OUR PORTFOLIO

it´s all about perfection...

Elisabeth DULZAIDES
Head of Marketing&Sales
elisabeth.dulzaides@resi.cc

DI Heinz-Christian SIGL, MSc
CEO
office@resi.cc

Who we are...

OUR MISSION:

Enrich your portfolio
with our products
to enable you to **deliver** a
more powerful, unique
and **efficient solution**
to your clients

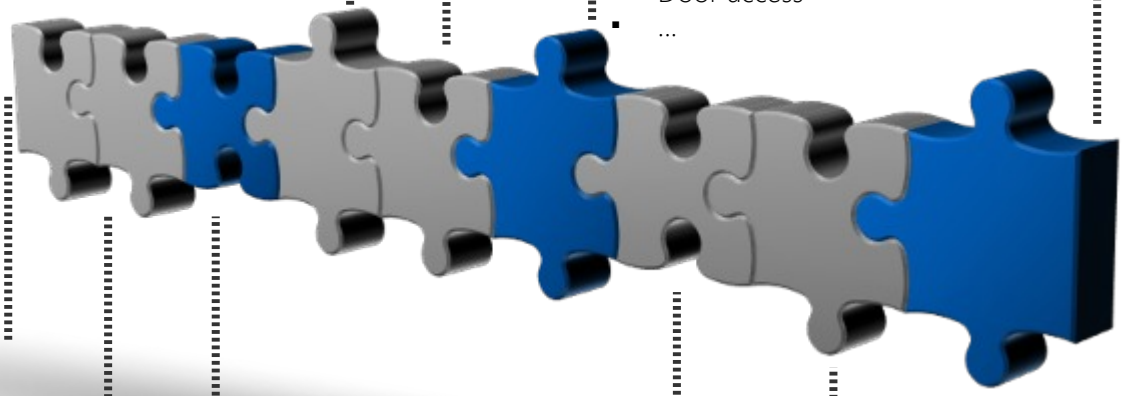
Our Markets

SECURITY
- alarm detection
- door access
- fire alarm systems
- fire dampers
- emergency lights
- ...

MULTIMEDIA
- AV systems
- beamer & canvas control
- CRESTRON, AMX, DBX, Q-SYS, CONTROL4
- ...

ROOM CONTROL
- Climate
- Light & shades
- Multimedia
- Door access
- ...

HVAC
- Heating
- Cooling
- Air conditioning
- ...



CLOUD INTEGRATION
- LTE
- NB-IoT
- LORAWan
- ...

INFRA-STRUCTURE
- Smart Cities
- Telekom
- ...

SMART METERING
- MBUS
- LORAWan
- S0
- DC
- ...

LIGHT & SHADES
- Conventional
- DALI-DMX-LEDs
- shades & blinds
- SMI shades
- ...

INDUSTRIAL
- special machinery
- indoor farming
- ...

We stopped doing projects by our own

We **extend our partner network** across Europe/World

We focus on our product portfolio

- We develop all devices in our house
- We create the firmware for all devices in our house
- We pack & deliver as sustainable as possible
- **We produce in Austria, Europe**
- We repair defective devices

We are located in **Graz, Styria, Austria, Europe**

What are we doing now...

What we are
seeking...

OUR GATEWAYS

MBUS, DALI, DMX, KNX, ENOCEAN, SMI,...

it´s all about
perfection...

MBUS
smart meter
DALI 1.0
light systems
DALI 2.0
light control devices
DMX
Light system
KNX
smart home
ENOCEAN
sensors
LED stripes
controller
SMI
shades & blinds
S0
impulse meter
DC
smart meter
USB-RS485
gateways
...
and many more
MODBUS
protocol
ASCII
protocol
SPECIAL
protocols
e.g. ESP3, KNX
MODBUS
protocol
What are our populars...
RESI

...to integrate smart meters with MBUS interface very easily into your solution

You can **fully integrate a MBUS based metering readout subsystem** into **your solution** via **ASCII** or **MODBUS** protocol

Our **free software tool** allows **complete commission & testing** of all installed & connected MBUS smart meters for

- Heat
- Cooling
- Water

  or
- Gas

They are very slim!

Versions with **Ethernet** or **RS232/RS485** available

Why our MBUS gateways...

... to fully manage & control a up-to date light installation

You can **fully integrate a DALI 1.0/2.0 light system** into **your solution** via **ASCII** or **MODBUS** protocol

Our free software tool allows **complete commission & testing** of

- **DALI 1.0** lamps
- **DT6** and **DT8** lamps (RGB or RGBW) and
- **DALI 2.0** devices or sensors!

They are very slim!

Versions with **Ethernet** or **RS232/RS485** available

Why our DALI gateways...

... to fully control a KNX system

You can **fully integrate a KNX bus system** into **your solution** via **ASCII** or **MODBUS** protocol

Our free software tool allows **complete commission & testing** of

- bidirectional **KNX to MODBUS** gateway

Use our **160mA slim KNX power supply** for small KNX systems

Use our **transparent KNX to ASCII gateways** for easy integration into **multi media control systems**

Versions with **Ethernet** or **RS232/RS485** available

Why our KNX gateways...

... to integrate ENOCEAN based sensors or keypads into your solution

You can **fully integrate ENOCEAN based sensors** or **push buttons** into **your solution** via ASCII or MODBUS protocol

Or evaulate the **ENOCEAN SERIAL PROTOCOL3 (ESP3©)** in your software by yourself

They are very slim!

Versions with **Ethernet** or **RS232/RS485** available

Why our ENOCEAN gateways...

OUR SWITCHES

unmanaged

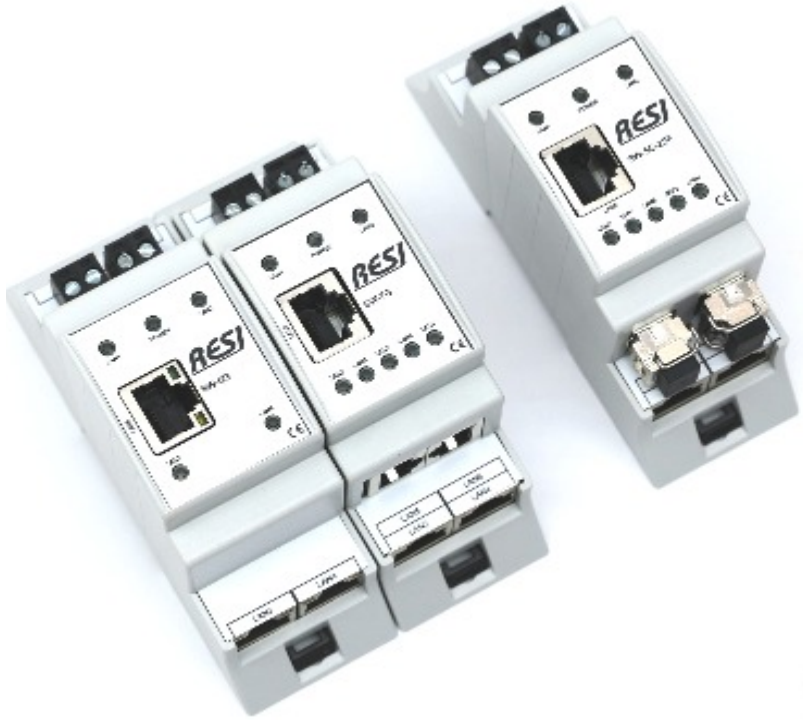
it´s all about
perfection...

... to connect all your IoT devices & gateways in your cabinet, no need for other IT cabinets!

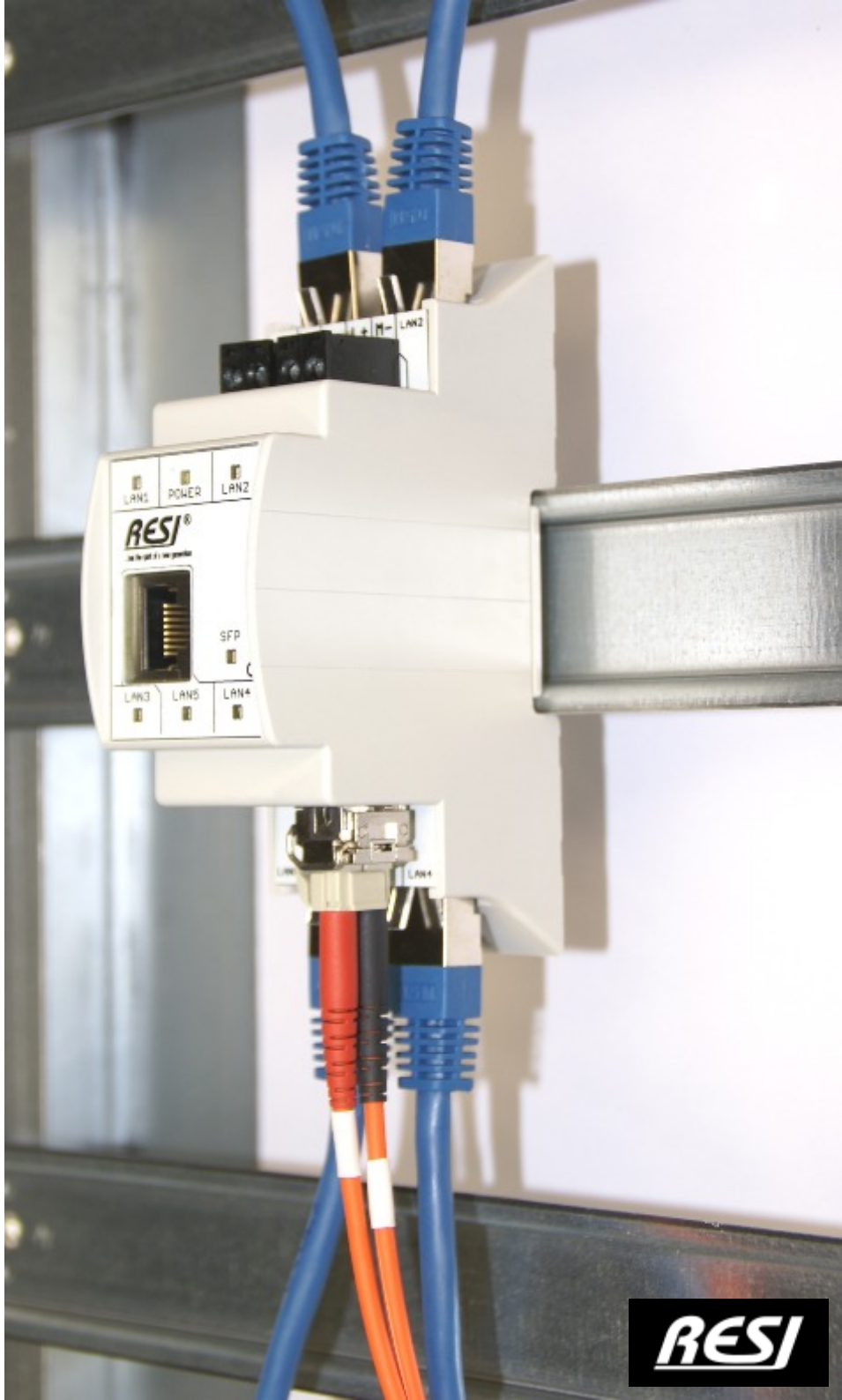
We provide **5 & 7 port Gigabit unmanaged switches**

