Fieldbus Repeater Terminal Unit

for extensions or branching in the PROCONTROL P fieldbus

Application

The fieldbus repeater terminal units type 89FR02 are used for interfacing the fieldbus repeaters 89FR01/R0100 (for channel A and B) and for connecting the fieldbus cables and the power supply cables for the repeater modules.

The following module versions are available:

- **R0100**: Used for branching in the switchgear cabinet or for fieldbus extensions.
- **R0110**: Used as branch-off units for smart electric actuators (fieldbus repeater terminal unit with relay sub-board).
- **R0210**: Used as 4-fold branch-off units for smart electric actuators (fieldbus repeater terminal unit with relay sub-boards).

Features

- The fieldbus repeater terminal units can be plugged onto a top-hat rail.

- The modules are installed inside a cabinet (e.g. the switchgear cabinet) or in a closed metal casing.

- For supporting the cables, blocks for the cable ties are provided.
'Fieldbus connection' block diagram

- Fieldbus connection
- Station bus
- Fieldbus repeat A
- Fieldbus repeat B
- Max. length 400 m
- Fieldbus channel A
- Fieldbus channel B
- 1st bus segment
- 2nd bus segment
- Bus branch (max. length 50 m) to the smart actuators (R0110/R0210)
- T = bus termination
- Inside switchgear cabinets, 33 participants are admissible.

The fieldbus-coupling module is suitable for a max. of 63 fieldbus modules.
One bus segment is suitable for a max. of 32 participants.
Participants: Fieldbus-coupling module, Fieldbus repeater, Fieldbus terminal unit.
Function diagrams
Function diagram for fieldbus repeater terminal unit 89FR02/R0110
Function diagram for fieldbus repeater terminal unit 89FR02/R0210

① Relay sub-board
Connection diagrams

The fieldbus repeater terminal unit 89FR02/R0100 contains plugs A1 and A2 for plugging-in the fieldbus repeaters type 89FR01/R0100 for channel A and B. It also contains terminals 1 through 10 for connecting the supply voltages and terminals 11 through 30 for connecting the fieldbus cables and the earthing.

Fieldbus repeater terminal unit type 89FR02/R0110 is additionally equipped with one relay sub-board.

Fieldbus repeater terminal unit type 89FR02/R0210 is equipped with four relay sub-boards. The 89FR02/R0210 module contains plugs A1 through A8 for plugging-in the fieldbus repeaters 89FR01/R0100. It also contains terminals 1 through 49 for connecting the fieldbus cables and the fieldbus / power supply cables of the actuators.

When the modules are used at the end of the fieldbus, a resistor of 220 ohms is to be installed instead of the extension cable.

Connecting the 89FR02/R0100 module as a repeater

![Connection diagram](connection-diagram.png)
Connecting the 89FR02/R0100 module as a branch-off inside the switchgear cabinet

From external power supply

USA ZA USB ZB

1 2 3 4 5 6 7 8

1 9 2 10 12 5

1 9 2 10 12 5

89FR02/R0100

89FR01/ R0100

89FR01/ R0100

A1

A2

Fieldbus A
Fieldbus A
or
termination
resistor
Branch A

Fieldbus B
Fieldbus B
or
termination
resistor
Branch B

Cabinet casing
Connecting the 89FR02/R0110 module as a branch-off for actuators

Diagram showing the connection setup for Fieldbus A and Fieldbus B branches with terminators and relays.
Connecting the 89FR02/R0210 module as a branch-off for actuators

1. Relay sub-board
2. Screen above screw-connection is connected to the metal casing
### Mechanical design

<table>
<thead>
<tr>
<th>Module dimensions:</th>
<th>Version R0100/R0110</th>
<th>approx. 91 x 126 x 67 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Version R0210</td>
<td>approx. 250 x 126 x 67 mm</td>
</tr>
<tr>
<td>Screw-on terminals:</td>
<td>Version R0100/R0110</td>
<td>1 ... 29</td>
</tr>
<tr>
<td></td>
<td>Version R0210</td>
<td>1 ... 49</td>
</tr>
<tr>
<td>Module connector:</td>
<td>Version R0100/R0110</td>
<td>A1, A2</td>
</tr>
<tr>
<td></td>
<td>Version R0210</td>
<td>A1 ... A8</td>
</tr>
<tr>
<td>Weight:</td>
<td>Version R0100/R0110</td>
<td>approx. 0.190 kg</td>
</tr>
<tr>
<td></td>
<td>Version R0210</td>
<td>approx. 0.445 kg</td>
</tr>
</tbody>
</table>

Fieldbus repeater terminal unit 89FR02/R0100

Fieldbus repeater terminal unit 89FR02/R0110
Fieldbus repeater terminal unit 89FR02/R0210
Technical data

In addition to the system data, the following values apply:

**Electrical environment**
(given proper installation)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge</td>
<td>4 kV (contact discharge)</td>
<td>DIN EN 61000-4-2, IEC 1000-4-2</td>
</tr>
<tr>
<td>Fast transients/pulses (burst)</td>
<td>2 kV</td>
<td>DIN EN 61000-4-4, IEC 1000-4-4</td>
</tr>
<tr>
<td>Surge voltage (surge)</td>
<td>2 kV</td>
<td>DIN V ENV 50142, IEC 1000-4-5</td>
</tr>
</tbody>
</table>

**ORDERING DATA**

<table>
<thead>
<tr>
<th>Type designation:</th>
<th>Order number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>89FR02/R0100</td>
<td>GJR2397700R0100</td>
</tr>
<tr>
<td>89FR02/R0110</td>
<td>GJR2397700R0110</td>
</tr>
<tr>
<td>89FR02/R0210</td>
<td>GJR2397700R0210</td>
</tr>
</tbody>
</table>

Termination resistor 220 ohms, 0.33 W  GJTN163010P0020

Technical data are subject to change without notice!