Command NAME	ASCII command type	ASCII command structure	NEW REAL VALUE	NEW VALUE	DATA TYPE	DO WRITE
ASCII COMMANDS						
HEART BEAT	ASCII READ COMMAND	#HB<CR> Result: #HB<CR>			ASCII	
	TX	#1,HB<CR>				
	RX	#1,HB<CR>				
Sends an Heartbeat to test the communcation						
GET VERSION	ASCII READ COMMAND	#VERSION<CR> Result: #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 VersionHi: Version number high (1..255) VersionMed: Version number medium (1..255) VersionLo: Version number low (1..255)						
GET TYPE	ASCII READ COMMAND	#TYPE<CR> Result: #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 READ COMMAND	#FTRS<CR> Result: #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 READ COMMAND	#OWNER<CR> Result: #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 READ COMMAND	#CREATOR<CR> Result: #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 READ COMMAND	#COPYRIGHT<CR> Result: #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 READ COMMAND	#SN<CR> Result: #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 READ COMMAND	#INTSTAT<CR> Result: #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 READ COMMAND	#GDIP<CR> Result: #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 DIPSwitchHex The current value of the DIP switches: Bit 0: DIP Switch 1 (=0:OFF, =1:ON) Bit 1: DIP Switch 2 (=0:OFF, =1:ON) Bit 2: DIP Switch 3 (=0:OFF, =1:ON) Bit 3: DIP Switch 4 (=0:OFF, =1:ON) Bit 4: DIP Switch 5, if available (=0:OFF, =1:ON) Bit 5: DIP Switch 6, if available (=0:OFF, =1:ON) Bit 6: DIP Switch 7, if available (=0:OFF, =1:ON) Bit 7: DIP Switch 8, if available (=0:OFF, =1:ON)				
ASCII COMMANDS				

SET MODBUS ADDRESS	ASCII WRITE COMMAND	#SMBADR:<UNITID><CR> Result: #OK<CR>	ASCII	NO
	UNITID	123		
	TX	#1,SMBADR:123<CR>		
	RX	N/A		

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.

HINT: The new settings are activated after a system reboot or power off on cycle!

SET MODBUS BAUDRATE	ASCII WRITE COMMAND	#SMBBAUD:<BAUD><CR> Result: #OK<CR>	ASCII	NO
	BAUD	128000:128000BD		
	TX	#1,SMBBAUD:128000<CR>		
	RX	N/A		

Sets a new 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

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

SET MODBUS PARITY	ASCII WRITE COMMAND	#SMBPAR:<PARITY><CR> Result: #OK<CR>	ASCII	NO
	PARITY	ODD:ODD PARITY		
	TX	#1,SMBPAR:ODD<CR>		
	RX	N/A		

Sets a new parity for the serial interface.
MBParity:
NONE: no parity
EVEN: even parity
ODD: odd parity

