43005<br>4x43005<br>l:43004          | 146,0x0092<br>B:00 92           |                   |              | UINT16<br>R/O |             |
| Actual measured voltage Vavdd of CHIPx:14,6V  |  |                                 |                   |              |               |             |
| Current measured voltage Vavdd for CHIPx in x*10 Volts. Each CHIP supports 4 AIOX channels.<br>This must be >14.5V, if not, there is a severe wiring or other hardware issue! |  |                                 |                   |              |               |             |
| Vavdd CHIP 2<br>IN VOLT   | 3x43006<br>4x43006<br>l:43005          | 146,0x0092<br>B:00 92           |                   |              | UINT16<br>R/O |             |
| Actual measured voltage Vavdd of CHIPx:14,6V  |  |                                 |                   |              |               |             |
| <b>AIOX CHIP VOLTAGES</b>   |  |                                 |                   |              |               |             |
| AVERAGE Vavdd CHIP 1<br>IN VOLT   | 3x43007<br>4x43007<br>l:43006          | 146,0x0092<br>B:00 92           |                   |              | UINT16<br>R/O |             |
| Measured average voltage Vavdd of CHIPx:14,6V   |  |                                 |                   |              |               |             |
| Current measured voltage Vavdd for CHIPx in x*10 Volts. Each CHIP supports 4 AIOX channels.<br>This must be >14.5V, if not, there is a severe wiring or other hardware issue! |  |                                 |                   |              |               |             |
| AVERAGE Vavdd CHIP 2<br>IN VOLT   | 3x43008<br>4x43008<br>l:43007          | 146,0x0092<br>B:00 92           |                   |              | UINT16<br>R/O |             |

|   |                               |   |  |               |
|---|-------------------------------|---|--|---------------|
|   |                               | Measured average voltage Vavdd of CHIPx:14,6V |  |               |
| <b>AIOX CHIP VOLTAGES</b>   |                               |   |  |               |
| Vagnd CHIP 1<br>IN VOLT   | 3x43009<br>4x43009<br>I:43008 | 0,0x0000<br>B:00 00                           |  | UINT16<br>R/O |
|   |                               | Actual measured voltage Vagnd of CHIPx:0,0V   |  |               |
| Current measured voltage Vagnd for CHIPx in x*10 Volts. Each CHIP supports 4 AIOX channels.<br>This must be 0V, if not, there is a severe wiring or other hardware issue!   |                               |   |  |               |
| Vagnd CHIP 2<br>IN VOLT   | 3x43010<br>4x43010<br>I:43009 | 0,0x0000<br>B:00 00                           |  | UINT16<br>R/O |
|   |                               | Actual measured voltage Vagnd of CHIPx:0,0V   |  |               |
| <b>AIOX CHIP VOLTAGES</b>   |                               |   |  |               |
| AVERAGE Vagnd CHIP 1<br>IN VOLT   | 3x43011<br>4x43011<br>I:43010 | 0,0x0000<br>B:00 00                           |  | UINT16<br>R/O |
|   |                               | Measured average voltage Vagnd of CHIPx:0,0V  |  |               |
| Current measured voltage Vagnd for CHIPx in x*10 Volts. Each CHIP supports 4 AIOX channels.<br>This must be 0V, if not, there is a severe wiring or other hardware issue!   |                               |   |  |               |
| AVERAGE Vagnd CHIP 2<br>IN VOLT   | 3x43012<br>4x43012<br>I:43011 | 0,0x0000<br>B:00 00                           |  | UINT16<br>R/O |
|   |                               | Measured average voltage Vagnd of CHIPx:0,0V  |  |               |
| <b>AIOX CHIP STATUS</b>   |                               |   |  |               |
| LIVE STATUS CHIP 1  | 3x43013<br>4x43013<br>I:43012 | 30720,0x7800<br>B:78 00                       |  | UINT16<br>R/O |
|   |                               | Actual live status of CHIPx:7800              |  |               |
| Current live status for CHIPx. Each CHIP supports 4 AIOX channels.<br>Each result bit stands for a different state:<br>Bit 0: VI_ERR_CURR_A: Status of channel A:Voltage or current error detected on Channel A. This bit is interpreted differently depending on which of the following IO function selected:<br>Voltage output: short-circuit error. The error condition is debounced for 2 ms before the status bit is set.<br>Current output: open circuit error. The error condition is debounced for 2 ms before the status bit is set.<br>Current input, loop powered: short-circuit error. A short to ground is detected<br>Current input, externally powered: short-circuit error. A current source >25 mA is detected<br>Bit 1: VI_ERR_CURR_B: Status of voltage input B. Same like VI_ERR_CURR_A<br>Bit 2: VI_ERR_CURR_C: Status of voltage input C. Same like VI_ERR_CURR_A<br>Bit 3: VI_ERR_CURR_D: Status of voltage input D. Same like VI_ERR_CURR_A<br>Bit 4: HI_TEMP_STATUS: If the die temperature is typically at or above 115°C, the HI_TEMP_STATUS bit is asserted<br>Bit 5: CHARGE_PUMP_STATUS: Charge pump error detected.<br>Bit 6: ALDO5V_STATUS: ALDO5V Power Supply Monitor Error. This bit is asserted when the ALDO5V pin falls below 4.05 V. Usually ~5V.<br>Bit 7: AVDD_STATUS: AVDD Power Supply Monitor Error. This bit is asserted when the AVDD pin falls below 9.26 V. Usually ~17V.<br>Bit 8: DVCC_STATUS: DVCC Power Supply Monitor Error. This bit is asserted when the DVCC pin falls below 1.93 V. Usually ~3.3V.<br>Bit 9: ALDO1V8_STATUS: ALDO1V8 Power Supply Monitor Error. This bit is asserted when the ALDO1V8 pin falls below 1.35 V. Usually ~1.8V.<br>Bit 10-12: ADC_CH_CURR: Current converted channel of the ADC (0:A, 1:B, 2:C, 3:D, 4:Diagnostic 0, 5:Diagnostic 1, 6:Diagnostic 2, 7:Diagnostic 3)<br>Bit 13: ADC_BUSY: ADC busy status bit.<br>Bit 14: ADC_DATA_RDY:ADC data ready. The ADC_DATA_RDY bit asserts when a conversion cycle has completed. The bit stays asserted until a user writes 1 to clear the bit. In single conversion mode, the ADC_RDY pin follows the ADC_DATA_RDY bit and only deasserts when the ADC_DATA_RDY bit is cleared. In continuous conversion mode, the ADC_RDY pin returns high after 24 µs.<br>Bit 15: RESERVED: Reserved |                               |   |  |               |

