

TTM63-002 12U SERIES PDU

Technical Specifications

Input	Input Protections
1x HAN® ECO 6B 70A 400V 5P (Harting), equivalent of CEE 63A 400V 5P	1x Main MCCB 63A 4P I_{nc} :25kA (Siemens) with extended rotary handle 1x Voltage monitoring relay (VMR) (Schneider Electric)

Outputs	Outputs Protections
6x HAN®16E 16A 230V 16P (Harting)	36x RCBO C16A 30mA 1P A-type (Siemens)
3x Auxiliary connector 230V 3P (Optional)	3x RCBO C16A* 30mA 1P A-type (Siemens)
1x HAN® GND grounding connector (Harting)	

*For selected auxiliary connectors, the rated current of RCBO varies. J1 version is with RCBO C10A 30mA 1P A-type; and G1 and B1 versions are with RCBO C13A 30mA 1P A-type.

Additional Functionalities

- **Remote Power Monitoring:** Integrated Siemens PAC3220 Power Monitoring Device with three current transformers for comprehensive real-time metering of voltage, current, power, and energy consumption. Remote access is enabled via two panel-mounted CAT5E (RJ45) connectors, supporting Modbus TCP/IP communication (45–65 Hz). Each device receives a unique IP address, allowing direct access through any web browser; no additional software required. Users can monitor system parameters live from computers, smartphones, or tablets on the same network, making it an ideal tool for proactive diagnostics, energy management, and grid optimization.
- **Voltage Monitoring Relay (VMR):** The system includes a phase-to-neutral Voltage Monitoring Relay (VMR), which continuously monitors voltage integrity. It detects and responds to critical anomalies such as phase loss, missing neutral, overvoltage, and undervoltage. Upon identifying a fault, the VMR can trigger a power disconnection or alarm to protect connected equipment and maintain system stability. This protection is essential for setups using sensitive electronics or operating under unstable power conditions.
- **VMR Bypass Key Switch:** A secure key-operated switch allows temporary bypass of the VMR for specific diagnostic or maintenance operations. This function is intended for use by qualified personnel and provides flexibility without compromising system safety.
- **Emergency Stop (E-Stop):** A Schneider Electric emergency pushbutton is mounted on the front panel, enabling immediate shutdown of all outputs. Monitoring systems, diagnostic tools, and working lights remain operational via independently protected auxiliary circuits, facilitating post-trip fault identification and rapid intervention.

- **MCCB Operation with Shunt Trip Release:** The input-side MCCB is equipped with a shunt trip release mechanism, enabling remote disconnection of power under fault or emergency conditions. This feature allows the MCCB to be tripped via external signals (such as emergency stop systems, VMR alarms, or monitoring relays) enhancing safety and control across the power distribution chain.
- **Indicator LEDs**
 - 6x Phase presence indicator white LED (L1, L2, L3)
 - 3x MCCB "ON" state green LED
 - 1x MCCB "TRIP" state red LED
 - 36x RCBO "I-ON" state green LED for HAN®16E output channels
 - 3x RCBO "I-ON" state green LED for auxiliary connectors
 - 1x Fault Indicator red LED triggered by VMR
- **Independent fuses:** All monitoring, emergency, and lighting functions (such as the power monitoring device, VMR, and related indicator LEDs) are powered through independently fused circuits. In the event of an MCCB trip, these systems remain active to support fault identification and ensure continued diagnostic visibility.

Mechanical & Electrical Design

- **Ingress Protection:** IP40; protection against solid objects >1 mm; not protected against liquids. Intended for indoor use only, in dry, controlled environments.
- **Enclosure Material:** 2.0 mm powder-coated aluminium sheet with fine-textured finish, offering adequate mechanical protection and corrosion resistance for standard indoor applications.
- **Overall Dimensions:** 535 x 485 x 365 in mm (Height × Width × Depth) or rack size 12U 19".
- **Handle Type:** Fixed round-bar pull handles made of aluminium alloy, suitable for manual handling and mounting support.
- **Labeling:** All connectors and protective devices are identified with UV-printed markings. UV printing ensures resistance to environmental degradation, including UV exposure and solvent-based cleaning agents.
- **HAN® ECO 6B Input Option:** This unit is equipped with a HAN® ECO 6B input connector, selected as a lightweight and space-saving alternative to the standard CEE 63A 5P panel-mounted inlet. Its compact design reduces overall enclosure depth and weight, making it particularly suitable for rack-mounted configurations where space efficiency and mobility are essential, while still ensuring safe and reliable power input. Cable adapters for this connector type, enabling conversion between HAN® ECO 6B and standard CEE 63A 5P interfaces (both cable-to-panel and panel-to-cable variants) are available and can be found in the HAN® ECO 6B section of the catalogue.
- **Connector Installation:** Equipped with Quick Connector Replacement (QCR) system. Connectors are mounted with four stainless steel screws and sufficient internal cable slack to enable replacement without disassembling the entire enclosure.