Specialty: **5 port switch with 2 SFP ports**
to **convert** directly **from fiber optics to copper**

Extreme small housing: only 2 MU, 35x110x60mm



For what unmanaged switches...



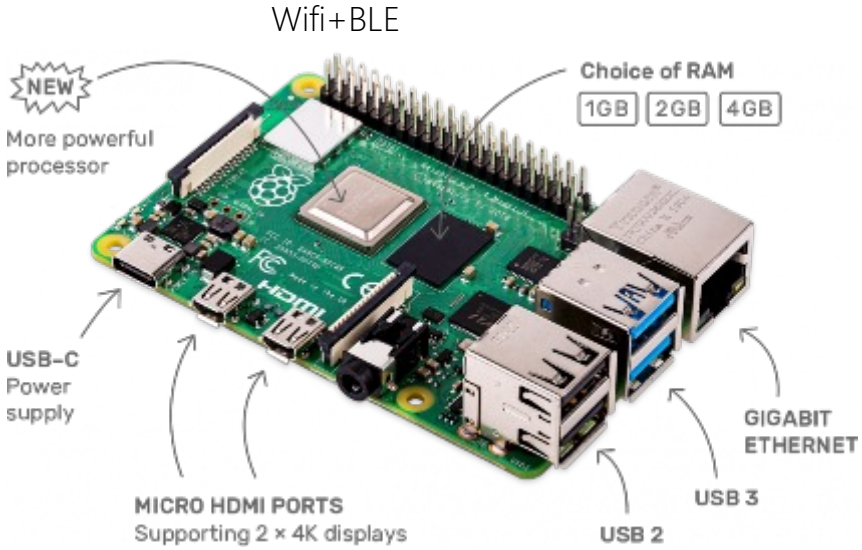
OUR CONTROLLER

Based on Raspberry Pi 4©

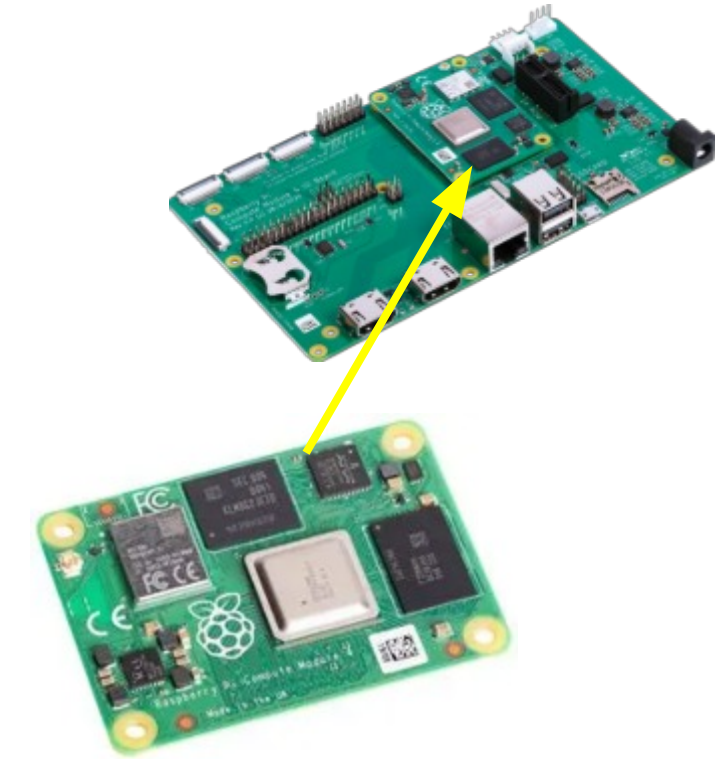
it´s all about
perfection...

WHY RASPBERRY© PI®?

No product in the last years changed markets so dramatically like the Raspberry© Pi®. We truly believe that this computer will play a strong part in future industrial automation, building automation or IoT solutions. And for that markets we developed industrial grade products based on the Raspberry© Pi® product range. Realize your own ideas with our powerful series of controllers and touch panels. Create your own solutions on our versions with pure LINUX. Write industrial PLC software with IEC 1131 based **CODESYS®** controllers and touch panels. Use our our controllers with integrated **LORAWAN, LTE** or **LTE-M1** modems or **dual Ethernet** for your **own IoT CLOUD solutions, IoT EDGE controllers, routers** or **gateways**...



Pi 4



Compute Module 4

Raspberry PI©

Raspberry Pi is a trademark of the Raspberry Pi Foundation.
More information under www.raspberrypi.org

Linux

RESI

WHY RASPBERRY© PI®?

Use open source software

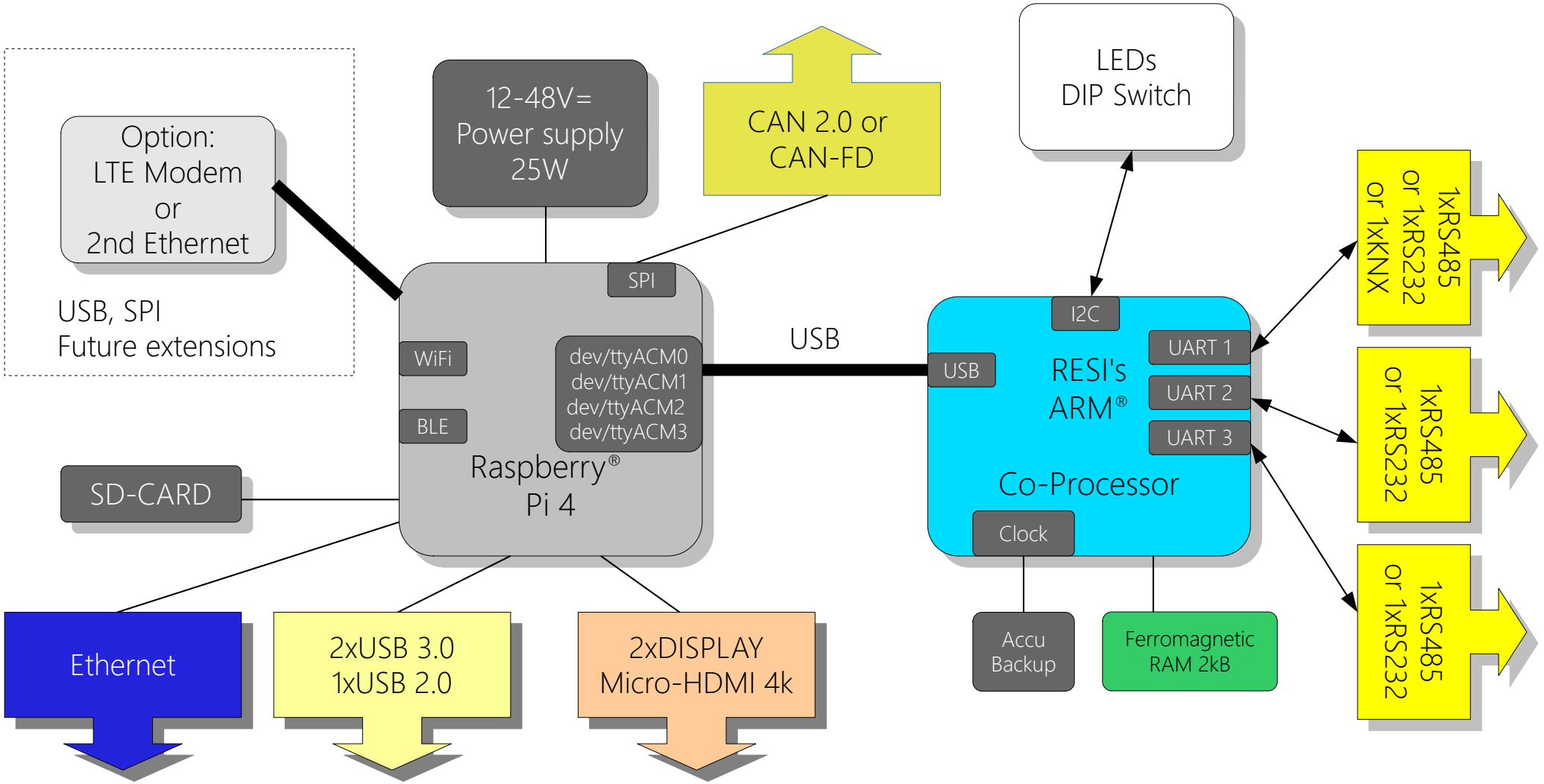
Take advantage of the large software community around the Raspberry® products. Realize your ideas on an industrial grade platform with our RESI-T4/C4/V7x controller series. Distribute your final solution in a fast way. Do not spent time for extensive driver development to integrate the additional IOs into your software. All of our controllers offer a internal ARM® co-processor, who handles all time critical tasks like polling the IOs or driving the serial lines. Talk to this co-processor via native serial interfaces (dev/ttyACMx) in LINUX®. Use an ASCII text based protocol or use MODBUS/RTU master protocol to read the inputs or set the outputs. But we offer a lot more: real time clock, ferromagnetic RAM, serial number, watchdog,...