|   |                               |                         |  |  |               |  |
|---|-------------------------------|-------------------------|--|--|---------------|--|
| LIVE STATUS CHIP 2  | 3x43014<br>4x43014<br>I:43013 | 24576,0x6000<br>B:60 00 |  |  | UINT16<br>R/O |  |
| Actual live status of CHIPx:6000  |                               |                         |  |  |               |  |
| <b>AIOX CHIP STATUS</b>   |                               |                         |  |  |               |  |
| ALERT STATUS CHIP 1   | 3x43015<br>4x43015<br>I:43014 | 33792,0x8400<br>B:84 00 |  |  | UINT16<br>R/O |  |
| Actual alert status of CHIPx:8400   |                               |                         |  |  |               |  |
| <p>Current alert status for CHIPx. Each CHIP supports 4 AIOX channels.<br/> Each result bit stands for a different state:<br/> Bit 0: VI_ERR_CURR_A: Status of channel A:Voltage or current error detected on Channel A. This bit is interpreted differently depending on which of the following IO function selected:<br/> Voltage output: short-circuit error. The error condition is debounced for 2 ms before the status bit is set.<br/> Current output: open circuit error. The error condition is debounced for 2 ms before the status bit is set.<br/> Current input, loop powered: short-circuit error. A short to ground is detected<br/> Current input, externally powered: short-circuit error. A current source &gt;25 mA is detected<br/> Bit 1: VI_ERR_CURR_B: Status of voltage input B. Same like VI_ERR_CURR_A<br/> Bit 2: VI_ERR_CURR_C: Status of voltage input C. Same like VI_ERR_CURR_A<br/> Bit 3: VI_ERR_CURR_D: Status of voltage input D. Same like VI_ERR_CURR_A<br/> Bit 4: HI_TEMP_STATUS: If the die temperature is typically at or above 115°C, the HI_TEMP_STATUS bit is asserted<br/> Bit 5: CHARGE_PUMP_STATUS: Charge pump error detected.<br/> Bit 6: ALDO5V_STATUS: ALDO5V Power Supply Monitor Error. This bit is asserted when the ALDO5V pin falls below 4.05 V. Usually ~5V.<br/> Bit 7: AVDD_STATUS: AVDD Power Supply Monitor Error. This bit is asserted when the AVDD pin falls below 9.26 V. Usually ~17V.<br/> Bit 8: DVCC_STATUS: DVCC Power Supply Monitor Error. This bit is asserted when the DVCC pin falls below 1.93 V. Usually ~3.3V.<br/> Bit 9: ALDO1V8_STATUS: ALDO1V8 Power Supply Monitor Error. This bit is asserted when the ALDO1V8 pin falls below 1.35 V. Usually ~1.8V.<br/> Bit 10: ADC_CONV_ERR: ADC Conversion Error. ADC results may be outside the selected measurement range.<br/> Bit 11: ADC_SAT_ERR: ADC Saturation Error. ADC may be outside the user selected measurement range.<br/> Bit 12: SPI_SCLK_CNT_ERR: SPI SCLK count error detected. This bit is asserted if an SPI command is applied but 32 SCLKs are not provided.<br/> Bit 13: SPI_CRC_ERR: SPI CRC error detected. This bit is asserted if an invalid CRC is received.<br/> Bit 14: CAL_MEM_ERR: Calibration Memory Error. This flag asserts under the following two conditions: When a calibration memory CRC error or an uncorrectable error correcting code (ECC) error is detected on the calibration memory upload.<br/> It is not possible to clear this bit if there is a CRC error or uncorrectable ECC error. It is recommended to reset the device and check the supplies in this situation. When there is an attempted SPI access to a register before the calibration memory refresh is complete. Do not address the device until the calibration memory is refreshed. Writing 1 to this bit clears the flag, if the flag is asserted due to this condition.<br/> Bit 15: RESET_OCCURRED: Reset occurred. This bit is asserted after a reset event, which asserts the ALERT pin after the reset. Write a 1 to this bit to clear the flag. Note that a mask bit is not provided for this bit.</p> |                               |                         |  |  |               |  |
| ALERT STATUS CHIP 2   | 3x43016<br>4x43016<br>I:43015 | 33792,0x8400<br>B:84 00 |  |  | UINT16<br>R/O |  |
| Actual alert status of CHIPx:8400   |                               |                         |  |  |               |  |
| <b>AIOX SPI STATUS</b>  |                               |                         |  |  |               |  |
| SPI ERRORS CHIP 1   | 3x43017<br>4x43017<br>I:43016 | 0,0x0000<br>B:00 00     |  |  | UINT16<br>R/O |  |
| Actual SPI error counter of CHIPx:0 error(s)  |                               |                         |  |  |               |  |
| <p>Current SPI error counter for CHIPx. Each CHIP supports 4 AIOX channels.<br/> This command shows the acutal SPI errors since power up for every chip</p>   |                               |                         |  |  |               |  |
| SPI ERRORS CHIP 2   | 3x43018<br>4x43018<br>I:43017 | 0,0x0000<br>B:00 00     |  |  | UINT16<br>R/O |  |
| Actual SPI error counter of CHIPx:0 error(s)  |                               |                         |  |  |               |  |
| <b>AIOX STATE MACHINES</b>  |                               |                         |  |  |               |  |