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

SET MODBUS STOPS	ASCII WRITE COMMAND	#SMBSTOP:<STOPBIT><CR> Result: #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 WRITE COMMAND	#SMBPARAMS:<UNITID>,<BAUD>,<PARITY>,<STOPBIT><CR> Result: #OK<CR>	ASCII	NO
	UNITID	3		
	BAUD	115200:115200BD		
	PARITY	EVEN:EVEN PARITY		
	STOPBIT	TWO:TWO STOPBITS		
	TX	#1,SMBPARAMS:3,115200,EVEN,TWO<CR>		
	RX	N/A		
Sets all parameters for serrial interface				
GET MODBUS ADDRESS	ASCII READ COMMAND	#GMBADR<CR> Result: #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 READ COMMAND	#GMBBAUD<CR> Result: #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 READ COMMAND	#GMBPAR<CR> Result: #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. MBParity NONE: no parity EVEN: even parity ODD: odd parity				
GET MODBUS STOP	ASCII READ COMMAND	#GMBSTOP<CR> Result: #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. MBParity NONE: no parity EVEN: even parity ODD: odd parity				
GET MODBUS PARAMS	ASCII READ COMMAND	#GMBPARAMS<CR> Result: #GMBPARAMS:<MBUnitDec>,<MBFLASHDec>,<MBUnitHex>,<MBFLASHHex>, <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				
ASCII COMMANDS				
RESET	ASCII WRITE COMMAND	#RST<CR> Result: #OK<CR>	ASCII	NO
	TX	#1,RST<CR>		
	RX	N/A		
Executes a software reset (Reboot) of the module.				
FACTORY RESET	ASCII WRITE COMMAND	#FRST<CR> Result: #OK<CR>	ASCII	NO
	TX	#1,FRST<CR>		
	RX	N/A		
Performs a factory reset of all internal saved parameters				
SET MODBUS WATCHDOG TIMER	ASCII WRITE COMMAND	#SMBWATCHDOG:<WDTIME><CR> Result: #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. WDTIME: 1..65535: Time for Watchdog in 1/100s =0: Watchdog is deactivated 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 WATCHDOG TIMER	ASCII READ COMMAND	#GMBWATCHDOG<CR> Result: #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. WDTIME: 1..65535: Time for Watchdog in 1/100s =0: Watchdog is deactivated 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!				
CPU PARAMETERS				
GET CPU VOLTAGE	ASCII READ COMMAND	#GCPUTEMP<CR> Result: #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 READ COMMAND	#GCPUVOLT<CR> Result: #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 READ COMMAND	#GCPUBACK<CR> Result: #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
CONVERTER STATUS						
DIP SWITCH	3x10100 4x10100 I:10099	65,0x0041 B:00 41			UINT16 R/O	
Returns the current setting of the Dip switches. For ULTRA SLIM IOs The current value of the DIP switches: Bit 0: DIP Switch 1 (=0:OFF, =1:ON) Bit 1: DIP Switch 2 (=0:OFF, =1:ON) Bit 2: DIP Switch 3 (=0:OFF, =1:ON) Bit 3: DIP Switch 4 (=0:OFF, =1:ON) For BIG IOs: The current value of the DIP switches: Bit 0: DIP Switch 1 (=0:OFF, =1:ON) Bit 1: DIP Switch 2 (=0:OFF, =1:ON) Bit 2: DIP Switch 3 (=0:OFF, =1:ON) Bit 3: DIP Switch 4 (=0:OFF, =1:ON) Bit 4: DIP Switch 5 (=0:OFF, =1:ON) Bit 5: DIP Switch 6 (=0:OFF, =1:ON) Bit 6: DIP Switch 7 (=0:OFF, =1:ON) Bit 7: DIP Switch 8 (=0:OFF, =1:ON)						
PRODUCT DATA						
HW_GROUP	3x65201 4x65201 I:65200	16384,0x4000 B:40 00			UINT16 R/O	
This is the group of hardware of the current product						
SW_GROUP	3x65202 4x65202 I:65201	32783,0x800F B:80 0F			UINT16 R/O	
This is the group of software of the current product						
SW_VERSION	3x65203 4x65203 I:65202	4608,0x1200 B:12 00			UINT16 R/O	
		SW VERSION:1.2.0				
This is the current software version of the firmware						
SW_AUTHOR	3x65204 4x65204 I:65203	18771,0x4953 B:49 53			UINT16 R/O	
This is the current software author of the firmware						
MODBUS SETTINGS						

UNIT_ID	3x65222 4x65222 I:65221	1,0x0001 B:00 01			UINT16 R/O	
		UNIT ID:1				
If the host reads this register, the current defined unit ID is returned.						
FLASH UNIT_ID	3x65223 4x65223 I:65222	15,0x000F B:00 0F		27	UINT16 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						
HINT:This settings will be active after you repower or reset your device !!						
BAUD_RATE	3x65224 4x65224 I:65223	115200,0x0001C200 B:00 01 C2 00	57600	57600	UINT32 R/W	NO
		115200Bd		ENTER BAUD RATE		
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)						
Valid baud rates are: 300bd, 600bd, 900bd, 1200bd, 2400bd, 4800bd, 9600bd, 19200bd, 38400bd, 57600bd, 115200bd, 128000bd 230400bd, 250000bd, 256000bd						
HINT:This settings will be active after you repower or reset your device !!						
PARITY	3x65226 4x65226 I:65225	0,0x0000 B:00 00		1:EVEN PARITY	UINT16 R/W	NO
		NO PARITY		SELECT PARITY		
If the register is read out, the currently set parity of the serial interface is returned. 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 0: no parity 1: even parity 2: odd parity						
STOP BITS	3x65227 4x65227 I:65226	1,0x0001 B:00 01		2:TWO STOPBITS	UINT16 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. 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 1: one stop bit 2: two stop bits						
MODBUS TIMING	3x65228 4x65228 I:65227	0,0x0000 B:00 00		10	UINT16 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. 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 4x65229 I:65228	0,0x0000 B:00 00		50	UINT16 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 communcation watchdog timer. The value is a timespan in 1/100s. =0: The communcation watchdog is disabled =1..65535: Communcation watchdog will be trigegred after x 1/100s pause on communcation line In case of an communcation watchdog, the module sets all outputs to the states defined in the configuration output registers Reading this registe will return the current stored time from the internal FLASH						
CPU DATA						
SERIAL1	3x65521 4x65521 I:65520	49,0x0031 B:00 31			UINT16 R/O	
Serial number of module as 96 bit unsigned integer number						
SERIAL2	3x65522 4x65522 I:65521	62,0x003E B:00 3E			UINT16 R/O	
SERIAL3	3x65523 4x65523 I:65522	21258,0x530A B:53 0A			UINT16 R/O	
SERIAL4	3x65524 4x65524 I:65523	18005,0x4655 B:46 55			UINT16 R/O	
SERIAL5	3x65525 4x65525 I:65524	12343,0x3037 B:30 37			UINT16 R/O	
SERIAL6	3x65526 4x65526 I:65525	8248,0x2038 B:20 38			UINT16 R/O	
		SERIAL:31003E000A53554637303820				

