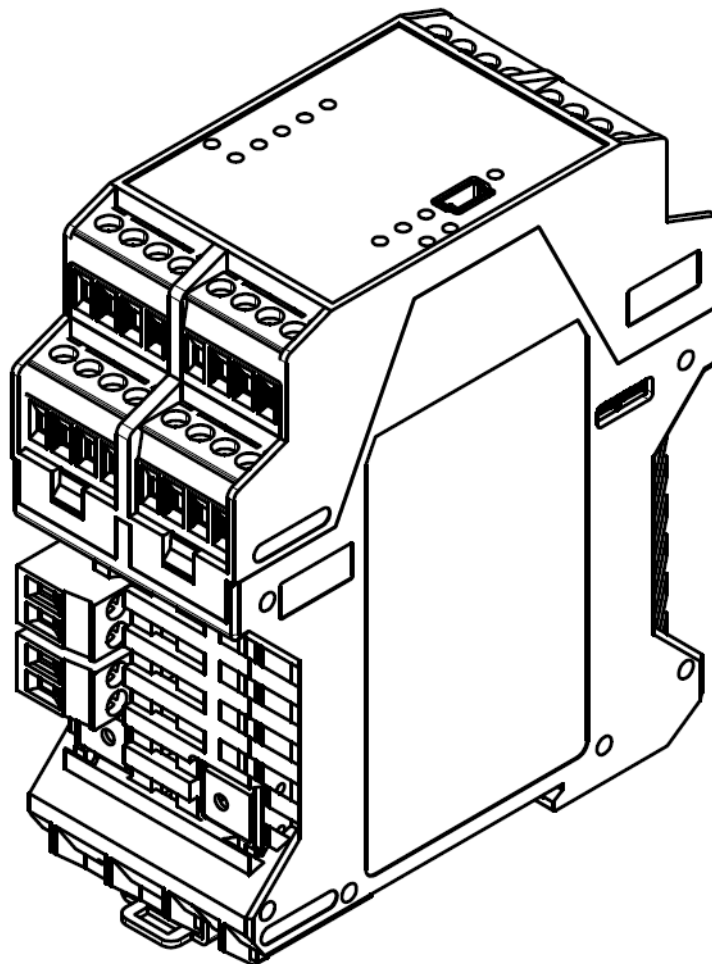


Operating Instructions

FLPS Multibarrier

Multi-channel power and input isolating amplifier



Described product

Product name: FLPS Multibarrier

Manufacturer

Endress+Hauser SICK GmbH+Co. KG
Bergener Ring 27
01458 Ottendorf-Okrilla
Germany

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Original document

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Warning symbols



Hazard (general)



Voltage Hazard

Warning levels / signal words

DANGER

Risk or hazardous situation which *will* result in severe personal injury or death.

WARNING

Risk or hazardous situation which *could* result in severe personal injury or death.

CAUTION

Hazard or unsafe practice which *could* result in personal injury or property damage.

NOTICE

Hazard which *could* result in property damage.

Information symbols



Important technical information for this product



Important information on electric or electronic functions



Supplementary information

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FLPS Multibarrier

1 About this document

Function of this document
Scope of application

1.1 **Function of this document**

These Operating Instructions describe:

- Device components
- Installation
- Operation
- Maintenance work required for reliable operation

Retention of documents

- ▶ Keep these Operating Instructions and all associated documents available for reference.
- ▶ Pass the documents on to a new owner.

1.2 **Scope of application**

These Operating Instructions cover standard applications which conform with the technical data specified. Additional information and assistance for special applications are available from your Endress+Hauser representative. It is generally recommended to take advantage of qualified consulting services provided by Endress+Hauser experts for your specific application.

FLPS Multibarrier

2 For your safety

- Intended use
- Basic safety information
- Requirements on the personnel's qualification
- Restrictions of use

2.1 Intended use

2.1.1 Purpose of the device

The FLPS Multibarrier is a multichannel feed and input isolator amplifier to provide intrinsically safe installation of FLOWSIC gas measuring devices.

2.1.2 Correct use

- ▶ Only use the FLPS Multibarrier as described in these Operating Instructions. The manufacturer bears no responsibility for any other use.
- ▶ Do not carry out any work or repairs on the FLPS Multibarrier not described in this manual.
- ▶ Do not remove, add or change any components in or on the FLPS Multibarrier unless such changes are officially allowed and specified by the manufacturer.
Failure to observe these precautions could result in:
 - Any warranty by the manufacturer becomes void,
 - causing the device to become dangerous,
 - the approval for use in potentially explosive atmospheres is no longer valid.
- ▶ Do not use damaged components or parts.

Special local conditions

- ▶ Follow all local laws, regulations and company-internal operating directives applicable at the installation location.

2.2 Basic safety information

- ▶ Only put the FLPS Multibarrier into operation after reading the Operating Instructions.
- ▶ Observe all safety information.
- ▶ If you do not understand something: Please contact Endress+Hauser Customer Service.

2.2.1 Hazards with electrical equipment



WARNING: Power voltage danger

- ▶ Disconnect the device from all effective power sources except the intrinsically safe power circuits to the gas flow meter for installation, maintenance and service work.
- ▶ Decommission the device when it is damaged, has been improperly loaded or stored, or shows malfunctions.

2.2.2 Operation in potentially explosive atmospheres

- ▶ Install the device outside of hazardous areas only.



WARNING: Risk of explosion

The FLPS Multibarrier is an [Ex ia] associated equipment that provides intrinsically safe wiring with intrinsically safe devices installed in Zone 1 or Zone 0.

- ▶ Substitution of components may impair Intrinsic Safety.

Specific conditions of use (denoted by X after the certificate number)

The value of U_m for all Non intrinsically safe terminals is lower than 250 V due to circuits which are connected with Non intrinsically safe terminals have to be SELV or PELV and is necessary to accept a measures which are listed in the user manual.