|   |                               |                         |       |              |               |     |
|---|-------------------------------|-------------------------|-------|--------------|---------------|-----|
| STATE MACHINE CHIP 1  | 3x43019<br>4x43019<br>I:43018 | 12070,0x2F26<br>B:2F 26 |       |              | UINT16<br>R/O |     |
| Actual state of CHIPx:12070   |                               |                         |       |              |               |     |
| This command shows the acutal state of the internal communication state machine for CHIPx   |                               |                         |       |              |               |     |
| STATE MACHINE CHIP 2  | 3x43020<br>4x43020<br>I:43019 | 12050,0x2F12<br>B:2F 12 |       |              | UINT16<br>R/O |     |
| Actual state of CHIPx:12050   |                               |                         |       |              |               |     |
| <b>AIOX ONLINE</b>  |                               |                         |       |              |               |     |
| IS ONLINE CHIP 1  | 3x43021<br>4x43021<br>I:43020 | 1,0x0001<br>B:00 01     |       |              | UINT16<br>R/O |     |
| Is CHIPx online:1=YES   |                               |                         |       |              |               |     |
| This command shows the acutal state of the internal communication state machine for CHIPx   |                               |                         |       |              |               |     |
| IS ONLINE CHIP 2  | 3x43022<br>4x43022<br>I:43021 | 1,0x0001<br>B:00 01     |       |              | UINT16<br>R/O |     |
| Is CHIPx online:1=YES   |                               |                         |       |              |               |     |
| <b>AIOX CLEAR ALARM STATE</b>   |                               |                         |       |              |               |     |
| CLEAR ALERT STATES CHIP 1   | 3x43023<br>4x43023<br>I:43022 | 0,0x0000<br>B:00 00     | 65535 |              | UINT16<br>R/W | YES |
|   |                               | 0:VI_ERR_A              |       | 1:RESET FLAG |               |     |
|   |                               | 1:VI_ERR_B              |       | 1:RESET FLAG |               |     |
|   |                               | 2:VI_ERR_C              |       | 1:RESET FLAG |               |     |
|   |                               | 3:VI_ERR_D              |       | 1:RESET FLAG |               |     |
|   |                               | 4:HI_TEMP_ERR           |       | 1:RESET FLAG |               |     |
|   |                               | 5:CHARGE_PUMP_ERR       |       | 1:RESET FLAG |               |     |
|   |                               | 6:ALDO5V_ERR            |       | 1:RESET FLAG |               |     |
|   |                               | 7:AVDD_ERR              |       | 1:RESET FLAG |               |     |
|   |                               | 8:DVCC_ERR              |       | 1:RESET FLAG |               |     |
|   |                               | 9:ALDO1V8_ERR           |       | 1:RESET FLAG |               |     |
|   |                               | 10:ADC_CONV_ERR         |       | 1:RESET FLAG |               |     |
|   |                               | 11:ADC_SAT_ERR          |       | 1:RESET FLAG |               |     |
|   |                               | 12:SPI_SCLK_ERR         |       | 1:RESET FLAG |               |     |
|   |                               | 13:SPI_CRC_ERR          |       | 1:RESET FLAG |               |     |
|   |                               | 14:CAL_MEM_ERR          |       | 1:RESET FLAG |               |     |
|   |                               | 15:RESET_OCCURED        |       | 1:RESET FLAG |               |     |
| With this command you can reset individual alert bits in the alert status register of CHIPx |                               |                         |       |              |               |     |
| CLEAR ALERT STATES CHIP 2   | 3x43024<br>4x43024<br>I:43023 | 0,0x0000<br>B:00 00     | 65535 |              | UINT16<br>R/W | YES |
|   |                               | 0:VI_ERR_A              |       | 1:RESET FLAG |               |     |
|   |                               | 1:VI_ERR_B              |       | 1:RESET FLAG |               |     |