- **Internal Conductor Cross-Sections:**
 - 63A circuits: 16 mm² (Cu)
 - 16A circuits: 2.5 mm² (Cu)
- **Wiring and Components:**
 - Internal cabling: Helukabel flexible conductors, H07V-K or equivalent.
 - Terminal blocks: Phoenix Contact or Ouneva spring-cage or screw-type terminals, selected per application and load class.

Electrical Specifications

- Rated voltage (U_n): 400 V AC, 3P+N+PE
- Rated current (I_{nA}): 63 A
- Frequency (f_n): 50/60 Hz
- Maximum continuous load: 43 kVA** (43 kW at $\cos\phi = 1$)
- Rated diversity factor (RDF): 0.30
- Rated conditional short-circuit current (I_{cc}): 25 kA (in accordance with EN 60898)
- Protection class: Class I (protective earth)

**At 30°C ambient air temperature

Environmental Ratings

- Operating temperature: –5 °C to +40 °C, with the average ambient temperature over a 24-hour period not exceeding 35 °C, in accordance with IEC/EN 61439 recommendations.
- Storage temperature: 0 °C to +40 °C
- Relative humidity: Maximum 95% at ambient temperatures from –5 °C to 30 °C, decreasing to 70% at 35 °C and 57% at 40 °C, non-condensing (in accordance with IEC/EN 61439 recommendations)
- Maximum installation altitude: ≤2000 m above sea level

Auxiliary Connector Options

The following configurations are available for auxiliary connectors:

Code	Type	Rated Current	IP Code***	Manufacturer
F1	German / Austrian (Type F)	16A	IP54	Mennekes
F2	German / Austrian with gasket (Type F)	16A	IP54	Mennekes
E1	French / Belgian (Type E)	16A	IP44	Mennekes
G1	British (Type G)	13A	IP44	ABL

Code	Type	Rated Current	IP Code***	Manufacturer
P1	powerCON® TRUE1 with rubber sealing cap	16A	IP65	Neutrik
J1	Swiss T13 (Type J)	10A	IP54	PCE
J2	Swiss T23 (Type J)	16A	IP54	PCE
B1	USA / Canada (Type B)	15A	IP44	ABL
K1	Danish (Type K)	16A	IP44	PCE
CE	CEE 6h	16A	IP54	Mennekes

***The stated IP rating applies when all enclosure lids and covers are fully closed. When connectors are mated, the overall ingress protection level may vary depending on the IP rating of the connected plugs. Users should ensure that all connected components maintain appropriate protection levels for the intended environment.

Ordering Information

The following table lists all standard configuration variants available for the TTM63-002 Series. Each part number corresponds to a specific auxiliary connector layout and color scheme.

Ordering Code	Connector Color Description	
	Input	Auxiliary Connector
TTM63-002-F1-B	Black	Black
TTM63-002-F2-B	Black	Black
TTM63-002-E1-B	Black	Black
TTM63-002-G1-B	Black	Black
TTM63-002-P1-B	Black	Black
TTM63-002-J1-B	Black	Black with blue lid
TTM63-002-J2-B	Black	Black with blue lid
TTM63-002-B1-B	Black	Black
TTM63-002-K1-B	Black	Black
TTM63-002-CE-B	Black	Black

Connector Color Options:

- B = All connectors in black (where available).
- C = Color-coded connectors: red for input and grey/blue/black for outputs (where available), offering quick visual identification during setup.

Certifications & Standards

- **CE Compliance:** All components and final assemblies are CE certified, conforming to the requirements of applicable European directives, including the Low Voltage Directive (2014/35/EU) and the EMC Directive (2014/30/EU).

- **Standards Compliance:** Designed in accordance with the following international standards:
 - EN 61439-1: Low-voltage switchgear and controlgear assemblies – General rules.
- **Manufacturer Information:**
Designed and manufactured by:
Tesla Entertainment Kft.
Address: H-1151 Budapest, Károlyi Sándor út 158.; Hungary
EU VAT ID: HU26587255
- **Country of Origin:** Hungary; all units are assembled and tested at our facility in Budapest.

Safety Notice

- This device must be installed, operated, and maintained by qualified personnel only. Internal components may carry live voltage during operation. Maintenance tasks, including connector replacement, must only be carried out with the power supply fully disconnected/isolated.
- All safety guidelines, installation procedures, and maintenance instructions are provided in the product's user manual. Please read and follow them carefully to ensure safe and correct operation.
- For full warranty terms and legal information, please refer to our General Terms and Conditions available at: <https://TeslaTech.GmbH/GTCS>

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