2.3 Requirements on the personnel's qualification

Designated users

The FLPS Multibarrier may only be installed and operated by skilled technicians who, based on their technical training and knowledge as well as knowledge of the relevant regulations, can assess the tasks given and recognize the hazards involved. Technicians must be skilled according to DIN VDE 0105 or IEC 364 or directly comparable standards.

The named persons must have exact knowledge of operational hazards caused e.g. by hot, toxic, explosive gases or gases under pressure, gas-liquid mixtures or other media as well as adequate knowledge of the measuring system gained through training.

Specific requirements for use of devices in hazardous areas



- ▶ Cabling /installation, device set-up, maintenance and check may be only carried out by experienced personnel which has knowledge about the rules and regulations for hazardous areas, in particular:
 - type of protection
 - installation rules
 - area definition
- ▶ Regulations to be applied:
 - EN/IEC 60079-11
 - EN/IEC 60079-14
 or comparable national regulations.

2.4 Restrictions of use

- ▶ The degree of protection IP20 (IEC 60529/EN 60529) of the device is designed for a clean and dry environment (degree of contamination 2 according to IEC 60664-1). Do not submit the device to mechanical and/or thermal stress which exceeds the described limits.
- ▶ The device meets the radio interference protection regulations (EMC) for the industrial area (EMC class A). Use in living areas can lead to radio interference.

FLPS Multibarrier

3 Product Description

Product Identification

Design and function

Device versions

Interfaces

Displays

3.1 **Product Identification**

| | |
|---------------|---|
| Product name: | FLPS Multibarrier |
| Manufacturer | Endress+Hauser SICK GmbH+Co. KG Bergener Ring 27 01458 Ottendorf-Okrilla Germany |

Type plate

The type plates is located on the module enclosure for information on identification of the device.

Figure 1

Type plate (example)

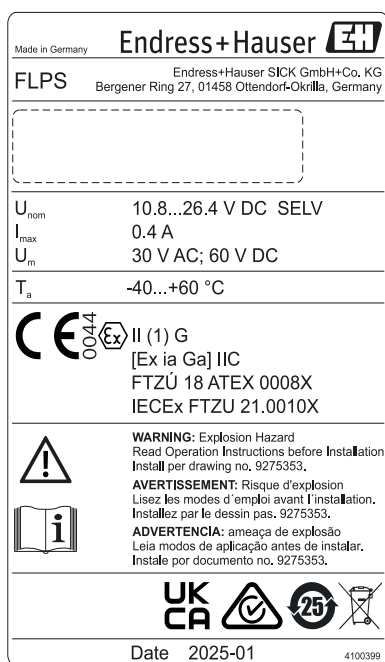


Figure 2 Model name

| | FLPS | 2 | - | 600 | 42 | - | S | - | 5 |
|-------------------------------|------|---|---|-----|----|---|---|---|---|
| Product Name | FLPS | | | | | | | | |
| Product Name | FLPS | | | | | | | | |
| Device Type | | 2 | | | | | | | |
| Double Module | | 2 | | | | | | | |
| Separation | | | | | | | | | |
| Device Family | | | | 600 | | | | | |
| FLAWSIC600 / XT / DRU / 60 | | | | 600 | | | | | |
| Data interfaces | | | | | 42 | | | | |
| 4*DO, 2*RS485 | | | | | 42 | | | | |
| 4*DO, 1*Ethernet, 1*RS485 | | | | | 4E | | | | |
| Separation | | | | | | - | | | |
| Ex classification | | | | | | | S | | |
| Safe zone | | | | | | | S | | |
| Separation | | | | | | | | - | |
| Nominal supply voltage | | | | | | | | | 5 |
| 5...15 V DC | | | | | | | | | 5 |

3.2 Design and function

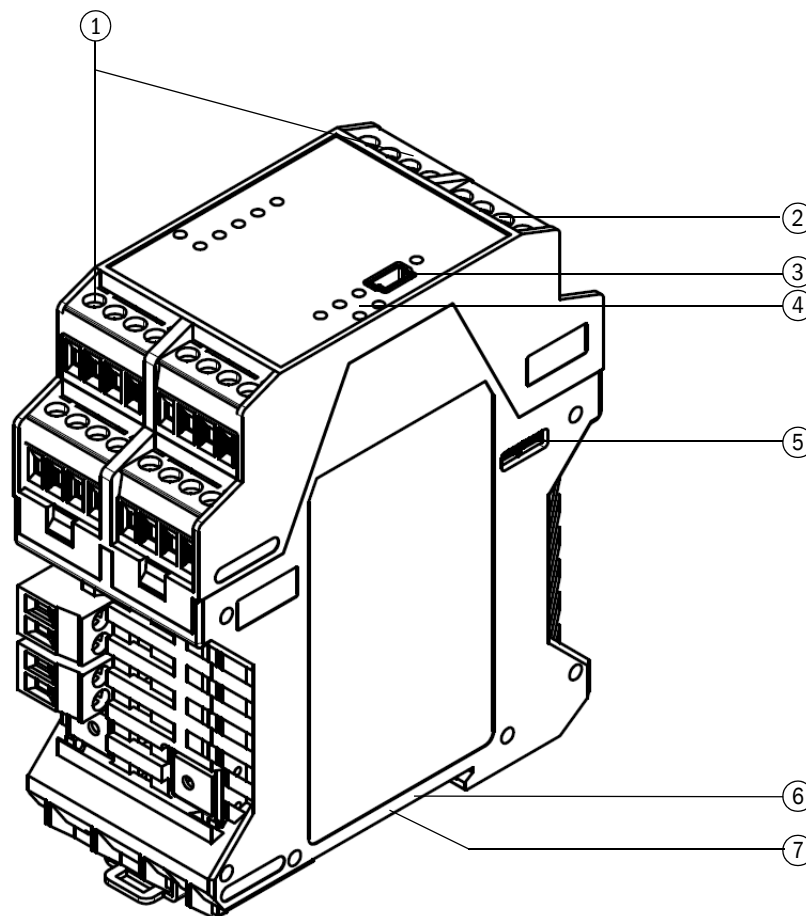
The FLPS Multibarrier is a multichannel feed and input isolator amplifier for the electrically isolated operation of FLOWSIC600-XT gas measuring devices and the power source (intrinsically safe supply).

