

Supply Module

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89NG08/R1000/R1100/R1200

Application

The supply module is used for connection and disconnection, distribution, overvoltage limitation and monitoring of two redundant supplies, A and B, for a PROCONTROL cabinet. Three versions of the module are available. They differ in the equipment provided for the main circuits:

89NG08/R1000	for a PROCONTROL cabinet with 2 stations
89NG08/R1100	for a PROCONTROL cabinet with 3 stations
89NG08/R1200	for a PROCONTROL cabinet with 4 stations

Description

Based on the 19" type to DIN 41494 and IEC publication no. 297, the supply module is intended to be mounted on 24" racks, cf. Figure 1.

The m.c.b.s of the main circuits can be operated from the module front. Only the m.c.b.s necessary are provided for each version.

The annunciating unit is the same for all versions and can be connected as required. The signals are annunciated on the front by means of light-emitting diodes.

The supply module is connected on the module rear using terminal blocks for the main circuits and connectors for the signalling circuits.

Overvoltage protection

Supply voltages USA and USB are reduced to an uncritical size by means of an overvoltage protection against introduced overvoltages. This protection remains effective until the overvoltages are eliminated by measures outside the module.

On the side of the module, an EMC circuitry is provided in the supply terminal strip.



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Voltage distribution

For voltage distribution, different circuits are formed. The fuses are accessible from the module front.

For the various module versions, the following circuits are available:

- | | |
|-------|---|
| R1000 | cf. Figure 2.
Redundant circuits USA1 (F11), USB1 (F12) and USA2 (F21), USB2 (F22) for the supply of 2 independent stations. |
| R1100 | cf. Figure 3.
Redundant circuits USA1 (F11), USB1 (F12); USA2 (F21), USB2 (F22) and USA3 (F31), USB3 (F32) for the supply of 3 independent stations. |
| R1200 | cf. Figure 4.
Redundant circuits USA1 (F11), USB1 (F12); USA2 (F21), USB2 (F22); USA3 (F31), USB3 (F32) and USA4 (F41), USB4 (F42) for the supply of 4 independent stations. |

The internal supply of the annunciating unit is provided via miniature fuses F1 and F2, cf. Figure 5.

Annunciations

An annunciating unit is integrated in the supply module, cf. Figure 5. It contains:

- Monitoring of supply voltages USA and USB
- Formation of annunciation voltage UM
- Clock–pulse generator for two flashing voltages BLS (2 Hz) and BLL (8 Hz)
- Cabinet monitoring
- Four identical station monitoring functions.

On the module front, light–emitting diodes indicate the following conditions:

For the cabinet

- | | | |
|-------|-------|---------------------------------|
| – USA | green | Supply A available |
| – USB | green | Supply B available |
| – BLS | green | Flashing voltage available |
| – TL | red | Check lamps |
| – MTK | red | Door open |
| – MTE | red | Temperature in cabinet too high |

For the station (4 times, station 1 through 4)

- | | | |
|--------|-----|---|
| – MSP1 | red | Supply m.c.b. OFF |
| – MSP2 | red | Power supply fault
(to be user–defined) |
| – MSP3 | red | Power supply fault
(provided in the PROCONTROL standard cabinet for station–bus termination 1) |
| – MSP4 | red | Power supply fault
(provided in the PROCONTROL standard cabinet for station–bus termination 2) |
| – MST | red | Electronics disturbed |
| – MTE | red | Temperature in station too high
(provided in the PROCONTROL standard cabinet for fan monitoring) |

Annunciation function of inputs

Regarding the function of the signal inputs cf. Figure 6.

Cabinet annunciations

The cabinet annunciations are general indications and are given through the cabinet lamp and the cabinet row lamp. They are signalled from the station unit to the station concerned.

- The m.c.b. trip signal MSPx1 is indicated at the cabinet and at the station concerned.
- Failure of the cabinet supply, signals "Door open" and "Cabinet temperature too high" are annunciated at the cabinet and in all stations.
- Lamp test input TL activates only the cabinet lamp and the cabinet row lamp.

Station annunciations

The station annunciations are assigned to one certain station. The annunciating unit comprises four identical units. The station annunciations are forwarded to the respective station and are annunciated at the same time by the cabinet lamp and the cabinet row lamp.

