since 1971
the power to control

Fleischmann unitro®
STÖRMELDESYSTEME

Documentation

FSB 16/16
+
FSB16-OUTR
-GE-

Blink-Fault Monitoring for medium and high voltage switchgear

16 fault indications with one or two flashing frequency in accordance with DIN 19 235

Function range: 48 / 60 / 110 / 125 / 220V DC

16 freely assignable relay normally open contacts

2 Common alarm contacts and a horn relay contact output (change over) with unit-disturbance monitoring monitoring

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Contents of FSB 16/16 Documentation

Flashing fault annunciator units with signal storage

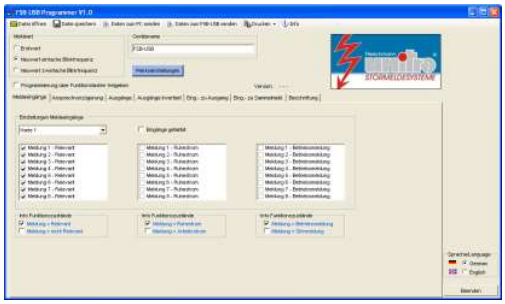
programmable for front panel installation 16 signal inputs

Types:

FSB 16/16
Flashing fault annunciator
16 signal inputs.

System features front panel mounting module:

- Compact plastic junction housing 96 x 96 x 100mm. Degree of protection: front IP50
- 16 signal inputs with LED-display, red, with exchangeable label strips
- Separate status indicator (green = Power ON)
- Integrated mini horn
- Integrated functional keys + LED-Test
- Supply and signal voltage: 48/60V DC, 110/125V DC, 220VDC
- external horn acknowledge input (acknowledgment voltage as supply voltage)
- Screw terminal plug-in connection max. 2,5mm²
- Rear integrated **mini USB interface** for parameterization each signal: Quiescent / operating current, Running- / fault, response delay variable max. 10min, overall new value / first value.

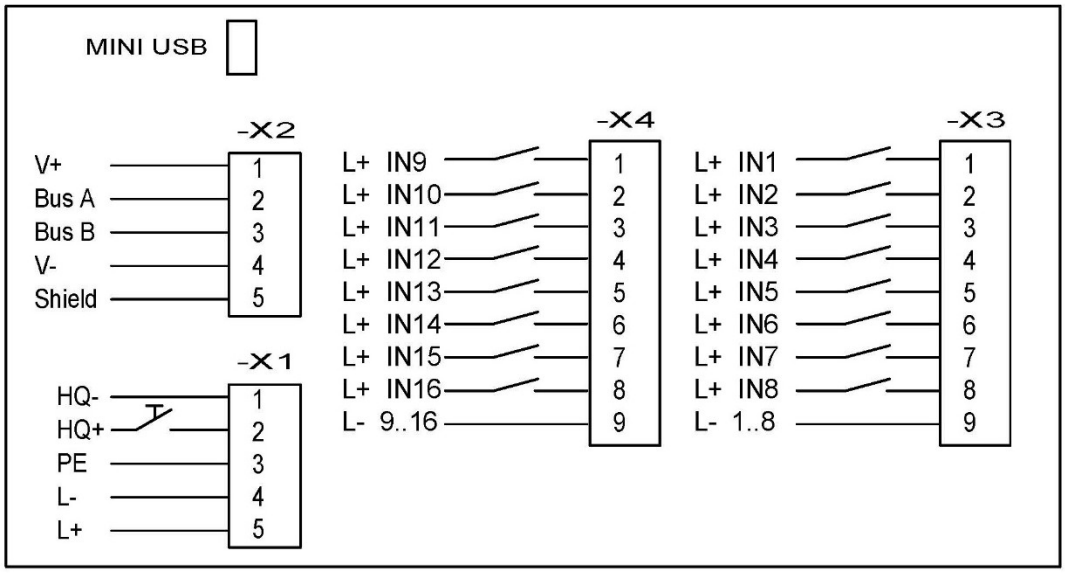


System features DIN rail module:

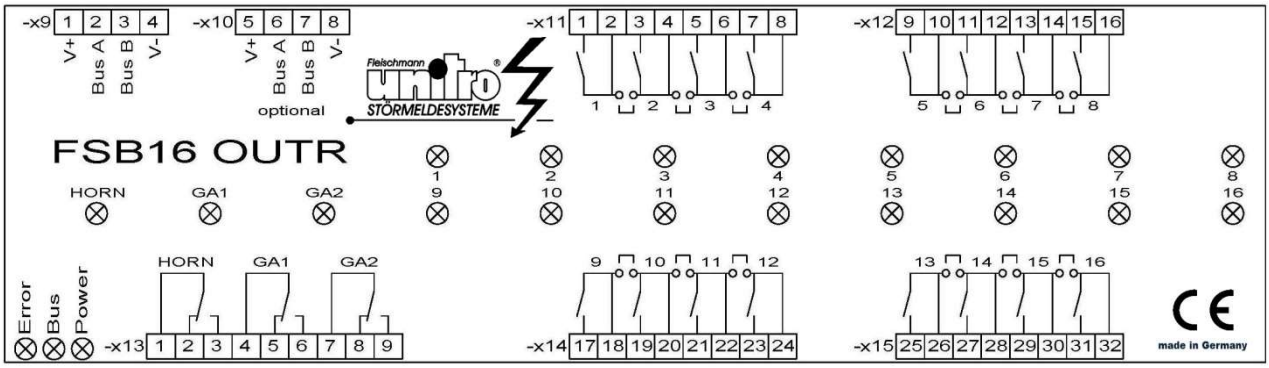
- Din rail housing 200 x 111 x 65mm. Degree of protection IP20
- LED green, Power on (steady light)
- LED yellow (19x relay status) (illuminated when relay contact is closed)
- LED yellow and red for internal data (yellow flashing is intact data transfer / continuous red light at fault)
- 16 Outputs normally open, brought out all poles. Configurable for up to two contact groups with common root contact via integrated jumper
- 2 collective message relay change-over contacts, with disturbed monitoring device. Variety of settings using software programmer are possible.
- 1 horn contact, relay change-over contact. Variety of settings using software programmer are possible.
- Relay contacts max. 24-250V AC / 2A; 110V DC / 0,5A; 220V DC / 0,3A
- Screw terminal plug-in connection max. 2,5mm²