Raspberry PI©

Raspberry Pi is a trademark of the Raspberry Pi Foundation.
More information under www.raspberrypi.org

Linux

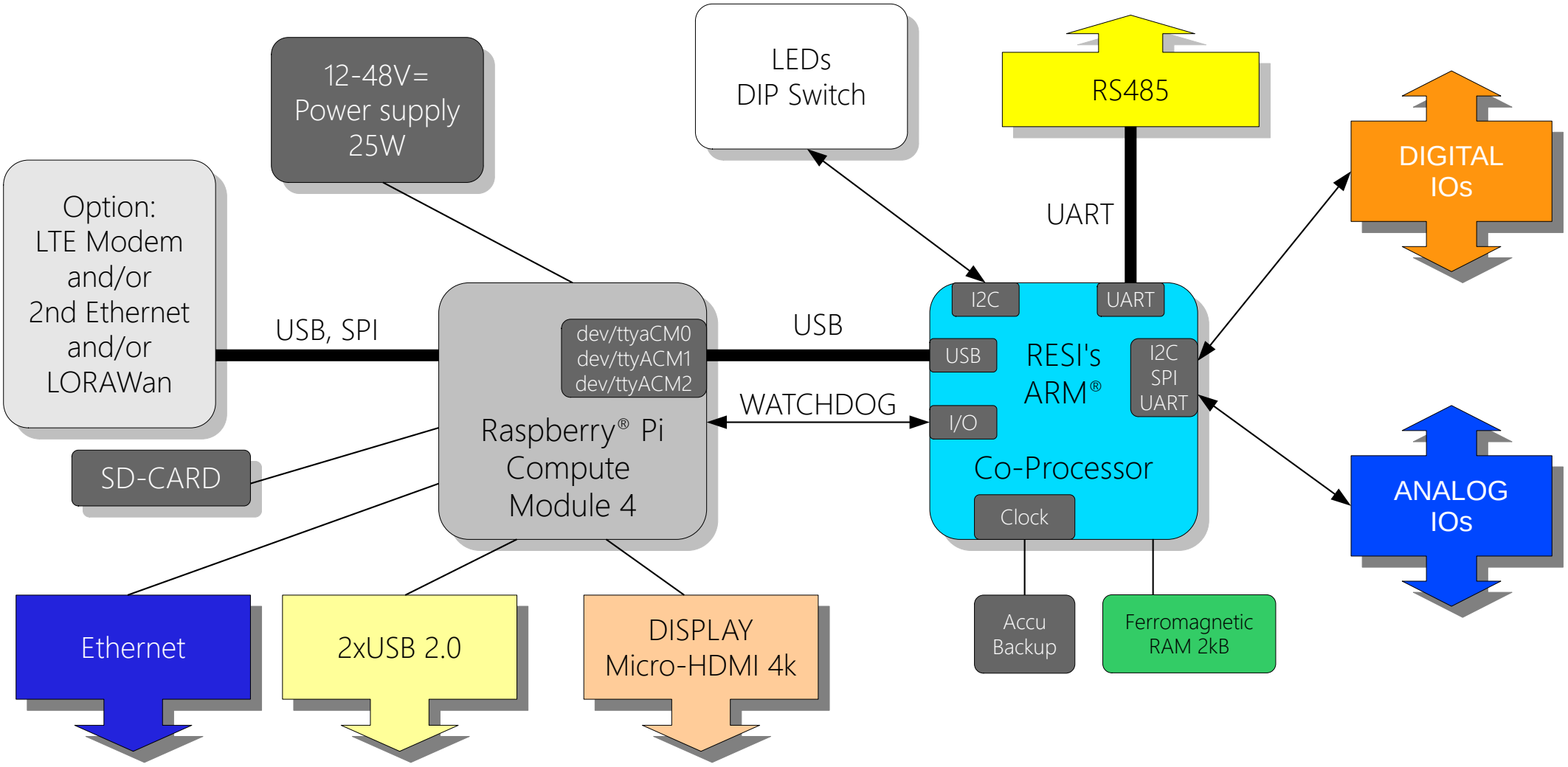
RESI



Internal architecture...

RESI-T4-xx IoT controller

Raspberry Pi is a trademark of the Raspberry Pi Foundation.
More information under www.raspberrypi.org



Internal architecture...

RESI-C4-xx IoT controller

Raspberry Pi is a trademark of the Raspberry Pi Foundation.
More information under www.raspberrypi.org

OUR 7“ TOUCHPANELs

Based on Raspberry Pi 4©

it´s all about
perfection...

... to interact with your building automation solution

Based on **Raspberry Pi 4®**

Full LINUX with CHROME web browser

Ideal solution for **room control** or **HVAC control cabinets**

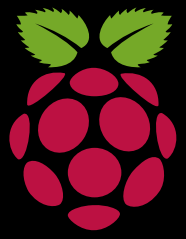
Raspberry Pi 4© 2/4/8GB RAM 32GB SD-CARD	LINUX OS CHROME web-browser	IN-WALL or CONTROL CABINET mounting options
Temperature sensor Optional build-in	Humidity sensor optional build-in	Ambient light sensor optional build-in
Proximity sensor for backlight control	RS232 or KNX interface	Use your OWN LOGO on device

Use our 7" IoT touch devices...

RESI

OUR T4 COMPACT CONTROLLERs

Based on Raspberry Pi 4©



it´s all about
perfection...

... to interact with your building automation solution

Based on **Raspberry Pi 4®**

Controller is designed for **HVAC, Light & Blind** and **integration** solutions

Build **your own intelligent gateways** or **controllers** based on the T4 and your software

Raspberry Pi 4©
2/4/8GB RAM
32GB SD-CARD

LINUX OS
CHROME web-browser

RS485/RS232
or KNX
interfaces

Additional
CAN or CAN FD
interfaces

Use our T4 IoT controllers...

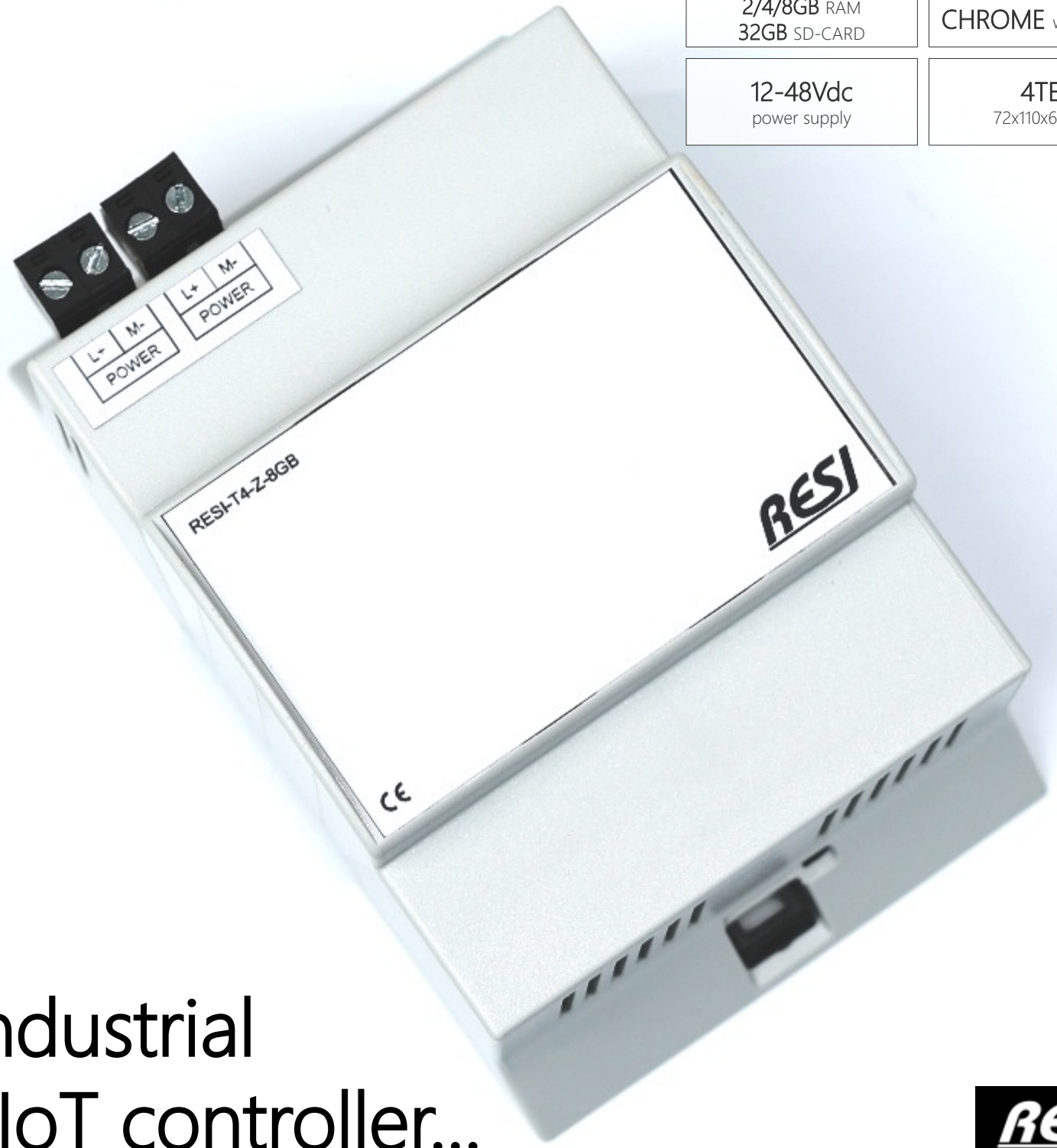
... as a platform for your own solution

Based on **Raspberry Pi 4®**

Build your **own intelligent gateways** or **controllers** based on the T4 and your software

Reduced to the bare essentials!

