

## I/O adapter 530ADD01 RTU530 product line



Standard adapter module for extension up to 10 I/O modules 530AID01, 530AOD01, 530BID01, 530BOD01, 530IOD01, 530PTD01

- Interface to RTU530 base module and to further I/O adapter modules
- RTU530 I/O bus extension for up to 50 m via RS-485
- Integrated 24 V DC power supply

### Application

The I/O adapter 530ADD01 is a module of the RTU530 product line and is used to connect and to supply up to 10 RTU530 I/O modules to an I/O bus with RS-485. Up to 10 virtual extension racks can be configured per RTU530.

### Characteristics

One I/O adapter is able to connect and supply up to 10 I/O modules.

The module has a green RUN and a red ERR LED to indicate module state. In addition, two LEDs (R and T) per interface for signaling activities on the I/O bus.

### Connection diagram

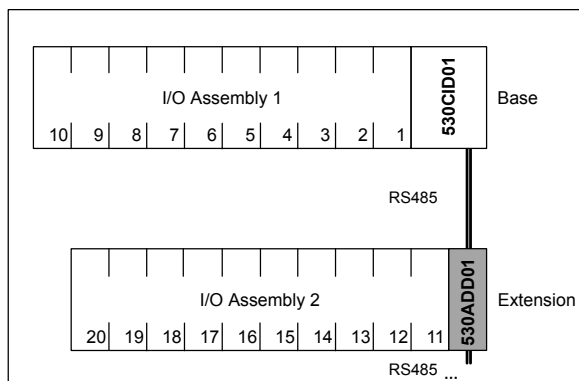


Figure 1: Connection diagram 530ADD01

## Technical data

In addition to the RTU500 series general technical data, the following applies:

General standards	
Safety tested according to	<ul style="list-style-type: none"><li>IEC 61010-1</li><li>IEC 61010-2-201</li></ul>
Environmental conditions tested according to	<ul style="list-style-type: none"><li>IEC 60255-21-1 class 1</li><li>IEC 60255-21-2 class 1</li><li>IEC 60870-2-2 class Bm and C1</li></ul>
Electromagnetic compatibility (EMC) tested according to	<ul style="list-style-type: none"><li>IEC 61000-6-2</li><li>IEC 61000-6-4</li><li>IEC 61000-6-5</li></ul>
Insulation classification according to	<ul style="list-style-type: none"><li>IEC 60664-1</li><li>Pollution degree 2</li><li>Overvoltage category II</li><li>Altitude: ≤ 3,000 m</li></ul>

Environmental conditions - climatic	
Operating temperature EN 60068-2-14	-25 °C ... 70 °C
Start up EN 60068-2-1	-40 °C
Max. operating temperature, max. 96h EN 60068-2-2	+85 °C
Relative humidity EN 60068-2-30	5 ... 95 % (non condensing)

Environmental conditions - mechanical	
Vibration sinusoidal, Test Fc, IEC 60068-2-6	<ul style="list-style-type: none"><li>3.5 mm (3...9 Hz) 10 m/s<sup>2</sup> (9...35 Hz) 1 octave/ min, 1 cycle per axis IEC 60255-21-3 class 1</li><li>3 mm (3...9 Hz) 10 m/s<sup>2</sup> (9...200 Hz) 15 m/s<sup>2</sup> (200...500 Hz) 1 octave/ min, 10 cycles per axis IEC 60870-2-2 class Bm</li><li>0.035 mm (10 Hz...60 Hz) 5 m/s<sup>2</sup> (60 Hz...150 Hz) 1 octave/ min, 1 cycle per axis IEC 60255-21-1 class 1</li></ul>
Shock and Bump, Test Ea, IEC 60068-2-27	<ul style="list-style-type: none"><li>250 m/s<sup>2</sup>, 10 ms 4 shocks per direction IEC 60721-3-3 class 3M5</li><li>150 m/s<sup>2</sup>, 11 ms 3 shocks per direction IEC 60255-21-2 class 1 IEC 60870-2-2 class Bm</li><li>100 m/s<sup>2</sup>, 16 ms 1000 shocks per direction IEC 60255-21-2 class 1</li></ul>

## Emission test

Radiated emissions - enclosure ports (30 Mhz to 1 GHz), CISPR 16-2-3/ EN 55016-2-3	EN 55011/ CISPR 11 class A
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## Immunity test

Electrostatic discharge, IEC 61000-4-2	8 kV air / 6 kV contact (level 3), criterion A
Radiated radio-frequency electromagnetic field, IEC 61000-4-3	80 MHz to 1 GHz: 10 V/m (level 3), criterion A 1 GHz to 2.7 GHz: 10 V/m (level 3), criterion A
Power frequency magnetic field, IEC 61000-4-8	100 A/m (level 5), criterion A
Impulse magnetic field, IEC 61000-4-9	100 A/m (level 3), criterion A