Connection diagrams

Connection diagram FSB16/16:



Connection diagram FSB16-OUTR:



Technical data

1. FSB 16:
   control board housing 96 x 96 x 85 + 25mm
   (cutting for installation 92 x 92 + 1mm)
   FSB 16-OUTR:
   snap-on housing 200 x 100 x 60mm

2. Degree of protection:
   Front IP50,rear IP20, (optional IP54)
   DIN rail module: IP20

3. Weight:
   FSB 16/16 approx. 400g
   FSB 16-OUTR approx. 500g

4. Climatically conditions:
   see page 15

5. Connection:
   Screw-type terminals/plug in connection
   max. 2,5 mm²

6. Front panel buttons:
   Acknowledge horn
   Acknowledge flash light
   LED test

7. Supply voltage:

48/60V DC	-10% +15%
110V/125V DC	-10% +15%
220V DC	-10% +15%

8. Max. fuse:
   4 A mtr

9. Input level for signal inputs:

48/60V DC	-10% +15%	max.	2,5mA
110/125V DC	-10% +15%	max.	2,5mA
220V DC	-10% +15%	max.	2mA

10. Minimum fault signal duration:
    DC: 10ms / AC: 100ms

11. Data retention in the absence pf power:
    Flash memory

12. Power loss 100% ED:

60V DC	max. 4,5W
110V DC / 220V DC	max. 5,9W

13. LED-signal:
    FSB 16/16 with marking strips

New value:	red flash light
Acknowledge:	red steady light
fault removed:	LED dark
Power on:	green steady light

    DIN rail module:

Power on:	green steady light
Data LED:	yellow flashing
Data Error:	red steady light
Relay LEDs:	yellow

14. Flashing frequencies:
    1 / 2 Hz

15. Relay outputs:
    16 Outputs normally open, Inputs freely assignable to outputs for each signal / Standard 1:1) (configurable to common root contact via integrated jumper).
    2 collective message and horn contact, isolated change-over contact
    max. 24-250V AC / 2A
    110V DC / 0,5A; 220V DC / 0,3A

16. Parameterization:
    Mini USB interface per input:
    running- / fault
    quiescence- / operation current
    switch on delay max. 10min
    output contacts
    overall: first up / new value

17. Leakage distances and clearances:
    see page 15

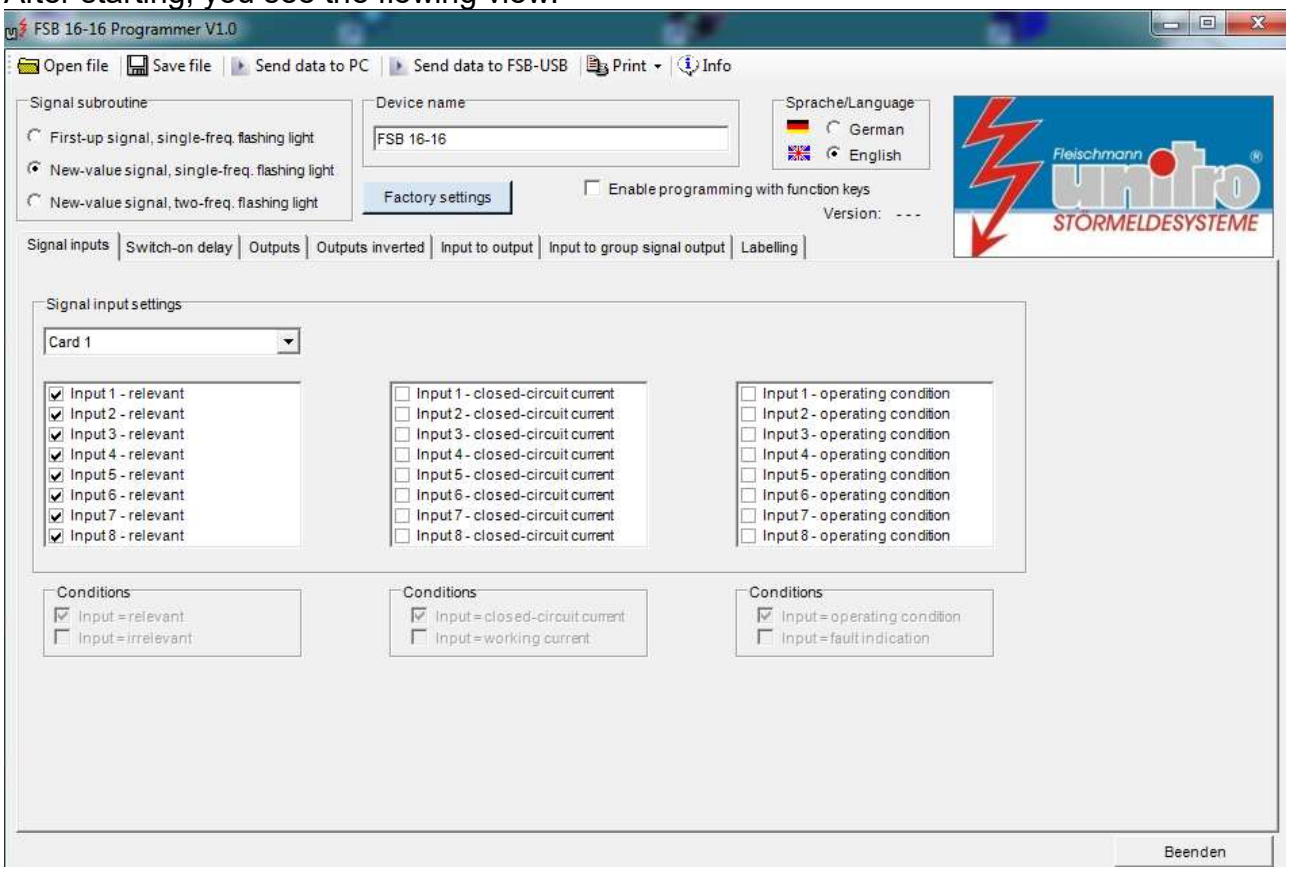
18. EMC, immunity of interference:
    in accordance with EN 61000-4-2,4,5,
    see page 15