The device supplies the gas measuring device with voltage and allows the connection via one or two serial as well as four digital interfaces, depending on the device version.

All interfaces are electrically isolated.

The serial interfaces are typically designed as RS485. Here, one can be used for connection to a volume converter and the second for connection to a higher level system or it can be used as service interface via integrated mini USB 2.0 interface.

Figure 3 Overview FLPS Multibarrier



- | | |
|--|---|
| 1 Screw terminals | 5 DIL switches |
| 2 Ethernet connection (Model FLPS2-6004E-S-5) | 6 Latch foot for fitting on the mounting rail |
| 3 USB connection | 7 Fuse |
| 4 Marking with status LEDs | |

3.3 Device versions

The FLPS Multibarrier is available in two standard device versions:

Table 1 FLPS Multibarrier device versions

| Part number | Model name | Description |
|-------------|-----------------|--|
| 2098122 | FLPS2-60042-S-5 | FLPS Multi Barrier FLPS2-60042-S-5 Multi-channel power and input isolating amplifier for intrinsically safe installation of FLOWSIC600/-XT family devices <ul style="list-style-type: none"> - DIN-rail housing NS35: 45x114.5x99mm - 4 digital I/O (puls/status) - 2 serial I/O (RS485) - 1 mini USB 2.0 Service I/O |
| 2098136 | FLPS2-6004E-S-5 | FLPS Multi Barrier FLPS2-6004E-S-5 Multi-channel power and input isolating amplifier for intrinsically safe installation of FLOWSIC600/-XT family devices <ul style="list-style-type: none"> - DIN-rail housing NS35: 45x114.5x99mm - 4 digital I/O (puls/status) - 1 serial I/O (RS485) - 1 Ethernet I/O - 1 mini USB 2.0 Service I/O |

3.4 Interfaces

3.4.1 Communication via Modbus TCP

The device version FLPS2-6004E-S-5 is equipped with an Ethernet interface with data protocol Modbus TCP.

3.4.2 Service access via USB

Both device versions FLPS2-60042-S-5 and FLPS2-6004E-S-55 are equipped with a mini USB 2.0 interface.

3.5

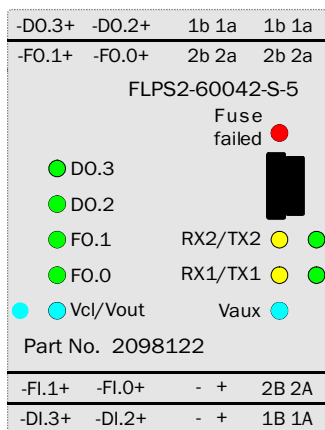
Displays

- LED –“red” signals an error of the power supply (failure of fuse)
- LED –“blue” for intrinsically safe supply of the flow meter
- LED –“blue” for intrinsically safe supply of the RS485, from the flow meter
- LED –“green” for RS485 TX
- LED –“yellow” for RS485 RX
- x LED –“green” digital outputs

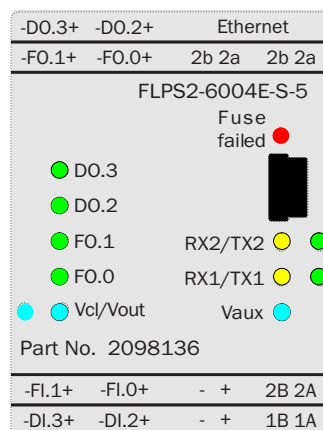
Figure 4

Displays

FLPS2-60042-S-5



FLPS2-6004E-S-5



FLPS Multibarrier

4 Installation

Safety Information
Mounting
Electrical Installation

4.1

Safety Information**WARNING: Risk of explosion**

When the device is used in non-intrinsically safe power circuits, it no longer may be used in intrinsically safe power circuits.

- ▶ Then, clearly mark the device as non-intrinsically safe.

- ▶ Disconnect the device from all effective power sources except the intrinsically safe power circuits to the gas flow meter for installation, maintenance and service work.
- ▶ Install the device outside of hazardous areas only.
- ▶ Provide a switch/circuit breaker near the device and mark it as disconnecting device for this device (or the whole control cabinet).
- ▶ Provide an overcurrent protective device ($I \leq 16 \text{ A}$) during assembly.
- ▶ The enclosure of the device provides an ingress protection degree of IP20 according to IEC/EN60529 and is suitable for indoor installation only. If required this device is to be installed in an additional enclosure suitable for the existing environmental conditions. Outdoor installation requires IP54 or higher.
- ▶ In particular for interconnection with a device in Zone 0 the requirements in IEC/EN 60079-14 have to be observed.
- ▶ For safe operation connect the grounding terminal of the device with the potential equalization (PE). All intrinsically safe circuits of the FLPS Multibarrier must be considered as grounded circuits.
- ▶ Two (2) connectors with a cross-section of minimum 1.5 mm^2 up to maximum 2.5 mm^2 (stranded/ rigid) are recommended to connect the ground terminal. Alternatively a single stranded wire with a cross-section of 4 mm^2 only with a crimping cable lug may be used.
- ▶ Conductors with a minimum cross-section of 0.2 mm^2 and a maximum cross-section of 2.5 mm^2 (fine-stranded/rigid) may be connected to the connection terminals. The tightening torque is $0.5 - 0.8 \text{ Nm}$. In case of stranded wires use wire end ferrules.
- ▶ Connect the device only to equipment, which does not carry voltage higher than 30 V AC or 60 V DC peak. Use SELV power supplies and equipment that meets the requirements of IEC/EN 60950 or IEC/EN 61010-1.
- ▶ The safety-related technical values of the connected field devices must be conform with the specifications of the Data Sheet and/or the EU Type Examination Certificate.
- ▶ Interconnection of several active operating resources in an intrinsically safe circuit may result in different safety-related technical values. This can endanger the intrinsic safety! The intrinsically safe RS485 interface of the FLPS Multibarrier is only permissible for point to point connections. Connection to a FISCO system is not permitted.
- ▶ Modifications and alterations on the device are not permitted.
- ▶ Only install and operate the device in an undamaged, dry and clean state.
- ▶ When the device is not used according to the documentation, the designated protection can be impaired.