Annunciation functions of the outputs

The annunciating unit delivers the output signals.

Cabinet annunciations

- LMRA Used for activating the cabinet row lamp.
In order to reduce the making current, the lamp can be preheated using the annunciation voltage and the reference potential Z through a resistor. The signal output bridges the resistor and makes the lamp go ON.
By switching jumper 1004 from A–B over to C–D, the output can be changed from reference potential Z to annunciation voltage UM for other applications.
- LMRE By changing jumper 1004 from A–B over to E–F, a floating signal contact is created. LMRE–LMRA
- LMF Used for activating the cabinet lamp.
- BLL, The fast and slow flashing–voltage outputs are used for activating the flashing inputs of external lamp amplifiers.
- SY When several flasher relays are operated, the SY inputs/outputs are connected in parallel for synchronizing the flashing voltages.

Station annunciations

The outputs for the station annunciations are designed to have equal functions for 4 stations.

- MTKG signal output "Door monitoring responded".
- MTEG signal output "Temperature monitoring responded".
- MW signal output "Power supply OK".

For self–monitoring, signal output MW will be according to a closed–circuit principle, i.e. the signal is present if there is no disturbance. All other signal inputs and outputs are based on an open–circuit connection.

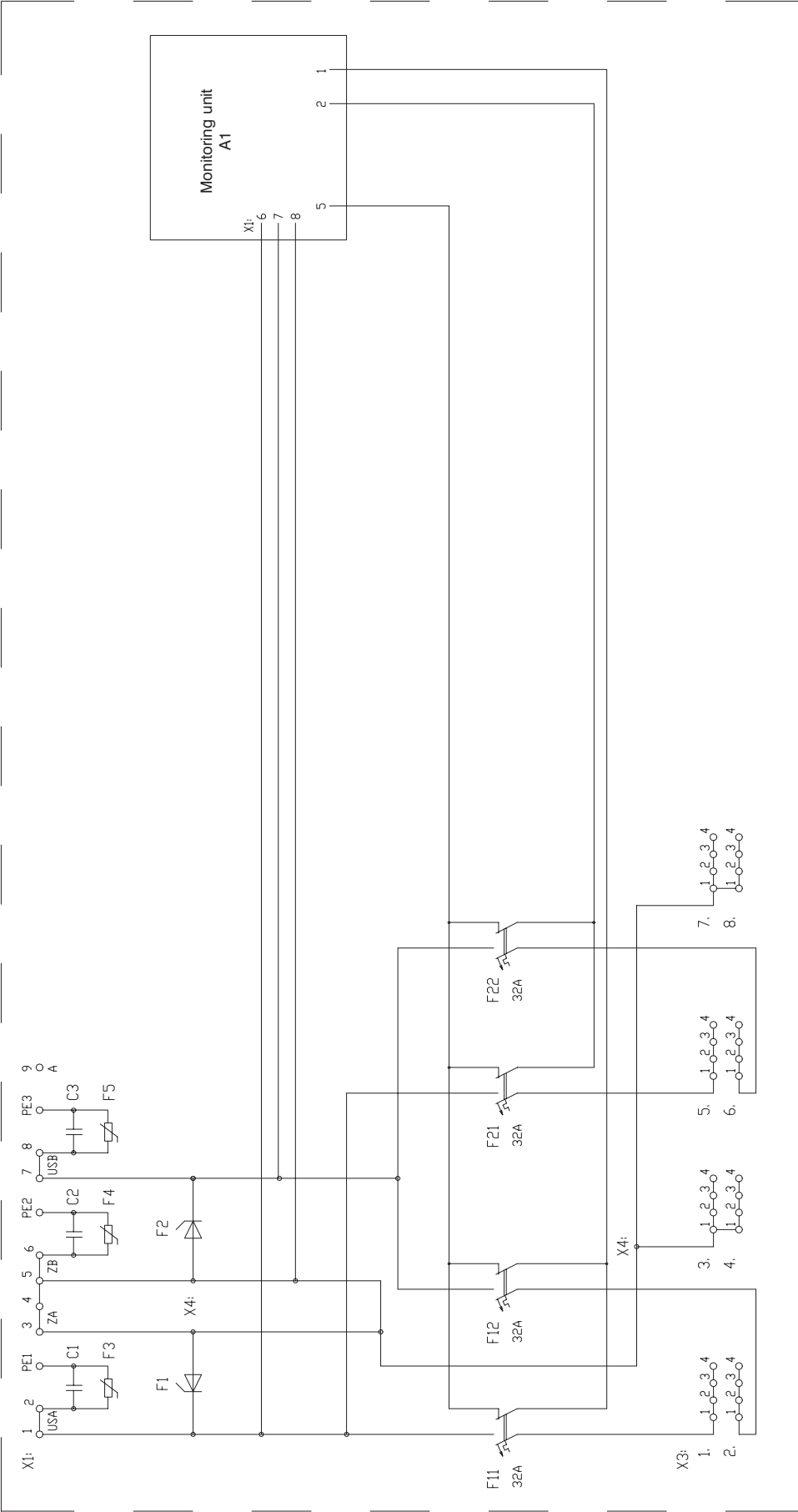


Figure 2: 89NG08/R1000 function diagram

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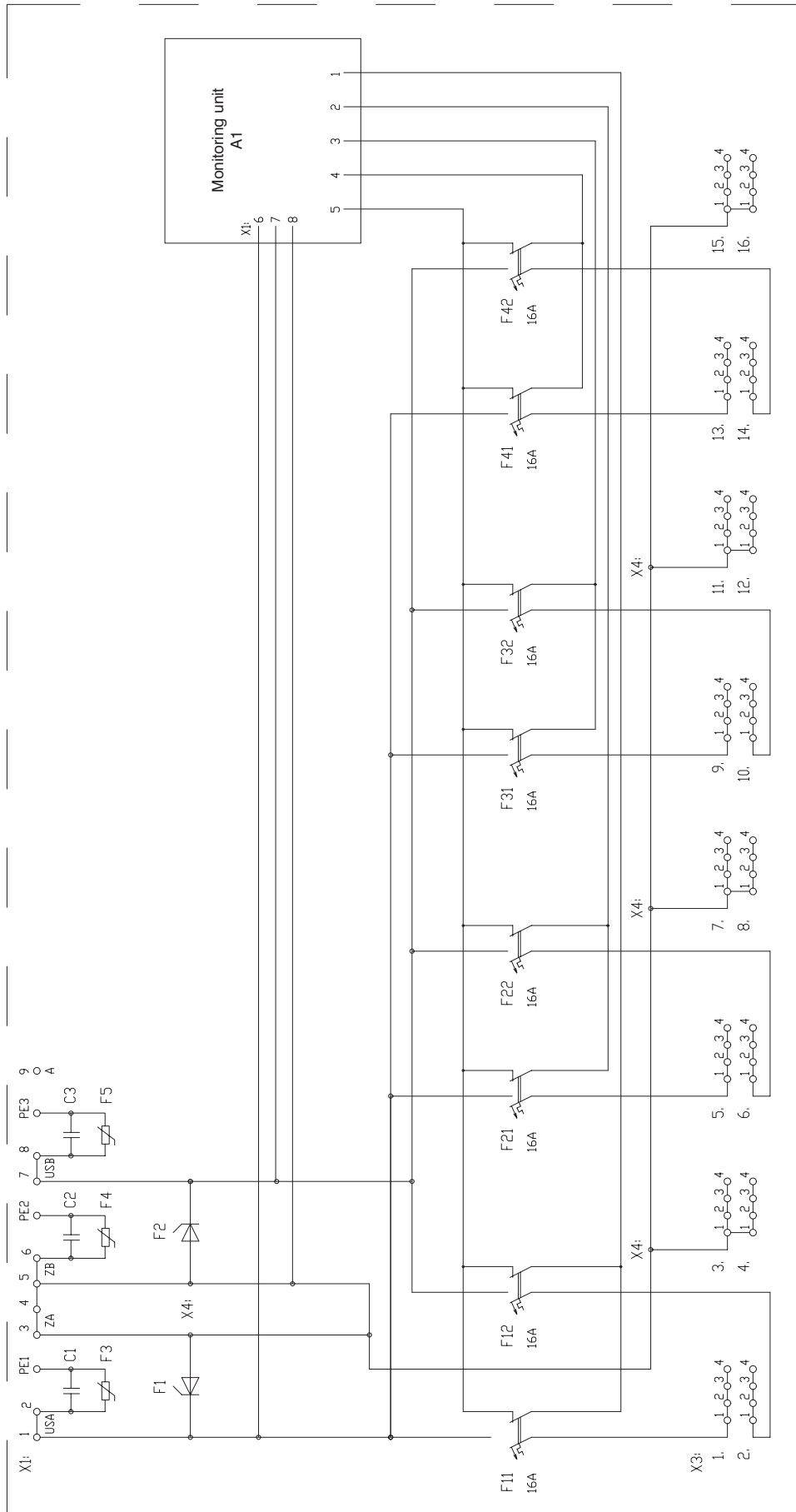