Raspberry Pi 4© 2/4/8GB RAM 32GB SD-CARD	LINUX OS CHROME web browser
12-48Vdc power supply	4TE 72x110x62mm



Looking for an industrial Raspberry Pi 4© IoT controller...

... as intelligent gateway
or controller
between serial devices
RS232, RS458, KNX
or
CAN/CAN FD
and Ethernet based SCADA
or cloud systems

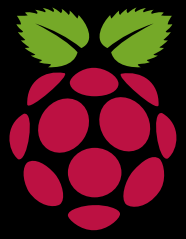
Based on **Raspberry Pi 4®**
Full LINUX support

Run your own software

Use our T4 IoT controllers...

OUR C4 COMPACT CONTROLLERs

Based on Raspberry Pi 4©



it´s all about
perfection...

... use our C4-A standard controller

Based on **Raspberry Pi Compute Module 4®**

Full LINUX support, run your own software
Additional RS485 interface for serial devices
4k HDMI+USB support

Raspberry Pi Compute Module 4©	2/4/8GB RAM 32GB SD-CARD	LINUX OS CHROME web-browser
1xEthernet interface	2xUSB 2.0 interfaces	4k Micro HDMI Display connector
	1xRS485 interface	DIP switch+LEDs for software usage

Need industrial grade IoT controller...

RESI

... use our C4 series of IoT controllers
with 2nd Ethernet or LTE modem

Based on Raspberry Pi Compute Module 4®

Raspberry Pi Compute Module 4©	2/4/8GB RAM 32GB SD-CARD	LINUX OS CHROME web-browser
Dual Ethernet interfaces	LTE modem QUECTEL EC25	Versions with additional, integrated IOs

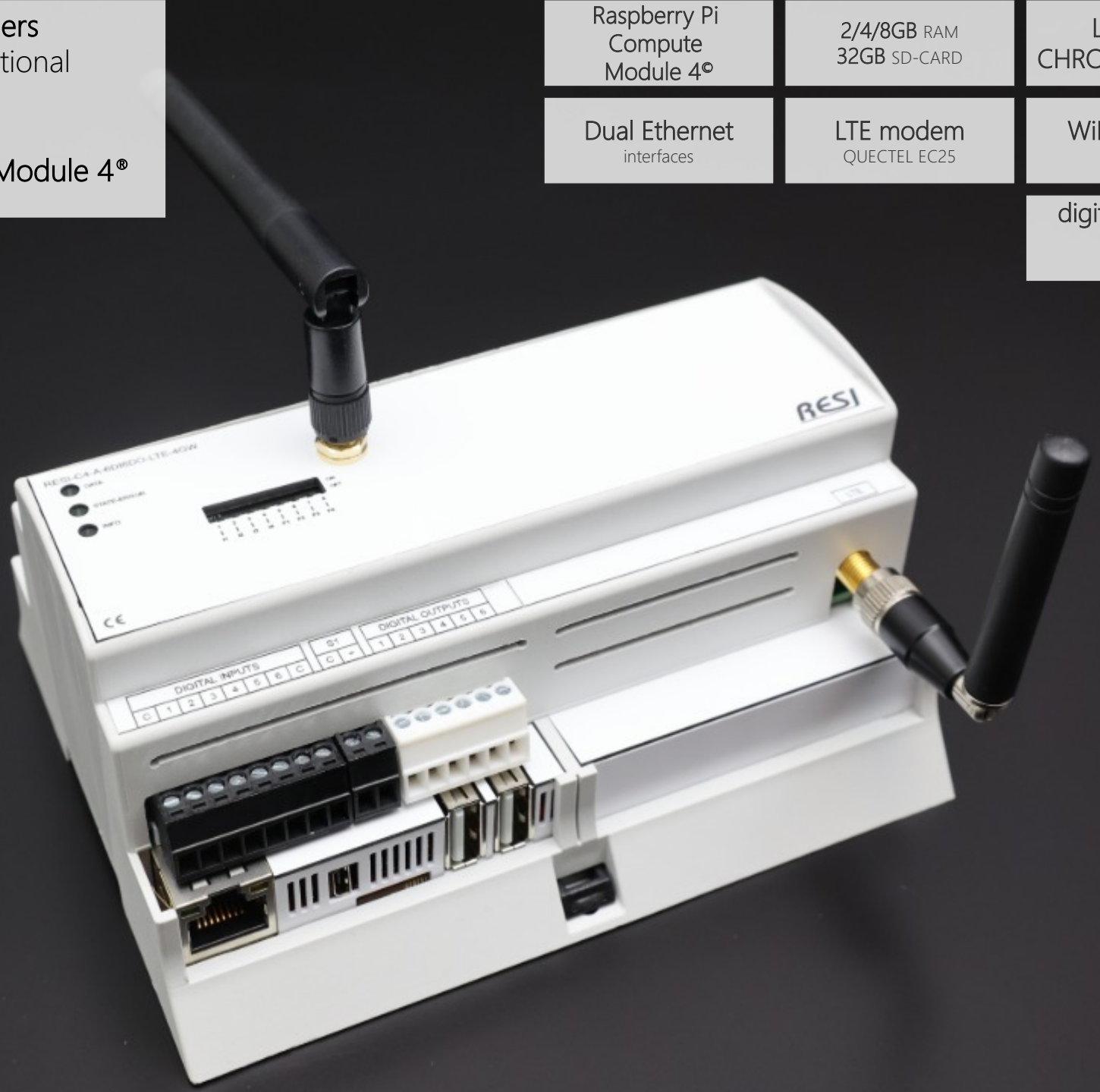
Need LTE modem or 2nd Ethernet...

RESI

... use our C4 series of IoT controllers with **WiFi** and **LTE modem** and optional **integrated IOs**

Based on **Raspberry Pi Compute Module 4®**

Raspberry Pi Compute Module 4©	2/4/8GB RAM 32GB SD-CARD	LINUX OS CHROME web-browser
Dual Ethernet interfaces	LTE modem QUECTEL EC25	WiFi Antenna integrated
		digital+analog IOs integrated



Need IOs, LTE modem and Wifi...

RESI

... use our C4 series of IoT controllers with LORAWAN receiver, WiFi+LTE modem and 2nd Ethernet

Based on Raspberry Pi Compute Module 4®

Raspberry Pi Compute Module 4©	2/4/8GB RAM 32GB SD-CARD	LINUX OS CHROME web-browser
Dual Ethernet interfaces	LTE modem QUECTEL EC25	WiFi Antenna integrated
		LORAWAN receiver integrated

Need LORAWan, 2nd Ethernet, LTE modem and Wifi...

RESI

... yes, you can:

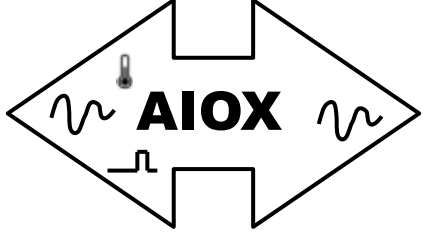
Combine our C4 IoT controller based on Raspberry Pi Compute Module 4 with **various IO possibilities**

Based on **Raspberry Pi Compute Module 4®**

Raspberry Pi Compute Module 4©	2/4/8GB RAM 32GB SD-CARD	LINUX OS CHROME web-browser
Versions with 2nd Ethernet or LTE modem	Up to 152 integrated IOs	digital+analog IOs integrated

Why not IoT controllers with IOs...

Which IO types...



UNIVERSAL ANALOG INPUTS & OUTPUTS

Every channel can be configured to a different signal type:

ANALOG INPUT
0/2-10V or **0/4-20mA**
(loop or external powered)

ANALOG OUTPUT
0/2-10V or **0/4-20mA**
(loop or external powered)

RESISTOR INPUT
0-1MΩ resistor
2 wire measurement

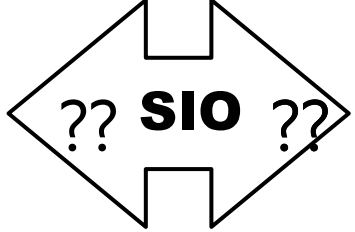
calculation & linearization of

PT100, PT1000, NI1000-DIN43760 Sensors
Reading in °Celsius, °Fahrenheit or °Kelvin

DIGITAL INPUT
DC signal or dry contact

All IOs are shortcut and overcurrent protected

Watchdog: In case of communication loss, the AOs are set to predefined set points.