## Mean time between failure (MTBF)

Calculation according to Telcordia III 40°C	2,387,000 h
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## Mechanical layout

Dimensions	30 mm x 125 mm x 85 mm (Width x Height x Depth)
Housing type	Plastic housing (V-2), RAL 7035 light gray
Mounting	DIN rail mounting (EN 50022 TS35: 35 mm x 15 mm or 35 mm x 7.5 mm)
Enclosure protection class	IP30
Weight	0.12 kg

## Conformal coating

Material base	Acrylate resins (AR)
Standards	<ul style="list-style-type: none"><li>IPC-CC-830B</li><li>MIL-I-46058C</li><li>UL 94</li><li>UL 746E</li></ul>
Noxious gas protection (coating material)	Noxious gas test according to DIN EN 60068-2-60 or BMW GS 95003-4
Dielectric strength (coating material)	60 kV/ mm according to IPC-TM-650 or DIN EN 60243-1
Resistance to condensation (coating material)	1.0 x 10 <sup>10</sup> Ohm based on DIN EN ISO 6270-2

## Connection type

Power supply input (X1)	1 x 3 pole 5.08 mm pluggable screw terminals (included in delivery), 0.2... 2.5 mm <sup>2</sup> / AWG 24 - AWG 12
Connector to the I/O modules (X3)	2 x 6 pin, female

<b>Connection type</b>	
I/O bus (CP1) from CMU module or other 530ADD01	RJ-45 (8P8C) shielded cable, up to 50m (RS-485)
I/O bus (CP2) to next 530ADD01 module	RJ-45 (8P8C) shielded cable, up to 50m (RS-485)

<b>Signaling by LEDs</b>	
ERR (red)	On: Module in error state Flashing: Module in warning state
RUN (green)	On: Module in operation Flashing: Module performs cold or warm start
R	Receives data from the I/O bus
T	Transmits data to the I/O bus

<b>Power supply input (X1)</b>	
Operating voltage	
Input tolerance range	-20%...+20%
Power consumption (typical)	32 W
Current demand (peak)	2.0 A
Startup current	<20 A; 50 $\mu$ s - 1.5ms (Class S1 according to IEC 60870-4)
Plug type	1 x 3 pole 5.08 mm pluggable screw terminals (included in delivery), 0.2... 2.5 mm <sup>2</sup> / AWG 24 - AWG 12
Reverse polarity protection	yes
Input fuse	internal fuse
External circuit breaker	10 A trip current, the plus lead needs a be protected by a circuit-breaker
Galvanic isolation	no
Electrical fast transient / Burst, IEC 61000-4-4	4 kV (level 4), criterion A
Surge 1.2/50 $\mu$ s, IEC 61000-4-5	4 kV line to earth, 2 kV line to line (level 4), criterion A
Conducted disturbances, induced by radio-frequency fields, IEC 61000-4-6	10 V (level 3), criterion A
Ring wave, IEC 61000-4-12	2 kV line to earth, 1 kV line to line (level 3), criterion A
Conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz, IEC 61000-4-16	30 V continuous disturbance/ 300 V short duration disturbance (level 4), criterion A
Ripple on DC power supply, IEC 61000-4-17	20% Un
Damped oscillatory wave, IEC 61000-4-18	2.5 kV line to earth, 1 kV line to line @ 1 MHz (level 3), criterion A

<b>Power supply input (X1)</b>	
Conducted emissions - asymmetrical DC ports, common mode (0.15 MHz to 30 MHz), CISPR 16-2-1/ EN 55016-2-1	EN 55011/ CISPR 11 class A

<b>Current supply for power supplied via RTU530 I/O bus</b>	
5 V DC ( $\pm$ 5%)	1.5 A
24 V DC ( $\pm$ 20%)	1 A

<b>Serial interfaces (CP1 - CP2)</b>	
Electrical specification	EIA RS-485
Data rate	1000 kbps
Plug type	RJ-45 (8P8C)
Cable	shielded cable, up to 50m (RS-485)
Electrical fast transient / Burst, IEC 61000-4-4	4 kV (level 4), criterion A
Surge 1.2/50 $\mu$ s, IEC 61000-4-5	2 kV (level 3), criterion A
Conducted disturbances, induced by radio-frequency fields, IEC 61000-4-6	10 V (level 3), criterion A
Ring wave, IEC 61000-4-12	2 kV (level 3), criterion A
Conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz, IEC 61000-4-16	30 V continuous disturbance/ 300 V short duration disturbance (level 4), criterion A
Damped oscillatory wave, IEC 61000-4-18	2.5 kV (level 3), criterion A

<b>Ordering information</b>	
530ADD01 R0001	1KGT050000R0001
RS-485	
530ADD01 R1001	1KGT050000R1001
RS-485, conformal coated	

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