M-Bus Series Products

RS-232/422/485 to M-Bus Converter
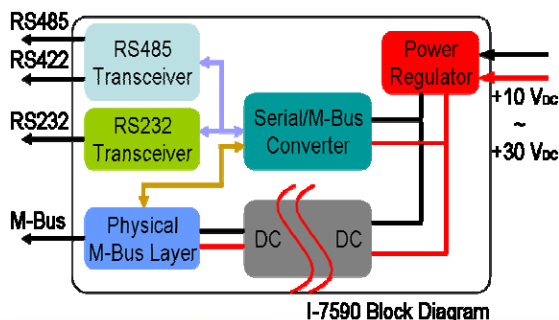
RoHS CE FC

I-7590

Dimensions

Back View Front View
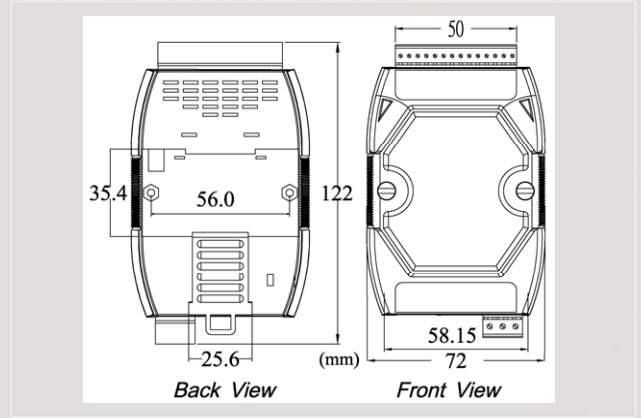
The M-Bus ("Meter-Bus") is a European standard for remote reading of meters. It is usable for most types of consumption meters as well as for various sensors and actuators. The I-7590 is specially designed for M-Bus slave device. It offers RS-232, RS-422 and RS-485 three kinds of communication way. On hardware the I-7590 has two rotary switches for serial port and M-Bus port baud rate. On communication the I-7590 uses transparent communication. Through these two designs, it is easy to communicate with any standard M-Bus slave.
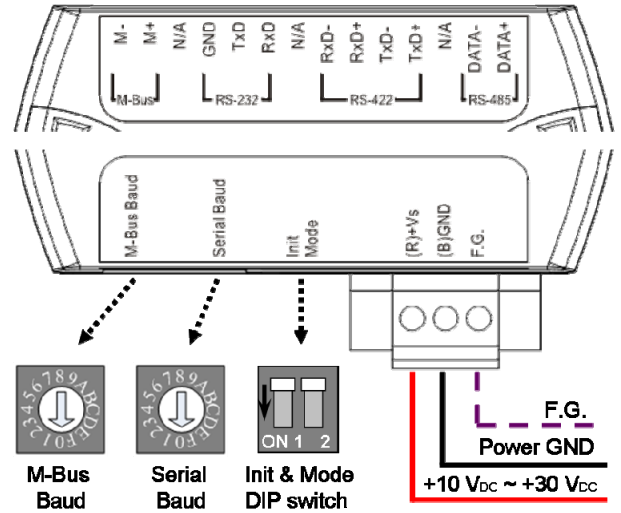
Features

- Baud rate: Adjustable by rotary switch from 300 to 115200 bps, and provides 6 kinds for user-defined
- Serial baud and M-Bus baud are each independently
- Default serial port data format: Data bit 8, Parity none, Stop bit 1
- Default M-Bus port data format: Data bit 8, Parity even, Stop bit 1
- Support up to 100 M-Bus slaves
- ±4kV ESD protection
- Short-circuit protection on the M-Bus
- Update firmware from serial port
- Provide PWR, MTX and MRX 3 LED indicators
- Watchdog inside
- Use transparent communication

Pin Assignments

M- M+ N/A GND TxD RxD N/A RxD- RxD+ TxD- TxD+ N/A DATA- DATA+
M-Bus | RS-232 | RS-422 | RS-485

M-Bus Baud Serial Baud Init Mode (R)+Vs (B)GND F.G.

