CPL MR
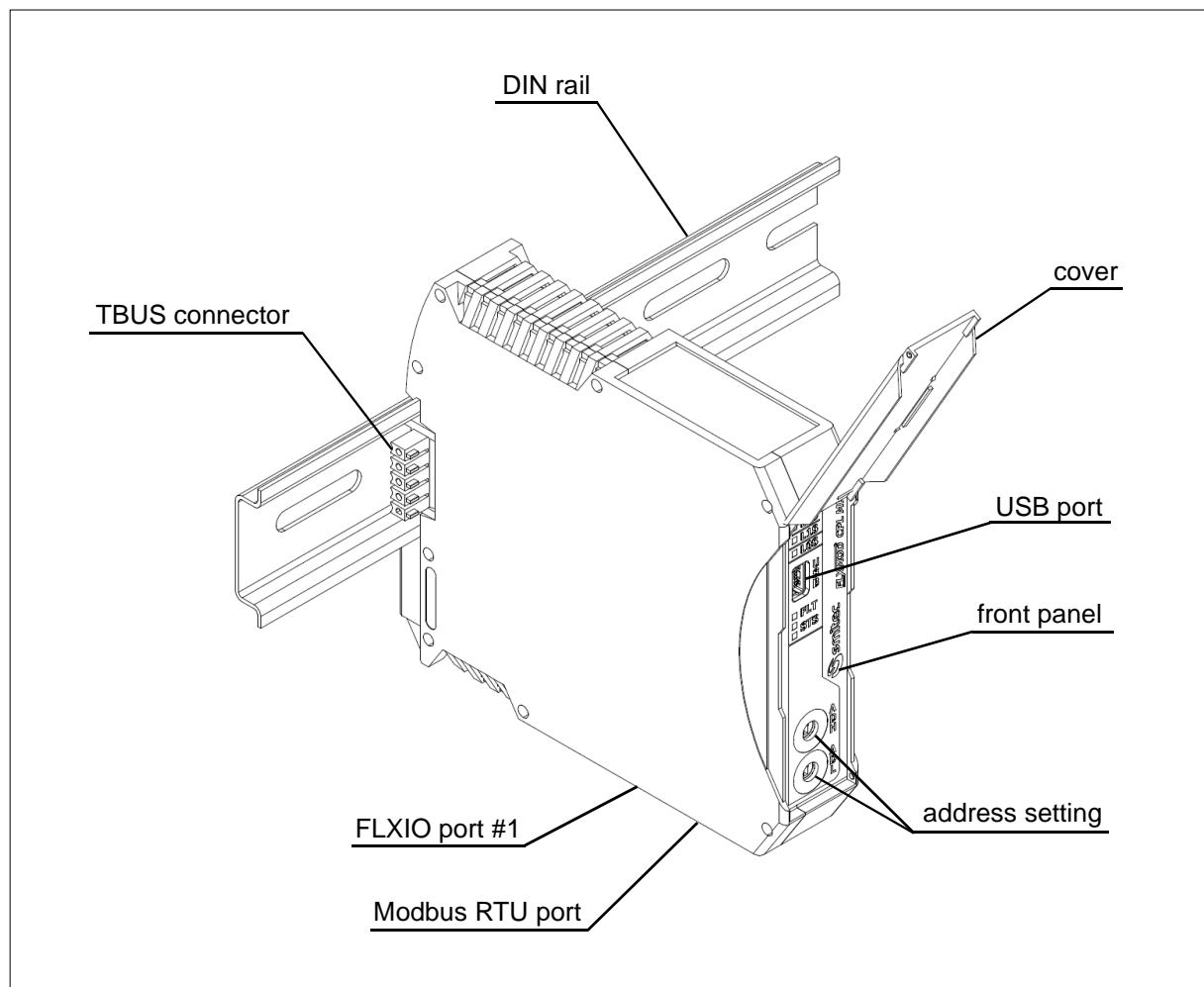
Fieldbus coupler Modbus RTU

Datasheet

Description

Modbus RTU fieldbus coupler for FLXMOD system modules.

