

Relay Output Module

Publication No.
D KWL 6327 96 E, Edition 06/96

81AR01 – E/R0100/R0200

Application

This module is mainly used for activating the triggering actuators of the protection equipment in connection with module 83SR04–E/R1411.

Features

The module contains 8 relays (function units) which can jointly be connected or disconnected via a ninth relay.

Two versions of the module are available:

- Version R0100
for actuators to 1 voltage (positive)
- Version R0200
for actuators two 2 voltages (positive and negative)

Description

The module contains type-tested relays *) with positively driven contacts. This allows to perform disconnecting operations, e.g. 2–out–of–3.

Via auxiliary contacts, the position of each individual relay (function unit 1 ... 8) can be scanned.

Relay K9 is provided for overall disconnection of relays K1 through K8. It contains no position indication.

The outputs for connecting the actuators have a protective circuit (zero diode).

The supply lines for the actuators have fuses of single-pole type (R0100) and twin-pole type (R0200). Based on a certain configuration (cf. "module configuration"), the fuses can be bridged (e.g. in the case of series connection of contacts for a 2–out–of–3 concept).

*) Acc. to TÜV Rheinland, report no. 945/EL 178/88 of Jan. 7, 1988.

Module configuration

Setting of jumpers

By using X12 through X19 on module version R0200, supply version Z/UVP is set for function units 1 ... 8.

X1n is plugged onto position 2–3: Fuse UVP active

X1n is plugged onto position 1–2: Fuse UVP bridged

n–out–of–2 (function unit 1) up to 9 (function unit 8).

For module version R0100, jumpers X12 to X19 are mounted onto position 1–2 because there are no fuses.

Using X31 through X38, supply version USP is set.

X3m is plugged onto position 2–3: Fuse USP active

X3m is plugged onto position 1–2: Fuse USP bridged
(e.g. 2nd, 3rd channel in
case of 2–out–of–3)

m–out–of–1 (function unit 1) to 8 (function unit 8).

Using X41 through X48, the connection of the relay return lines is set.

X4m is plugged onto position 1–2: Joint return line of relays
K1 ... K8 directly (ZPS) or
via relay K9

X4m is plugged onto position 2–3: return line of the relay via
process connection KmN

m–out–of–1 (function unit 1) to 8 (function unit 8).

Diagnosis and annunciation functions

Disturbance annunciations on the module

On the module front, red light-emitting diodes are provided to indicate:

	LED designation
– Disturbance	ST
– Module disturbance	SG
– Fuse monitoring	ST (1 ... 8)

Light-emitting diode ST signals all disturbances of the module.

Light-emitting diode SG signals pure module disturbances.

Light-emitting diodes ST (1 ... 8) signal the response of fuse monitoring USP and with module version R0200 also UVP.

Status annunciations on the module

On the module front, green light-emitting diodes are provided to indicate:

	LED designation
– Relay picked up	EIN (1 ... 8)

Light-emitting diodes ON (EIN, 1 ... 8) indicate that the respective relay has picked up.