M-Bus Baud Serial Baud Init & Mode DIP switch

F.G.
Power GND
+10 VDC ~ +30 VDC

Block Diagram

RS485
RS422
RS232

RS485 Transceiver
RS232 Transceiver
Serial/M-Bus Converter
Power Regulator

+10 VDC ~ +30 VDC

M-Bus
Physical M-Bus Layer
DC DC

I-7590 Block Diagram

Rotary switch & DIP switch Selection

Switch Value	0	1	2	3	4	5
Baud [bps]	300	600	1200	2400	4800	9600
Switch Value	6	7	8	9	A ~ F	
Baud [bps]	19200	38400	57600	115200	User-defined	

	1 Init	2 Mode	Description
	OFF	OFF	Run Firmware
	OFF	ON	Configure
	ON	OFF	Update Firmware

ON 1 2

Hardware Specifications

M-Bus Interface	
Channel number	1
Baud Rate (bps)	300 to 2400 bps and user-defined baud (selected by rotary switch and utility tool)
Data bit	5, 6, 7, 8
Stop bit	1, 2
Parity	None, Even, Odd, Space, Mark
Isolation	3750 Vrms for photo-couple
Current Protection	Short-circuit protection
UART Interface	
Channel number	1, RS-232 / RS-422 / RS-485 (can't be used simultaneously)
Baud Rate (bps)	Adjustable M-Bus bus baud rate from 300 bps to 115200 bps or configurable user-defined baud rate
Data bit	5, 6, 7, 8
Stop bit	1, 2
Parity	None, Even, Odd, Space, Mark
Bias Resistor	Adjustable by switch for RS-422 and RS-485
LED	
LED Display	PWR: Power Indicator
	MTX: M-Bus Data Transmitted Indicator
	MRX: M-Bus Data Received Indicator
Hardware	
Module Watchdog	Watchdog IC (0.8 seconds)
ESD Protection	Contact ±4 kv class B
Power	
Power supply	Unregulated +10 ~ +30 VDC
Protection	Power reverse polarity protection, Over-voltage protection
Power Consumption	1.8 W @ 24 VDC (with 1 slave device), 11.8 W @ 24 VDC (with 100 slave devices)
Mechanism	
Installation	DIN-Rail
Dimensions	122mm x 72mm x 33mm (L x W x H)
Environment	
Operating Temperature	-25 to 75 °C
Storage Temperature	-30 to 80 °C
Humidity	10 to 90% RH, non-condensing

Applications

M-Bus remotely meter reading system
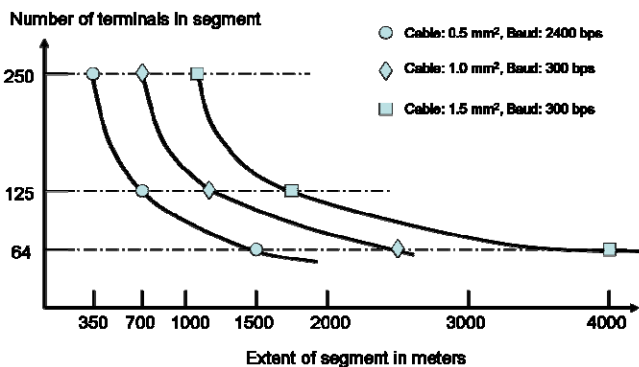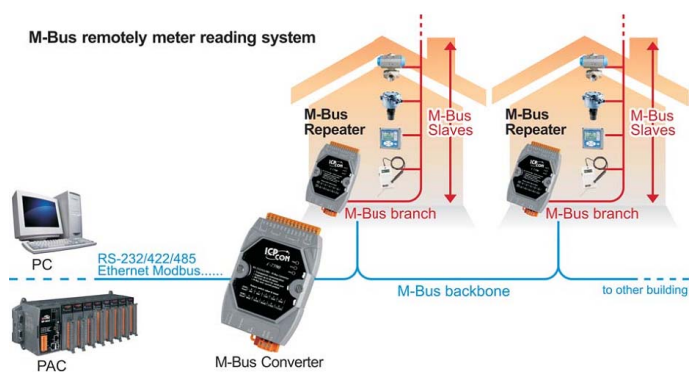
Ordering Information

I-7590 CR	RS-232 / RS-422 / RS-485 to M-Bus Convertor (RoHS)