MANUAL

Viator® RS-232 HART Interface
HM-PF-RS232-010001

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PROTECTING YOUR PROCESS

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Contents

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1 Introduction

1.1 Content of this Document

This document contains information that you need in order to use your product throughout the applicable stages of the product life cycle. These can include the following:

- Product identification
- Delivery, transport, and storage
- Mounting and installation
- Commissioning and operation
- Maintenance and repair
- Troubleshooting
- Dismounting
- Disposal

Note

This document does not substitute the software manual and/or instruction manual.

Note

For full information on the product, refer to the software manual and/or instruction manual, and further documentation on the Internet at www.pepperl-fuchs.com.

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The documentation consists of the following parts:

- Present document
- Instruction manual
- Datasheet

Additionally, the following parts may belong to the documentation, if applicable:

- EU-type examination certificate
- EU declaration of conformity
- Attestation of conformity
- Certificates
- Control drawings
- Additional documents

1.2 Manufacturer

Pepperl+Fuchs Group
Lilienthalstraße 200, 68307 Mannheim, Germany

Internet: www.pepperl-fuchs.com

1.3 Target Group, Personnel

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismounting lies with the plant operator.

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Only appropriately trained and qualified personnel may carry out mounting, installation, commissioning, operation, maintenance, and dismounting of the product. The personnel must have read and understood the instruction manual and the further documentation.

Prior to using the product make yourself familiar with it. Read the document carefully.

1.4 Symbols Used

This document contains symbols for the identification of warning messages and of informative messages.

Warning Messages

You will find warning messages, whenever dangers may arise from your actions. It is mandatory that you observe these warning messages for your personal safety and in order to avoid property damage.

Depending on the risk level, the warning messages are displayed in descending order as follows:

Danger!

This symbol indicates an imminent danger.

Non-observance will result in personal injury or death.

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Warning!

This symbol indicates a possible fault or danger.

Non-observance may cause personal injury or serious property damage.

Caution!

This symbol indicates a possible fault.

Non-observance could interrupt the device and any connected systems and plants, or result in their complete failure.

Informative Symbols

Note

This symbol brings important information to your attention.

Action

This symbol indicates a paragraph with instructions. You are prompted to perform an action or a sequence of actions.

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2 Overview

The Viator® RS-232 HART Interface allows you to communicate with HART field devices using a personal computer, the computer's serial port, and HART communication software.

The interface requires no special installation, operates on low power for laptop compatibility, is isolated, and is fully HART compliant. It draws power from the RS-232 interface and requires no external power. The interface operates on as little as 4 mA. It adheres to the EIA-RS232C standard and supports hardware handshaking.

The RS-232 interface is enclosed in a compact, rugged polycarbonate housing, suitable for industrial environments. It connects directly to your computer through the RS-232-DB connector and connects to field devices with an integral 6-foot cable that terminates in two test clips.

For the most recent version of this document, visit https://www.pepperl-fuchs.com/.

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3   Directive Conformity

Europe	
Directive 2014/30/EU	EN 61326-1:2013 EN 62368-1:2014-08
Directive 2011/65/EU (RoHS)	EN IEC 63000:2018

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4   Technical Data

Supply	
Input current	4 mA
Power supply	4 ... 12 V, powered by DTR and RS-232 inputs, No external power required

Interface	
Interface type	RS-232 port

Output	
Signal	0.5 ± 0.1 Vpp trapezoidal wave at 1200/2200 Hz

Galvanic isolation	
Output/interface	1500 V DC

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System requirements	
Operating system	operating system that supports serial COM port

Ambient conditions	
Operating temperature	-20 ... 50 °C (-4 ... 122 °F)
Storage temperature	-20 ... 60 °C (-4 ... 140 °F)
Relative humidity	0 ... 95 % non-condensing

Mechanical specifications	
Housing length	49 mm
Housing width	33 mm
Housing height	15 mm
Degree of protection	IP20
Connection	DB-9 connector , 2-pin polarity-insensitive test clips
Material	Polycarbonate

