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Wide-range Power Supply Unit

7XV5810-0BA00

Operating Instructions



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0 General Notes

This manual includes all information required for the intended use of the products described therein. It is intended for technically qualified personnel who are especially trained or have special knowledge on the fields of instrumentation, control and automatic control engineering (in the following called automation). The knowledge and the technically correct interpretation of the safety instructions and warnings included in this manual are prerequisite for safe installation and commissioning, as well as for the safety during operation and maintenance of the product described. Only qualified personnel as defined overleaf have the technical knowledge required to interpret and apply the general safety notes and warnings correctly in the individual cases. This manual is an integral part of the delivery. For reasons of better overview, however, it cannot take into account every detail for all design types of the product described and cannot consider every conceivable situation with regard to installation, operation or maintenance. For further information or if special problems should arise, which are not treated precisely enough in this document, please contact your local Siemens office or send your request directly to the address stated on the last page of this manual.

Furthermore, we wish to point out that the contents of this product documentation are neither part of any previous or current agreement, promise or legal relationship, nor do they imply any modifications thereto.

Explanation of the symbols:



Read the documentation.

To be operated only by qualified personnel.



Double insulation



Warning!

It is inevitable during the operation of electrical devices that parts of these devices are under dangerous voltage. If the warning notes are not observed severe bodily injuries or considerable property damages can therefore occur. Only appropriately qualified personnel should operate this device. The faultless and safe operation of this device requires proper transport, storage, mounting and installation as well as careful operation and maintenance. Modules and devices are tested with 3.7 dVAC and 5.2 kVDC with regard to their dielectric strength.

QUALIFIED PERSONNEL

In case of tampering with the device/system or disregard of the warnings given in this manual severe bodily injuries or considerable property damage can occur. Only appropriately qualified personnel may mesh with this device/system. Qualified personnel as defined in the safety notes of these operating instructions or on the product itself are persons who

- are either personnel involved in planning and configuration activities and thus accustomed with the safety concepts of automation and protection relaying;
- operating personnel instructed in operating automation devices who know the contents of these operating instructions that relate to operation;
- or commissioning and service personnel who are qualified for repairing this kind of automation devices or authorized to perform commissioning, grounding and labelling of circuitries and devices/ systems in accordance with the relevant standards for technical safety.

Safety Notes

These operating instructions contain notes that are to be complied with for your personal safety as well as to avoid property damages. These notes are marked by a triangular warning symbol and the different degrees of danger are categorized as follows:

Danger

Disregard of the corresponding precautionary measures will cause death, severe bodily injury or considerable property damage.

Warning

Disregard of the corresponding precautionary measures may cause death, severe bodily injury or considerable property damage.

Attention

Disregard of the corresponding precautionary measures may lead to slight bodily injury or minor property damage.

Note

Shall draw your attention to special information on the product, product handling or the corresponding section of the documentation.

Qualified personnel

Commissioning and operation of the equipment is to be performed by qualified personnel only. In the context of safety notes in this manual, the term qualified personnel refers to persons authorized to perform commissioning, grounding and labelling of devices, systems and electrical circuitries.

Intended Use

Please observe the following:

Warning

The device must be operated only within the scope of its intended use according to these operating instructions and in connection with third-party equipment or compounds recommended or accepted by Siemens. Faultless and safe operation of the product require proper transport, storage, mounting and installation as well as careful operation and maintenance.

Exclusion of liability

The contents of this document have been reviewed on their compliance with the hardware and software described therein. Yet, deviations cannot be excluded, so that we cannot guarantee full compliance. The specifications in this document are, however, reviewed at regular intervals. Necessary corrections will be included in the next edition. You are invited to send us your suggestions for improvement.

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Subject to technical changes without notice.

Notes concerning CE labelling

- EU guideline EMC 89/336/EWG**

For the interface connection as described in these operating instructions the following is valid: Products with the CE label comply with the requirements of EU guideline 89/336/EWG "electromagnetic compatibility" and the harmonised European norms (EN) stated therein.

The EU conformity declarations are available according to above mentioned EU guideline, paragraph 10, for competent authorities at:

Siemens AG
Industrial and Building Systems Group
ATD TD STG 32
PO Box 1448
D-71243 Ditzingen

1 Operating Instructions

1.1 Scope of Application

The switched mode Wide-range power supply unit has a universal scope of application due to its extremely wide input voltage range. The power supply unit is designed for low power consumers (output power up to 6W) that require a mains buffering time of more than 50ms. The output is short-circuit proof and stable at no load.