Programming FSB 16/16 via USB

1. Insert CD.
2. Double-click the file „setup.exe“.
3. The Wizard will guide you through the installation.
4. Connect the USB-cable between PC and FSB (Status-LED flashing with 10Hz).
5. Starting FSB Programmer. If you used the submitted installation path, you will find the FSB Programmer in Start/Programme/UNITRO/FSB-Programmer.
   In the same path you also find the documentation (pdf-file).

Discription FSB 16/16 USB Programmer

After starting, you see the flowing view:



Menu bar on top:

Open file:	To load data from PC, open a *.cfg-file with before saved parameters.
Save file:	To save your parameters to PC (*.cfg-file).
Send data to PC:	With a USB connection, you can **load** parameters form the FSB 16/16 to your PC.
Send data to FSB USB:	With a USB connection, you can **send** parameters form your PC to the FSB 16/16.
Print:	Shows a print preview of your parameters.
Info:	Shows the version of FSB 16/16 Programmer and info’s to UNITRO-Fleischmann.

Signal subroutine:
It is possible to activate 3 several signal subroutines.

- First-up signal, single frequency flashing light
- New-value signal, single-frequency flashing light
- New-value signal, two-frequency flashing light

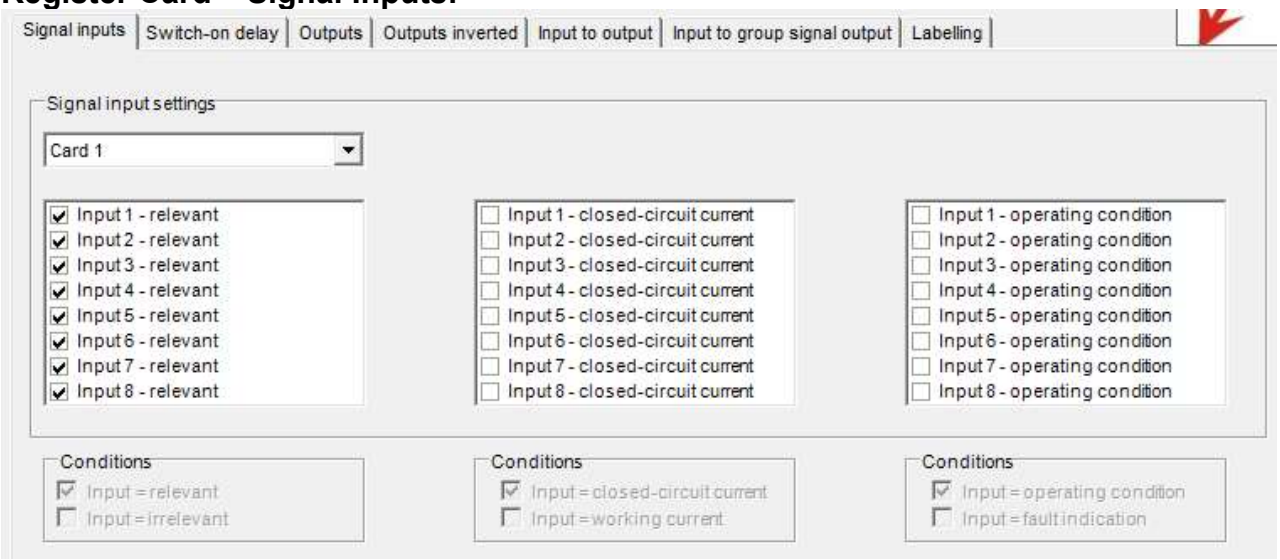
Device name:
To input a 16-character name. This device name will be saved in the device safe, in the absence of power, like all other settings.

Factory Settings:
Makes a reset of all settings in the FSB 16/16 Programmer
(such as a reboot of FSB 16/16 Programmer).