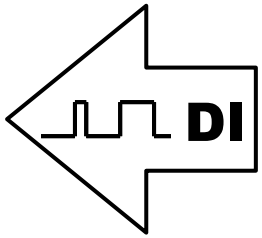


SPECIAL IN- & OUTPUTS

LED stripe control module
3xPWM or 12xPWM outputs.
≦60Vdc, ≦5A per PWM channel

Shades & blinds module:
Time control of
4 or 8 shades & blinds
with 230Vac motor

Optional pushbutton inputs for local control, wind or rain alarm

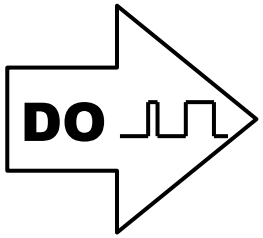


DIGITAL INPUTS

≦48Vdc
12-250Vac/dc

detection of short and long keypress

AC noise filter 50/60Hz

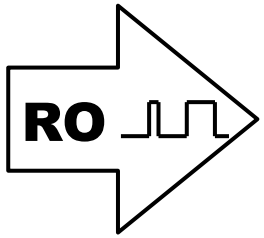


DIGITAL OUTPUTS

≦30Vdc, ≦350mA
temperature+shortcut protected

≦30V=, ≦700mA
temperature+shortcut protected
extensive diagnostic functions:
overcurrent, open wire,
shortcut to GND or VDD

Watchdog functionality:
In case of communication loss, outputs switches to predefined state (Off or On)



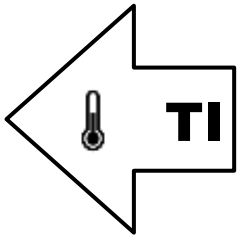
RELAY OUTPUTS

≦30Vdc, ≦250Vac, ≦6 or 8A
Form A or Form C relays

Special light relays:
≦250Vac, ≦16A, ≦220µF
for capacitive load

Solid state relays:
≦250Vac/dc, ≦1A
or ≦60Vac/dc, ≦3A
or ≦60Vac/dc, ≦6A

Watchdog functionality:
In case of communication loss, outputs switches to predefined state (Off or On)



TEMPERATURE INPUTS

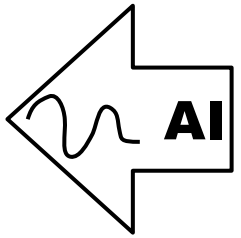
PT100, PT1000, or
NI1000-DIN43760 Sensors
2, 3 or 4 wire

internal linearization
Reading in °Celsius,
°Fahrenheit or °Kelvin

Ohm measurement

Detection of defect sensor or out of range reading

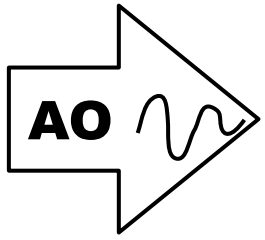
Average calculation in IO module



ANALOG INPUTS

-10V to +10V or 0/2 to 10V

high precision analog inputs



ANALOG OUTPUTS

-10V to +10V or 0/2 to 10V

high precision analog outputs

RESI

... use our C4 series with 12 digital IOs and 8 universal analog IOs (0-10V, 0/4-20mA, RTD, DI)

Based on Raspberry Pi Compute Module 4®

Raspberry Pi Compute Module 4©	2/4/8GB RAM 32GB SD-CARD	LINUX OS CHROME web-browser
6 DIGITAL INPUTs	6 DIGITAL OUTPUTs	8 UNIVERSAL ANALOG INPUTs/OUTPUTs

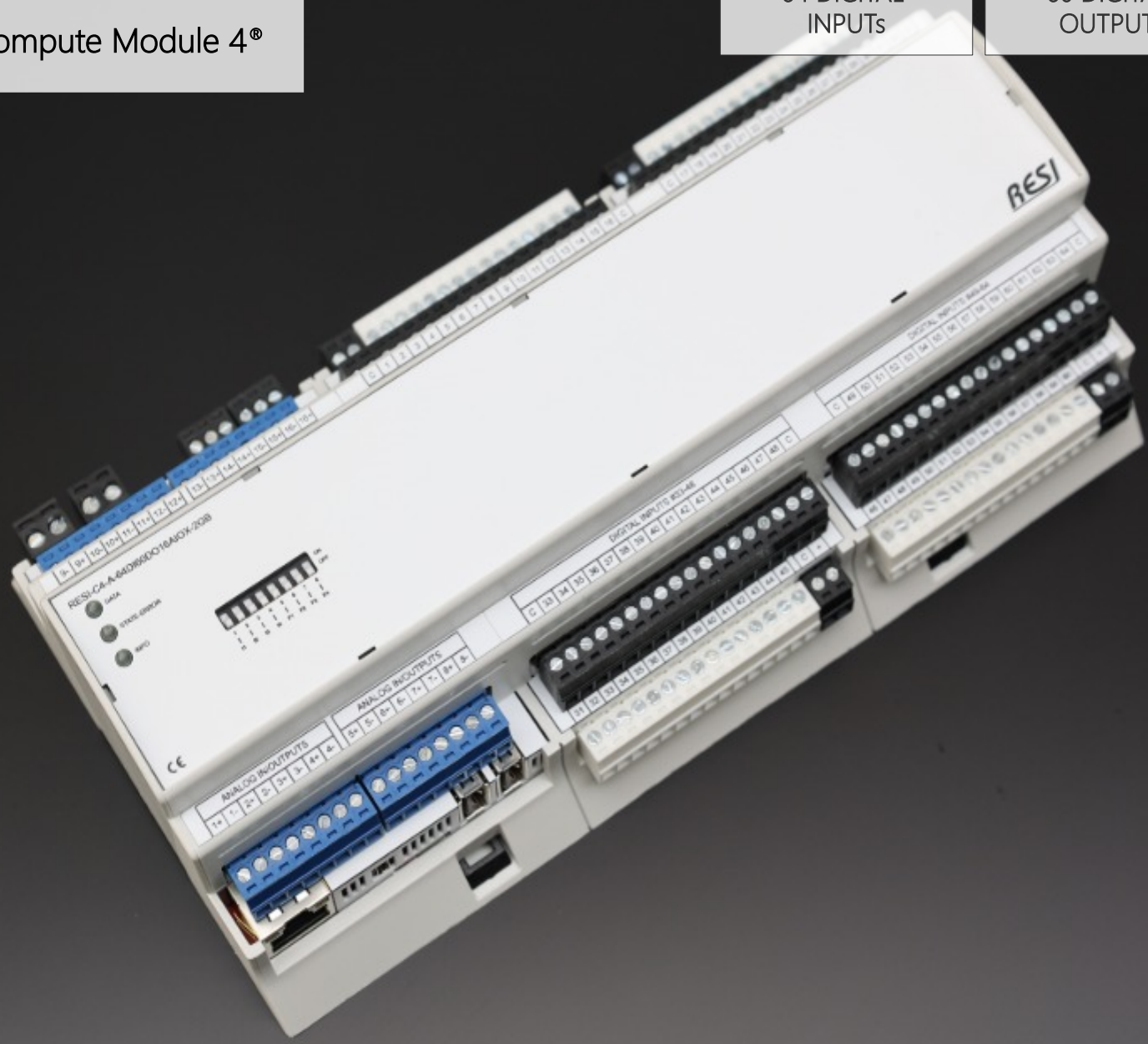
Need digital+analog IOs+IoT...

RESI

... use our C4 series with 124 digital IOs and 16 universal analog IOs (0-10V, 0/4-20mA, RTD, DI)

Based on Raspberry Pi Compute Module 4®

Raspberry Pi Compute Module 4©	2/4/8GB RAM 32GB SD-CARD	LINUX OS CHROME web-browser
64 DIGITAL INPUTs	60 DIGITAL OUTPUTs	16 UNIVERSAL ANALOG INPUTs/OUTPUTs



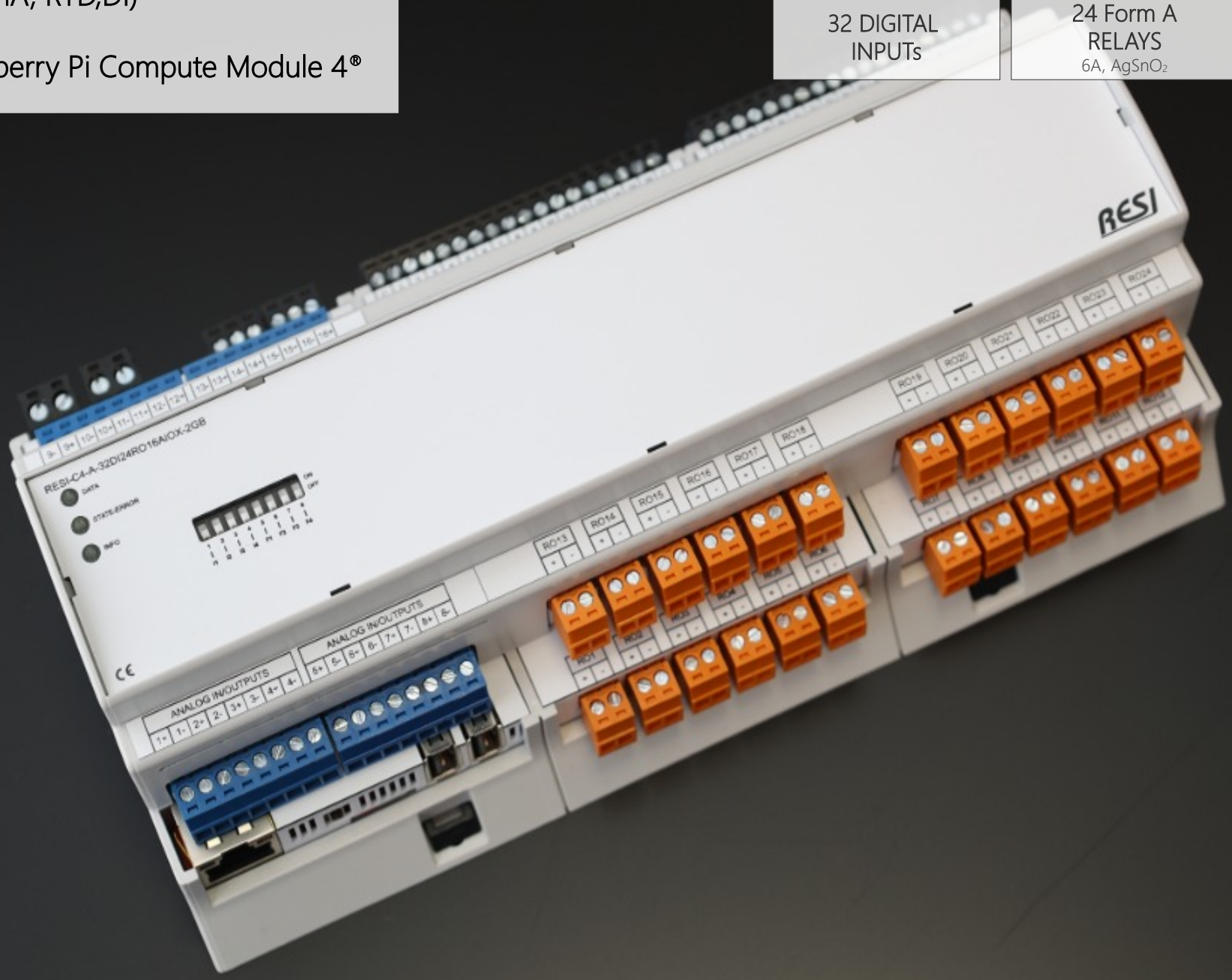
Need a lot of digital+analog IOs+IoT...

