Solenvis SL80 Pulse to M-Bus Converters

The SOLENVIS SL80 series of devices connects meters with contact output to the M-Bus system. This is a simple and flexible solution for reading already installed gas, electricity, heat, water and steam meters.

The power for the impulse adaptor is taken from the M-Bus. An integrated battery maintains the count function in case of a bus voltage failure. The capacity of the battery allows operation without M-Bus connection for guaranteed 7 years.

During installation the SOLENVIS SL80 modules can easily be adapted to the pulse output of the meter using MBCONF configuration software. The measured medium, the pulse value, the pulse unit and the initial meter count are nearly free adjustable to the individual meter by setup software. An integrated security feature prevents data configuration after installation without opening the sealed housing.

FEATURES

- Pulse Output to M-Bus Conversion
- Suitable for Electricity, Gas, Water and Heat Meters
- Powered from the M-Bus (EN1434-3 Standard)
- Battery Back-Up Guaranteed for 7 Years
- Floating Contact and S0 Contact Versions Available

Connection Diagram The following picture shows a typical installation and configuration setup
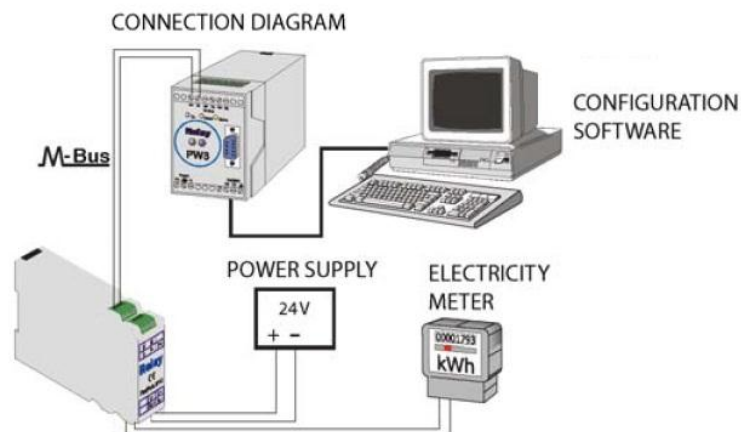
Technical Data

Power Supply	M-SOLENVIS SL80: Supplied by M-bus, Switches automatically to battery at bus failure SOLENVIS SL80: 12..27Vdc, minimum 30mA
Bus Operation	Max. 1.5mA (1 unit load), no battery charge
Battery Expectancy	7 years with only battery operation
Pulse Frequency	Max. 20Hz
Floating Contact	M-SOLENVIS SL801: Internal supply (3V, 3uA), Max return time 1ms
S0 Interface	M-SOLENVIS SL801-C0: According to DIN43864, Auxiliary 12..27Vdc, 30mA, max return time 0.25ms
M-Bus Protocol	EN1434-3
Transmission Rate	300, 2400 and 9600 baud (auto-detect)
Addressing	Primary and Secondary
Cable Entry	PG7 Cable Glands
Operating Temperature	0°C .. +60°C (10%.. 70% non condensing)
Storage Temperature	-25°C .. +60°C
Housing	SOLENVIS SL80 1: Black Plastics, IP50
	SOLENVIS SL80 1-S0: Light Grey Plastics
Mounting	M-SOLENVIS SL801: Wall Mounted
	M-SOLENVIS SL801-S0: DIN-rail Mounted
Dimensions	M-SOLENVIS SL801: W100 x H88 x D35 mm
	M-SOLENVIS SL801-S0: W26 x H75 x D111 mm
Agency Approvals	CE
Accessories	PW3 M-Bus Level Converter for Up to 3 Meters
	PW60 M-W60 M-bus Master/Level Converter for 60 Meters

Installation

To deactivate the write protection the housing cover can be opened by removing the metal screws above at the left and below at the right. The unprotect pushbutton is then accessible from outside; the unit is unprotected by pressing this button. Use a suitable adhesive seal to prevent the housing from being opened unnoticed.

After opening the housing please lead the M-Bus cable through the left cable gland of the cover and connect the cable to the left terminal. Then do the same with the cable of the pulse generator (right side). Please connect an optional shielding to the marked terminal. Connect the shielding only at the SOLENVIS SL80 module end.