4.2 Mounting

- ▶ DIL switches are installed on the side of the enclosure for setting the termination of the RS485 interface in the safe area . If required, set it prior to installation on the mounting rail as described in → p. 25, §4.3.5. Termination to the gas flow meter is set fixed.
- ▶ Mount the FLPS Multibarrier on a 35 mm mounting rail (hat rail) according to EN 60715.

4.3 Electrical Installation

4.3.1 Cable specification

Cables and terminals

| | Parameters |
|---|--|
| Conductor cross section | 0.5 ... 2.5 mm ² (20 ... 12 AWG) |
| Cable type | Conform with the requirements in the appropriate installation area |
| Maximum cable length to the gas flow meter (twisted pair) | 200 ... 500 m (depending on the conductor cross-section) |
| Insulation stripping | 7 mm |
| Tightening torque | 0.5 ... 0.8 Nm |
| Ethernet cable type | Cat 5 or higher |
| Ethernet connector type | RJ45 |
| Maximum cable length (Ethernet) | 100 m |
| USB connection | Type mini USB 2.0 |

4.3.2 Connection parameters

Electrical isolation

- ▶ All connections to the safe area are isolated from the intrinsically safe connection and ground.
- ▶ All intrinsically safe connections are not isolated from ground and must be connected to the potential equalization (PE).

| | Parameters |
|--|--|
| Input/output/supply Insulation voltage | 500 V _{eff} (1 min.) |
| U _m Max. allowable voltage of the connections in the safe area (rated voltage) | 30 V AC, 60 V DC Connect the device only to equipment, which does not carry voltage higher than 30 V AC or 60 V DC peak. Use SELV power supplies and equipment that meets the requirements of IEC/EN 60950 or IEC/EN 61010-1. |

Input data for device supply

| Symbol | Parameters | Min | Type | Max | Unit |
|-----------------|---------------|------|------|------|------|
| V _{in} | Input voltage | 10.8 | 24 | 26.4 | V DC |
| I _{in} | Input current | | | 400 | mA |
| P | Power input | | | 5 | W |

Connections in the safe area

| Symbol | Parameters | Min | Typical | Max | Unit |
|--|--|--|---------|-----|------|
| Switching outputs DO.1 ... DO.4 (not intrinsically safe) | | | | | |
| U_{out} | Output voltage DO | n/a | n/a | 30 | VDC |
| I_{out} | Output current DO | 0.1 | 20 | 50 | mA |
| Serial interfaces | | | | | |
| RS485.1 (Alternative: Ethernet) | Interface (not intrinsically safe) | In accordance with standard EIA485 (In accordance with standard IEEE 802.3) | | | |
| RS485.2 | Interface (not intrinsically safe) | In accordance with standard EIA485 | | | |
| | Service interface (not intrinsically safe) - designed as mini USB 2.0 | In accordance with standard USB 2.0 | | | |

Connections for intrinsically safe supply of the gas flow meter

| Parameter | IIA | IIB | IIC | Unit |
|--|------|------|-------|-------------------|
| Gas flow meter voltage supply (intrinsically safe), terminal -Vout+ | | | | |
| U_o | 16.5 | 16.5 | 16.5 | V |
| I_o | 463 | 463 | 463 | mA |
| P_o | 1.3 | 1.3 | 1.3 | W |
| C_o | 2.2 | 2.45 | 0.415 | μ F |
| L_o | 0.8 | 0.4 | 0.1 | mH |
| L_o/R_o | 148 | 74.4 | 18.6 | μ H/ Ω |
| Current loop intrinsically safe power supply, terminal -Vcl+ | | | | |
| U_o | 16.5 | 16.5 | 16.5 | V |
| I_o | 89 | 89 | 89 | mA |
| P_o | 368 | 368 | 368 | mW |
| C_o | 9.8 | 1.9 | 0.2 | μ F |
| L_o | 32 | 16 | 2.3 | mH |
| Switching inputs FI.0 (DI.0), FI.1 (DI.1), DO.2, DO.3 supply (intrinsically safe) | | | | |
| U_o | 16.5 | 16.5 | 16.5 | V |
| I_o | 9.7 | 9.7 | 9.7 | mA |
| P_o | 40 | 40 | 40 | mW |
| C_o | 9.8 | 2.45 | 0.41 | μ F |
| L_o | 300 | 200 | 100 | mH |
| U_i | 16.5 | 16.5 | 16.5 | V |
| C_i | 0 | 0 | 0 | μ F |
| L_i | 0 | 0 | 0 | mH |
| Serial interfaces RS485 supply (intrinsically safe), terminals 1A, 1B, 2A, 2B including auxiliary power- | | | | |
| U_o | 7.14 | 7.14 | 7.14 | V |
| $\sum I_o$ | 164 | 164 | 164 | mA |
| $\sum P_o$ | 293 | 293 | 293 | mW |
| $\sum C_o$ | 296 | 196 | 2.55 | μ F |
| $\sum L_o$ | 5 | 2.5 | 0.33 | mH |
| U_i | 7.14 | 7.14 | 7.14 | V |
| $\sum C_i$ | 3.45 | 3.45 | 3.45 | μ F |
| L_i | n.s | n.s | n.s | mH |

n.s. negligible small,


\sum The values are valid as the sum for terminals Aux, 1A, 1B, 2A, 2B

4.3.3 **Connecting the FLPS Multibarrier**

The FLPS Multibarrier is equipped with screw terminals.

