



Operating Manual

UMB ISO Converter ISOCON

Order Number: 8160.UISO

Status: V2; 05.04.2007



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Version history:

Version	Date	Compiled by	Comments
V1	15.09.2006	EES/SH	1 st edition
V2	05.04.2007	EES	EC Certificate of Conformity supplemented; grounded DIN rail

Please read before use

Before using the equipment, please read the operating manual carefully and follow the instructions in every detail.

Safety instructions

- Installation and commissioning must only be carried out by suitably qualified specialist personnel.
- Never take measurements on or touch live electrical parts.
- Only mount the module on the DIN rail when the power is switched off.
- Protect the device from direct sunlight
- The equipment requires an adjustment period of several minutes on being moved to a location with different climate conditions.
- Pay attention to the technical data and storage and operating conditions.



Designated use

- The equipment must only be operated within the range of the specified technical data.
- The equipment must only be used under the conditions and for the purposes for which it was designed.
- The safety and operation of the equipment can no longer be guaranteed if it is modified or adapted.

Guarantee

The guarantee period is 24 months from the date of delivery. The guarantee is forfeited if the designated use is violated.

Symbols used



Important indication concerning possible hazards to the user



Important indication for the correct functioning of the device

Description

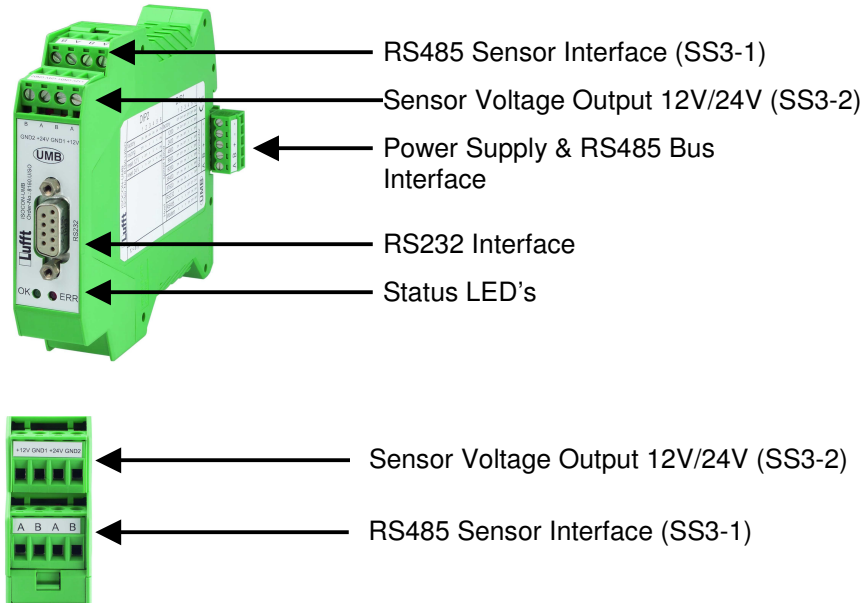
The UMB ISO Converter (ISOCON) is an intelligent interface converter with electrical isolation for building UMB networks. The devices are easily installed on standard EN mounting rails and networked together by means of mounting rail bus connectors. The 24V feed for the power supply takes place via the bus connector. Two, 6 pole DIP switches are provided in the device for configuration of the ISOCON.

Features

- 3-way gateway with half-duplex RS485 interface for the UMB sensors, RS232 interface for the host system and firmware updates and half-duplex RS485 interface for networking the converters together
- Easy mounting on standard EN mounting rails
- Easy networking of up to 32 subscribers via mounting rail bus connectors
- 24V DC power supply suitable for switchgear cabinets
- 12V power supply (electrically isolated) for the sensors
- 24V power supply for sensors
- ESD protection for all interfaces
- Easy configuration with DIP switches
- Functions displayed via LED's
- Low space requirement; width approx. 23mm/module
- Low energy consumption / dissipation

UMB ISO Converter ISOCON

Summary

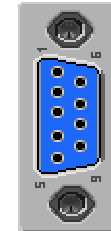


RS232 9 pole SUB-D socket

Pin	Designation	Description
1	n.c.	Not used
2	TxD	Transmit data
3	RxD	Receive data
4	DTR *1)	DEE operational readiness
5	GND	Operational earth
6	DSR *1)	Operational readiness
7	CTS	Readiness to transmit
8	RTS	Switch on transmission
9	RI	Ring signal

*1) Pins 4 and 6 are internally bridged.