Serial number of module as 96 bit unsigned integer number						
CPU TEMPERATURE	3x65527 4x65527 I:65526	3865,0x0F19 B:0F 19			UINT16 R/O	
		Current internal temperature of CPU:38,7°C				
Current internal temperature of CPU in ° Celsius multiplied by 10.						
CPU VOLTAGE	3x65528 4x65528 I:65527	336,0x0150 B:01 50			UINT16 R/O	
		Current supply voltage of CPU:3,36V				
Current internal supply voltage of CPU in Volt multiplied by 1000.						
CPU BACKUP VOLTAGE	3x65529 4x65529 I:65528	317,0x013D B:01 3D			UINT16 R/O	
		Current backup voltage of CPU:3,17V				
Current internal backup capacitor voltage of CPU in Volt multiplied by 1000.						
CONVERTER STATUS						
CONVERTER STATUS	3x65534 4x65534 I:65533	0,0x0000 B:00 00			UINT16 R/O	
Current status of the converter						
FACTORY RESET	3x65535 4x65535 I:65534	0,0x0000 B:00 00		1:PERFORM FACTORY RESET	UINT16 R/W	NO
Performs a factory reset of all internal saved parameters						
SOFTWARE RESET						
RESET	1x65536 2x65536 I:65535	0,0x00 B:00		N/A:NO CHANGE	BIT 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 4x65535 I:65535	0,0x0000 B:00 00		N/A:NO CHANGE	UINT16 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).						

Command NAME	ASCII command type	ASCII command structure	NEW REAL VALUE	NEW VALUE	DATA TYPE	DO WRITE
ASCII COMMANDS						
DIGITAL OUTPUTS						
SET DIGITAL OUTPUTS	ASCII WRITE COMMAND	#SDOS:<OutAllROS><CR> Result: #OK<CR>			ASCII	YES
	RO1	1:ON				
	RO2	1:ON				
	RO3	1:ON				
	RO4	1:ON				
	RO5	1:ON				
	RO6	1:ON				
	RO7	1:ON				
	RO8	1:ON				
	TX	#1,SDOS:255<CR>				
	RX	#1,OK<CR>				
Sets all eight relay outputs to the new state OutAllROS The new state for all relay outputs Bit 0: State of RO1 (=0:OFF, =1:ON) Bit 1: State of RO2 (=0:OFF, =1:ON) Bit 2: State of RO3 (=0:OFF, =1:ON) Bit 3: State of RO4 (=0:OFF, =1:ON) Bit 4: State of RO5 (=0:OFF, =1:ON) Bit 5: State of RO6 (=0:OFF, =1:ON) Bit 6: State of RO7 (=0:OFF, =1:ON) Bit 7: State of RO8 (=0:OFF, =1:ON) Bits 8-15: Always 0						
SET DIGITAL OUTPUT ROx	ASCII WRITE COMMAND	#SDO<RONR>:<Out><CR> Result: #OK<CR>			ASCII	NO
	RONR	2				
	RO1	0:OFF				
	TX	#1,SDO2:0<CR>				
	RX	N/A				
Sets the new state for relay output ROx. The state is defined with <Out>. Out The new state of the relay output ROx: =0: relay output is OFF =1: relay output is ON						

GET DIGITAL OUTPUTS	ASCII READ COMMAND	#GDOS<CR> Result: #GDOS:<ROSDec>,<ROSHex><CR>	ASCII	
	TX	#1,GDOS<CR>		
	RX	#1,GDOS:255,0xFF<CR>		
		Current status of relay outputs:0000.0000.1111.1111		

Returns the current state of the eight relay outputs as decimal number and as hexadecimal number.
ROSDec, ROSHex
The current state of the eight relay outputs:
Bit 0: State of RO1 (=0:OFF, =1:ON)
Bit 1: State of RO2 (=0:OFF, =1:ON)
Bit 2: State of RO3 (=0:OFF, =1:ON)
Bit 3: State of RO4 (=0:OFF, =1:ON)
Bit 4: State of RO5 (=0:OFF, =1:ON)
Bit 5: State of RO6 (=0:OFF, =1:ON)
Bit 6: State of RO7 (=0:OFF, =1:ON)
Bit 7: State of RO8 (=0:OFF, =1:ON)
Bits 8-15: Always 0