Figure 4: 89NG08/R1200 function diagram

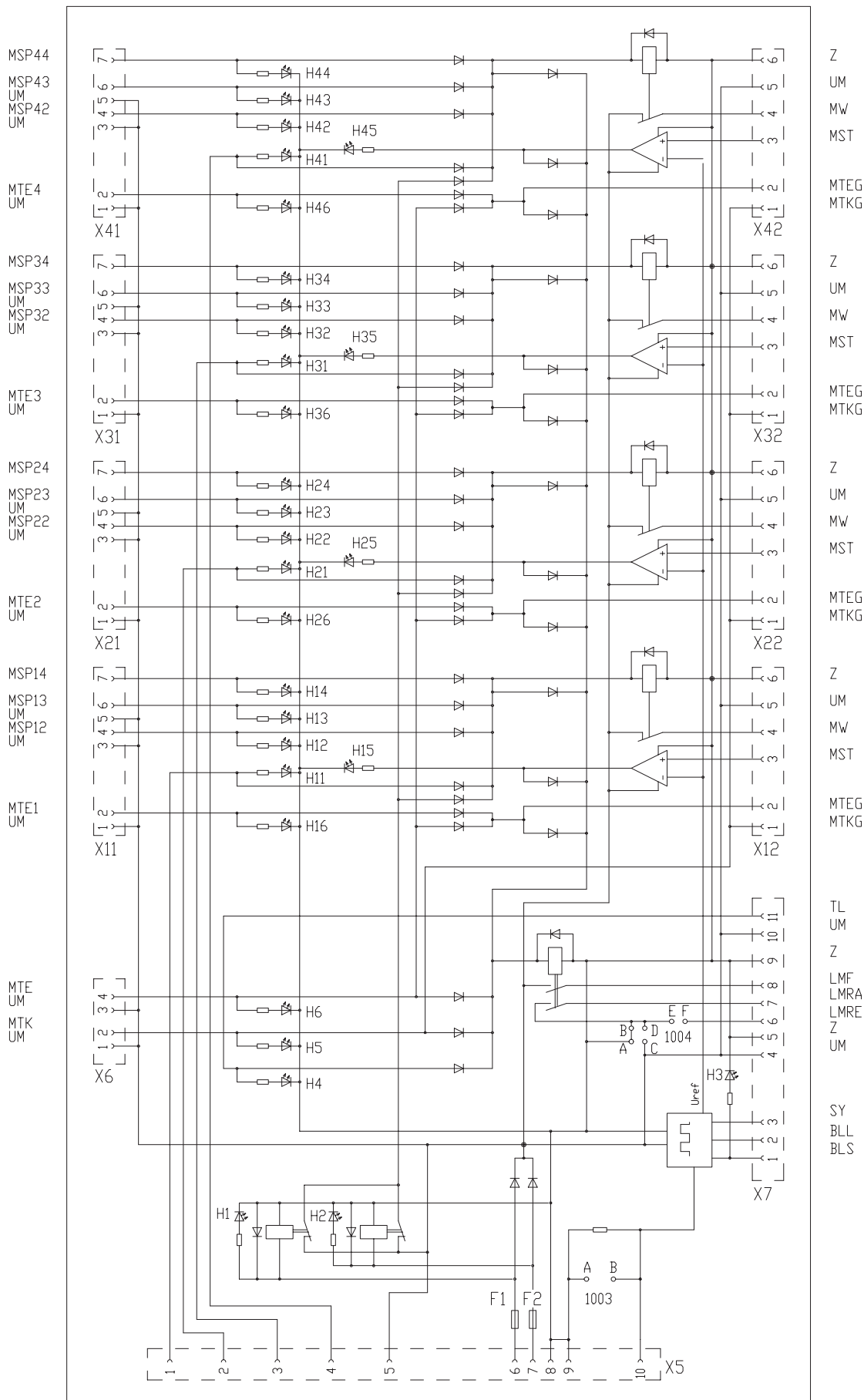


Figure 5: Function diagram of the annunciating unit

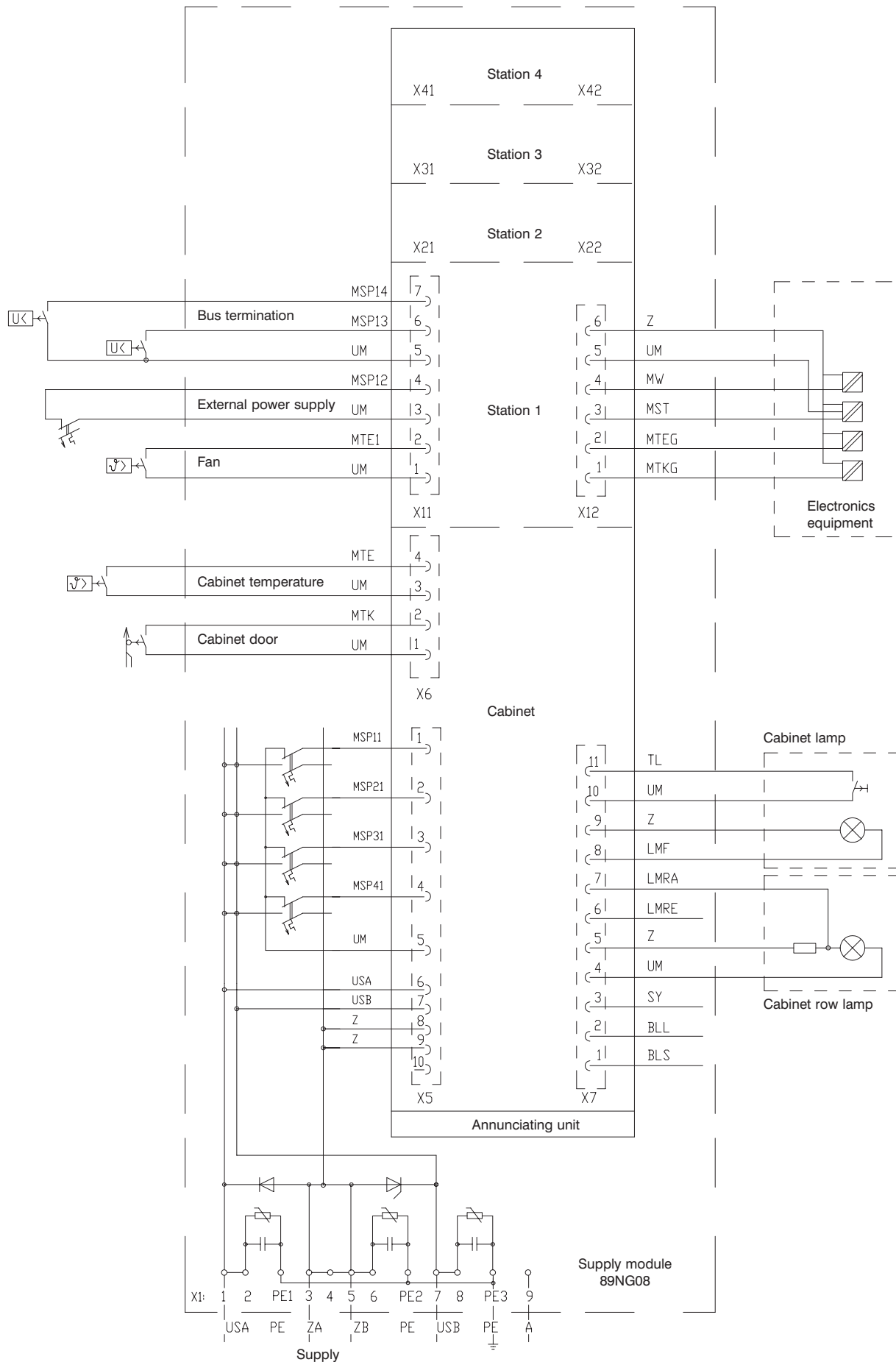


Figure 6: Connection diagram for annunciating unit

Technical data

Mechanical features

Dimensions	Based on a 19" modular system to DIN 41494, IEC 297	
Height	4 U = 177.8 mm	
Width	609.6 mm	
Depth	205 mm	
Weight	Approx. 7 kg	
Protection type	Front and rear	IP30
	top and bottom	IP00
Color	Front with RAL 7022; other parts remain bright metal	
Connections	X1, supply	screw-type terminal 35 mm ²
	X3, power supply	modular terminal with 1 x screw-type connection, 4 mm ² 3 x 2.8/6.3 mm flat connector
	X5, supply (internal)	Combicon connector MSTB, 10-pole, with screw-type connection up to 2.5 mm ²
	X6 cabinet signals inputs	as for X5, however, 4-pole
	X7 cabinet signals outputs	as for X5, however, 11-pole
	X11 – X41 station signals inputs	as for X5, however, 7-pole
	X12 – X42 station signals outputs	as for X5, however, 6-pole
	The jack connectors form part of the delivery.	
Casing earth	2.5 mm ² line, 250 mm long, with ring-cable lug for M5	

Ambient conditions