This connection serves to connect the UMB network to the host system. As the UMB system works according to the master-slave principle, only one master may be connected on a UMB network. The RS232 interface is configured via DIP switch DIP1.



Sensor Power Supply and RS485 Sensor Connection

SS3-2

Pin 1:	+12V	Switchable electrically isolated power supply for all 12V sensors
Pin 2:	GND1	Electrically isolated earth for all 12V sensors
Pin 3:	+24V	Switchable power supply for all 24V sensors
Pin 4:	GND2	Earth for all 24V sensors

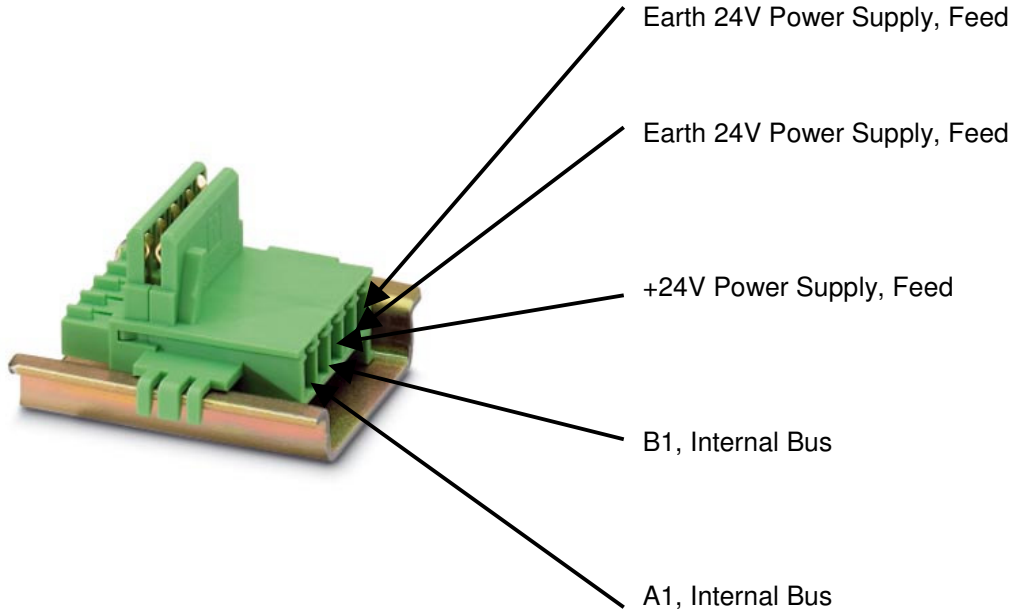
SS3-1

Pin 1:	A	2 wire RS485 A
Pin 2:	B	2 wire RS485 B
Pin 3:	A	2 wire RS485 A, internally bridged with Pin 1
Pin 4:	B	2 wire RS485 B, internally bridged with Pin 2



A terminator of approx. 120 Ohms is recommended between terminals A & B on long lines (>300m).

Mounting Rail Bus Connector



NOTE: The assembly must take place on a grounded DIN rail !

Status LED's

There are 2 LED's on the front side of the device in order to display the correct configuration and functioning of the ISOCON. Their meanings are as follows:

- Red LED:
- If this LED lights up permanently after switch-on there is a configuration fault. → Check the DIP switch
 - If this LED lights up during operation, the reset function for interrupting the sensor power supply is activated.
- Green LED:
- This LED flashes briefly (20ms) every 10 seconds to display the function of the device.
 - If this LED lights up for a longer period (>500ms), data is being received from the connected sensor.

Configuration

In order to configure the device, unscrew the top of the housing on the left and right (see Ill. 1). Pull the printed circuit board out of the housing until the end stop. Set the desired configuration on both DIP switches (see Ill. 2), in accordance with the following tables for DIP1 and DIP2. Next close the housing (housing top and bottom sections must engage together) and install the ISOCON on the mounting rail bus connector.



Static discharge can damage electronic equipment. Discharge the electrical charge of your body before opening and configuring the equipment: To do this, touch an earthed surface, e.g. the metal housing of the control panel.