Programming via function keys release:
Enable / disable the device programming via the front buttons.

Version:
When you retrieve the device settings on the button "send data to PC", here is the software version of the device.

Register Card – Signal Inputs:



Card 1 to card 6:
Selection of inputs to be processed.
Card 1 = Input 1-8
Card 2 = Input 9-15 etc.

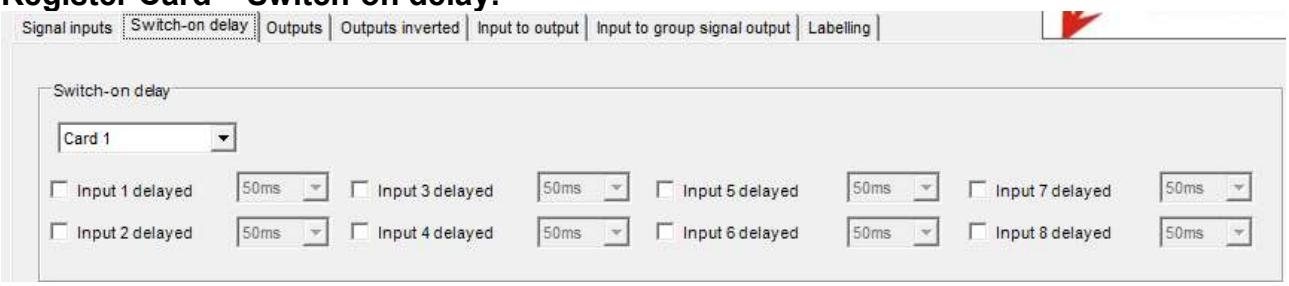
Clocked inputs:
In pulsed mode, the power loss is reduced to the status inputs by 80%. When signal voltages from 60V DC is recommended to put the inputs in this mode to avoid unnecessary power dissipation (possibly forced cooling equipment). Clocked in, as in the non-clocked operation, an input pulse ≥ 10 ms at DC or AC at ≥ 100 ms, identified as a message.

Relevant/irrelevant:
To activate/deactivate the signal

Closed-circuit current/working current:
Switching between closed-circuit current or working current

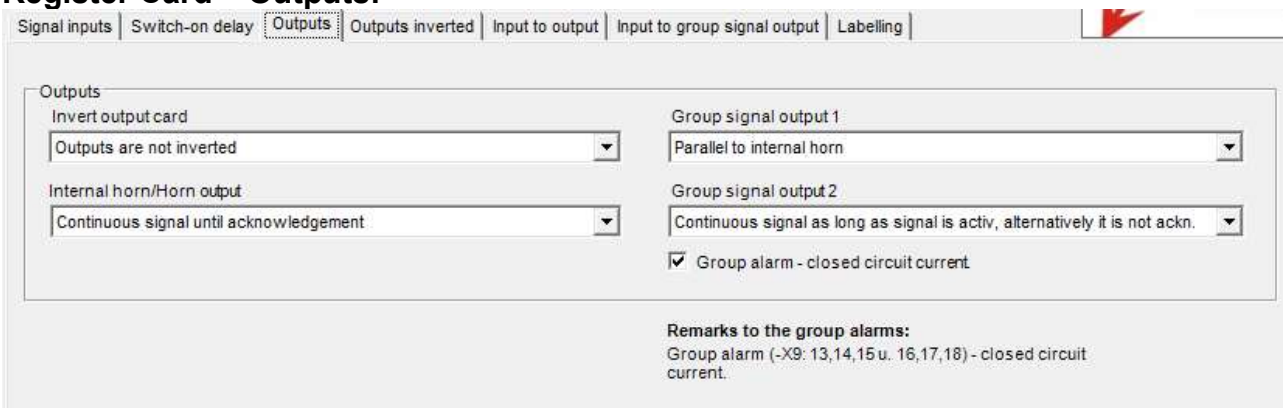
Fault indication/operating condition:
Switching between fault indication or operating condition

Register Card – Switch-on delay:



To activate the switch-on delay time

Register Card – Outputs:



Output card setting, plus horn and group signal.

Outputs inverted:

not inverted: As long as a message is present, the corresponding output contact is closed.

inverted: As long as a message is present, the corresponding output contact is opened.

Internal horn:

Wiper signal (40ms): An incoming message activates the horn for 40ms.

Continuous signal until acknowledged: A forthcoming report filed activates the horn. By horn rest button on the device, or an external switch, the horn signal will be acknowledged.

Off horn: horn disabled

Group signal output 1/2:

Output as a wiper (40ms): An incoming message activates the relay contact for 40ms.

Continuous signal until a message is pending, or has not yet been acknowledged: Continuous signal until a message is pending.

