

Read and understand these instructions and the relevant manual before installing, operating, or maintaining the device. The complete manual is available on the DVD delivered with the device.

### Further Support

If special problems arise, or further information are required, please contact your Siemens representative. The Siemens Customer Support Center provides around-the-clock support.

- Telephone: +49 (0)180 524 7000
- Fax: +49 (0)180 524 2471
- E-Mail: [support.energy@siemens.com](mailto:support.energy@siemens.com)

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Although we have carefully checked the contents of this publication for conformity with the hardware and software described, we cannot guarantee complete conformity since errors cannot be excluded.

The information provided in this manual is checked at regular intervals and any corrections that might become necessary are included in the next releases. Any suggestions for improvement are welcome.

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### Notes on Safety

This document contains notes that must be adhered to ensure personal safety and to avoid damage to property during commissioning and use.

However, it does not constitute a complete description of all safety measures required for installation, service, and maintenance of the device. Details are to be taken from the device manual, those are mandatory. Keep it safe for later usage.

### Warning: Danger of severe personal injury or substantial damage to property

Hazardous voltages may occur in devices and modules during operation. Always observe the instructions given in "Qualified Electrical Engineering Personnel" below.

### Qualified Electrical Engineering Personnel

Qualified electrical engineering personnel must have up to date technical qualifications as electrical technicians. Only these persons may commission, use, maintain, decommission and dispose of the device according to the state of the art standards of engineering in the high voltage power line environment.

### Use as Prescribed

The device may only be used for such applications as set out in the user instructions, and only in combination with equipment recommended and approved by Siemens.

Correct and safe operation of the product requires adequate transportation, storage, installation and mounting in a control cabinet, as well as appropriate use and maintenance.

Only qualified electrical engineering personnel may install, set up, commission, attach communication cables, power supply lines and ground to the device.

Check and follow the electrical operating conditions, mechanics and climatic max. ambient conditions for safe operation. Connect and operate the device only in conformance with the values as specified in the 'Technical Data' below.


Commissioning must be carried out in accordance with good engineering practice and under consideration of local installation rules and laws (also applicable and obligatory for cabinet internal wiring).

Fuses may be required on all phases in the electrical installation, depending on local installation conditions and requirements.

During operation of the equipment, it is unavoidable that certain parts will carry dangerous voltages. Severe injury or damage to property can occur if the appropriate measures during use are not taken:







- Make sure, that the equipment is properly connected to ground at all times and mechanically fixed in the rack. The device is connected through a coupling unit to the HV line. A permanent ground connection is an essential precondition to safeguard the user against any high voltages from the HV line.
- Degree of protection by enclosure IP20.
- Device may only be operated in a dry location within a temperature range of -10 to +55 degree Celsius.
- This is a Class A device. It is intended to be operated in an industrial environment only. It may cause harmful interference if operated in residential/light industry environment.
- Hazardous voltages can be present on all components when the device is connected to a power source. Before opening the device, makes sure all power sources are disconnected or switched off. Even after the power supply has been disconnected, hazardous voltages can still be present within the device (capacitor storage).
- The limit values indicated in the manual must not be exceeded; that also applies to testing and commissioning.

### Statement of Conformity

 The product is in conformity with the regulations of the following European Directives:

- EMC Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- RoHS Directive 2011/65/EU

### Used Symbols

-  Caution, hazard. The documentation must be observed.
-  CE conformity
-  Qualified Electrical Engineering Personnel
-  Protection class I / protective earthing
-  Hazardous voltage
-  Note

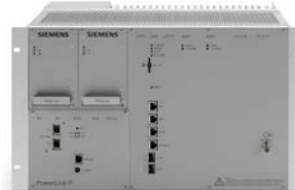


### Distributor statement according to WEEE-Guideline 2012/19/EU

Do not throw the device in the household trash! Please dispose of the device according to the guidelines regarding electronic waste in your country.


### Application

PowerLink IP uses the high-voltage line between transformer substations as a communication path for data and protection signals.