Disturbance signals to the annunciation system

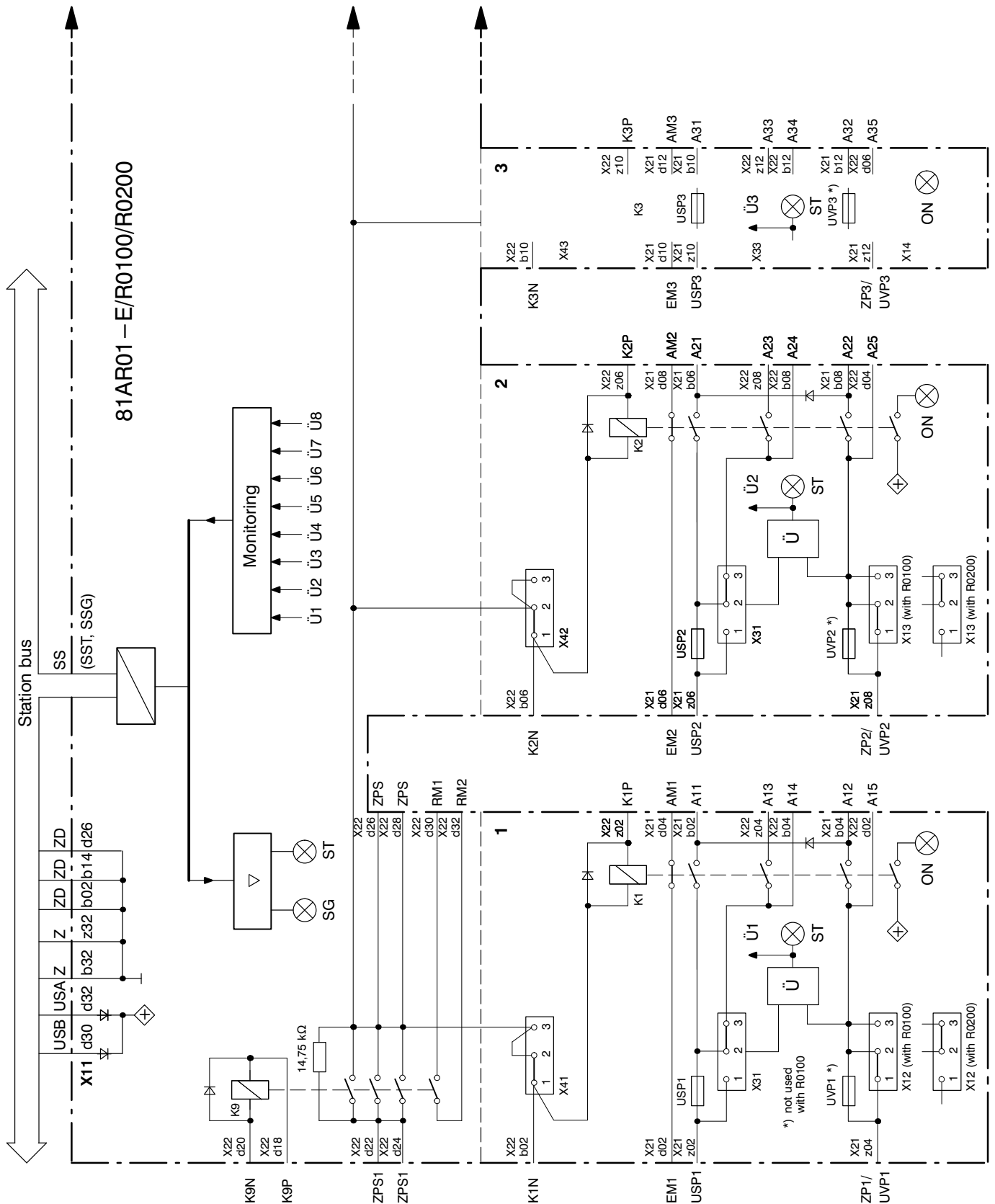
Via bus lines SST and SSG, the disturbance signals are available.