As internal horn: for horn parallel function

Group signal output

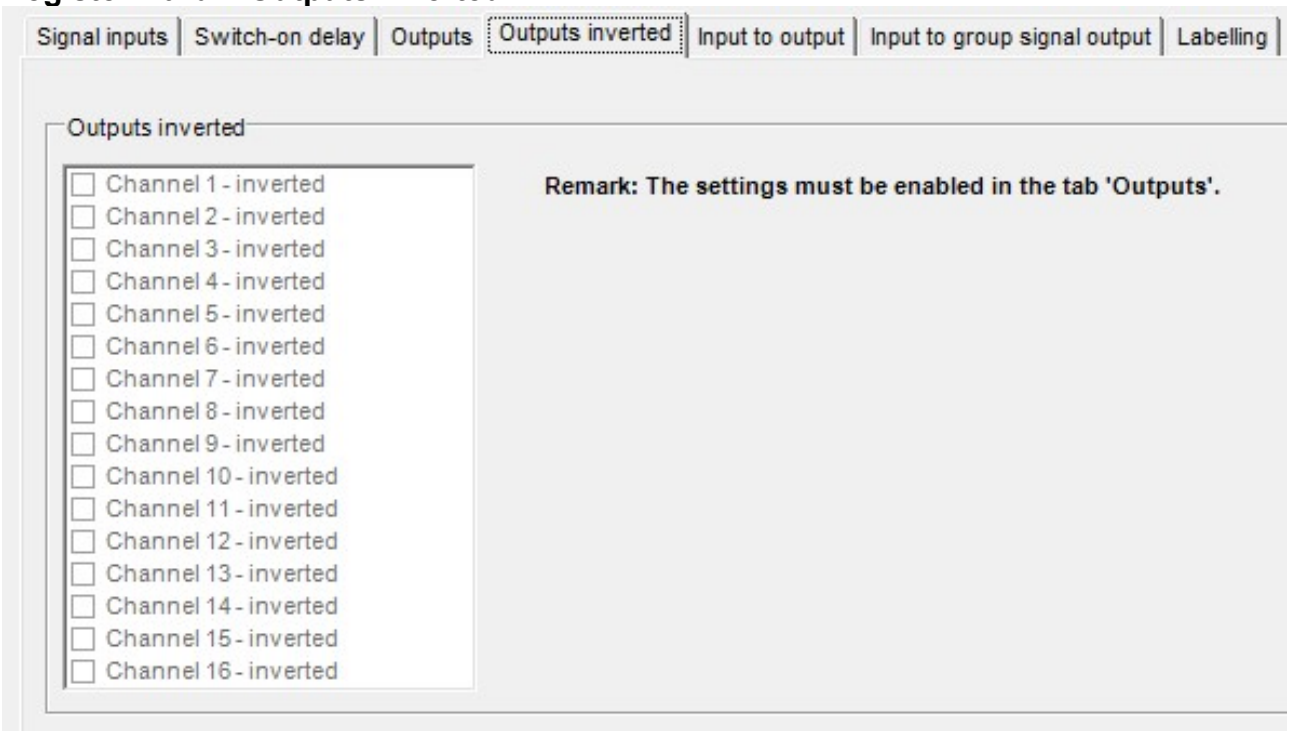
closed during hibernation:

Enabled:
The group signal output relay is activated during hibernation – power supply failure monitoring

Disabled:
The group signal output relay is closed in working condition.

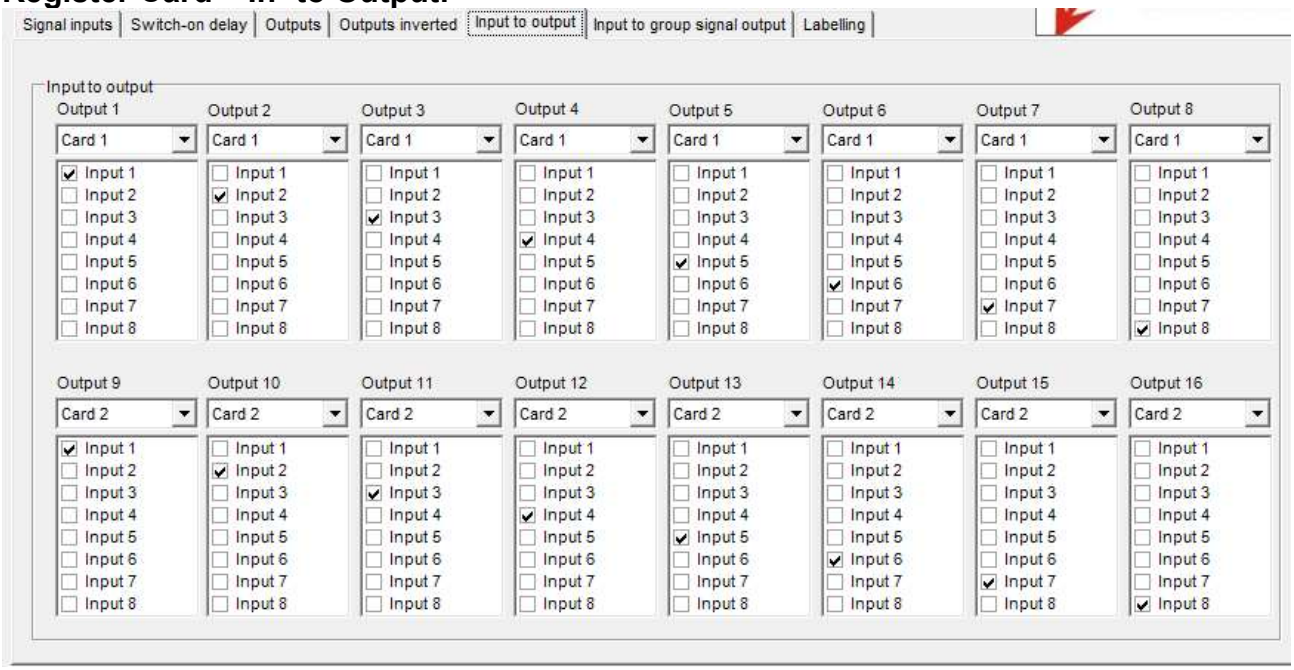
This setting affects to both group signal relay, if they are not associated with the internal horn