Storage temperatures	–40 ... +70 °C
Operating temperatures	0 ... +55 °C
Relative humidity	DIN IEC 721–3–3, code letter 3K3, 5 ... 40 °C
Cooling method	Natural ventilation

Electrical features

Input values

Voltage	USA, USB = +24 V Tolerance at the supply terminal 19.5 ... 30.0 V
Harmonics	≤ 5 % depending on connection to an unfiltered three- phase bridge connection
Overvoltage	35 V / 500 msec 45 V / 10 msec 2 x U _N at T = 0.4 msec half-value duration (overvoltage strength class 2) DIN VDE 0160 (draft)
Reference potential, Supply voltage	ZA, ZB = 0 V
Voltage change	
for connection and disconnection	≥ 0.2 V/msec
during operation, 19.5 ... 30.0 V	Arbitrary

Current		<i>R1000</i>	<i>R1100</i>	<i>R1200</i>
	ISA	63 A	63 A	63 A
	ISB	63 A	63 A	63 A
	Total current			
	ISA + ISB max.	63 A	63 A	63 A
Back-up fuse	Max. 63 A gL			
PE conductor	PE for local equipotential bonding			
Casing earth	⊥ Earth connection			
Screen connection	A			
Current, signal connections for U _N = 24 V (U _{response} > 19.5 V up to < 30 V)	MTK	15 mA		
	MTE	15 mA		
	MSPxx	25 mA		
	MST	< 10 mA, U _{response} > 6.8 V		
	TL	15 mA		
	USA, USB	≤ 2 mA		