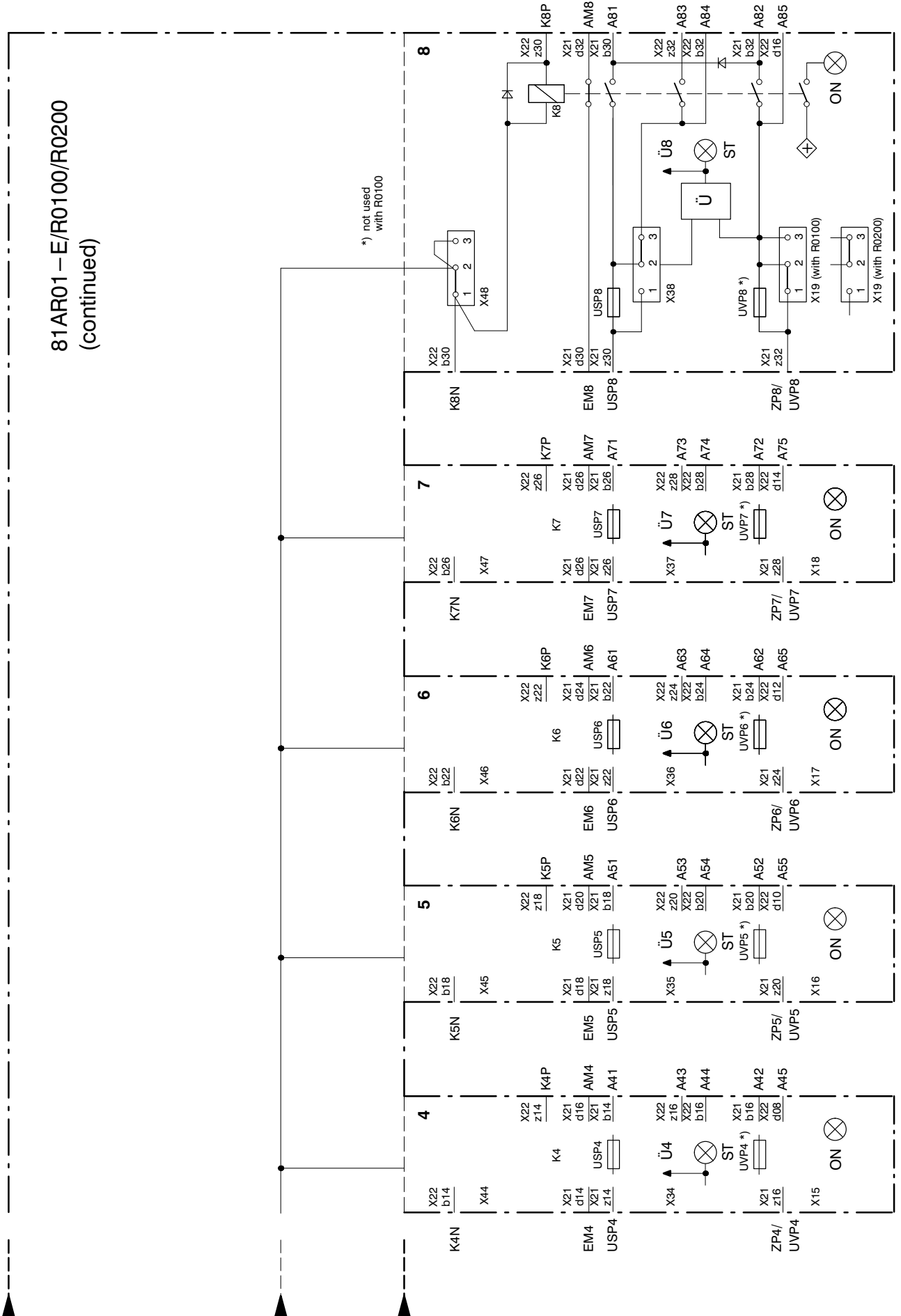
Function diagram

Terminal designations

The printed-circuit boards include connectors X11, X21 and X22.

Connectors X21 and X22 contain all process inputs and outputs. Connector X11 contains station bus connections SST and SSG as well as operating voltages USA and USB.





Mechanical design

Board size: 6 units, 2 divisions, 160 mm deep

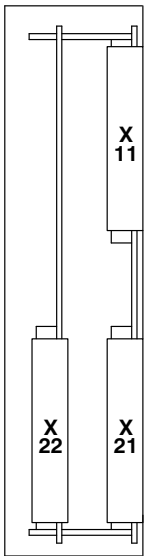
Connector: to DIN 41 612

1 x for station bus connection,
48-pole edge connector, type F
(connector X11)

2 x for process connection,
48-pole edge connector, type F
(connectors X21, X22)

Weight: approx. 0.995 kg

View of connector side:



Contact assignments of process connector X21

View of contact side:

	<i>d</i>	<i>b</i>	<i>z</i>
02	EM1	A11	USP1
04	AM1	A12	ZP1/UVP1
06	EM2	A21	USP2
08	AM2	A22	ZP2/UVP2
10	EM3	A31	USP3
12	AM3	A32	ZP3/UVP3
14	EM4	A41	USP4
16	AM4	A42	ZP4/UVP4
18	EM5	A51	USP5
20	AM5	A52	ZP5/UVP5
22	EM6	A61	USP6
24	AM6	A62	ZP6/UVP6
26	EM7	A71	USP7
28	AM7	A72	ZP7/UVP7
30	EM8	A81	USP8
32	AM8	A82	ZP8/UVP8

Contact assignments of process connector X22

View of contact side:

	<i>d</i>	<i>b</i>	<i>z</i>
02	A15	K1N	K1P
04	A25	A14	A13
06	A35	K2N	K2P
08	A45	A24	A23
10	A55	K3N	K3P
12	A65	A34	A33
14	A75	K4N	K4P
16	A85	A44	A43
18	K9P	K5N	K5P
20	K9N	A54	A53
22	ZPS1	K6N	K6P
24	ZPS1	A64	A63
26	ZPS	K7N	K7P
28	ZPS	A74	A73
30	RM1	K8N	K8P
32	RM2	A84	A83