Register Card – Outputs inverted:



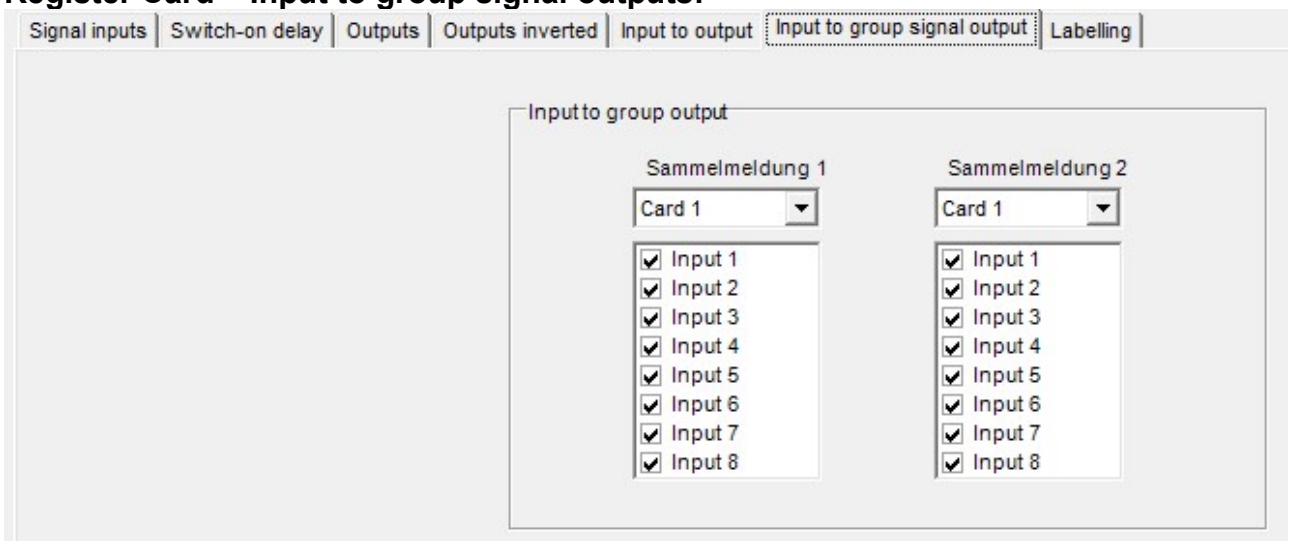
When activated "Outputs inverted" in the Register card „outputs", the outputs can be specified here to be inverted.

Register Card – In- to Output:



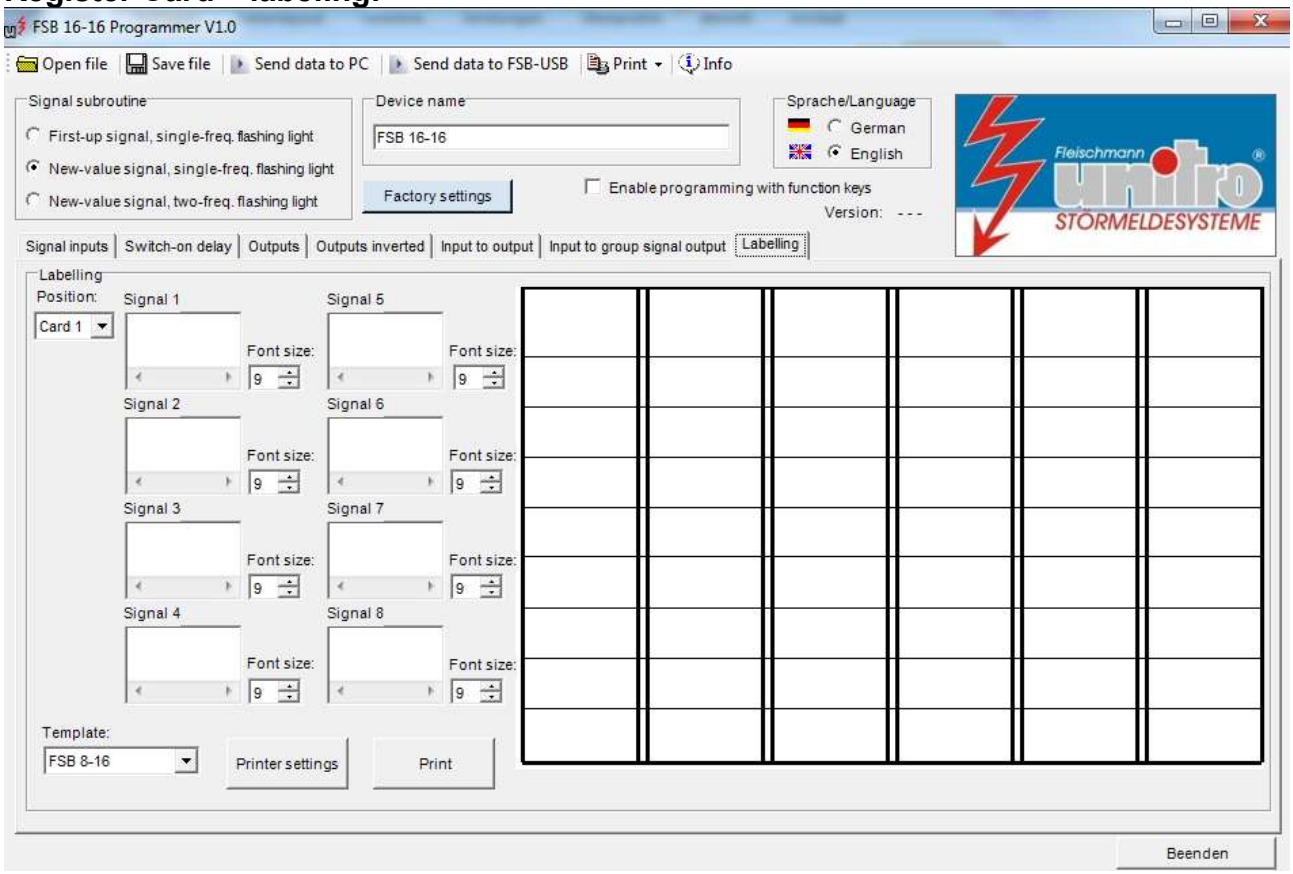
When activated "In- to Output" in the Register card "outputs", the input-output mappings can be made.