- One Modbus RTU port with RJ45 standard connector
- Easy address setting by rotary switches on front panel
- Two FLXIO™ ports
- Status and diagnostic LEDs

smitec

Ordering informations

Products	SMITEC part number
Coupler module complete with TBUS connector	KZ010220

Accessories	SMITEC part number
TBUS connector (Phoenix Contact p/n 2713722)	KF101034
USB programming and diagnostic cable	EC100213

Documentation	SMITEC part number
Installing instructions for CPL MR	DK400088
Datasheet for CPL MR	DK400075
FLXMOD system integration manual (english)	DK400076

Technical data

General data	
Housing dimensions (width x height x depth)	22.5 mm x 99.0 mm x 114.5 mm
Weight	111 g (without connectors), 125 g (with TBUS connector)
Permissible operating temperature	+5° to +55°C
Permissible storage and transport temperature	-25° to +85°C
Permissible humidity	10% to 95%, not condensing
Permissible air pressure (operation)	80 to 106 kPa (up to 2000 m above sea level)
Permissible air pressure (storage and transport)	70 to 106 kPa (up to 3000 m above sea level)
Degree of protection	IP20 according to IEC 60529
Functional earth connection	To the DIN rail with spring contact
Module state visual indicators	By status and diagnostic LEDs on front panel

Power supply	
Module power supply	5 VDC and 24 VDC from local bus

| Fieldbus interface	
Fieldbus type	Modbus RTU (EIA RS485 based)
Module address setting	By two rotary switches on front panel
Connectors and cables for fieldbus	Ethernet CAT5E shielded cables and RJ45 connectors
Transmission speed	Up to 115.2 kbps

Local bus interface	
Local bus type	Proprietary FLXIO™
Number of bus ports	Two (one with backplane TBUS connectors and one with Ethernet RJ45 connectors)
Transmission speed	1.25 Mbps
Max. number of I/O slaves	15 for each FLXIO™ port, 30 total

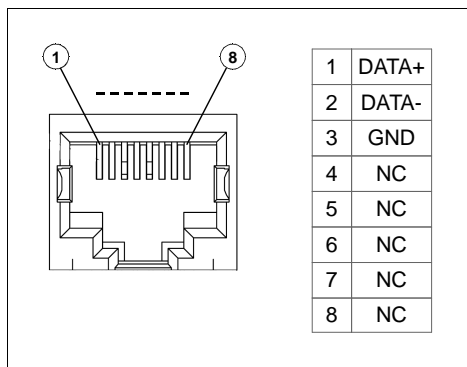| Firmware updating	
Programming port	USB mini B standard connector on front panel
Programming tool	Standard PC and WinMicro utility

smitec

Connections

The module (see illustration) has four connectors: two for the local FLXIO™ buses (one on the back with a TBUS connector and one on the lower side of the module with a RJ45 connector), another RJ45 connector on the upper side for a Modbus RTU port and an USB

FRONT VIEW   REER VIEW

USB port

FLXIO port #0 (TBUS connector)

