

TEDEG Defence · PowerGuard · SENTRA

Vehicle Power Solutions

Power Distribution · DC/DC Conversion · Power Control · Energy Storage

Product portfolio for manned and unmanned ground vehicle platforms



Solution Areas

Power Distribution

TPS-24DCAC · SENTRA KBM

Breaker-protected multi-rail distribution with MIL-DTL-38999 interfaces; dedicated isolated camera / sensor / computer supply.

DC/DC Conversion

TPS-24DCAC · SENTRA KBM

16–32 VDC vehicle bus to regulated, galvanically isolated 12 / 24 / 28 / 36 VDC rails and 120 / 220 VAC pure sine outputs.

Power Control & Protection

TPB-01 · TPS-24DCAC

Reverse polarity and alternator protection up to 500 A; per-rail breakers, BLACKOUT mode and status indication.

Energy Storage & Battery Management

EBB

3600 F supercapacitor backup with CAN-Bus reporting of voltage, SoC, SoH and capacity, BIT diagnostics and protected charge/discharge.

Products in this Catalogue



PowerGuard TPS-24DCAC – Power Conversion Unit

16–28 VDC in · 12/24/28/36 VDC + 120/220 VAC out · 3400 W

Multi-rail DC/DC and DC/AC conversion and distribution with 10 A breakers per rail, BLACKOUT switch and EMI-shielded enclosure.



SENTRA KBM – Camera Power Distribution Module

28 VDC MIL-STD-1275E · 11 × 12 VDC isolated · 24 VDC / 200 W · IP55

Supplies camera arrays, displays, mission computer and auxiliary modules from a single compact unit – well suited to sensor-heavy UGV payloads.



PowerGuard EBB – Auxiliary Battery Unit

3600 F supercapacitor · 16–32 VDC · CAN-Bus · –40 °C ... +60 °C

Energy buffer and backup for mission systems; bridges battery faults and keeps loads alive after ignition off.



PowerGuard TPB-01 – Reverse Polarity Unit

12 / 24 VDC · up to 500 A · IP67

Protects the alternator and vehicle electronics against reverse battery connection with fast diode-based disconnect.

Customised Solutions

Every TEDEG power product is designed, manufactured and tested in-house in Türkiye. Beyond the catalogue items we routinely deliver **platform-specific variants and fully custom designs** – including output voltage / power configuration, connector and pin-out definition to the customer ICD, CAN-Bus / RS-485 / Ethernet monitoring and control, mechanical envelope and mounting adaptation, and qualification to MIL-STD-1275, MIL-STD-461 and MIL-STD-810.

PowerGuard TPS-24DCAC Power Conversion Unit

Power Management System

Part No: TDG-059-A0000 | Operating Voltage: 16-28 VDC



PowerGuard

TPS-24DCAC

Power Conversion Unit



Product Description

Developed by TEDEG Defence, the TPS-24DCAC Power Conversion Unit is a compact, high-reliability power conversion and distribution system designed to deliver multiple AC and DC supply rails from a single panel on military vehicles and mobile mission platforms.

The system converts the wide-range DC input taken from the vehicle electrical system into regulated 12 VDC, 24 VDC, 28 VDC and 36 VDC rails and into 120 VAC / 220 VAC pure sine wave outputs. Every power line is equipped with a front-accessible 10 A thermal circuit breaker, an independent LED status indicator and a military-grade circular connector.

The front-panel BLACKOUT switch extinguishes all status indicators in a single action, eliminating light signature during night operations. EMI gasketing at the front panel-to-body interface, EMI mesh over the fan apertures and the all-metal enclosure provide a high level of immunity against electromagnetic interference.

A fully removable bolted front panel, fan-assisted active cooling architecture and modular power boards allow rapid field maintenance and straightforward integration into different platforms.

Applications

- In-vehicle military power distribution and conversion units
- Mobile command, control and communication platforms
- Field operation and forward-deployed equipment supply
- Reconnaissance, surveillance and electro-optical system infrastructure
- Industrial mobile systems requiring multiple voltage rails

Key Features

Wide Input Voltage Range

16–28 VDC, compatible with vehicle electrical systems

Multiple Regulated DC Outputs

12 VDC, 24 VDC, 28 VDC and 36 VDC output support

Dual AC Power Output

120 VAC and 220 VAC pure sine wave AC output

High Power Capacity

1200 W nominal per AC output, 3400 W total system power

High Conversion Efficiency

DC-DC 80%, DC-AC 90% typical efficiency

User-Controlled Protection

10 A push-pull thermal circuit breaker on every output line

BLACKOUT Mode

Single-switch shutdown of all panel illumination – night operation compliant

Status Indication

Independent LED power status indicator per rail

Military Grade Interfaces

MIL-type circular connectors plus Schuko and universal AC sockets

EMI Protected Design

EMI gasket at the front panel-to-body joint and EMI mesh at fan apertures

Active Thermal Management

Forced air cooling with four fans and EMI-shielded vents

Field-Ready Design

-20 °C to +60 °C operating range (per derating table)