- ▶ If required, equip the conductors with crimp lead end sleeves. Observe the relevant approved line cross-sections in → p. 19, §4.3.1.
- ▶ Lay the intrinsically-safe and non-intrinsically safe lines separately.
- ▶ Pluggable connectors for the intrinsically-safe side are blue.
- ▶ Connect the lines into the connection terminals according to the marking.

Connection overview

| Intrinsically safe (Ex ia) connections for gas flow meter, plug color "light blue" | | Safe area connections, plug color "grey" | | | |
|---|----------------------------|--|---------------------------|-----------------------|---------------------|
| Terminal designation | Function | Terminal designation | Function | | |
| FI.0+ (DI.0+) | Pulse input FI.0+ | FO.0+ (DO.0+) | Pulse Output FO.0+ | | |
| FI.0- (DI.0-) | Pulse input FI.0- | FO.0- (DO.0-) | Pulse Output FO.0- | | |
| FI.1+ (DI.1+) | Pulse input FI.1+ | FO.1+ (DO.1+) | Pulse Output FO.1+ | | |
| FI.1- (DI.1-) | Pulse input FI.1- | FO.1- (DO.1-) | Pulse Output FO.1- | | |
| DI.2+ | Status input DI.2+ | DO.2+ | Status Output DO.2+ | | |
| DI.2- | Status input DI.2- | DO.2- | Status Output DO.2- | | |
| DI.3+ | Status input DI.3+ | DO.3+ | Status Output DO.3+ | | |
| DI.3- | Status input DI.3- | DO.3- | Status Output DO.3- | | |
| 1A | RS485.1 Data A | 1a | altern. RJ45 | RS485.1 Data a output | altern. Ethernet |
| 1B | RS485.1 Data B | 1b | | RS485.1 Data b output | |
| + | Auxiliary voltage RS485.1+ | 1a | | RS485.1 Data a output | |
| - | Auxiliary voltage RS485.1- | 1b | | RS485.1 Data b output | |
| 2A | RS485.2 Data A | 2a | RS485.2 Data a output | | |
| 2B | RS485.2 Data B | 2b | RS485.2 Data b output | | |
| + | Auxiliary voltage RS485.2+ | 2a | RS485.2 Data a output | | |
| | | 2b | RS485.2 Data b output | | |
| - | Auxiliary voltage RS485.2- | Mini USB | Service interface USB 2.0 | | |
| Vcl+ | Current loop power supply+ | Vin+ | Power supply input+ | | |
| Vcl- | Current loop power supply- | | | | |
| Vout+ | Flow meter power supply+ | Vin- | Power supply input- | | |
| Vout- | Flow meter power supply- | | | | |
|  | Ground | | | | |

- ▶ Tighten terminal screws with a screwdriver and a tightening torque of 0.5 to 0.8 Nm.

- ▶ Set the desired settings “Open Collector” or “NAMUR” via the DIL switch on the enclosure of the device for the digital outputs FO.0 (DO.0), FO.1 (DO.1), DO.2, DO.3.
- ▶ Select the data communication speed (baud rate) on the gas flow meter between 19.2 kBaud and 57.6 kBaud. The FLPS Multibarrier automatically determines the selected baud rate and uses it for output on the non-intrinsically safe side.
- ▶ Make sure that the response delay of the serial interfaces (RS485) of the FLOWSIC600-XT is set to at least 5 ms.
 The delay can be adjusted via FLOWgate™: “Parameter modification/I/O configuration”
 For the selected RS485 interface, check the "Time Delay" and adjust if necessary.

Figure 5

Response delay

The screenshot shows the 'RS485.1 - Configuration' interface with the following settings:

- Protocol Type: MODBUS-RTU
- Modbus Address: 1
- Modbus Config: FLOWSIC600-XT (default)
- Protocol Bits: 8 DataBits, No Parity, 1 StopBit
- Baud Rate: 38400
- Time Delay: 5 ms (highlighted with a red box)

4.3.4 FO/DO configuration switches (Open Collector - Namur)

Figure 6 DIL switches

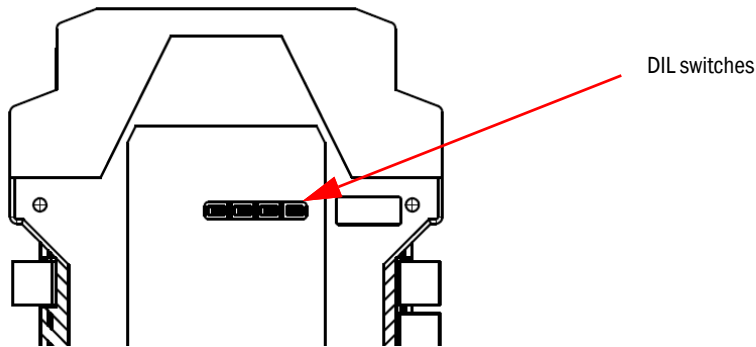


Figure 7 FO/DO switching

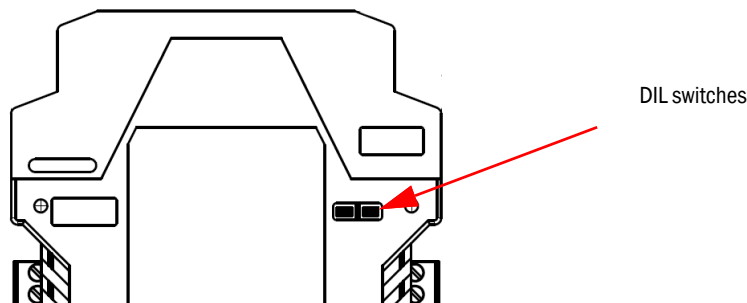
| "OPEN COLLECTOR" | "NAMUR" |
|---|---|
| | |
| <p>Max. impulse frequency: 10 kHz Max. configurable impulse duration: 0.05 s ... 1 s External supply: $U_s \leq 30\text{ V}$</p> <p>Switching states "ON": $0 \leq U_{CE} \leq 2\text{ V}$; $2\text{ mA} \leq I_{CE} \leq 20\text{ mA}$ "OFF": $I_{CE} \leq 0.2\text{ mA}$ (leakage flow)</p> <p>$U_{max} = 30\text{ V}$, electronic current limitation, resettable temperature fuse</p> | <p>Max. impulse frequency: 10 kHz Impulse duration: n/a External supply: $U_s = 8.2\text{ V}$</p> <p>Switching states "On": $I_o = 6.5\text{ mA}$ "OFF": $I_o = 0.8\text{ mA}$</p> <p>$U_{max} = 30\text{ V}$ (no Namur device connected)</p> |