BOTTOM VIEW
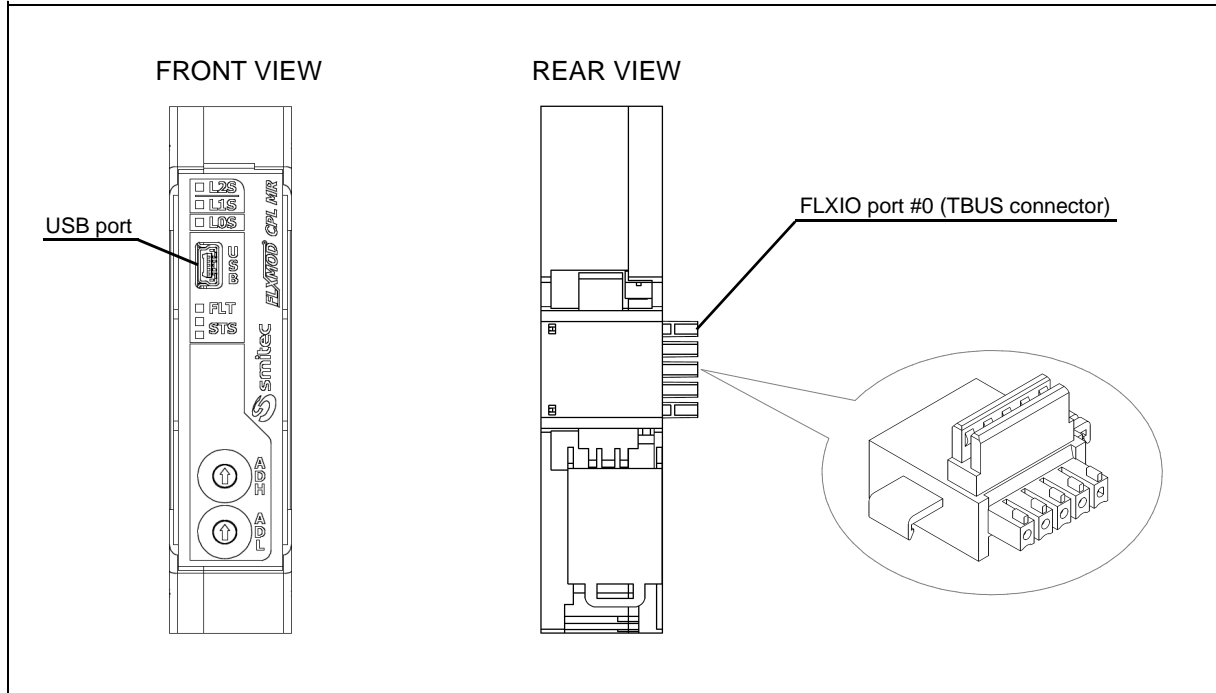
port on the front panel for programming and diagnostic purposes.

They allow easy "plug and play" of the module, and also a fast replacement of a faulty unit.

The power supplies for the module are derived from the TBUS connector; there is no provision for an external connector. The wiring of the communication buses should be done using standard CAT 5E Ethernet cable and RJ45 connectors; the pinout of the Modbus RTU connector is depicted aside.

1	DATA+
2	DATA-
3	GND
4	NC
5	NC
6	NC
7	NC
8	NC

FLXIO port #1

Modbus RTU port

smitec
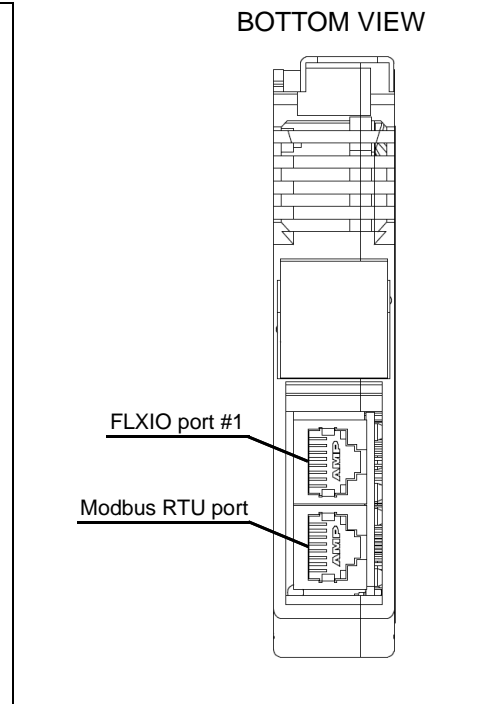
Address setting

Each of the the slaves put in a Modbus RTU network must have an unambiguous address, so it must be easily set up on the field. This module is provided with two rotary switches fitted on the front panel, each one with 16 different positions (from 0 to F, using hexadecimal notation); they are easily set using a small bladed screwdriver. Being the address composed of one byte, the four most significant bits are set by the ADH switch and the least significant bits are set by the ADL switch.

Because the address is read only once at the startup, the user should set it before powering the module; no change is observed until the module has been newly restarted.

Acting the coupler as a slave for the Modbus RTU network and as a master for the following FLXIO™ modules, the user should also configure these ones according to the FLXMOD system integration manual.

Firmware update

The user can update the firmware connecting the module to a personal computer by the USB port located on the front panel. The operation is easily done using WinMicro utility and loading the new programming file.

During normal operation of the devices, the USB cable should be disconnected from the unit, or the system might pick up some noise, leading to incorrect operation of the device.

smitec