The output voltage is monitored and displayed via a pilot LED. If the output voltage falls short by 10% a relay opens and the LED goes out.

Performance Characteristics

- Universal supply voltage
(48...250VDC $\pm 20\%$, 60...230VAC $\pm 20\%$)
- Monitored output voltage with LED
and floating relay
- The output is short-circuit proof and stable at no load
- Mains buffering ($t > 50\text{ms}$)
- Overvoltage category III

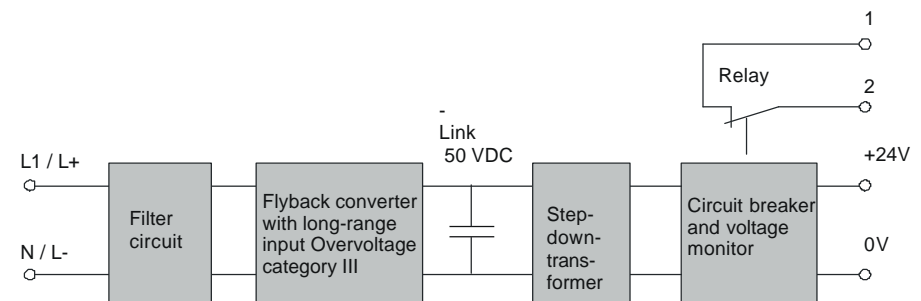


Fig. 1: Elementary circuit diagram

1.1.2 Scope of application

The wide-range power supply unit is designed for industrial use, housing, commerce and trade and small businesses and meets the following requirements:

Scope of application	Requirements on	
	Interference emission	Interference immunity
Industry	EN 50081-2 : 1993	EN 50082-2 : 1995
Residential field	EN 50081-1 : 1992	EN 50082-1 : 1992

1.2 Description of the functional unit

The Wide-range power supply unit inside its plastic housing is a hard-wired and tested functional unit. It is provided with a clip-on mounting for a DIN EN 50022 top-hat rail 35 mm. Auxiliary power supply, electrical consumer and pilot relay can be safely connected via the screw-type terminals. The devices are free of silicone and halogen as well as flame-retardant (UL94-V0).

1.2.1 Position and assignment of the terminals

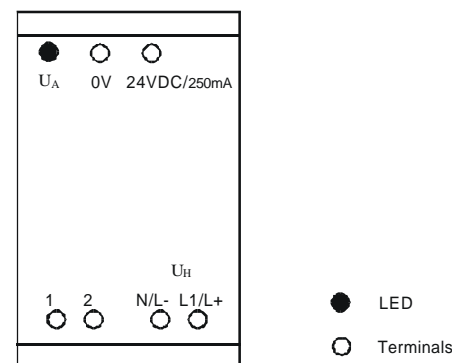


Fig. 2: Position and assignment of the terminals

Terminal	Meaning	Connection
0V	Output voltage U_A	Consumer $\leq 6W$
24V	Output voltage U_A	Consumer $\leq 6W$
1	Voltage pilot relay K1	1 (NC contact)
2	Voltage pilot relay K1	2 (NC contact)
L1/L+	Supply voltage U_H	AC: L1 DC: L+
N/L-	Supply voltage U_H	AC: N DC: L-

Table 1: Terminals

1.2.2 Mains buffering

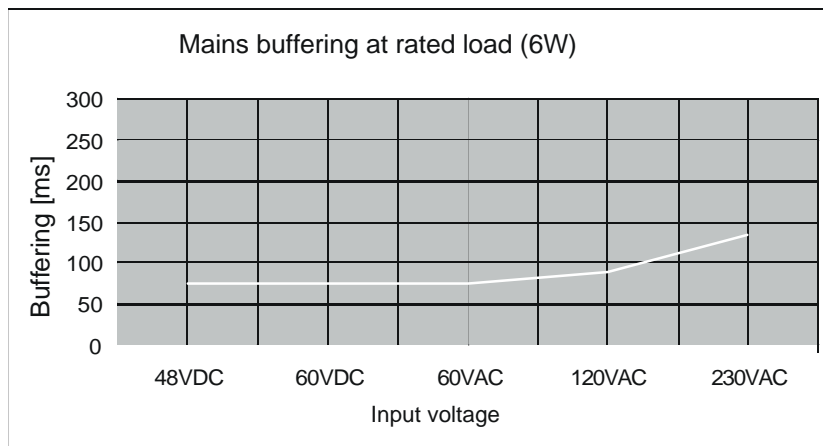


Fig. 3: Mains buffering time dependant on the input voltage

1.2.3 In case of a short-circuit

The output of the Wide-range power supply unit is short-circuit proof for an unlimited amount of time. In case of a short-circuit longer than 5 seconds the device must be switched off for more than 30 seconds or be operated in open-line operation to be ready for operation again.