- Impulse devices with floating contacts (reed contacts) are connected to the terminals marked with "pulse" using any polarity. If cable shielding is available, it can be wired single-sided to the terminal marked with "shield".
- Impulse devices with opto-couplers or electrically isolated transistor outputs must be connected to the "pulse" with the correct polarity. The left-hand terminal is the positive connection and the middle terminal the negative connection

SOLENVIS SL80-S0

To deactivate the write protection the front cover of the housing cover can be removed by use of a small screw driver. The unprotect pushbutton is then accessible from outside; the unit is unprotected by pressing this button.

Note: Afterwards please fix the cover oriented with the notch at the top. You can use a suitable adhesive seal to prevent the housing from being opened unnoticed.

The M-Bus is connected polarity independent to the terminal "M" and "M".

• Impulse devices with floating contacts (reed contacts) are connected to the terminals marked "P-" &"P+" using any polarity. If cable shielding is available, it can be wired single-sided to the terminal marked "S".

• Impulse devices with opto-couplers or electrically isolated transistor outputs must be connected to "P-" and "P+" with the correct polarity.

• Impulse devices with the interface according to DIN 43864 are connected to the "S+" and "S-" 0 00 terminals with consideration of the correct polarity. An additional power supply of 12VDC to 27VDC sourcing minimum 30mA current must be wired to the terminals "U+" and "U-".

Note: You can use only one of the two pulse inputs of M-SOLENVIS SL80-S0.

Protection Mode	Device data can be protected against unauthorized configuration. The SOLENVIS SL80 can be switched to protection mode with a special M-Bus telegram. Subsequent changes to device parameters cannot be made in this operating mode. The protection mode can then only be disabled by opening the sealable housing and pressing the unprotect pushbutton.
Configuration	The SOLENVIS SL80 devices must be configured during the installation to match the corresponding meter. For example, if the gas meter single pulse equates 10 litres, then the SOLENVIS SL80 module is required to be configured with this setting.

To connect the M-SOLENVIS SL80 module to M-BUS master the M-BUS address must be programmed. The Master has four primary M-BUS addresses available 1-4.

The configuration is carried out using CONF software that is freely available. The configuration tool is required to be connected via COM-port to a M-BUS level converter that converts the M-bus telegrams from RS232 to M-bus.
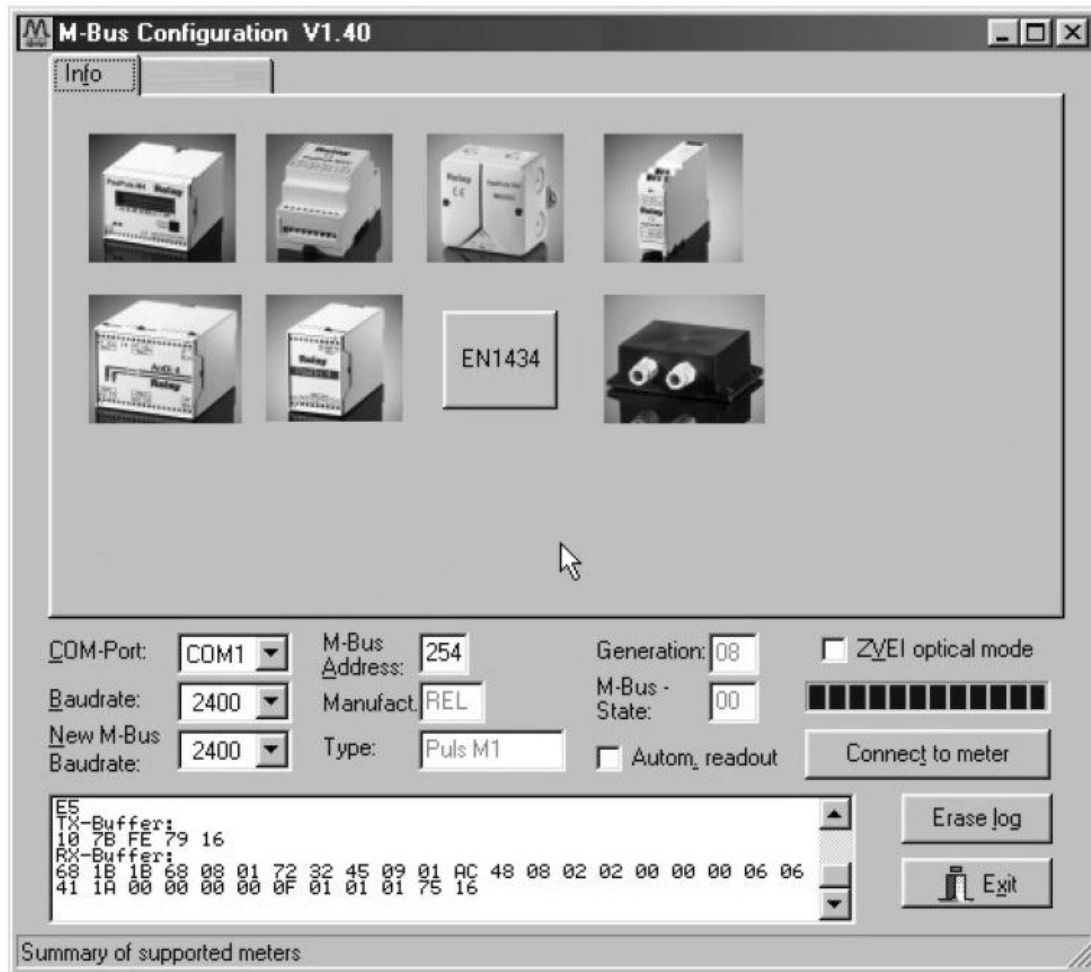
The upper part of the window shows device templates for a number of conversion modules. The lower part of the window displays the communications options and de-bugging information on the devices. Once the device is connected via M-PW3 module to the MBCONF software, pressing "CONNECT TO METER" searches for the device (leave M-Bus address to 254 for search). Once the device is found the device specific information is displayed on the top part of the window.