4.3.5 Termination of the RS485 interface

- ▶ Set the termination to „On“ per default.

Figure 8

DIL switches



4.3.6 Connecting the interfaces

Communication via Modbus TCP

The device version FLPS2-6004E-S-5 is equipped with an Ethernet interface with data protocol Modbus TCP.

Communication on the serial interface RS485.1 is converted in the FLPS Multibarrier via the integrated X-Ports from Modbus RTU or Modbus ASCII to Modbus TCP.

Connection is done via an Ethernet cable Cat 5 or higher with a RJ45 plug.

Standard settings

- Standard IP address for Ethernet module: 192.168.0.10
- Standard Subnet mask: 255.255.255.0
- Standard baud rate: 38,400 baud

Service access via USB

Both device versions FLPS2-60042-S-5 and FLPS2-6004E-S-5 are equipped with a mini USB 2.0 interface.

The serial interface RS485.2 can be used as direct service interface on the FLPS Multibarrier by using the mini USB 2.0 interface integrated in the module.

When the serial interface RS485.2 is used and e.g. included in a control system, it will be disconnected during access via the USB interface. Access via the USB interface has "priority" in this case.

After deactivation of the connection via the USB interface, activate the connection to the control system via the serial interface RS485.2 again.

4.3.7 Connection diagrams

Figure 9 Schematic diagram FLPS2-60042-S-5 (without Ethernet)