View of module front and module side, version R0100

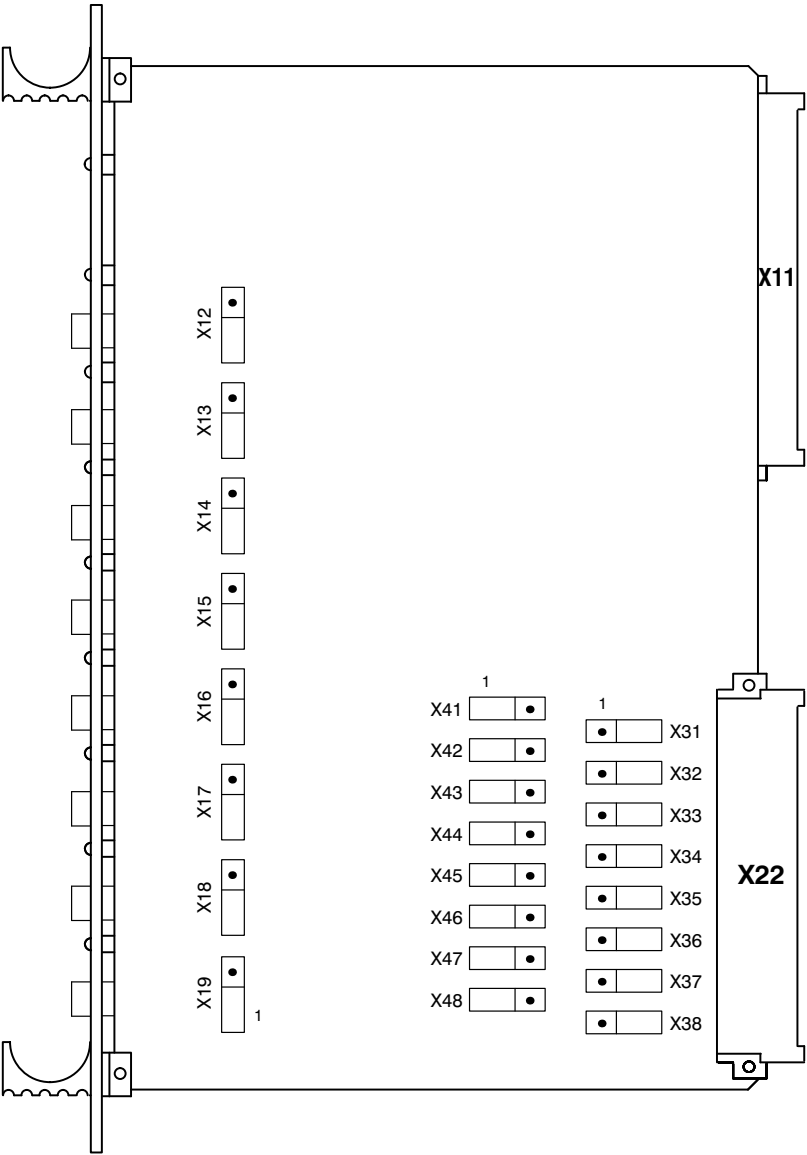
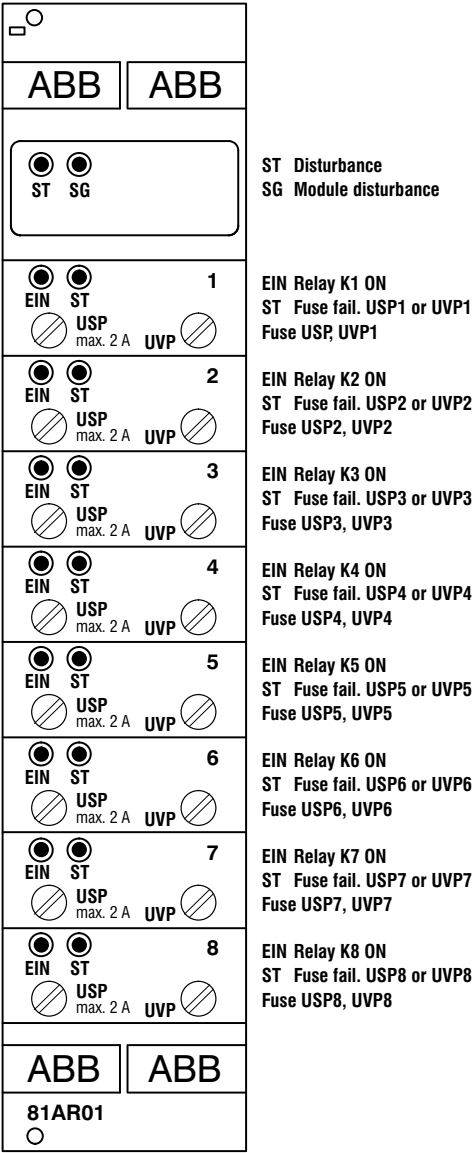
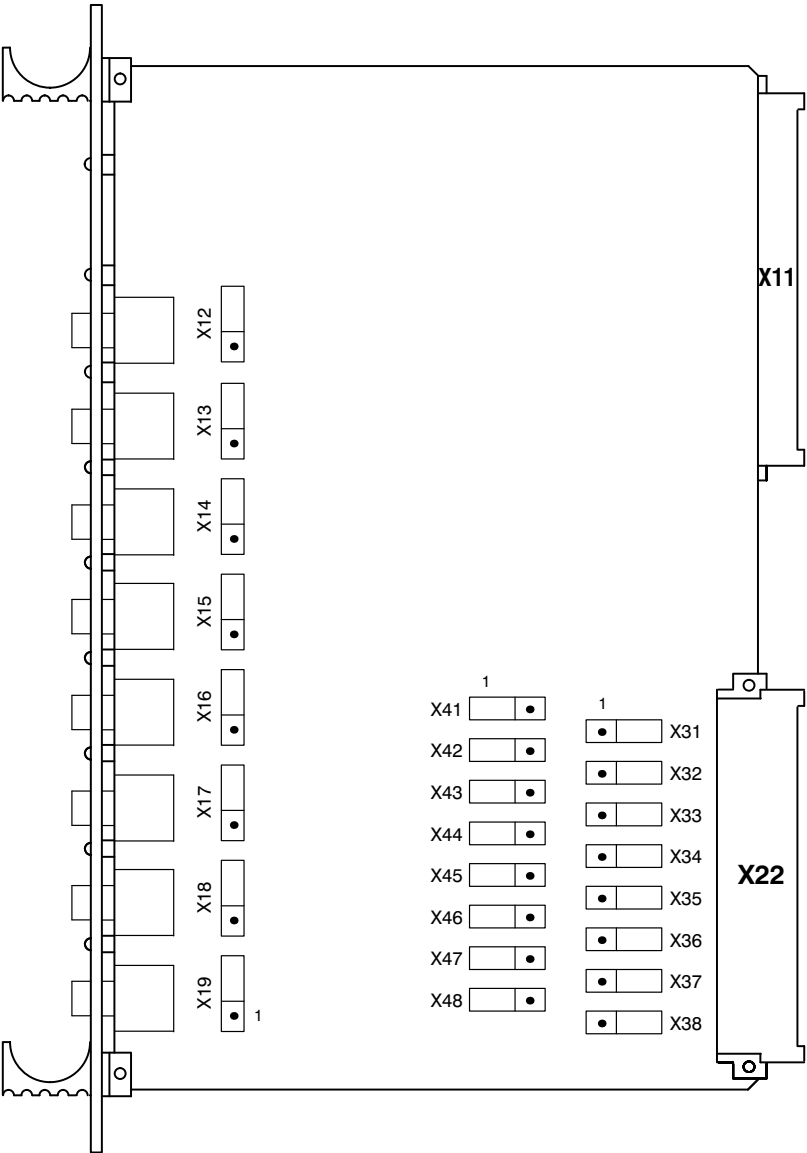