Mechanical specifications	
Dimensions	49 mm x 33 mm x 15 mm
Cable length	1.8 m 2-strand wire terminating in 2 test clips

General information	
Supplementary information	Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

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4.1   RS-232 Pin Connections

Inputs	Pin #	Impedance Ohms	Voltage Levels	
			Mark/True	Space/False
Transmit data (TXD)	3	220 K	2 ... 0 V	-12 ... 0 V
Data terminal ready (DTR)	4	% pwr supply current + DSR load current + RXD if true load current +CD if true load current	2 ... 0 V	-12 ... 0 V
Request to send (RTS)	7	220 K + % pwr supply current + CTS load current	2 ... 0 V	-12 ... 0 V
Ground	5	Ref	0 V	0 V

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Outputs	Pin #	Impediance Ohms	Voltage Levels
Carrier detect (CD)	1	4 V through 220 Ohm if true -4 V through 220 Ohm if false	3.5 V / -3.5 V
Receive data (RXD)	2	4 V through 220 Ohm if true -4 V through 220 Ohm if false	3.5 V / -3.5 V
Data set ready (DSR)	6	Hardwired from DTR	DTR
Clear to send (CTS)	8	Hardwired from RTS	RTS
Ring indicator (RI)	9	Not used	Not used

Note

RTS or DTR must exceed +/- 4 V to power the unit. Inputs must not exceed +/- 12 V and must be current limited to +/- 10 mA. % pwr supply current is supplied by the RTS or DTR based on whichever is more positive.

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5 Getting Started

5.1 Hardware and Software Requirements

- Viator RS-232 HART Interface, HM-PF-RS232-010001
- Computer with one or more RS-232 serial ports (male DB-9 connector)
- Operating system that supports RS-232 serial ports
- Viator software utilities and documentation
- HART application software for communication with HART field devices

5.2 Connecting to a HART Field Device

The Viator RS-232 Interface has a female 9-pin DB-9 serial port for connecting to the computer. The standard interface has an integrated 6-foot connector cable terminating in 2 polarity-insensitive test clips.

The interface connection to the HART network is transformer isolated and polarity insensitive. Transformer isolation allows you to connect the interface across the load resistor or across the HART device. Polarity insensitivity means that you may attach either test clip to either side of the HART device or load resistor.
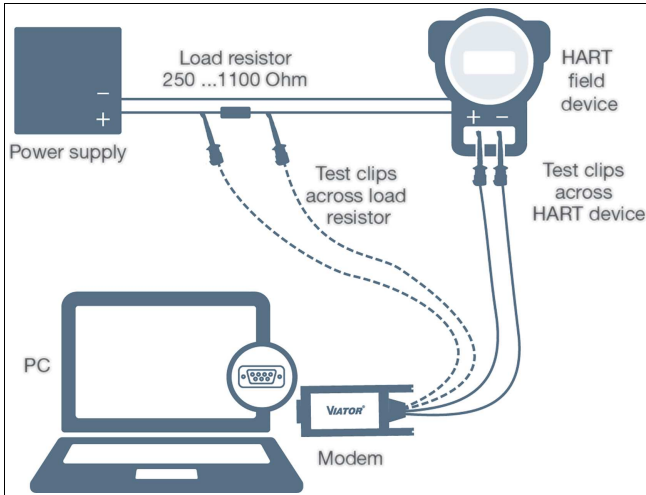
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Figure 5.1

Connect the test clips:

1. across the HART field device or

2. across the load resistor.

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> **Warning!**
> Do not connect the Viator interface across the power supply!
>
> This will not allow communication with the HART field device.

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- Intrinsic Safety Barriers
- Signal Conditioners
- FieldConnex® Fieldbus
- Remote I/O Systems
- Electrical Ex Equipment
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- Industrial HMI
- Mobile Computing and Communications
- HART Interface Solutions
- Surge Protection
- Wireless Solutions
- Level Measurement

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- Fieldbus Modules
- AS-Interface
- Identification Systems
- Displays and Signal Processing
- Connectivity

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Download our latest policy here:

www.pepperl-fuchs.com/quality

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