Typically at this stage the PRIMARY M-BUS ADDRESS and pulse counting configuration is required to be changed.

COM-Port   is the serial port of the PC to which the M-Bus level converter is connected. The selected port will be saved in an INI file and will be restored on startup. Therefore the COM-Port has to be configured only once

Baud Rate   Is the transmission speed of the serial port of the PC used for parameterization. Possible selections for this used M-Bus baud rate are 300, 2400 or 9600 baud. Note: Baud rates of more than 2400 baud are not supported by all M-Bus level converters which are available on the market! The selected baud rate must be identical to the baud rate of the M-Bus device. (see: "New M-Bus Baud rate"). The SOLENVIS SL80 supports the baud rates 300, 2400 and 9600Bd

New M-Bus   allows reprogramming the baud rate of the M-Bus device. The new baud rate is Baud Rate sent to the M-Bus device after a change in the appropriate selection box. If the M-Bus slave accepts this command, it acknowledges the telegram

with the single character „$E5" ($ for hexadecimal notation) using the old baud rate. Afterwards the device switches to the new baud rate. This button is not needed for the M-PADPULS M1, since it automatically detects the baud rate used by the master.

M-Bus Address	is the primary address of the connected M-Bus slave. In a direct connection is the only one slave you can use the broadcast address 254. Using this address every M-Bus device must answer regardless of its own address.
Connect to meter	is used to request data from the slave. The type of device is then automatically recognized. The items "Manufact.", "Generation", "Type" and "M-Bus State" will then be refreshed. New sheets are generated depending on manufacturer and type of the M-Bus device.
Manufact.	is an item that shows the 3-letter manufacturer code after successful reading ("Connect to meter"). The item is read only
Generation	shows the software revision of the firmware of the connected M-Bus device. The item is read only.
Type	shows the type (here: SOLENVIS SL80 M1) of the connected device. This item is read only.
M-Bus State	shows the M-Bus state of the connected device. This item is read only.
ZVEI optical mode	If this option is activated, devices with an optical interface and protocol according mode to EN 1434-3 can be read and programmed using an optical reading head.
Autom. Readout	The software always reads the data after writing, if this option is activated (useful for checking the correct programming).
Log-Window	The so-called log window is always visible. All M-Bus communication steps are logged in this window. Data is displayed in hexadecimal notation. It is possible to mark outputs in the log window and copy them with the keys "CTL-C" to the windows clipboard. Then the data can be easily imported to any text editor for documentation. As soon as the max. storage capacity of the window is achieved, no more data is logged. If you want to log further, you must delete the logged data.

The following buttons are also always visible:

Erase log clears all outputs inside the log window.

Exit terminates the program and stores the current setting of serial port no. into the INI file.

Notes:

In the view of a constant development of their products, the manufacturer reserves the right for changing technical data and features without prior notice. The consumer is guaranteed against any lack of conformity for 24 months from the time of delivery, according to the European Directive 1999/44/EC. The full text of guarantee is available on request from the seller.