RESI

... use our C4 series with 56 digital IOs and 16 universal analog IOs (0-10V, 0/4-20mA, RTD,DI)

Based on Raspberry Pi Compute Module 4®

Raspberry Pi Compute Module 4©	2/4/8GB RAM 32GB SD-CARD	LINUX OS CHROME web-browser
32 DIGITAL INPUTs	24 Form A RELAYS 6A, $AgSnO_2$	16 UNIVERSAL ANALOG INPUTs/OUTPUTs



Need a lot of analog IOs+relays+IoT...

RESI

UNIVERSAL ANALOG IN-OUT

Each IO can have different function

- Analog in: 0/2-10V
- Analog in: 0/4-20mA
- Analog out: 0/2-10V
- Analog out: 0/4-20mA
- RTD in: 0-1MΩ
  - PT100
  - PT1000
  - NI1000-DIN43760
- Digital in: 24V= or dry contact

RS485

Native RS485 for Gateways or IO modules with auto direction Switching mapped to LINUX as dev/ttyACM2

POWER SUPPLY

12-48Vdc

DIGITAL INPUTS

Inputs for 12-48V=, ≤2mA

Extensive input logic:

- detection of short and long keypress
- current status of all digital inputs

ARM® CO-PROCESSOR

Integrated ARM processor, connected via USB to Raspberry, no special driver or LINUX kernel needed

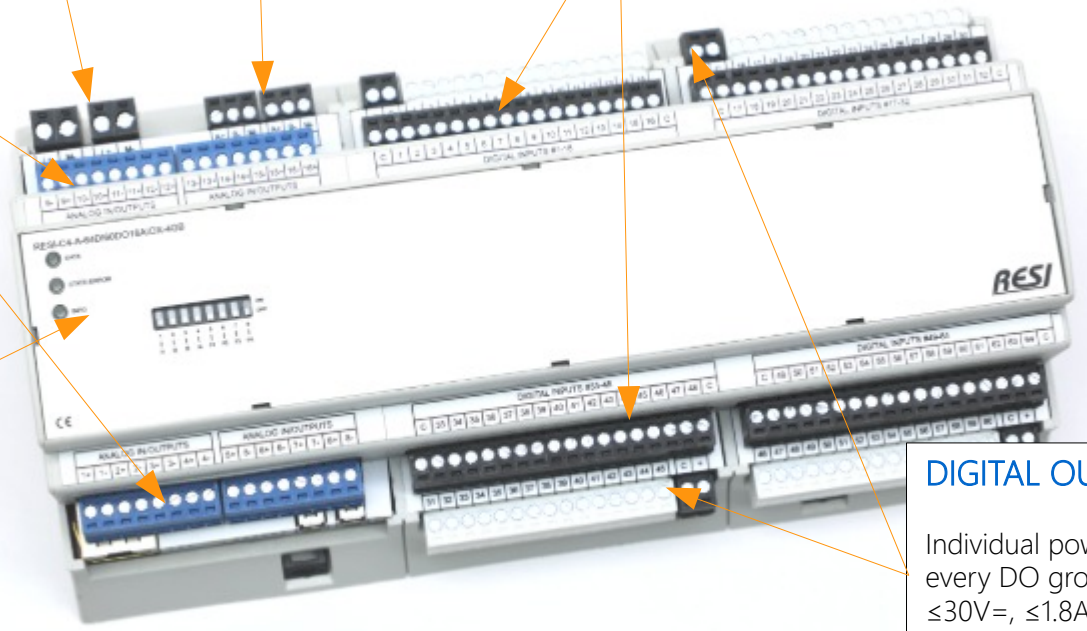
Functionality:

RS485

- RS485 is mapped to dev/ttyACM2
- RS485 automatic direction switching

INTERNAL

- Internal communication with dev/ttyACM0 for ASCII and dev/ttyACM1 for MODBUS/RTU
- communication with ASCII commands
- All IOs
- 2kB ferromagentic RAM
- accu buffered real-time clock
- 96-bit serial number
- Watchdog functionality
- Status of LEDs and DIP Switch



DIGITAL OUTPUTS

Individual power supply for every DO group:
≤30V=, ≤1.8A

Output can drive
≤30V=, ≤700mA

Extensive output diagnostic:

- Thermal overload
- short cut
- open wire

Close-up
RESI-C4-A-64DI60DO16AIOX-xGB

OUR IO MODULEs

with MODBUS or ASCII protocol

it´s all about
perfection...

... use our SLIMIOs or BIGIOs with RS485 or Ethernet

MODBUS or ASCII protocol
Over 100 different IO combinations:
digital, analog, sensors, relays, LEDs...

How do we connect IOs...

... use our SLIMIOs with RS232/RS485 or Ethernet

Support MODBUS/RTU slave or MODBUS/TCP server
or simple ASCII text protocol

Many different versions

VERY SLIM 1MU or 2MU	RS232/RS485 interface	ETHERNET interface	MODBUS ASCII protocol
Up to 4 DIGITAL INPUTs	Up to 4 DIGITAL OUTPUTs	Up to 4 UNIVERSAL ANALOG IOs	Up to 2 RTD INPUTs
Up to 2 RELAYS 8A, $AgSnO_2$	Up to 3 LED PWMs for LED stripes	Up to 1024 WS28xx LEDs for LED stripes	... and many more

You need only a few remote IOs...

... use our BIGIOs with RS232/RS485 or Ethernet

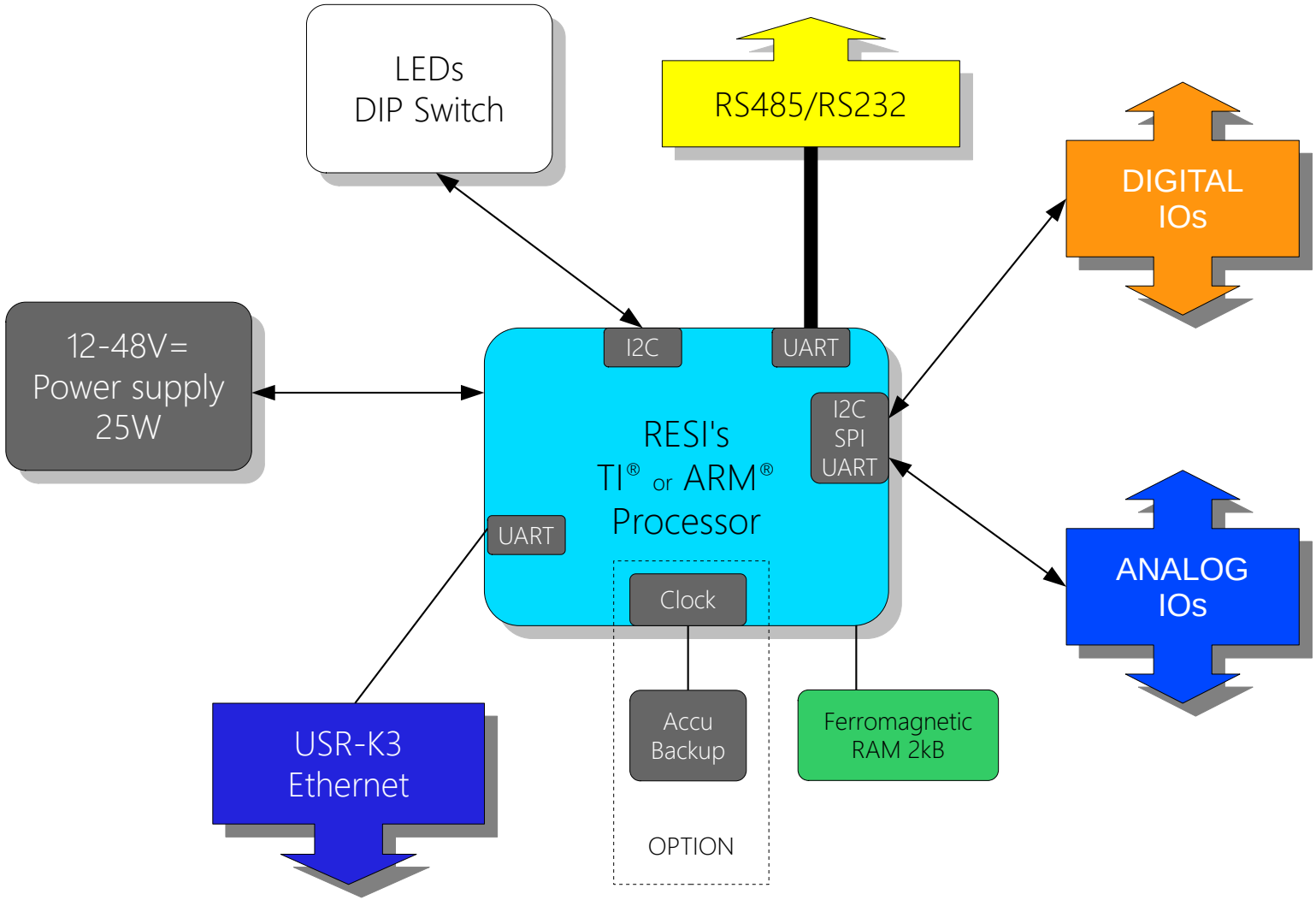
Support MODBUS/RTU slave or MODBUS/TCP server or simple ASCII text protocol

Over 100 different versions

Up to 152 IOs in one remote IO module

4MU/8MU 12MU housing	RS485 interface	ETHERNET interface	MODBUS ASCII protocol
Up to 156 DIGITAL INPUTs	Up to 114 DIGITAL OUTPUTs	Up to 16 UNIVERSAL ANALOG IOs	Up to 16 RTD INPUTs
Up to 24 RELAYS 6A, $AgSnO_2$	Up to 12 LED PWMs for LED stripes	Many MIXED IO modules	... and many more

you need
a whole punch of remote IOs...

