Module Description

PROCONTROL P
Voltage Supply

Supply Module

Publication No.
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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.
Figure 1: Module construction 89NG08/R1000/R1100/R1200

- Opening for uninstalled m.c.b.s. covered in the case of the R1000/R1100
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

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 announcements**

The cabinet announcements 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 announcements**

The station announcements are assigned to one certain station. The annunciating unit comprises four identical units. The station announcements 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 announcements**

- **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, BLS** 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 announcements**

The outputs for the station announcements 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 4: 89NG08/R1200 function diagram
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 mm²
  - X3, power supply: modular terminal with 1 x screw-type connection, 4 mm² and 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 mm²
  - 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

Casing earth: The jack connectors form part of the delivery. 2.5 mm² 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
- Harmonics: Tolerance at the supply terminal 19.5 ... 30.0 V
  - ≤ 5 % depending on connection to an unfiltered three-phase bridge connection
- Overvoltage: 35 V / 500 msec, 45 V / 10 msec, 2 x Uₚ 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 during operation: 19.5 ... 30.0 V
  - ≥ 0.2 V/msec
  - Arbitrary
Current

Back-up fuse
PE conductor
Casing earth
Screen connection

Current, signal connections for $U_N = 24\,\text{V}$
($U_{\text{response}} > 19.5\,\text{V up to } < 30\,\text{V}$)

Output values

Power circuit voltage at terminal strip X3
Annunciation voltage UM
Voltage change

Current, power circuit

Signalling current to UM

Current, signal outputs with $U_N = 24\,\text{V}$

Fuses, annunciating unit F1, F2

ORDERING DATA

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

Order number: GKWN 000 297 R1000
GKWN 000 297 R1100
GKWN 000 297 R1200

Technical data are subject to change without notice!