### Unpacking a Device

- Check the package for external transport damage. A damaged packing may indicate that the device inside is also damaged.
- Unpack the device carefully; do not use force.
- Visually check the device to ensure that it is in perfect mechanical condition.
- Return a damaged device to the manufacturer or dispose it correctly. A defect device may not either be used or repaired by the user.

 **Note:** Before commissioning the device, leave it in the final operation room for at least 2 hours. This allows it to reach room temperature and to prevent dampness and condensation.

### Repacking a Device

- If you store devices after incoming inspection, pack them in suitable storage packaging.
- If devices are to be transported, pack them in transport packing.
- Put the accessories supplied in the packing with the device.


### Storing a Device

- Only store devices on which you have carried out an incoming inspection, thus ensuring that the warranty remains valid.
- The relative humidity must be at a level where condense water and ice are prevented from forming.
- If the device has been in storage for more than 2 years, connect it to the primary voltage source, and operate it for 1 to 2 days. This will cause the electrolytic capacitors to form on the printed circuit board assemblies again.
- When the device is reshipped ensure that the transport requirements for the selected means of transport are met. The outer package alone is not adequate for transport purposes.

### Mounting

The device is designed for horizontal mounting in a cabinet or rack. Min. distance between two PowerLink IP devices is one unit of height (= 1.75 inches or 44.45 mm). The climatic conditions have to be within the specified values (see technical data). Consider the weight and position of the device to avoid personal injuries.

### Commissioning

 **Before making any connections, ground the equipment and the grounding terminal.**

- Connection of the Supply Voltage: The AC supply voltage is connected to the terminals PE-N-L1 (Protective Earth, Neutral, Line). In case of DC voltage the (-) is connected to the N and (+) to the L1 terminal. The terminals are covered. The supply voltage connected must be within the specified limit values (see technical data). These values indicated in the manual must not be exceeded at any time.
- Make sure that all front and back covers of the device are remounted upon completion of the installation.
- Turn on the Supply Voltage: switch S1 located on DMB board enables/disables the secondary voltages of the power supply.
- Down position: Off mode; LED "I" (red) lights up on the PSPA2 power supply unit(s). Up position: On mode; LEDs +48V/-48V (green) lights up on the PSPA2 power supply unit(s).
- After system startup the LEDs on DMB board will light up green.

## Connection to the Device

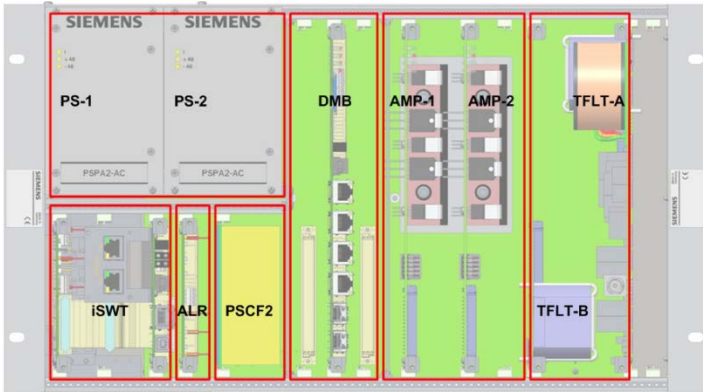
### Default IP address 192.168.20.20

The Ethernet service interface is used for the commissioning of PowerLink IP. It is located at the front of the DMB (LCT). For the initial connection between the service PC and the service interface use the default IP address. After entering the IP address (<https://192.168.20.20>) in the browser of your service PC you can login to the WEB UI to configure the service interface for information, monitoring and configuration of PowerLink IP. For more details as the default role based users and passwords see the user manual available on DVD.