GET DIGITAL OUTPUT ROx	ASCII READ COMMAND	#GDO<RONR><CR> Result: #GDO<RONR>:<ROxDec>,<ROxHex><CR>	ASCII	
	RONR	2		
	TX	#1,GDO2<CR>		
	RX	#1,GDO2:1,0x1<CR>		
		Current status of relay output RO2:1=ON		

Returns the current state of the relay output ROx as decimal number and as hexadecimal number. X stands for the number of the relay output from 1 to 8.
ROxDec, ROxHex
The current state of the bistable relay output ROx:
=0: relay output is OFF
=1: relay output is ON

PULSE DOx	ASCII WRITE COMMAND	#PDO<RONR>:<Time><CR> Result: #OK<CR>	ASCII	NO
	RONR	3		
	TIME	20		
	TX	#1,PDO3:20<CR>		
	RX	N/A		

This command switches the relay output ROx on for the pulse duration <PulseTimeIn100ms>*100ms.
PulseTimeIn100ms: A duration in 100ms units.
The corresponding relay output is switched on for this time period.

GET PULSE TIMER DOx	ASCII READ COMMAND	#GPT<RONR><CR> Result: #GPT:<TimeDec>,<TimeHex><CR>	ASCII	

	RONR	3		
	TX	#1,GPT3<CR>		
	RX	#1,GPT3:0,0x0<CR>		
		Current pulse time for RO3:0,0s		

Returns the remaining timer value of the pulse for relay output ROx in ms.
PulseTimeInMSDec, PulseTimeInMSHex
The remaining time of the pulse in Milliseconds

FAN COIL #1,#2

SET FAN COIL FCx	ASCII WRITE COMMAND	#SFC<FCNR>:<Mode><CR> Result: #OK<CR>	ASCII	YES
	FCNR	1		
	MODE	9999:DEACTIVATED		
	TX	#1,SFC1:9999<CR>		
	RX	#1,OK<CR>		

Sets a new mode for FAN COIL functionality on RO1, RO2 and RO3 or RO5, RO6 and RO7:
=9999: This function is not used
=0: All three ROs aure OFF
=1: STAGE 1: RO1 ist ON, RO2,RO3 are OFF
=2: STAGE 2: RO2 is ON, RO1,RO3 are OFF
=3: STAGE 3: RO3 is ON, RO1,RO2 are OFF

In this mode the module inserts a pause with no outputs on, when swtiching from one stage to another stage. Also a minimum time for each stage is maintained by the module

GET FAN COIL FCx	ASCII READ COMMAND	#GFC<FCNR><CR> Result: #GFC<FCNR>:<ModeDec>,<ModeHex><CR>	ASCII	
	FCNR	1		
	TX	#1,GFC1<CR>		
	RX	#1,GFC1:9999,0x270F<CR>		
		Current mode fo FC:9999->DEACTIVATED		

Current mode for FAN COIL functionality on RO1, RO2 and RO3 or RO5, RO6 and RO7:
=9999: This function is not used
=0: All three ROs aure OFF
=1: STAGE 1: RO1 ist ON, RO2,RO3 are OFF
=2: STAGE 2: RO2 is ON, RO1,RO3 are OFF
=3: STAGE 3: RO3 is ON, RO1,RO2 are OFF

In this mode the module inserts a pause with no outputs on, when swtiching from one stage to another stage. Also a minimum time for each stage is maintained by the module

SET PAUSE TIME FCx	ASCII WRITE COMMAND	#SPTFC<FCNR>:<Time><CR> Result: #OK<CR>	ASCII	YES
	FCNR	1		
	TIME	3,123		
	TX	#1,SPTFC1:3123<CR>		