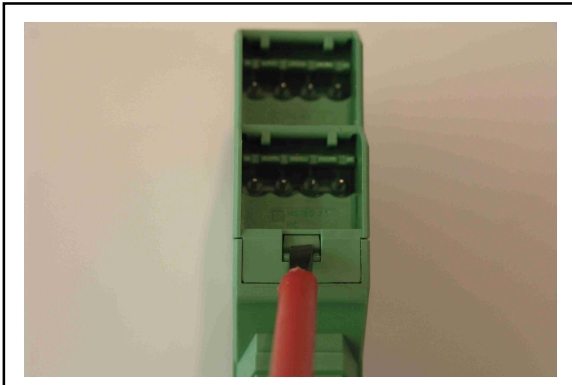


fig. 1: Unscrew housing top

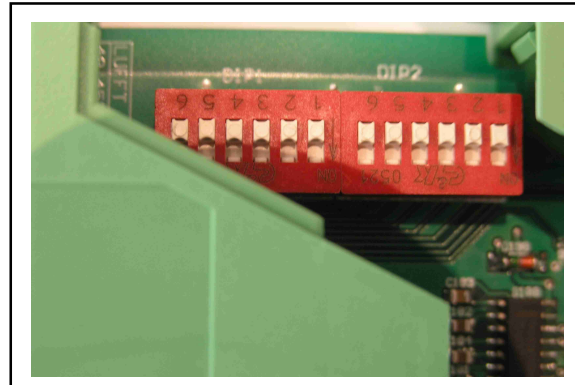


fig. 2: DIP switch

DIP 1

The host communication can be configured with the aid of DIP switch DIP1.

Meaning	DP1 DIP Switch					
	1	2	3	4	5	6
Factory Setting *1)	OFF	OFF	OFF	OFF	OFF	OFF
1200 Baud *2)	ON	OFF	OFF	X	X	OFF
2400 Baud *2)	OFF	ON	OFF	X	X	OFF
4800 Baud	ON	ON	OFF	X	X	OFF
9600 Baud	OFF	OFF	ON	X	X	OFF
19200 Baud	ON	OFF	ON	X	X	OFF
38400 Baud	OFF	ON	ON	X	X	OFF
57600 Baud	ON	ON	ON	X	X	OFF
Host Comm. RS232	X	X	X	OFF	OFF	OFF
Host Comm. RS485/2D	X	X	X	OFF	ON	OFF
Watchdog RS232 *3)	X	X	X	ON	OFF	OFF
Diagnostic mode, for internal use only	X	X	X	X	X	ON

1) Host communication: RS232, baud rate 19200 baud

2) Firmware updates for the USB sensors are not possible at these baud rates

3) If the "Watchdog RS232" function is activated, the ISOCON monitors the data traffic on the RS232 interface. If there is no data enquiry for more than 45 minutes, the 12V/24V output is reset in accordance with DIP2. This function can be used to reset a modem, for example.

DIP2

DIP Switch DIP2 can be used to activate various modes which contribute to data security.

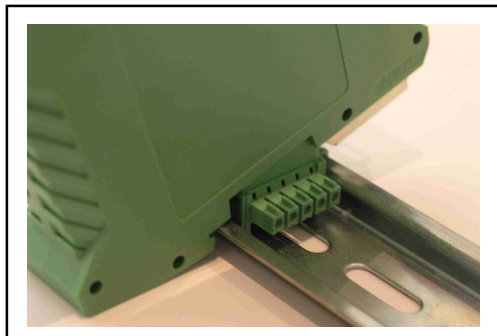
The table provides a summary of the various settings.

Meaning	DP2 DIP Switch					
	1	2	3	4	5	6
Factory Setting *1)	ON	ON	ON	ON	ON	ON
Automatic Routing *2)	OFF	x	x	x	x	ON
Reset Function 12V *3)	x	OFF	x	x	x	ON
Reset Function 24V *4)	x	x	OFF	x	x	ON
Diagnostic Mode, for internal use only	x	x	x	x	x	OFF

- 1) 12V/24V reset functions activated.
 - 2) Function not currently available.
 - 3) Switches the 12V power supply on/off cyclically if communication with the sensor is not possible.
 - 4) Switches the 24V power supply on/off cyclically if communication with the sensor is not possible.
- X : any desired setting possible

Installation and Commissioning

1. First configure all the modules in accordance with your requirements.
2. Clip the required number of mounting rail bus connectors onto the DIN rail and then connect all the ISOCON modules.
3. Connect one UMB sensor to each ISOCON module. Pay attention to the different voltage ranges (12V/24V) of the UMB sensors and the correct polarity on the power supply and bus connection.
4. Now connect the 24V power supply to the mounting rail bus connectors.
5. Connect your host system to any desired RS232 interface of an ISOCON or to the RS485 interface of an additional ISOCON converter. Please note that, in this case, the host communication of this ISOCON converter must be set to RS485/2D. The equipment is now ready for operation.