Service Friendly Enclosure

Perimeter-bolted front panel giving full access to internal modules

High Reliability

Over-current, over-voltage, short circuit and over-temperature protection

Weight

Approx. 17–20 kg

PowerGuard

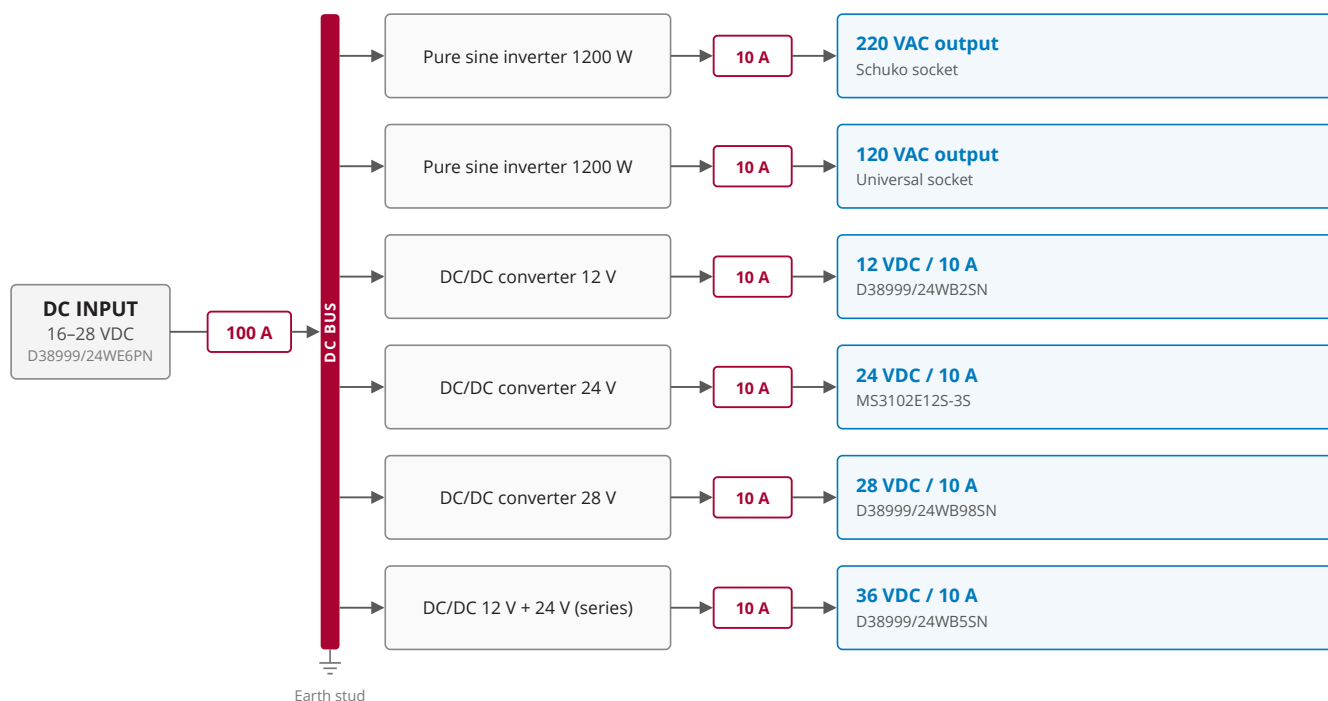
TPS-24DCAC

Power Conversion Unit



Part No: TDC-059-A0000
TPS / 09-2026 v4

System Block Diagram



BLACKOUT switch → relay group → panel LED indicators | 60 °C thermostat → 4 × 24 VDC cooling fans

ELECTRICAL SPECIFICATIONS

Parameter	Value
DC Input Voltage	16 – 28 VDC
Nominal Input Voltage	24 VDC
AC Output Frequency	50 / 60 Hz
AC Output Waveform	Pure Sine Wave
Minimum System Efficiency	≥ 80%
DC-DC Conversion Efficiency	Typ. 80%
DC-AC Conversion Efficiency	Typ. 90%
Total System Power	3400 W
Input Connector	D38999/24WE6PN (6 contacts)
Input Fuse	100 A (internal)
Input Wire Size	12 AWG × 3 (+) / 12 AWG × 3 (-)
Galvanic Isolation	All outputs isolated from the input and from each other

PROTECTION FEATURES

Protection	Description
Over-Current Protection	Automatic + 10 A breaker per line
Short Circuit Protection	Automatic
Over-Voltage Protection	Automatic
Over-Temperature Protection	Thermal protection

Total installed output power is 3400 W. When all rails are loaded simultaneously the total current draw is limited by the 100 A input fuse and by the vehicle supply capacity; a diversity factor must be considered in the system design.