|  |  |                   |              |  |  |
|--|--|-------------------|--------------|--|--|
|  |  | 2:VI_ERR_C        | 1:RESET FLAG |  |  |
|  |  | 3:VI_ERR_D        | 1:RESET FLAG |  |  |
|  |  | 4:HI_TEMP_ERR     | 1:RESET FLAG |  |  |
|  |  | 5:CHARGE_PUMP_ERR | 1:RESET FLAG |  |  |
|  |  | 6:ALDO5V_ERR      | 1:RESET FLAG |  |  |
|  |  | 7:AVDD_ERR        | 1:RESET FLAG |  |  |
|  |  | 8:DVCC_ERR        | 1:RESET FLAG |  |  |
|  |  | 9:ALDO1V8_ERR     | 1:RESET FLAG |  |  |
|  |  | 10:ADC_CONV_ERR   | 1:RESET FLAG |  |  |
|  |  | 11:ADC_SAT_ERR    | 1:RESET FLAG |  |  |
|  |  | 12:SPI_SCLK_ERR   | 1:RESET FLAG |  |  |
|  |  | 13:SPI_CRC_ERR    | 1:RESET FLAG |  |  |
|  |  | 14:CAL_MEM_ERR    | 1:RESET FLAG |  |  |
|  |  | 15:RESET_OCCURED  | 1:RESET FLAG |  |  |

With this command you can reset individual alert bits in the alert status register of CHIPx

#### AIOX RESET STATE MACHINE

|                               |                               |                     |   |                       |               |     |
|-------------------------------|-------------------------------|---------------------|---|-----------------------|---------------|-----|
| RESET CHIP 1<br>STATE MACHINE | 3x43025<br>4x43025<br>I:43024 | 0,0x0000<br>B:00 00 | 1 | 1:RESET STATE MACHINE | UINT16<br>R/W | YES |
|-------------------------------|-------------------------------|---------------------|---|-----------------------|---------------|-----|