Connecting the ISOCON modules to the DIN rail

**ATTENTION: Only mount or remove modules from the DIN rail when the power is switched off
The assembly must take place on a grounded DIN rail!**

Technical Data

Power supply

Power supply	24VDC +/- 10%
Power consumption	< 50mA at 24V; excluding sensor
Connection	Phoenix bus connector, gold, 5 pole
Function display	Green LED, flashes every 10 seconds

RS232 interface

Transmission type	Protocol-transparent, 8 data bits, 1 stop bit, no parity
Configuration	DIP switch
Transmission rates	1200, 2400, 4800, 9600, 19200, 38400, 57600 baud
Transmission length	0 ... 15 m, from 38400 baud max. 5 m recommended
Connection	9 pole SUB-D socket

RS485 Interface Sensor

Standard	RS485 2 wire, half-duplex
Transmission type	Protocol-transparent, 8 data bits, 1 stop bit, no parity
Tri-State	2 bit after stop bit edge
Transmission rate	19200 baud
Transfer size	0 ... 1200 m, twisted pair, screened
Function display	LED green on data reception, on for approx. 0.5 s
Connection	COMBICON plug-in connector 0.2 – 2.5 mm ² (AWG 24 – 12)

RS485 interface internal bus

Standard	RS485 2 wire, half-duplex
Transmission type	Protocol-transparent, 8 data bits, 1 stop bit, no parity
Tri-State	2 bit after stop bit edge
Transmission rate	19200 baud
Connection	Phoenix bus connector, gold, 5 pole, maximum 8A

Sensor power supply

12 V output	max. 150 mA, electrically isolated
24 V output	max. 2 A (observe the maximum current of the internal bus)

Storage conditions

Permissible ambient temp.	-40 ... 70 °C
Permissible rel. humidity	0 ... 95% RH (non-condensing)

Operating conditions

Permissible operating temp.	-30 ... 60 °C
Permissible rel. humidity	0 ... 95% RH (non-condensing)

Housing

Material	PA-V0, green
Width x Height x Depth	22.5 x 99 x 118.6 mm
Protection class	IP20
Weight	approx. 120 g
Connections	COMBICON plug-in connectors 0.2 – 2.5 mm ² (AWG 24 – 12)

Troubleshooting

Description	Cause / Correction
Red LED permanently lit	- Check DIP switch setting
Red LED lights briefly	- Sensor connected incorrectly

Maintenance and Care

The product is designed in such a way as to require no maintenance. It does not contain any parts (e.g. batteries) requiring maintenance or exchange.

Disposal



The device must be disposed of in accordance with European Directives 2002/96/EC and 2003/108/EC (waste electrical and electronic equipment). Waste equipment must not be disposed of as household waste! For environmentally sound recycling and the disposal of your waste equipment please contact a certified electronic waste disposal company.

Manufacturer

For matters of guarantee or repair please contact:

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EC Certificate of Conformity

Product: UMB ISO Converter
Type: ISOCON UMB (Part No.: 8160.UISO)

We herewith certify that the above mentioned equipment complies in design and construction with the Directives of the European Union and specifically the EMC Directive in accordance with 89/336/EC and the Low Voltage Directive in accordance with 73/23/EC.

The above mentioned equipment specifically conforms to the following EMC Standards:

EN 61000-6-2:2005 Part 6-2: Generic Standards - Immunity for industrial environment

EN 61000-4-2	ESD
EN 61000-4-3	RF Field
EN 61000-4-4	Burst
EN 61000-4-5	Surge
EN 61000-4-6	Conducted RF
EN 61000-4-8	Magnetic Field 50Hz

EN 61000-6-3:2001 Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments

EN 55022:1998 +A1:2000 +A2:2003	Conducted Interferences
prEN 50147-3:2000	Radiated Emission



Fellbach, 27.03.2007

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