	RX	#1,OK<CR>		
Sets a new pause time with no relays ON between stage switching. Time is defined in 1ms units (0 to 65,535 Seconds selectable)				
GET PAUSE TIME FCx	ASCII READ COMMAND	#GPTFC<FCNR><CR> Result: #GPTFC<FCNR>:<TimeDec>,<TimeHex><CR>	ASCII	
	FCNR	1		
	TX	#1,GPTFC1<CR>		
	RX	#1,GPTFC1:3123,0xC33<CR>		
		Current pause time for FC1:3,123s		
Returns the pause time with no relays ON between stage switching. Time is defined in 1ms units (0 to 65,535 Seconds selectable)				
SET STAGE TIME FCx	ASCII WRITE COMMAND	#SSTFC<FCNR>:<Time><CR> Result: #OK<CR>	ASCII	YES
	FCNR	1		
	TIME	7,250		
	TX	#1,SSTFC1:7250<CR>		
	RX	#1,OK<CR>		
Sets the minimum time for a stage in 1ms units. If the module activates a new stage 1 to 3, it keeps this stage at least for this time span, before chaning to another stage.				
GET STAGE TIME FCx	ASCII READ COMMAND	#GSTFC<FCNR><CR> Result: #GSTFC<FCNR>:<TimeDec>,<TimeHex><CR>	ASCII	
	FCNR	1		
	TX	#1,GSTFC1<CR>		
	RX	#1,GSTFC1:7250,0x1C52<CR>		
		Current stage time for FC1:7,250s		
Returns the minium time for a stage in 1ms units. If the module activates a new stage 1 to 3, it keeps this stage at least for this time span, before chaning to another stage.				

Command NAME	ASCII command type	ASCII command structure	NEW REAL VALUE	NEW VALUE	DATA TYPE	DO WRITE
ASCII COMMANDS						
DIGITAL OUTPUTS						
INITIAL & WATCHDOG STATE FOR DIGITAL OUTPUTS						
SET INITIAL & WATCHDOG STATE FOR DIGITAL OUTPUTS	ASCII WRITE COMMAND	#SCDOS:<OutAllDOS><CR> Result: #OK<CR>			ASCII	YES
	DO1	1:ON				
	DO2	1:ON				
	DO3	1:ON				
	DO4	1:ON				
	DO5	1:ON				
	DO6	1:ON				
	DO7	1:ON				
	DO8	1:ON				
	OutAllDOS	0x000000FF	255			
	TX	#1,SCDOS:0x000000FF<CR>				
	RX	#1,OK<CR>				
This command sets all digital outputs to a new state for controller restart and watchdog function. The state is saved in FRAM. This state is used after power on and after a communication watchdog timeout, if a watchdog time is configured. OutAllDOS The new state for the digital outputs: Bit 0: New state of DO1 (=0:OFF, =1:ON) Bit 1: New state of DO2 (=0:OFF, =1:ON) ... Bit 6: New state of DO7 (=0:OFF, =1:ON) Bit 7: New state of DO8 (=0:OFF, =1:ON)						
GET INITIAL & WATCHDOG STATE FOR DIGITAL OUTPUTS	ASCII READ COMMAND	#GCDOS<CR> Result: #GCDOS:<DOSDec>,<DOSHex><CR>			ASCII	
	TX	#1,GCDOS<CR>				
	RX	#1,GCDOS:255,0xFF<CR>				
		Init & watchdog configuration for digital outputs:				
		DO1-DO8:1111.1111				

Returns the actual initial and watchdog state of the digital outputs as decimal number and as hexadecimal number. This state is used after power on and after a communication watchdog timeout, if a watchdog time is configured

DOSDec, DOSHex
The current state of the digital outputs:
Bit 0: State of DO1 (=0:OFF, =1:ON)
Bit 1: State of DO2 (=0:OFF, =1:ON)
...
Bit 6: State of DO7 (=0:OFF, =1:ON)
Bit 7: State of DO8 (=0:OFF, =1:ON)

Register NAME Command NAME	MODBUS Register ASCII Command	Register VALUE ASCII Command	NEW REAL VALUE	NEW VALUE	DATA TYPE	DO WRITE
STATUS						
RO1	1x00001 2x00001 I:0	0,0x00 B:00		1	BIT R/W	NO
		Current state of RO1:0=OFF		ENTER NEW STATE (0 or 1)		
Current state of the relay output ROx =0:RO is OFF, =1:RO is ON Writing on this register changes the state of the relay output						
RO2	1x00002 2x00002 I:1	0,0x00 B:00		1	BIT R/W	NO
		Current state of RO2:0=OFF		ENTER NEW STATE (0 or 1)		
RO3	1x00003 2x00003 I:2	0,0x00 B:00		1	BIT R/W	NO
		Current state of RO3:0=OFF		ENTER NEW STATE (0 or 1)		
RO4	1x00004 2x00004 I:3	0,0x00 B:00		0	BIT R/W	NO
		Current state of RO4:0=OFF		ENTER NEW STATE (0 or 1)		
RO5	1x00005 2x00005 I:4	0,0x00 B:00		0	BIT R/W	NO
		Current state of RO5:0=OFF		ENTER NEW STATE (0 or 1)		
RO6	1x00006 2x00006 I:5	0,0x00 B:00		0	BIT R/W	NO
		Current state of RO6:0=OFF		ENTER NEW STATE (0 or 1)		
RO7	1x00007 2x00007 I:6	0,0x00 B:00		0	BIT R/W	NO
		Current state of RO7:0=OFF		ENTER NEW STATE (0 or 1)		
RO8	1x00008 2x00008 I:7	0,0x00 B:00		0	BIT R/W	NO
		Current state of RO8:0=OFF		ENTER NEW STATE (0 or 1)		
STATUS						