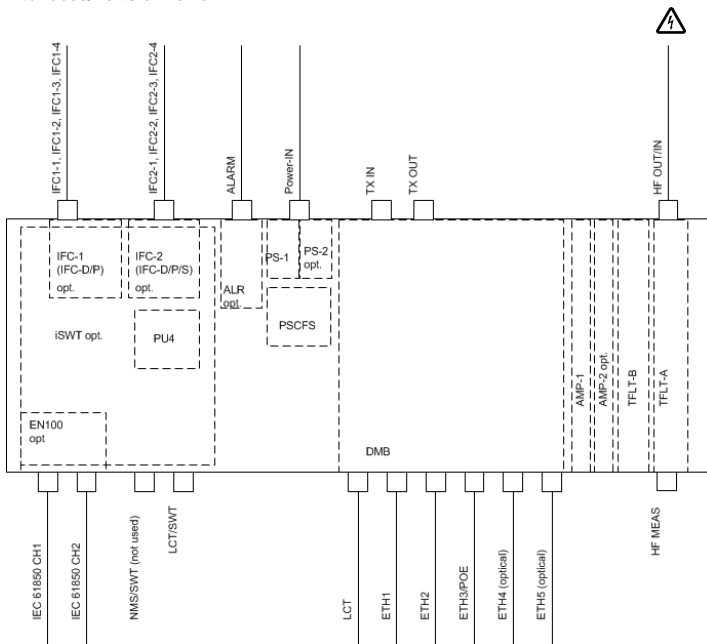
### Switch off the System

Switch S1 enable/disable Power Supply on DMB located behind the front cover, in down position.

## Units of PowerLink IP



## Interfaces/Ports of PowerLink IP



## Technical Data

HF- Interface	
Output power	50 W-amplifier, up to +47 dBm PEP Adjustable 10 W to 50 W 100 W-amplifier, up to +50 dBm PEP Adjustable 20 W to 100 W
Rated output impedance	75 Ohm unbalanced or 150 Ohm balanced
Spurious emission, Return Loss, Tapping Loss, Balance to ground, Receiver sensitivity and Selectivity	In accordance with IEC 60495
Tx Filter	Simple adjustment by jumpers
Rx Filter	The Rx filtering is done in digital domain and is adjusted automatically.

Power Supply	
Input voltage range	
PSPA2-DC	DC 38 V to DC 72 V
PSPA2-AC	AC 93 V to AC 264 V (47 Hz to 63 Hz) DC 85 V to DC 264 V
Power consumption	
50 W Amplifier (AC/DC)	typ. value normal operation 301VA/104W typ. value max operation 394VA/146W
100 W Amplifier (AC/DC)	typ. value normal operation 358VA/131W typ. value max operation 559VA/215W

Ethernet Interface	
Ethernet	1 x 100BASE-TX Full Duplex; RJ45 service interface (LCT); 3 x 10BASE-T or 100BASE-TX Half/Full Duplex/Auto Negotiation; PoE on port 3 : IEEE 802.3af, 15.4 W; RJ45 user interfaces 2 x Ethernet 100BASE-FX; SFP user interfaces
Layer 2 switch	Transparent Layer 2 bridging Ethernet II, IEEE 802.3, IEEE 802.1Q IEEE 802.1ad Provider Bridge/Q-in-Q (Carrier Ethernet) MPLS labeled Layer 2 VPN frames Jumbo frame: max. frame size 2000 bytes (without preamble) on all five user interfaces Maximum Transmit Unit (MTU) for IPv4 over Ethernet: 1500 byte on service interface (LCT)
QoS	Layer 2/3: VLAN ID, IEEE 802.1p, TOS/DSCP Layer 4: VoIP, IEC 60870-5-104, CTTV, SCADA

Climatic Conditions	
Cold IEC 60068-2-1	-10°C
Dry heat IEC 60068-2-2	+ 55°C
Damp heat, cyclic IEC 60068-2-30	+ 25°C at 95% humidity + 55°C at 93% humidity

Mechanical Design	
19" frame	
Dimensions	482 mm x 266 mm x 300 mm (W x H x D)
Weight	17 kg 50W; 19 kg 100W
Degree of protection	IP 20