

Flow simulation system *PROline FieldCheck™*

Simulation and verification of flow measuring systems



Features and benefits

- Checking the function and deviation in the flow measurement, without needing to dismantle the device
- Simulation of different flow behaviour in the process
- Examining and optimising parts of a process or an entire device, without there being any flow present
- Simultaneously examining signal outputs (current, frequency)
- Proven E+H operating concept with "Touch Control"
- Clear display with graphics capabilities
- Language versions: German, English
- Expandable with "FieldTool" additional software: Uploading and printing-out of test results (verification certificates)

Application

- Functional test and simulation of all PROline flow measuring devices from Endress+Hauser, without removing the devices from the piping
- Visualisation (HART) and simulation of dynamic procedures in the piping, i.e. presentation of flow curves of a filling machine's filling valves
- Simulation of faults (checking alarm systems), such as blocked lines or blocked pump
- Periodic examination of devices and device components within the framework of the "Preventive Maintenance" programs
- Simple documentation of all tests as part of an inspection equipment monitoring, using "Fieldtool" Software. With date, on paper or in a file

Endress + Hauser

The Power of Know How



Equipment supplied

The equipment supplied with FieldCheck comprises the following components:

- The FieldCheck flow simulator with battery pack and protective bag (1)
- A connecting cable for the service interface (4)
- A connecting cable for the Simubox (5)
- Two connecting cables for current and frequency output (3)
- A line adapter (6)
- A softcase (2)
- Operating Instructions (not shown)

Note!

The mapped Simuboxes for the respective flow measuring systems are not included in the standard scope of delivery.



Function and system design

Measuring principle

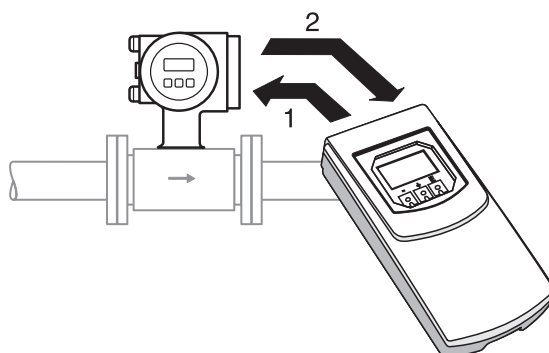
Simulation

FieldCheck simulates a measurement signal that is sent directly to the measuring amplifier in place of the actual sensor signal. In the FieldCheck display, the flow data output of the measuring device and the value that is fed in by the simulator are displayed.

Verification

In the verification, a measuring device is checked for the following characteristic values:

- Function and deviation in the flow measurement
- Deviation in the current and frequency outputs (in reference to the flow rate determined by the measuring device), should they be present in the device.



1 Simulation signal provided by FieldCheck

2 Measured value measured by the measuring device

Note!

Databus outputs such as FOUNDATION Fieldbus or PROFIBUS can not be directly checked by FieldCheck.

Measuring device

The measuring system consists of the FieldCheck flow simulator, the Simubox and the appropriate connecting cables.

FieldCheck

The FieldCheck flow simulator generates the flow simulation signal and processes the measured values sent back by the transmitter.

Simubox

The Simubox ensures that the FieldCheck simulation signal is correctly converted (Coriolis, electromagnetic, Vortex, Ultrasonic). For each measuring principle there is an appropriate Simubox.

Input

Measured variable	Current input, frequency input
Measuring range	0 ... 25 mA, 0 ... 15 kHz

Output

Output signal	Electromagnetic flowmeter (EMF): Simulation voltage 0,15 ... 20 mV
Galvanic isolation	Current and frequency inputs are galvanically isolated from each other. Both are isolated from the earth.

Power supply

Electrical connections	Input for power unit: 100...240 V AC (47-63 Hz) Prim., 12 V DC (2.5 A) Sec.
Supply voltage	12 V DC, internal battery 7,2 V 3800 mAh
Power consumption	140 mA Charging current: max. 2A (max. 350 mA for simultaneous operation)

Performance characteristics

Reference operating conditions	+22 °C ± 2K
Max. measured error at the outputs	Electromagnetic measuring device ±0.2 % of the full scale value voltage (0.15 ... 20 mV)
Max. measured error at the inputs	Current ± 5 µA (0 ... 25 mA) Frequency < 0,5 Hz (0 ... 15 kHz)

Operating conditions (Environment)

Ambient temperature	0...+60 °C
Electromagnetic compatibility (EMC)	In accordance with EN 61326/A1 and NAMUR recommendation NE 21

Mechanical construction

Design, dimensions**PROline FieldCheck**

270 x 130 x 60 mm (length x width x height)

Simubox (without cable)

120 x 60 x 30 mm (L x W x H)

Softcase

400 x 180 x 300 mm (L x W x H)

Weight

1,6 kg

Human interface

Display elements

- Liquid crystal display: illuminated, four lines with 16 characters per line
- Selectable display of different measured values and status variables

Operating elements

Local operation with three optical keys (⏏, ⏏, ⏏)

Certificates and approvals

CE-mark

The measuring system is in conformity with the statutory requirements of the EC Directives. Endress+Hauser confirms successful testing of the device by affixing to it the CE mark.

Other standards and guidelines

EN 60529:

Degrees of protection by housing (IP code)

EN 61010:

"Protection Measures for Electrical Equipment for Measurement, Control, Regulation and Laboratory Procedures".

EN 61326/A1 (IEC 1326):

Electromagnetic compatibility (EMC requirements)

Ordering information

The E+H service organisation can provide detailed ordering information and information on the order codes on request.

Accessories, Spare Parts

Various FieldCheck accessories can be ordered separately from Endress+Hauser

Accessory	Description
FieldTool™	Configuration and service software for flowmeters in the field: – Commissioning, maintenance analysis – Configuring flowmeters – Service functions – Visualisation of process data – Troubleshooting – Controlling the “FieldCheck™” tester/simulator Contact your E+H representative for more information.
Simubox EMF for PROline FieldCheck	Serves communication between FieldCheck and electromagnetic flowmeters
Plug-in power unit 85...260 VAC	Power unit for charging the battery and the operation of PROline FieldCheck at the mains
Car adapter 12 VDC	Adapter for connecting to the car battery
NiMH-AccuPack	Additional battery
Softcase	Practical storage bag
Simubox/PROline Field-Check connecting cable	For connecting the Simubox to PROline FieldCheck
PROline measuring device/PROline Field-Check interface cable	For connecting PROline FieldCheck to the internal service interface of the flowmeter
PROline FieldCheck/ current or frequency output measuring cable	For connecting PROline FieldCheck to the current or frequency output of the flowmeter
FC/Tooling interface cable	For connecting PROline FieldCheck to the Tooling computer

Supplementary documentation

- ☐ System Information FieldCheck SI 030D/06/e
- ☐ Operating Instructions FieldCheck BA 067D/06/en

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Subject to modifications

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