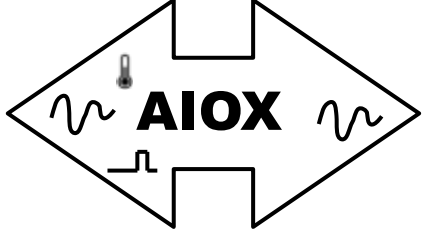


Internal architecture...

RESI-IO modules

Raspberry Pi is a trademark of the Raspberry Pi Foundation.
More information under www.raspberrypi.org

Which IO types...



UNIVERSAL ANALOG INPUTS & OUTPUTS

Every channel can be configured to a different signal type:

ANALOG INPUT
0/2-10V or **0/4-20mA**
(loop or external powered)

ANALOG OUTPUT
0/2-10V or **0/4-20mA**
(loop or external powered)

RESISTOR INPUT
0-1MΩ resistor
2 wire measurement

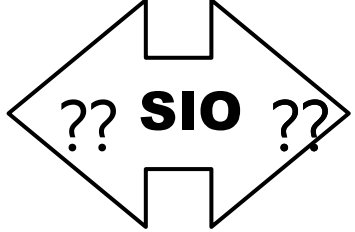
calculation & linearization of

PT100, PT1000, NI1000-DIN43760 Sensors
Reading in °Celsius, °Fahrenheit or °Kelvin

DIGITAL INPUT
DC signal or dry contact

All IOs are shortcut and overcurrent protected

Watchdog: In case of communication loss, the AOs are set to predefined set points.

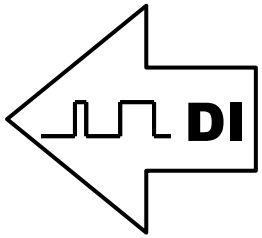


SPECIAL IN- & OUTPUTS

LED stripe control module
3xPWM or 12xPWM outputs.
≦60Vdc, ≦5A per PWM channel

Shades & blinds module:
Time control of
4 or 8 shades & blinds
with 230Vac motor

Optional pushbutton inputs for local control, wind or rain alarm

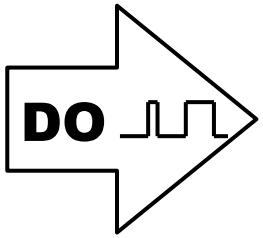


DIGITAL INPUTS

≦48Vdc
12-250Vac/dc

detection of short and long keypress

AC noise filter 50/60Hz

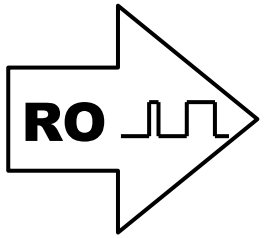


DIGITAL OUTPUTS

≦30Vdc, ≦350mA
temperature+shortcut protected

≦30V=, ≦700mA
temperature+shortcut protected
extensive diagnostic functions:
overcurrent, open wire,
shortcut to GND or VDD

Watchdog functionality:
In case of communication loss, outputs switches to predefined state (Off or On)



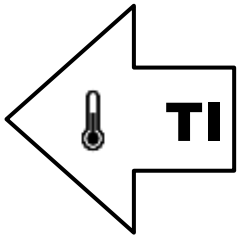
RELAY OUTPUTS

≦30Vdc, ≦250Vac, ≦6 or 8A
Form A or Form C relays

Special light relays:
≦250Vac, ≦16A, ≦220µF
for capacitive load

Solid state relays:
≦250Vac/dc, ≦1A
or ≦60Vac/dc, ≦3A
or ≦60Vac/dc, ≦6A

Watchdog functionality:
In case of communication loss, outputs switches to predefined state (Off or On)



TEMPERATURE INPUTS

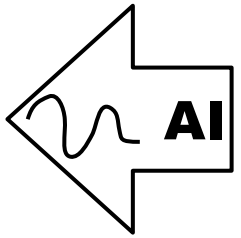
PT100, PT1000, or
NI1000-DIN43760 Sensors
2, 3 or 4 wire

internal linearization
Reading in °Celsius,
°Fahrenheit or °Kelvin

Ohm measurement

Detection of defect sensor or out of range reading

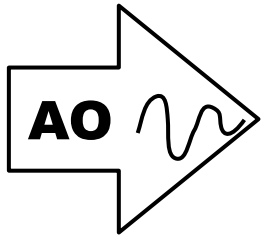
Average calculation in IO module



ANALOG INPUTS

-10V to +10V or 0/2 to 10V

high precision analog inputs



ANALOG OUTPUTS

-10V to +10V or 0/2 to 10V

high precision analog outputs

RESI

UNIVERSAL ANALOG IN-OUT

Each IO can have different function

- Analog in: 0/2-10V
- Analog in: 0/4-20mA
- Analog out: 0/2-10V
- Analog out: 0/4-20mA
- RTD in: 0-1MΩ
  - PT100
  - PT1000
  - NI1000-DIN43760
- Digital in: 24V= or dry contact

POWER SUPPLY

12-48Vdc

RS485

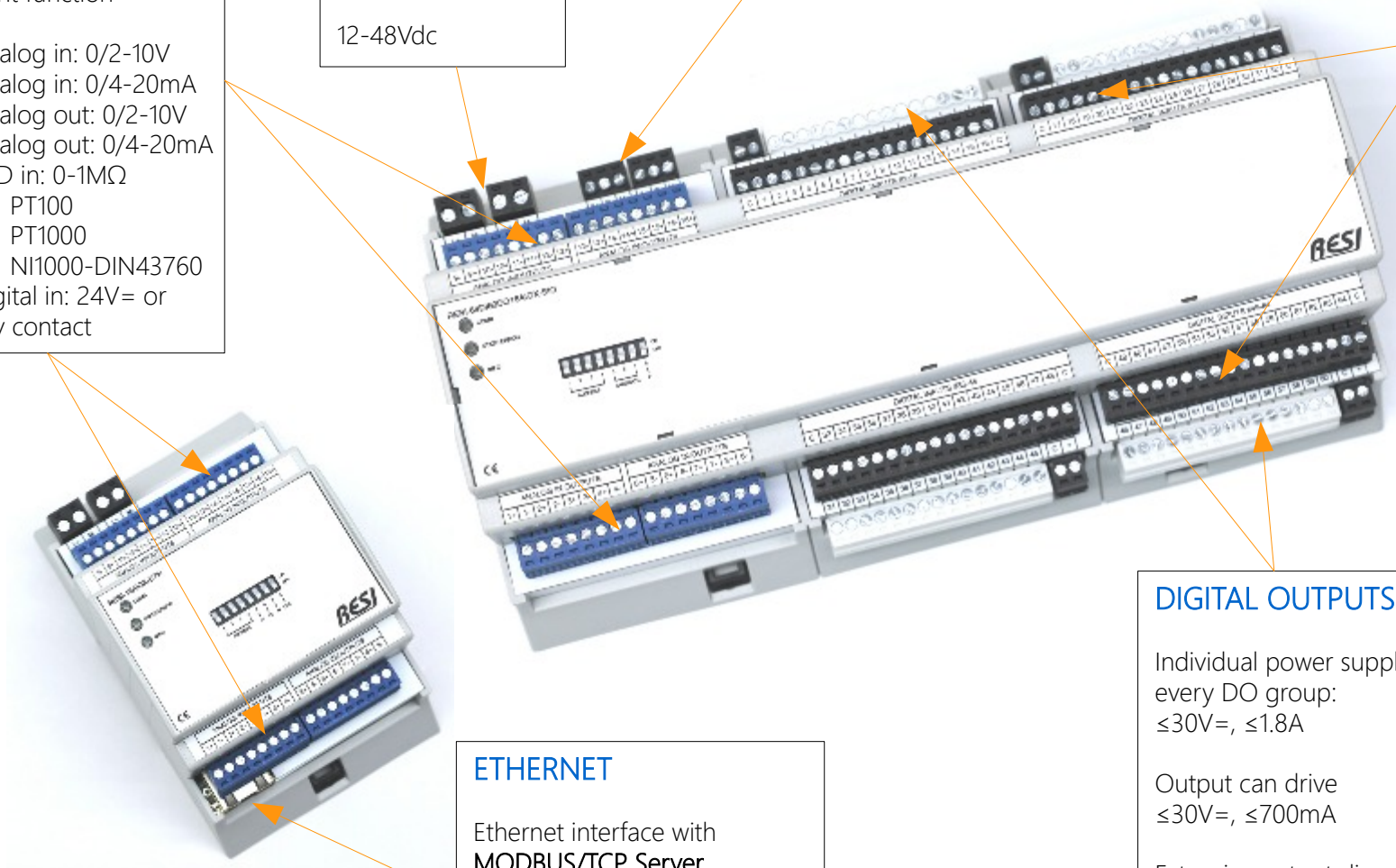
Native RS485 interface with **MODBUS/RTU Slave** or **ASCII text protocol**

DIGITAL INPUTS

Inputs for 12-48V=, ≤2mA

Extensive input logic:

- detection of short and long keypress
- current status of all digital inputs



ETHERNET

Ethernet interface with **MODBUS/TCP Server** or **MODBUS/RTU via Ethernet** or **ASCII text protocol**

DIGITAL OUTPUTS

Individual power supply for every DO group:
≤30V=, ≤1.8A

Output can drive
≤30V=, ≤700mA

Extensive output diagnostic:

- Thermal overload
- short cut
- open wire

Close-up
RESI-64DI60DO16AIOX-SIO
RESI-16AIOX-ETH

How is it in reality ?