1.3 Technical data

Mechanical desing Housing for top-hat rail mounting with venting slots for passive cooling Dimensions Weight Degree of protection EN60529 Housing Terminals Insulation of the electric circuits <ul style="list-style-type: none"> - Input / output - Input / relay - Relay / output 	Plastic EG45-TBS (UL94-V0) (WxHxD) 45mm x 75mm x 105mm approx. 200g IP 20 Plastic IP 20 Overvoltage category III 5,2 kVDC 3,7 kVAC / 5,2 kVDC 3,7 kVAC / 5,2 kVDC
Input Connection Rated input voltage DC AC EXTENDED RANGE: Degree of protection Power consumption DC AC RATE OF EFFICIENCY Internal fuse, not exchangeable	2-pole terminal 48 V - 250 VDC \pm 20% 60 V - 230 VAC \pm 20% / 45-65 Hz 24 V - 48 VDC \pm 20%, Only for output voltage of 125mA max.! II if $U_H = U_{HN}$; typical value 10 W 10 VA > 60% AT RATED LOAD 1,25 AT
Output Connection Rated output voltage Rated ouput current Behaviour in case of short-circuit: Mains buffering Status display of the ouput voltage	2-pole terminal 24VDC \pm 10% 250mA permanent 1 green operating LED
Relay contact Relay Connection Maximum switching voltage Maximum switching capacity Maximum persistent current	1 floating MSR-Relais (NC contact) 2-pole terminal 300 VDC / 250 VAC 50..270W (voltage-dependent), 2000 VA 5 A, (30 A for 0,5s)

Admissible environmental conditions	
Operating temperature	-5°C to +55°C
Storage temperature	-25°C to +70°C
(with factory packing)	
Transport temperature	-25°C to +70°C
(with factory packing)	
Humidity	10% to 93% (moisture condensation not admissible)
Operating air pressure	0 to 3000 asl
Mounting	
Mounting on a horizontal 35mm top-hat rail	DIN rail according to EN 50022
A spacing of 100mm before and after the device respectively must be observed.	
Connection via screw-type terminals	0,5mm ² ...2,5mm ² Recommended stripping length: 5mm
External fuse	2AT
External disconnecting device (switch) necessary	
Regulations	
Safety	EN 61010
Interference emission	EN 50081-1 (residential buildings)
Interference immunity	EN 50082-2 (industrial facilities)

1.3.1 Dimension Drawings

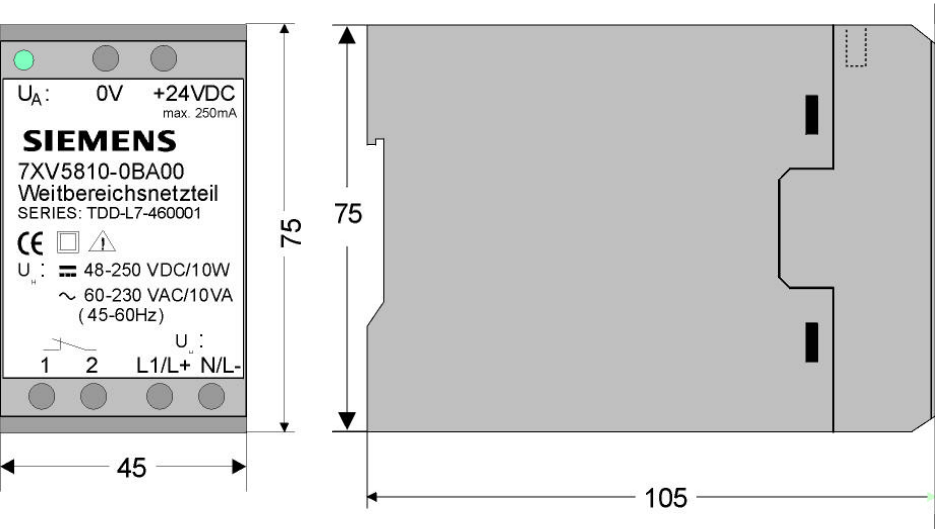


Abb. 4: Dimension Drawings

1.4 Ordering data

Name	Order No.	Code
Wide-range power supply unit 7XV 24V / 6W	5810 - 0BA00	

1.5 Installation and commissioning



Warning!