RO1	3x00001 4x00001 I:0	0,0x0000 B:00 00		1	UINT16 R/W	NO
		Current state of RO1:0=OFF		ENTER NEW STATE (0 or 1)		
Current state of the relay output ROx =0:RO is OFF, =1:RO is ON Writing on this register changes the state of the relay output						
RO2	3x00002 4x00002 I:1	0,0x0000 B:00 00		1	UINT16 R/W	NO
		Current state of RO2:0=OFF		ENTER NEW STATE (0 or 1)		
RO3	3x00003 4x00003 I:2	0,0x0000 B:00 00		1	UINT16 R/W	NO
		Current state of RO3:0=OFF		ENTER NEW STATE (0 or 1)		
RO4	3x00004 4x00004 I:3	0,0x0000 B:00 00		0	UINT16 R/W	NO
		Current state of RO4:0=OFF		ENTER NEW STATE (0 or 1)		
RO5	3x00005 4x00005 I:4	0,0x0000 B:00 00		0	UINT16 R/W	NO
		Current state of RO5:0=OFF		ENTER NEW STATE (0 or 1)		
RO6	3x00006 4x00006 I:5	0,0x0000 B:00 00		0	UINT16 R/W	NO
		Current state of RO6:0=OFF		ENTER NEW STATE (0 or 1)		
RO7	3x00007 4x00007 I:6	0,0x0000 B:00 00		0	UINT16 R/W	NO
		Current state of RO7:0=OFF		ENTER NEW STATE (0 or 1)		
RO8	3x00008 4x00008 I:7	0,0x0000 B:00 00		0	UINT16 R/W	NO
		Current state of RO8:0=OFF		ENTER NEW STATE (0 or 1)		
STATUS OF RELAY OUTPUTS						
STATUS OF ALL ROS	3x00101 4x00101 I:100	0,0x0000 B:00 00		0x0000	UINT16 R/W	NO
		Current state of RO1:0=OFF		0		
		Current state of RO2:0=OFF		0		
		Current state of RO3:0=OFF		0		

		Current state of RO4:0=OFF		0		
		Current state of RO5:0=OFF		0		
		Current state of RO6:0=OFF		0		
		Current state of RO7:0=OFF		0		
		Current state of RO8:0=OFF		0		

Current state of all relay outputs
Bit 0: =0:RO1 is OFF, =1:RO1 is ON
Bit 1: =0:RO2 is OFF, =1:RO2 is ON
Bit 2: =0:RO3 is OFF, =1:RO3 is ON
Bit 3: =0:RO4 is OFF, =1:RO4 is ON
Bit 4: =0:RO5 is OFF, =1:RO5 is ON
Bit 5: =0:RO6 is OFF, =1:RO6 is ON
Bit 6: =0:RO7 is OFF, =1:RO7 is ON
Bit 7: =0:RO8 is OFF, =1:RO8 is ON
Bit 8-15: always 0

Write on this register sets all eight relay to a new state

STATUS OF RELAY OUTPUTS

STATUS OF ALL ROS	3x10001 4x10001 I:10000	0,0x0000 B:00 00		0x0000	UINT16 R/W	NO
		Current state of RO1:0=OFF		0		
		Current state of RO2:0=OFF		0		
		Current state of RO3:0=OFF		0		
		Current state of RO4:0=OFF		0		
		Current state of RO5:0=OFF		0		
		Current state of RO6:0=OFF		0		
		Current state of RO7:0=OFF		0		
		Current state of RO8:0=OFF		0		

Current state of all relay outputs
Bit 0: =0:RO1 is OFF, =1:RO1 is ON
Bit 1: =0:RO2 is OFF, =1:RO2 is ON
Bit 2: =0:RO3 is OFF, =1:RO3 is ON
Bit 3: =0:RO4 is OFF, =1:RO4 is ON
Bit 4: =0:RO5 is OFF, =1:RO5 is ON
Bit 5: =0:RO6 is OFF, =1:RO6 is ON
Bit 6: =0:RO7 is OFF, =1:RO7 is ON
Bit 7: =0:RO8 is OFF, =1:RO8 is ON
Bit 8-15: always 0