OUR ROOM SENSORs

with MODBUS/ASCII, KNX, DALI protocol

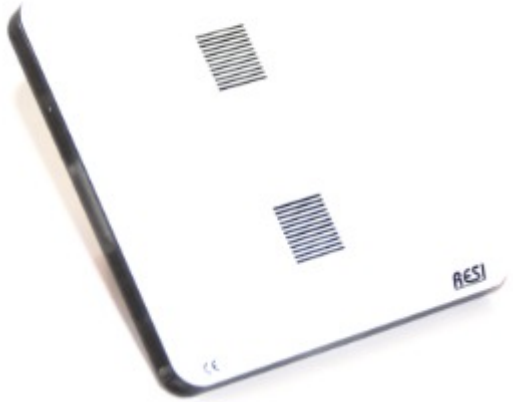
it´s all about
perfection...

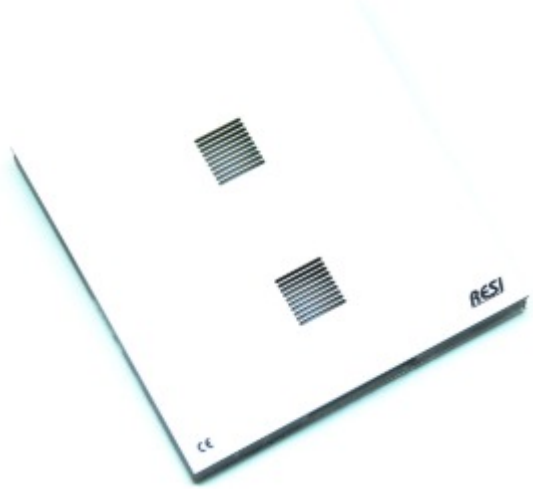
... use our ROOM SENSORS
with **RS485** (MODBUS+ASCII) or **KNX** or **DALI** interface

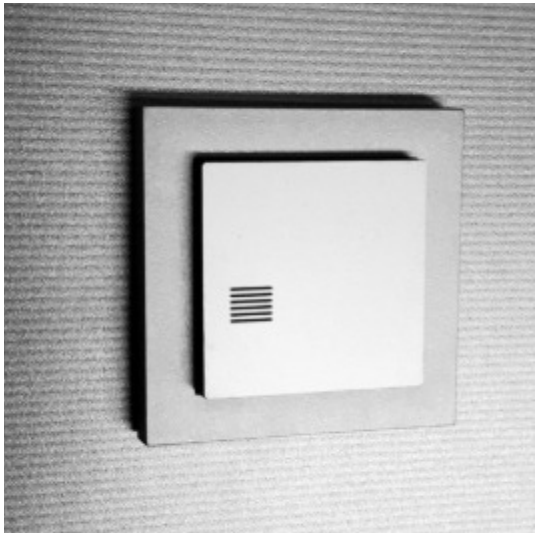
Measure **temperature, humidity, air quality** and **CO_2**

Passive version with **PT100, PT1000** or
NI1000-DIN43760 sensor element

TEMPERATURE sensors	TEMPERATURE HUMIDITY sensors	AIR QUALITY sensors	CO_2 sensors
RS485 MODBUS or ASCII protocol	KNX KNX protocol	DALI DALI 1.0 or DALI 2.0 protocol	PT100 or PT1000 NI1000-DIN43760 passive sensor
	Cover with YOUR LOGO	Many different DESIGNs & MATERIALs	IN-WALL or ON-WALL mounting







Need to measure room climate ...

RESI

... use our ROOM SENSORS
with **RS485** (MODBUS+ASCII) or **KNX** or **DALI** interface

Detect **motion** or **occupancy**, measure **ambient brightness**

Combined sensors with **additional temperature, humidity** and **air quality** measurement

OCCUPANCY sensors	MOTION sensors	COMBINED sensors
RS485 MODBUS or ASCII protocol	KNX KNX protocol	DALI DALI 1.0 or DALI 2.0 protocol
Use your OWN LOGO	Many DESIGNs & MATERIALs	IN-WALL mounting

Need to sense motion or presence in the room ...

OUR ROOM CONTROLLERs

with MODBUS/ASCII, KNX, DALI protocol

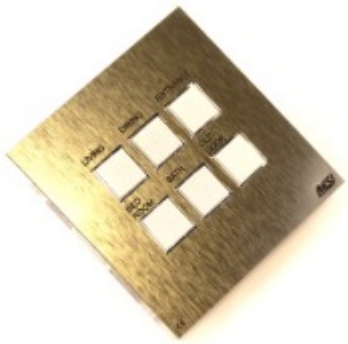
it´s all about
perfection...

... use our ROOM CONTROLLERS
with **RS485** (MODBUS+ASCII) or **KNX** or **DALI** interface

Control **climate, light, shades** or **multimedia** with **push buttons** or **rotary knobs**

Measure **temperature, humidity** and **air quality**

Up to 6 PUSH-BUTTONs	Up to 2 ROTARY KNOBs	Integrated MEASUREMENT
RS485 MODBUS or ASCII protocol	KNX KNX protocol	DALI DALI 1.0 or DALI 2.0 protocol
Use your OWN LOGO & WRITING	Many DESIGNs & MATERIALs	IN-WALL ON-WALL mounting



Need to control rooms ...

OUR POWER SUPPLIES

for 24Vdc, DALI, KNX

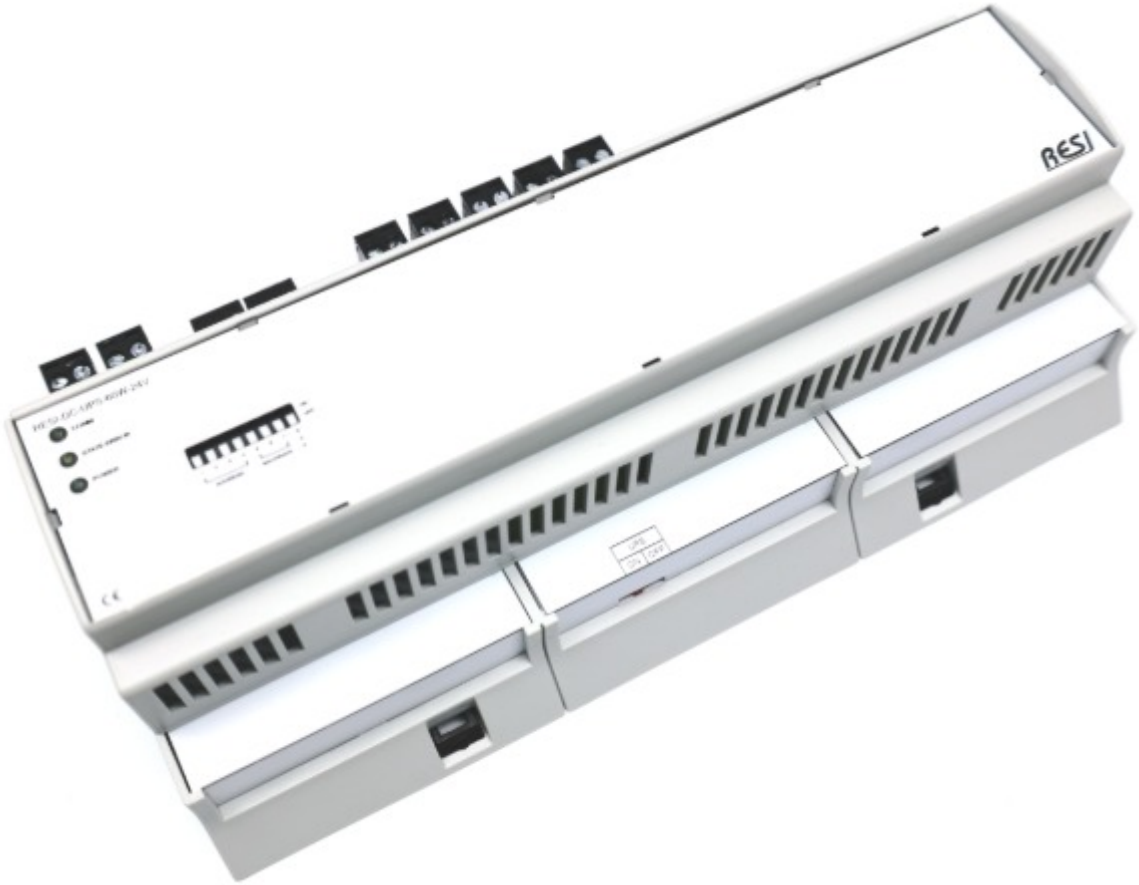
it´s all about
perfection...

... use our 24Vdc/65W power supplies

... or combine our 24Vdc 2.5A uninterruptable power supply
with Li-Ion accumulator for ~30 minutes and RS485 (MODBUS+ASCII) interface

... or use for DALI light systems our DALI-PS power supply (200mA)

... or use for KNX systems our KNX-PS power supply (160mA)



Need to power your solutions ...

AT THE END

[Thank you for your patience...]

it´s all about
perfection...

Let's create more
intelligent & efficient
solutions together

in **combining** the **best** from
different worlds!

At the end...

RESI

THANK YOU

RESI Informatik & Automation GmbH
Altenmarkt 29, A-8551 Wies, AUSTRIA

help@RESI.cc www.RESI.cc