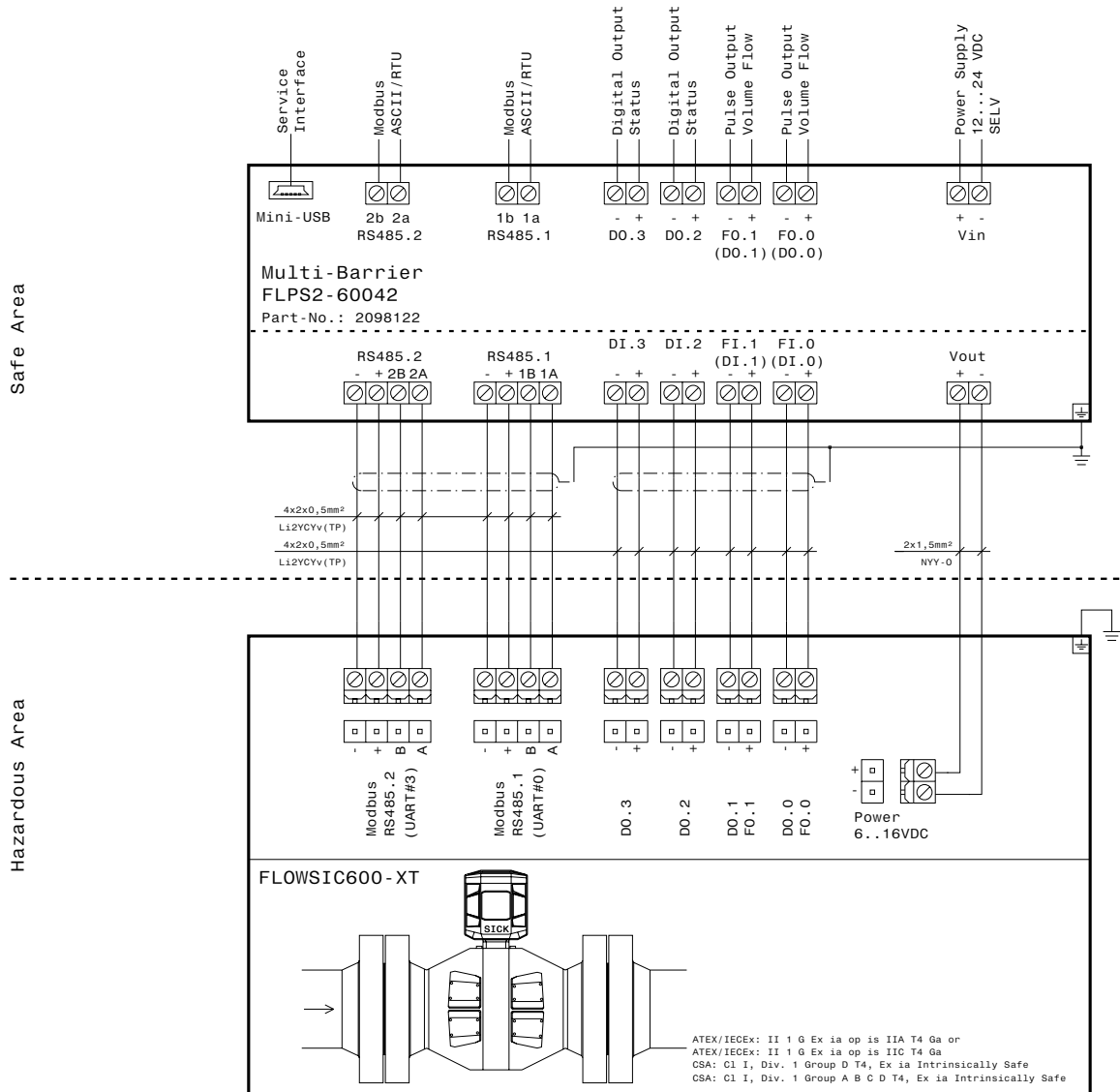
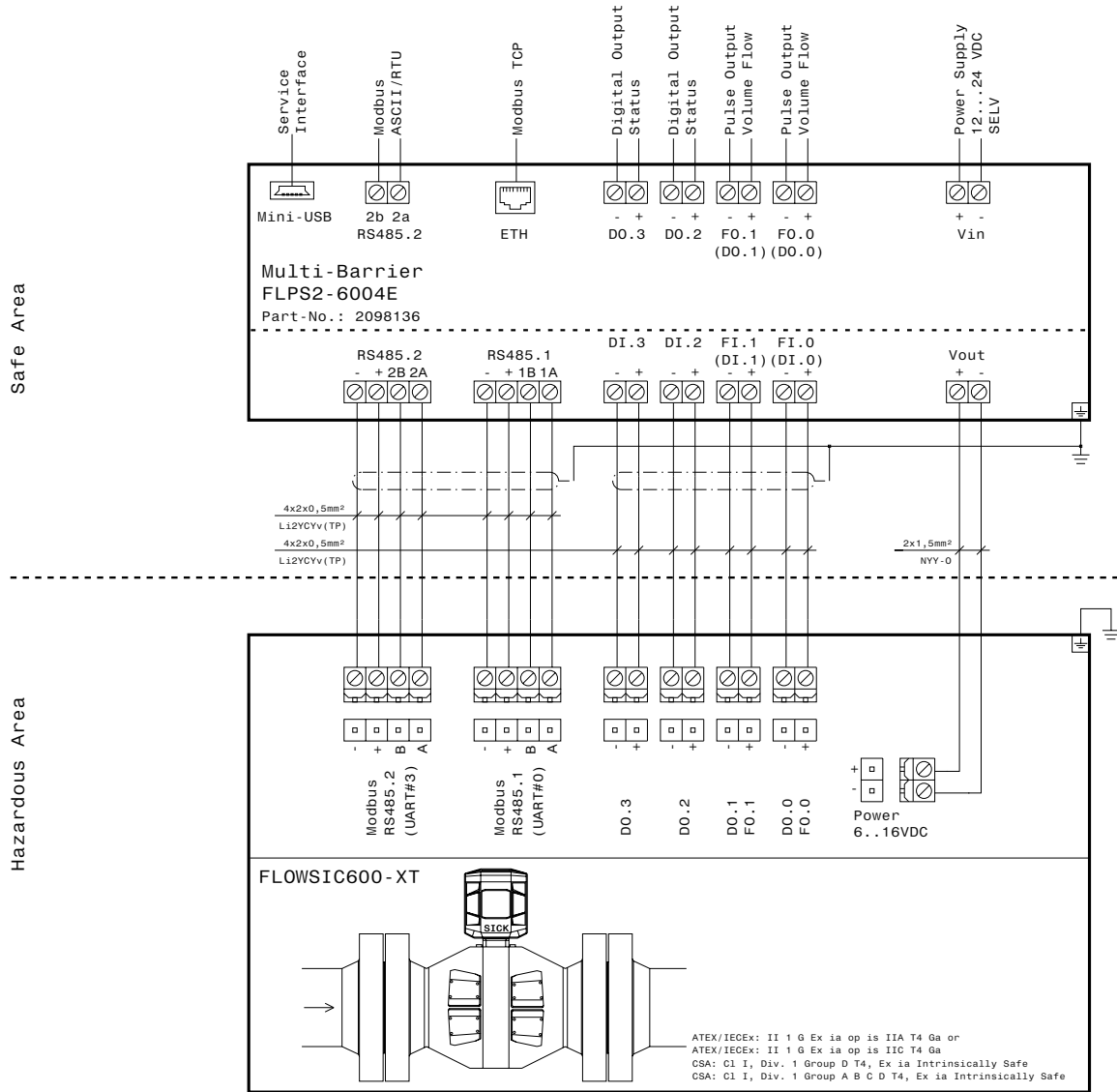



Figure 10 Schematic diagram FLPS2-6004E (with Ethernet)



Intrinsically Safe assesment for the interconnection of the FLPS Multibarrier with FLOWSIC600-XT.

4.4 **Function check**



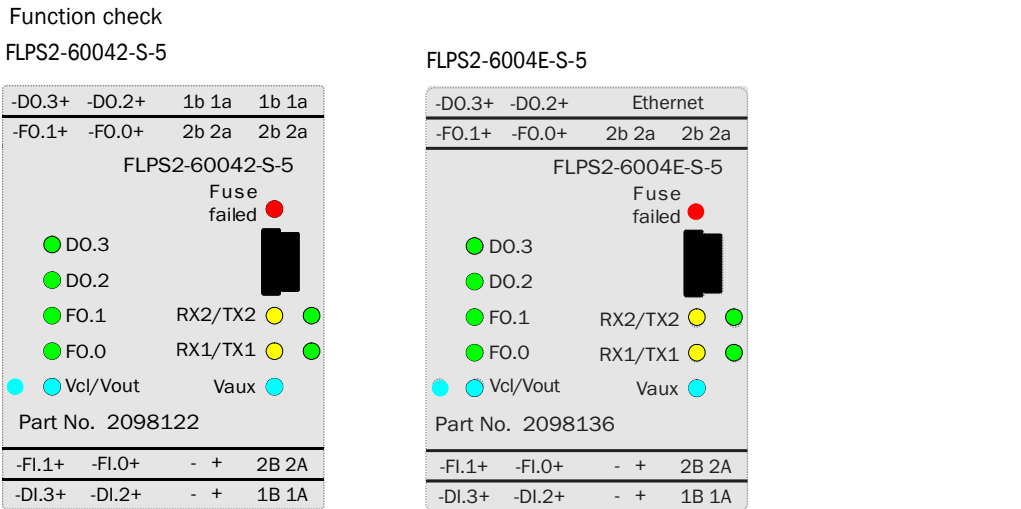
IMPORTANT: Check for correct wiring and function of the FLPS Multibarrier prior to commissioning.