Register Card – Input to group signal outputs:



The selected inputs set the corresponding group alarm output.

Register Card – labeling:

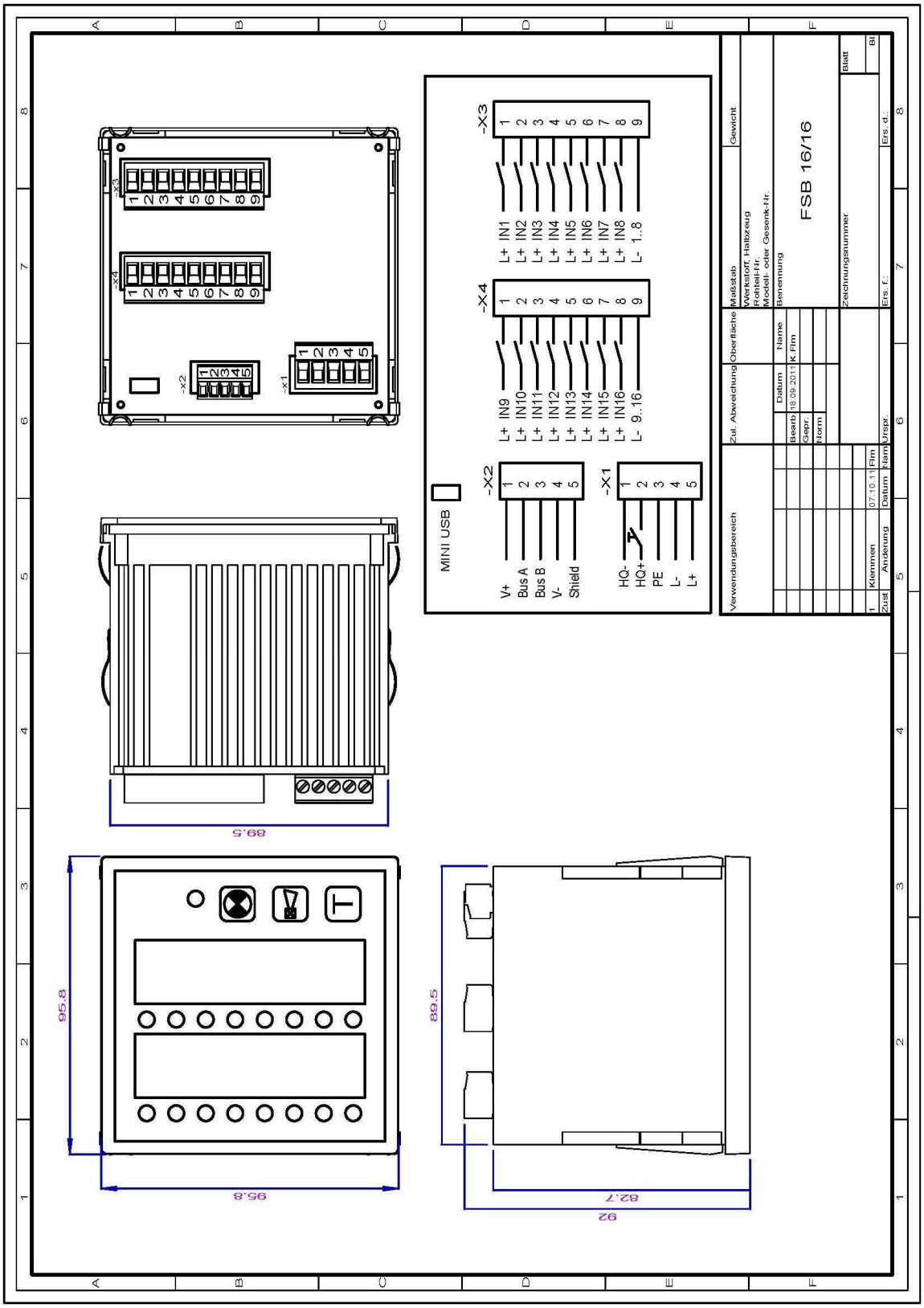


On the input screen message 1 to message 16 and a suitable text size, the labeling strips can be filled or processed.

