FieldServer Protocol Driver Sheet
M-Bus

1   DESCRIPTION

The M-Bus driver allows the FieldServer to transfer data to and from devices using M-Bus protocol. The Fieldbus connection is included with the FieldServer. The FieldServer can emulate either a Slave or a Master.

The M-Bus QuickServer Gateway is configurable to act as both a Master and a Slave M-Bus device. As an M-Bus Master the number of devices supported is limited to 64 devices since the FieldServer provides power to the M-Bus. The M-Bus Master interrogates the slave devices as the gateway acts as a Master. It will request information from the Slave devices and receive and process only the expected responses. As an M-Bus Slave the maximum number of devices is limited to the M-Bus standard of 250. The gateway will act as a Slave and will respond only to requests from M-Bus Master devices.

FieldServer Mode	Devices	Comments
Master	64	Maximum number powered by the M-Bus Master
Slave	250	Maximum number supported in the M-BUS protocol

2   FORMAL DRIVER TYPE

Fieldbus driver, connect with M-Bus twisted pair network.

3   COMPATIBILITY MATRIX

FieldServer Model	Compatible with this driver
FS-x30	No
SlotServer	No
ProtoNode	No
QuickServer FS-QS-10xx	No
QuickServer FS-QS-1x5x	Yes
QuickServer FS-QS-12xx	No
ProtoCessor FPC-ED2	No
ProtoCessor FPC-ED4	No

4   CONNECTION INFORMATION

Connection type:	M-BUS Twisted pair
Baud Rates:	300-38400 baud (Auto Baud Discovery set Slaves to any supported baud rate)
Data Bits:	8 (fixed for M-Bus)
Stop Bits:	1 (fixed for M-Bus)
Parity:	Even (fixed for M-Bus)
Hardware interface:	Phoenix connector
Multidrop Capability:	Yes (Slave only)

5   DEVICES TESTED

Device	Tested (FACTORY, SITE)
EMU 3/85 3-Phase Energy Meter	FACTORY
ADFweb HD67031-20-B2 Analyzer/Scanner	FACTORY
Elvaco CMa20 M-Bus Temperature & Humidity Sensor	FACTORY
Sontay/Zenner DE-08-MI004-PTB012 Energy Meter	FACTORY, SITE
NZR DHZ-63A-M-Bus Single-phase Energy Meter	FACTORY
Zenner Zelcuis C5-ISF flow sensor	FACTORY
Kamstrup 66-CDE/601 & 602 Flowmeter	FACTORY, SITE
Sontex SuperCal 513	FACTORY, SITE
Aquametro Calec ST	FACTORY, SITE
Comet XRM-50	SITE
Siemens WFH21	FACTORY
Siemens FUE950 Energy	FACTORY
Amtron Sonic D	FACTORY, SITE
Sensus HRI-B1-8 Water meter	FACTORY, SITE
Krom Schroder TRZ S1	FACTORY, SITE
Krom Schroder DE10R25-40B	FACTORY, SITE
Relay PadPuls M1	FACTORY, SITE

6 COMMUNICATIONS FUNCTIONS - SUPPORTED FUNCTIONS AT A GLANCE:

Most M-Bus Devices are not polarity sensitive, although the polarity of the M-Bus connection is indicated on the device diagram, should it be a requirement. The M-Bus devices communicating to the FieldServer must be configured according to the manufacturer's instructions (e.g. Primary address and readout data). The FieldServer supports M-Bus secondary addressing in Master and Slave modes.

6.1 Auto Baud Discovery

The FieldServer configured as an M-Bus Master device has the ability to change each slave to a desired standard   M-Bus baud rate automatically. The FieldServer configured as an M-Bus Slave device has the ability to change its own baud to a desired standard M-Bus baud rate if requested by the Master.

Most M-Bus devices are set to start up at 2400 Baud, although some older devices have 300 Baud as their default Baud rate. The auto Baud discovery feature cycles through all the baud rates, and sets the device's baud rate to the desired baud rate (see the Driver Manual for more information), as soon as it finds each device's default baud rate, individually.

6.2 Data Types Supported

M-bus data is divided into two classes, Class-1 alarm protocol (higher priority) and Class-2 general data protocol. Class-1 Alarm data is available according to the slave vendor specific format, and is stored accordingly. Custom data types specified in the VIF, DIF and DIFE are supported.

Class-2 Data Type	Description
Duration types	Time duration in seconds, minutes, hours and days
Energy types	Energy consumption, usually for billing purposes (Wh or J)
Voltage	Voltage reading of a meter
Current	Current reading of a meter
Temperature types	Temperature reading (°C or °F)

Time types	Time in seconds, minutes, hours and days
Custom types	Custom value, where the data type is specified in the VIF
Power types	Power reading in (W or J/sec)
Pressure	Pressure reading in bar.
Mass	Mass scaled value (kg)
Mass flow	Mass flow scaled value (kg/h)
Volume flow types	Volume flow value (litre/min, litre/hour, and ml/s)
Alarm flags	8-bit Alarm flags (vendor specific)
Medium	The Device medium measured can be extracted from the device
Fabrication_Number	Device Fabrication Number
Reserved	Any Protocol reserved data types are stored under this data type
Device ID	The device's ID/Serial number can be extracted from the device
Unknown	Any remaining data types are stored

6.3 Read Operations supported

FieldServer as a Master	FieldServer as a Slave
Read M-Bus type data	Provide M-Bus type data

6.4 Write (Control) Operations supported

FieldServer as a Master	FieldServer as a Slave
Baud Rate Change	Baud Rate Change

6.5 Unsupported Functions and Data Types

Function	Reason
Readout of EEPROM	Function not used to transfer general data