

tPower Dual 12V / 24V 5A (TPD122405)

DUAL AUTOMATIC LOADER WITH CAN
COMMUNICATION J1939



The **tPower Dual 12V/24V 5A (TPD122405)** is a dual-voltage automatic charger designed for industrial, mobile, or marine applications where flexibility and digital monitoring are required. Its five-stage **IUoU (Intelligent Unit-of-Use)** charging system (Recovery, Bulk, Absorption, Float, and Refresh) ensures an optimized charging cycle for each battery type, extending battery life and reducing maintenance time.

Thanks to the **CAN J1939** interface, the device can be integrated with controllers and SCADA systems to transmit real-time data on voltage, current, load status, and diagnostics. The TPD122405 combines accuracy, reliability, and versatility, offering an all-in-one solution for projects requiring multi-voltage compatibility and advanced communication.

CHARACTERISTICS

- Output voltage:
 - 12 V DC / 6 A $\pm$ 5 %
 - 24 V DC / 5 A $\pm$ 5 % (selectable by jumper)
- Rated power: 120 W (24 V) / 72 W (12 V)
- Load curve IUoU (DIN 41773): 5 automatic stages:
 - Recovery - Bulk - Absorption - Flotation Refresh
- Operating modes:
 - Battery charger
 - Power supply (jumper-activated)
- Compatible battery types:
 - Open lead-acid, AGM, Gel, Ni-Cd and Li-Ion (optional)
- Protecciones electrónicas:
 - Protection against short circuits, overloads, and overvoltage (35V DC típ.)
 - Overheating protection and reverse connection protection
- Integrated diagnostics:
 - Reversed polarity
 - Battery disconnected
 - Short circuit
 - Battery replacement recommended
- LED indicators with flashing codes for charging stage and faults.
- Communication:
 - CAN J1939 interface (without internal termination resistor).
- Mounting: 35 mm DIN rail / wall mount.
- Cooling: natural convection.
- Protection: IP20.

- Signal outputs (potential-free contacts):
 - Battery failure
 - AC power failure
 - Low battery
- Adjustable current (Iadj): 20 – 100 % de In.

HIGHLIGHTS

- Automatic dual charger for 12V/6A or 24V/5A systems, selectable via jumper.
- CAN J1939 communication for remote monitoring and real-time diagnostics.
- High-efficiency switching technology ($\geq$ 90%) with multi-stage IUoU management.
- Jumper-activatable power supply function.
- Compatible with lead-acid, AGM, Gel, Ni-Cd, and Li-Ion batteries.
- Automatic battery diagnostics: reverse polarity, short circuit, disconnection, or defective cells.
- Comprehensive protection: overcharge, overvoltage, overtemperature, and reverse polarity.
- Compact and robust design for DIN rail mounting, with natural convection cooling.

TYPICAL APPLICATIONS

- Control panels with dual 12/24 V DC requirements.
- Hybrid and backup power systems.
- Automatic generators with CAN J1939 communication.
- Onboard, marine, or mobile equipment.
- Automation and remote control systems.

TECHNICAL DATA AND SPECIFICATIONS

ENVIRONMENTAL CONDITIONS

Operating temperature	-25 °C a +70 °C
Storage temperature	-40 °C a +85 °C
Humidity	95 % @ 25 °C (no condensation)
Refrigeration	Natural convection

INPUT/OUTPUT

Input	Rated voltage: 115 – 230 – 277 V AC (monophase) Operating range: 90 – 305 V AC Input current: 2.4 A @ 115 V / 1.2 A @ 230 V Frequency: 47 – 63 Hz Influx current: ≤ 16 A (5 ms) Internal fuse: 4 A Recommended external fuse: 10 A (MCB curva B)
Output	Rated voltage: 12 V DC / 24 V DC (selectable by jumper) Maximum current: - 12 V 6 A ± 5 % - 24 V 5 A ± 5 % Rated power: until 120 W Typical efficiency: (50 % de In): 90 % Ripple: ≤ 60 mVpp Load curve: IUoU – 5 automatic stages Strain Boost: - 14.4 – 15 V (12 V) - 28.8 – 30 V (24 V) Strain Floatation: - 13.4 – 14 V (12 V) - 26.8 – 28 V (24 V) Recovery: 2 – 10 V (12 V) / 2 – 20 V (24 V) Derating: -2.5 % / °C para T > 50 °C Maximum output contact current: 1 A – 30 VDC / 60 VAC

MECHANICAL DATA

Material of the body	Aluminum with ventilation holes
Mounting	riel DIN 35 mm / mural
Weight	0.30 kg
Dimensions (H x W x D)	110 × 45 × 105 mm
Protection	IP20

CERTIFICATIONS AND STANDARDS

IEC/EN 62368-1 (Electrical safety)
 IEC/EN 61000-6-3 (Emission)
 IEC/EN 61000-6-2 (Immunity)
 UL 1236 Recognized – BBGQ2 Battery Chargers (File E353241)
 Complies with Directives LVD 2014/35/UE y EMC 2014/30/UE

COMUNICATIONS

CAN Interface J1939
 Transmitted data: voltage, current, charge status, diagnostics, and alarms
 CAN terminal without internal terminator (120 Ω external resistor required))