Write on this register sets all eight relay to a new state

PULSE TIME FOR RELAY OUTPUTS

PULSE TIME RO1	3x20001 4x20001 I:20000	0,0x0000 B:00 00	20	2,0	UINT16 R/W	NO
		0,0 seconds				

Generate a pulse on relay output x in 100ms units (0,1 to 6553,5 Seconds selectable) If you write onto this register, the relay output will be switched on for the desired time in 100ms units.						
PULSE TIME RO2	3x20002 4x20002 I:20001	0,0x0000 B:00 00	20	2,0	UINT16 R/W	NO
		0,0 seconds				
PULSE TIME RO3	3x20003 4x20003 I:20002	0,0x0000 B:00 00	20	2,0	UINT16 R/W	NO
		0,0 seconds				
PULSE TIME RO4	3x20004 4x20004 I:20003	0,0x0000 B:00 00	20	2,0	UINT16 R/W	NO
		0,0 seconds				
PULSE TIME RO5	3x20005 4x20005 I:20004	0,0x0000 B:00 00	20	2,0	UINT16 R/W	NO
		0,0 seconds				
PULSE TIME RO6	3x20006 4x20006 I:20005	0,0x0000 B:00 00	20	2,0	UINT16 R/W	NO
		0,0 seconds				
PULSE TIME RO7	3x20007 4x20007 I:20006	0,0x0000 B:00 00	20	2,0	UINT16 R/W	NO
		0,0 seconds				
PULSE TIME RO8	3x20008 4x20008 I:20007	0,0x0000 B:00 00	20	2,0	UINT16 R/W	NO
		0,0 seconds				
PULSE STATUS FOR RELAY OUTPUTS						
PULSE TIMER RO1	3x21001 4x21001 I:21000	0,0x00000000 B:00 00 00 00			UINT32 R/O	
		0,0 seconds				
Remaining time of the pulse on relay output x in Milliseconds.						
PULSE TIMER RO2	3x21003 4x21003 I:21002	0,0x00000000 B:00 00 00 00			UINT32 R/O	
		0,0 seconds				
PULSE TIMER RO3	3x21005 4x21005 I:21004	0,0x00000000 B:00 00 00 00			UINT32 R/O	

		0,0 seconds				
PULSE TIMER RO4	3x21007 4x21007 I:21006	0,0x00000000 B:00 00 00 00			UINT32 R/O	
		0,0 seconds				
PULSE TIMER RO5	3x21009 4x21009 I:21008	0,0x00000000 B:00 00 00 00			UINT32 R/O	
		0,0 seconds				
PULSE TIMER RO6	3x21011 4x21011 I:21010	0,0x00000000 B:00 00 00 00			UINT32 R/O	
		0,0 seconds				
PULSE TIMER RO7	3x21013 4x21013 I:21012	0,0x00000000 B:00 00 00 00			UINT32 R/O	
		0,0 seconds				
PULSE TIMER RO8	3x21015 4x21015 I:21014	0,0x00000000 B:00 00 00 00			UINT32 R/O	
		0,0 seconds				
PULSE STATUS FOR RELAY OUTPUTS						
PULSE TIMER RO1	3x21017 4x21017 I:21016	0,0x00000000 B:00 00 00 00			UINT32R R/O	
		0,0 seconds				
Remaining time of the pulse on relay output x in Milliseconds.						
PULSE TIMER RO2	3x21019 4x21019 I:21018	0,0x00000000 B:00 00 00 00			UINT32R R/O	
		0,0 seconds				
PULSE TIMER RO3	3x21021 4x21021 I:21020	0,0x00000000 B:00 00 00 00			UINT32R R/O	
		0,0 seconds				
PULSE TIMER RO4	3x21023 4x21023 I:21022	0,0x00000000 B:00 00 00 00			UINT32R R/O	
		0,0 seconds				
PULSE TIMER RO5	3x21025 4x21025 I:21024	0,0x00000000 B:00 00 00 00			UINT32R R/O	
		0,0 seconds				