When operating electrical devices, certain parts of these devices are necessarily under dangerous voltage. Therefore, disregard of the operating notes may cause severe bodily injury or property damage. Installation and electrical connection of the device should be performed by adequately qualified personnel only. In particular, all warnings must be strictly observed.



Warning !

THE DEVICE MUST NOT BE OPERATED WHEN OPEN.



Warning !

Any connections with litz wire are to be realised with the help of wire end ferrules with isolation (this avoids fraying).

Installation

- The installation location should be free of vibrations. The admissible ambient temperature (operation or functional temperature) is to be observed (see technical data).
- Disregard of the temperature range required for proper function may cause malfunction and failure of the device.
- Plastic housing, degree of protection II according to DIN EN 61010 part 1.
- The Wide-range power supply unit must be clipped on a 35 mm top-hat rail (according to DIN EN 50022). It is not admissible to install the device with screws.
- A spacing of 100mm before and after the device respectively must be observed to allow the cooling of the device with the help of the venting slots.
- The devices are permitted only for operation within enclosed housing or cabinets or the places of installation are to be accessible only for qualified personnel.

Connection

- For the electrical connection the regulations on the erection of heavy-current installations are to be observed.
- The connection of the supply voltage is to be carried out according to VDE0100 and VDE0160.
- The auxiliary supply of the device is to be provided with an external disconnecter (switch) for the safety isolation of the power supply and with a safety device (fuse), 2AT or 4AT. The external disconnecter is to be labelled accordingly. A safety cut-out can possibly act in both functions.
- Cable cross section (single-core cable or litz wire): 0,5mm² - 2,5mm² (depending on fusing)
- Recommended stripping length: 5mm.

Commissioning

- Check whether the operation data comply with the values on the rating plate.
- Do not make any changes at the device.
- Clip the Wide-range power supply unit on a top-hat rail with the help of the clip-on mounting.
- Connect auxiliary power to terminals UH (DC:L+ / AC:L1) and (DC:L- / AC:N).
- The Wide-range power supply unit is ready for use after switching in auxiliary power. The green LED 'RUN' lights up.

1.6 Maintenance

The Wide-range power supply unit does not require any maintenance.

EG-Konformitätserklärung EC Declaration of Conformity

No. E471061 / 12.99

Hersteller: Siemens Aktiengesellschaft
 Manufacturer: Bereich Anlagenbau und Technische Dienstleistungen ATD
 Technische Dienstleistungen TD

Anschrift: Siemensstraße 33
 Address: D - 71254 Ditzingen
 Bundesrepublik Deutschland

Produkt- bezeichnung: Weitbereichsnetzteil 24V / 5V
 Product description: 7XV5810-0BA00 / -0CA00

Das bezeichnete Produkt stimmt in der von uns in Verkehr gebrachten Ausführung mit den Vorschriften folgender Europäischer Richtlinien überein:

The product described above in the form as delivered is in conformity with the provisions of the following European Directives:

89/336/EWG Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit
 (geändert durch 91/263/EWG, 92/31/EWG, 93/68/EWG und 93/97/EWG).
Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility (amended by 91/263/EEC, 92/31/EEC, 93/68/EEC and 93/97/EEC)

73/23/EWG Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten betreffend elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen (geändert durch 93/68/EWG)
Council Directive on the approximation of the laws of the Member States related to electrical equipment designed for use within certain voltage limits (amended by 93/68/EEC)

CE-Kennzeichnung / CE marking: 99

Die Konformität mit den Richtlinien wird nachgewiesen durch die Einhaltung folgender Normen:
Conformity to the Directives is assured through the application of the following standards:

Referenznummer Reference number	Ausgabedatum Edition	Referenznummer Reference number	Ausgabedatum Edition
EN 61010-1	1993	EN 50082-2	1995
EN 50081-1	1992		

Ditzingen, den / the 22. Dezember 1999

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Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, ist jedoch keine Zusicherung von Eigenschaften.
 Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten.
This declaration certifies the conformity to the specified directives but contains no assurance of properties. The safety documentation accompanying the product shall be considered in detail.

S

If you have any notes or questions on this product
please contact us under the following address:

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Division Protective and Substation Control Systems
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D-90026 Nuremberg

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