Output values				
Power circuit voltage at terminal strip X3	U _N = 24 V– Tolerance: Input voltage minus internal voltage drop at X3 max. 0.15 V			
Annunciation voltage U _M	U _N = 24 V– Tolerance: as for input voltage minus 0.5 V			
Voltage change	As for input voltage			
Current, power circuit		<i>R1000</i>	<i>R1100</i>	<i>R1200</i>
	USA1	32 A	16 A	16 A
	USB1	32 A	16 A	16 A
	USA2	32 A	16 A	16 A
	USB2	32 A	16 A	16 A
	USA3	–	32 A	16 A
	USB3	–	32 A	16 A
	USA4	–	–	16 A
	USB4	–	–	16 A
	The overall current USA _x + USB _x must not exceed 63 A.			
Signalling current to U _M	I _{M total} ≤ 2 A			
Current, signal outputs with U _N = 24 V	BLS	≤ 80 mA		
	BLL	≤ 80 mA		
	LMRA	≤ 200 mA		
	LMRE	≤ 200 mA		
	LMF	≤ 200 mA		
	MTKGxx	≤ 150 mA		
	MTEGxx	≤ 150 mA		
	MWxx	≤ 150 mA		
Fuses, annunciating unit F1, F2	Fuse-link 2 A, 5 x 20 mm, inert characteristic, with a high breaking capacity			

ORDERING DATA

Type designation: 89NG08/R1000
89NG08/R1100
89NG08/R1200

Order number: GKWN 000 297 R1000
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Technical data are subject to change without notice!



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