PULSE TIMER RO6	3x21027 4x21027 I:21026	0,0x00000000 B:00 00 00 00			UINT32R R/O	
		0,0 seconds				
PULSE TIMER RO7	3x21029 4x21029 I:21028	0,0x00000000 B:00 00 00 00			UINT32R R/O	
		0,0 seconds				
PULSE TIMER RO8	3x21031 4x21031 I:21030	0,0x00000000 B:00 00 00 00			UINT32R R/O	
		0,0 seconds				
FAN COIL #1						
FC1 MODE	3x40001 4x40001 I:40000	9999,0x270F B:27 0F		3:LEVEL 3	UINT16 R/W	YES
		Current mode of FC:9999->DEACTIVATED				
Current mode for FAN COIL functionality on RO1, RO2 and RO3: =9999: This function is not used =0: All three ROs are OFF =1: STAGE 1: RO1 is ON, RO2,RO3 are OFF =2: STAGE 2: RO2 is ON, RO1,RO3 are OFF =3: STAGE 3: RO3 is ON, RO1,RO2 are OFF In this mode the module inserts a pause with no outputs on, when swtiching from one stage to another stage. Also a minimum time for each stage is maintained by the module						
FC1 PAUSE TIME	3x40002 4x40002 I:40001	1000,0x03E8 B:03 E8	5000	5,0	UINT16 R/W	NO
		1,000 seconds				
Sets and returns the pause time with no relays ON between stage switching. Time is defined in 1ms units (0 to 65,535 Seconds selectable)						
FC1 STAGE TIME	3x40003 4x40003 I:40002	15000,0x00003A98 B:00 00 3A 98	10000	10,0	UINT32 R/W	NO
		15,000 seconds				
Sets and returns the minimum time for a stage in 1ms units. If the module activates a new stage 1 to 3, it keeps this stage at least for this time span, before changing to another stage.						
FC1 STAGE TIME	3x40005 4x40005 I:40004	15000,0x00003A98 B:3A 98 00 00	10000	10,0	UINT32R R/W	NO
		15,000 seconds				
Sets and returns the minimum time for a stage in 1ms units. If the module activates a new stage 1 to 3, it keeps this stage at least for this time span, before changing to another stage.						
FAN COIL #2						
FC2 MODE	3x40011 4x40011 I:40010	9999,0x270F B:27 0F		9999:DEACTIVATED	UINT16 R/W	YES

		Current mode of FC:9999->DEACTIVATED				
Current mode for FAN COIL functionality on RO5, RO6 and RO7: =9999: This function is not used =0: All three ROs are OFF =1: STAGE 1: RO5 is ON, RO6,RO7 are OFF =2: STAGE 2: RO6 is ON, RO5,RO7 are OFF =3: STAGE 3: RO7 is ON, RO5,RO6 are OFF In this mode the module inserts a pause with no outputs on, when swtiching from one stage to another stage. Also a minimum time for each stage is maintained by the module						
FC2 PAUSE TIME	3x40012 4x40012 I:40011	1000,0x03E8 B:03 E8	5000	5,0	UINT16 R/W	NO
		1,000 seconds				
Sets and returns the pause time with no relays ON between stage switching. Time is defined in 1ms units (0 to 65,535 Seconds selectable)						
FC2 STAGE TIME	3x40013 4x40013 I:40012	15000,0x00003A98 B:00 00 3A 98	10000	10,0	UINT32 R/W	YES
		15,000 seconds				
Sets and returns the minimum time for a stage in 1ms units. If the module activates a new stage 1 to 3, it keeps this stage at least for this time span, before changing to another stage.						
FC2 STAGE TIME	3x40015 4x40015 I:40014	15000,0x00003A98 B:3A 98 00 00	10000	10,0	UINT32R R/W	NO
		15,000 seconds				
Sets and returns the minimum time for a stage in 1ms units. If the module activates a new stage 1 to 3, it keeps this stage at least for this time span, before changing to another stage.						

Register NAME Command NAME	MODBUS Register ASCII Command	Register VALUE ASCII Command	NEW REAL VALUE	NEW VALUE	DATA TYPE	DO WRITE
INITIAL & WATCHDOG STATUS FOR ALL DIGITAL OUTPUTS						
FRAM INTIAL & WATCHDOG STATUS OF DO1-DO8	3x59001 4x59001 I:59000	0,0x0000 B:00 00		0x0000	UINT16 R/W	YES
		Actual init & watchdog state of DO1:0=OFF		0		
		Actual init & watchdog state of DO2:0=OFF		0		
		Actual init & watchdog state of DO3:0=OFF		0		
		Actual init & watchdog state of DO4:0=OFF		0		
		Actual init & watchdog state of DO5:0=OFF		0		
		Actual init & watchdog state of DO6:0=OFF		0		
		Actual init & watchdog state of DO7:0=OFF		0		
		Actual init & watchdog state of DO8:0=OFF		0		

Current FRAM setting of initial and watchdog state of all digital outputs. This state is used after power on and after a communcation watchdog timeout, if a watchdog time is confgured
Bit 0: =0:DO1 is OFF, =1:DO1 is ON
Bit 1: =0:DO2 is OFF, =1:DO2 is ON
...
Bit 6: =0:DO7 is OFF, =1:DO15 is ON
Bit 7: =0:DO8 is OFF, =1:DO16 is ON

Write on this register sets all digital outputs to a new state for module restart and watchdog function. The state is saved in FRAM