ABB		ABB
ST	SG	ST Disturbance SG Module disturbance
EIN	ST	1 EIN Relay K1 ON ST Fuse fail. USP1 Fuse USP
USP		max. 2 A
EIN	ST	2 EIN Relay K2 ON ST Fuse fail. USP2 Fuse USP2
USP		max. 2 A
EIN	ST	3 EIN Relay K3 ON ST Fuse fail. USP3 fuse USP3
USP		max. 2 A
EIN	ST	4 EIN Relay K4 ON ST Fuse fail. USP4 Fuse USP4
USP		max. 2 A
EIN	ST	5 EIN Relay K5 ON ST Fuse fail. USP5 Fuse USP5
USP		max. 2 A
EIN	ST	6 EIN Relay K6 ON ST Fuse fail. USP6 Fuse USP6
USP		max. 2 A
EIN	ST	7 EIN Relay K7 ON ST Fuse fail. USP7 Fuse USP7
USP		max. 2 A
EIN	ST	8 EIN Relay K8 ON ST Fuse fail. USP8 Fuse USP8
USP		max. 2 A
ABB		ABB
81AR01		

View of module front and module side, version R0200



Technical data

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

Power supply

Operating voltage module	USA/USB = 24 V
Current consumption	IS = 30 mA + output values
Power dissipation	PV = 0.8 ... 5.3 W depending on operating voltage and configuration
Reference potential for process side	Z = 0 V
Reference potential for bus side	ZD = 0 V

Input values

Relay coil (K1 ... K9)	
Pick-up voltage at 20 °C	≥ 18 V
Release voltage at 20 °C	≤ 3.6 V
Coil resistance at 20 °C	1152 Ω ± 10 %

Output values

Contact outputs (K1 ... K9)	
Switching voltage	≤ 60 V
Switching current	≤ 2 A
Contact rating	≤ 120 W

Switching times

Pick-up time	≤ 30 msec
Release time	≤ 20 msec
Bounce time	≤ 1 msec

Type of fuse

fuse-link 5 x 20 mm to DIN 41660
GMN 977000 P17 (F2A)

Interference immunity (of process outputs)

ESD acc. to IEC 801/2	8 kV to front panel
EMC acc. to IEC 801/4	1 kV burst
Destruction acc. to IEC 801/5 (draft); IEC TC 65 (sec) 137	1 kV reference potential

ORDERING DATA

Order no. for complete module:

Type designation: 81AR01 – E/R0100
81AR01 – E/R0200

Order number: GJR2397800R0100
GJR2397800R0200

Technical data are subject to change without notice!



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