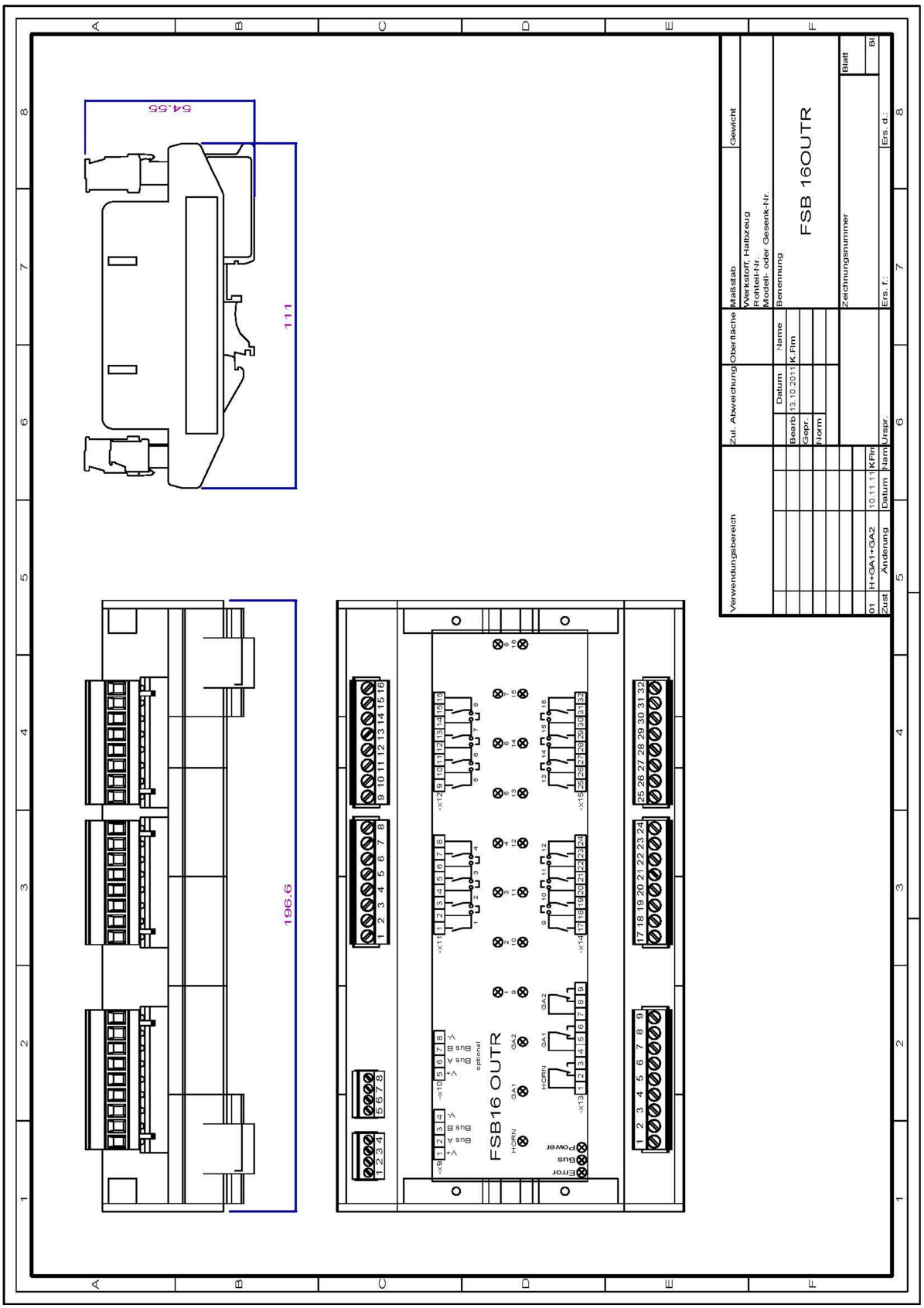
Attention: Only after pushing the button „Send data to FSB usb“ the settings in the FSB 16/16 Programmer are send to the device!

Dimension drawings

Dimension drawing FSB16/16:



Dimension drawing FSB16-OUTR:



Information on applied guidelines and standards

EU	Guidelines
2004/108/EG	EMC guideline (electromagnetic compatibility)
2006/95/EG	Low voltage directive (LVD)

	Product standards
EN 50178:1997	Equipping power installations with electronic equipment
EN 61010-1:2001	Safety requirements for electrical equipment for measurement, control and laboratory equipment. Part 1: general requirements
EN 61131-2:2007	Programmable logic controllers. Part 2: equipment requirements and tests

	EMC
EN 61000-6-2:2005	EMC Part 6-2 generic standards - Immunity for industrial environments
EN 61000-6-4:2007	EMC Part 6-4 generic standards - Emission standard for industrial environments
EN 61326-1:2006	EMC - requirements Electrical equipment for measurement, control and laboratory use

Immunity levels to:	EN 61000-4-2 (ESD)	Severity 3
	EN 61000-4-4 (Burst)	Severity 3
	EN 61000-4-5 (Surge)	Severity 3
	EN 61000-4-6 (HF-line bound)	Severity 3

Safety and environmental requirements to EN 50178

Climatic conditions:	Class 3K3 Ambient and operating temperature: -20° to +65°C 4% to 85% relative humidity not condensing Class 1K4 Storage temperature: -25° bis +55°C Class 2K3 Transport temperature: -25° bis +70°C
Minimum creepage distances:	Pollution degree 2 250V eff, 1mm
Insulation test:	325V: 1,1KV eff.

For further processing of non-self equipment (components) The applicable installation regulations must be observed.
When installing equipment in addition is the appropriate instrument provision. Standards at the time of printing.