This command restarts the state machine for chip CHIPx . The affected chip will be resetted & initialized completely

|                               |                               |                     |   |                       |               |     |
|-------------------------------|-------------------------------|---------------------|---|-----------------------|---------------|-----|
| RESET CHIP 2<br>STATE MACHINE | 3x43026<br>4x43026<br>I:43025 | 0,0x0000<br>B:00 00 | 1 | 1:RESET STATE MACHINE | UINT16<br>R/W | YES |
|-------------------------------|-------------------------------|---------------------|---|-----------------------|---------------|-----|

| Register NAME<br>Command NAME  | MODBUS<br>Register<br>ASCII<br>Command | Register VALUE<br>ASCII Command | NEW REAL<br>VALUE               | NEW<br>VALUE | DATA TYPE     | DO<br>WRITE |
|--|--|---------------------------------|---------------------------------|--------------|---------------|-------------|
| <b>AIOX CONFIG OUTPUT VALUES</b>   |  |                                 |                                 |              |               |             |
| CONFIG OUTPUT VALUE AIOX1  | 3x44001<br>4x44001<br>I:44000          | 65535,0xFFFF<br>B:FF FF         | 100                             | 1            | UINT16<br>R/W | YES         |
| Actual config value for AIOx:N/A   |  |                                 | ENTER NEW CONFIG VALUE FOR AIOx |              |               |             |
| This command sets for all outputs the standard value in Volt*100 or in mA*100, which are used when the controller is restarted or a watchdog condition has occurred and the channel is used as voltage output or current output.<br>For voltage outputs the range is 0 to 1100 (0 to 11,0V).<br>For current outputs the range is 0 to 2500 (0 to 25mA).<br>All IOs with a different usage type will return 65535,0xFFFF. |  |                                 |                                 |              |               |             |
| CONFIG OUTPUT VALUE AIOX2  | 3x44002<br>4x44002<br>I:44001          | 65535,0xFFFF<br>B:FF FF         | 200                             | 2            | UINT16<br>R/W | YES         |
| Actual config value for AIOx:N/A   |  |                                 | ENTER NEW CONFIG VALUE FOR AIOx |              |               |             |
| CONFIG OUTPUT VALUE AIOX3  | 3x44003<br>4x44003<br>I:44002          | 65535,0xFFFF<br>B:FF FF         | 300                             | 3            | UINT16<br>R/W | YES         |
| Actual config value for AIOx:N/A   |  |                                 | ENTER NEW CONFIG VALUE FOR AIOx |              |               |             |
| CONFIG OUTPUT VALUE AIOX4  | 3x44004<br>4x44004<br>I:44003          | 65535,0xFFFF<br>B:FF FF         | 400                             | 4            | UINT16<br>R/W | YES         |
| Actual config value for AIOx:N/A   |  |                                 | ENTER NEW CONFIG VALUE FOR AIOx |              |               |             |
| CONFIG OUTPUT VALUE AIOX5  | 3x44005<br>4x44005<br>I:44004          | 65535,0xFFFF<br>B:FF FF         | 500                             | 5            | UINT16<br>R/W | YES         |
| Actual config value for AIOx:N/A   |  |                                 | ENTER NEW CONFIG VALUE FOR AIOx |              |               |             |
| CONFIG OUTPUT VALUE AIOX6  | 3x44006<br>4x44006<br>I:44005          | 65535,0xFFFF<br>B:FF FF         | 600                             | 6            | UINT16<br>R/W | YES         |
| Actual config value for AIOx:N/A   |  |                                 | ENTER NEW CONFIG VALUE FOR AIOx |              |               |             |
| CONFIG OUTPUT VALUE AIOX7  | 3x44007<br>4x44007<br>I:44006          | 65535,0xFFFF<br>B:FF FF         | 700                             | 7            | UINT16<br>R/W | YES         |
| Actual config value for AIOx:N/A   |  |                                 | ENTER NEW CONFIG VALUE FOR AIOx |              |               |             |
| CONFIG OUTPUT VALUE AIOX8  | 3x44008<br>4x44008<br>I:44007          | 65535,0xFFFF<br>B:FF FF         | 800                             | 8            | UINT16<br>R/W | YES         |
| Actual config value for AIOx:N/A   |  |                                 | ENTER NEW CONFIG VALUE FOR AIOx |              |               |             |
| <b>INTER PROCESSOR COMMUNICATION</b>   |  |                                 |                                 |              |               |             |

|   |                               |                     |  |  |               |  |
|---|-------------------------------|---------------------|--|--|---------------|--|
| AIOX IS ONLINE  | 3x50000<br>4x50000<br>I:49999 | 1,0x0001<br>B:00 01 |  |  | UINT16<br>R/O |  |
| Actual communication status co-processor to AIOX processor:OK   |                               |                     |  |  |               |  |
| <p>This command returns the actual state of the serial communication between the ARM co-processor and the additional processor for the AIOX.</p> <p>=1: Currently the communication is fine</p> <p>=0: There is a mayor problem/hardware fault between the two processors</p> |                               |                     |  |  |               |  |