After finishing the installation work described in → p. 19, §4.3, switch on the power supply to the device.

The blue, green and/or yellow LEDs are on and signal the correct power supply of the gas flow meter.

The red LED “Fuse failed” is off.

Figure 11



FLPS Multibarrier

5 Troubleshooting

Replacing the fuse


Malfunction

Error rates


5.1 **Replacing the fuse**

The Multibarrier is maintenance-free. When the device is operated with too high voltage or connected to the wrong polarity, the interchangeable back-up fuse will be triggered and protect the internal circuit.

The fuse can be replaced without opening the enclosure.


| | |
|---|---|
|  | IMPORTANT: Before the fuse is replaced, clarification of the fail is recommended. |
|---|---|

- ▶ In case of a defective fuse, the red LED “Fuse fail” lights permanently.
- ▶ Disconnect the FLPS Multibarrier from the supply voltage before replacing.
- ▶ If necessary, remove the wiring of the barrier.
- ▶ Remove the barrier from the 35 mm mounting rail.

| | |
|---|--|
|  | WARNING: Danger due to wrong spare parts ▶ Fuses may only be replaced with an original spare part; Endress+Hauser order No. 2085302 (Littelfuse Type 0273.200 (200 mA, 125 V). |
|---|--|

- ▶ Replace the fuse.

5.2 **Malfunction**

| | |
|--|---|
|  | WARNING: Risk of explosion The FLPS Multibarrier is an [Ex ia] associated equipment that provides intrinsically safe wiring with intrinsically safe devices installed in Zone 1 or Zone 0. ▶ Substitution of components may impair Intrinsic Safety. |
|--|---|

- ▶ Replace the device when the FLPS Multibarrier shows a malfunction which is not caused by a defective fusible cutout.
- ▶ Do not open or change the device.
- ▶ Do not repair the device by yourself, but replace it by an equivalent device.
- ▶ Repairs may only be performed by the manufacturer. The manufacturer is not liable for damages due to violation.

5.3 **Error rates**

100.000 operating hours are stated as service life of the FLPS Multibarrier.

FLPS Multibarrier

6 Specifications

Technical data
Dimensional drawings
Conformities

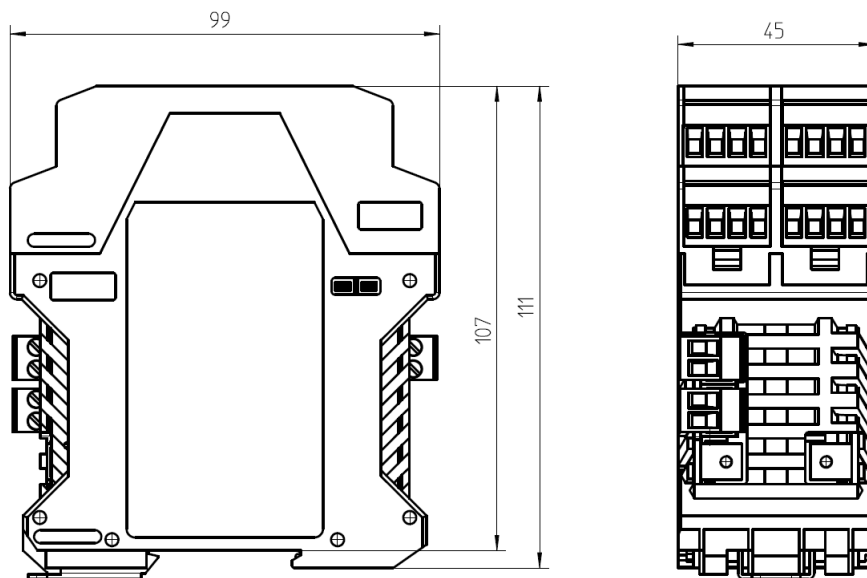
6.1 **Technical data**

Table 2 Technical data

| | |
|---------------------|---|
| Ambient temperature | -40 ... +60 °C |
| Storage temperature | -40 ... +80 °C |
| Ambient humidity | 10 ... 95% Relative humidity in operation – no moisture condensation |
| Ambient pressure | 0.8 ... 1.1 bar (a) |
| Enclosure rating | IP 20 Fit the devices in enclosures which meet the relevant requirements of the installation location. |
| Ex certifications | |
| ATEX | II (1)G [Ex ia Ga] IIC |
| IECEX | [Ex ia Ga] IIC |

6.2 **Dimensional drawings**

Figure 12 FLPS Multibarrier Dimensions



6.3 Conformities

| CE | <ul style="list-style-type: none"> ● CE compliant |
|------------------------|--|
| Electrical safety/ EMC | <ul style="list-style-type: none"> ● IEC 61010-1 ● IEC 60529 ● 2014/30/EU – EMC Directive ● DIN EN 61326-1 |
| ATEX, IECEx | <ul style="list-style-type: none"> ● RL 2014/34/EU ● UKSI 2016:1107 (as amended) – Schedule 3A, Part 1 ● EN IEC 60079-0, EN 60079-11 ● IEC 60079-0 ● IEC 60079-11 |
| Climate | <ul style="list-style-type: none"> ● IEC 60068 |
| Mechanical | <ul style="list-style-type: none"> ● IEC 61010-1 + Corrigendum 2 |
| Other | <ul style="list-style-type: none"> ● RoHS conformity 2011/65/EU ● EN 50178 ● EN 60947-5-6 (NAMUR) |

6.4 Disposal

The FLPS Multibarrier is mainly made of plastics and electronic components. It does not contain any poisonous, radioactive or environmentally hazardous substances.

Dispose of the FLPS Multibarrier as electronic component as electronic waste.

8029785/AE00/V1-4/2025-03

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