PowerGuard
TPS-24DCAC
Power Conversion Unit



Part No: TDC-059-A0000
TPS / 09-2026 v4

DC OUTPUT SPECIFICATIONS

Output	Voltage	Max. Current	Max. Power	Breaker	Connector
DC Output 1	12 VDC	10 A	120 W	10 A	D38999/24WB2SN
DC Output 2	24 VDC	10 A	240 W	10 A	MS3102E12S-3S
DC Output 3	28 VDC	10 A	280 W	10 A	D38999/24WB98SN
DC Output 4	36 VDC	10 A	360 W	10 A	D38999/24WB5SN

AC OUTPUT SPECIFICATIONS

Output	Voltage	Frequency	Max. Power	Breaker	Interface
AC Output 1	120 VAC	50 / 60 Hz	1200 W	10 A	Universal socket
AC Output 2	220 VAC	50 / 60 Hz	1200 W	10 A	Schuko socket (CEE 7/3)

PROTECTION AND CONTROL ELEMENTS

Element	Description
Input Fuse	100 A, internal, in the DC input (+) line
Output Circuit Breakers	Six 10 A push-pull thermal breakers (220VAC, 120VAC, 12VDC, 24VDC, 28VDC, 36VDC)
Status Indicators	Independent LED power indicator per rail, supplied at the rail voltage
BLACKOUT Switch	ON / OFF – extinguishes all panel indicators through a relay group
Thermal Control	Fans enabled by a thermostat set at 60 °C
Cooling Fans	Four 24 VDC fans (bottom face), thermostat controlled
Grounding	Chassis earth stud; all module PE terminals commonly bonded

OPERATING CONDITIONS

Parameter	Value
Operating Temperature	-20 °C ... +60 °C
Cooling	Fan-assisted active cooling
EMI Protection	Front panel-to-body EMI gasket, EMI mesh at fan apertures
Enclosure	Aluminium housing, removable front panel, RAL 9005 matt black
Weight	Approx. 17–20 kg
Dimensions (W × H × D)	420 × 350 × 147 mm – envelope 480 × 355 × 176 mm

TEMPERATURE DERATING

Ambient Temperature	DC-DC Modules	DC-AC Modules	Description
-20 °C – +40 °C	100%	100%	Continuous operation at full load
+50 °C	100%	100%	Power reduction begins
+60 °C	70%	60%	Derated use for continuous operation

PowerGuard
TPS-24DCAC
Power Conversion Unit



Part No: TDC-059-A0000
TPS / 09-2026 v4

Connector and Interface Definitions

CONNECTOR DEFINITIONS

Interface	Panel Connector	Recommended Mating Plug	Contacts	Wire Size
DC Input	D38999/24WE6PN	D38999/26WE6SN	6	6 × 12 AWG
12 VDC Output	D38999/24WB2SN	D38999/26WB2PN	3 (2 used)	2 × 16 AWG
24 VDC Output	MS3102E12S-3S	MS3106E12S-3P / MS3108E12S-3P	3 (2 used)	2 × 16 AWG
28 VDC Output	D38999/24WB98SN	D38999/26WB98PN	6 (4 used)	4 × 16 AWG
36 VDC Output	D38999/24WB5SN	D38999/26WB5PN	5 (4 used)	4 × 16 AWG
220 VAC Output	Schuko socket (CEE 7/3)	CEE 7/4 plug	3 (L / N / PE)	–
120 VAC Output	Universal socket	NEMA 1-15P / 5-15P etc.	3 (L / N / PE)	–
Grounding	Chassis earth stud	Ring terminal	1	–

Mating plug part numbers are recommended per the standard MIL-DTL-38999 Series III and MIL-DTL-5015 mating convention; shell finish and entry angle are selected by the harness designer.

Pin Assignments

DC INPUT – D38999/24WE6PN

Pin	Signal	Wire
1, 2, 3	+VIN (16–28 VDC)	12 AWG × 3 (parallel)
4, 5, 6	RETURN (–)	12 AWG × 3 (parallel)

12 VDC OUTPUT – D38999/24WB2SN

Pin	Signal	Wire
1	+12 VDC (via 10 A breaker)	16 AWG
2	RETURN (–)	16 AWG
3	NC (not used)	–

24 VDC OUTPUT – MS3102E12S-3S

Pin	Signal	Wire
1	+24 VDC (via 10 A breaker)	16 AWG
2	RETURN (–)	16 AWG
3	NC (not used)	–

28 VDC OUTPUT – D38999/24WB98SN

Pin	Signal	Wire
1, 2	+28 VDC (via 10 A breaker)	16 AWG × 2 (parallel)
3, 4	RETURN (–)	16 AWG × 2 (parallel)
5, 6	NC (not used)	–

36 VDC OUTPUT – D38999/24WB5SN

Pin	Signal	Wire
1, 2	+36 VDC (via 10 A breaker)	16 AWG × 2 (parallel)
3, 4	RETURN (–)	16 AWG × 2 (parallel)
5	NC (not used)	–

All DC output rails are fed through converter modules galvanically isolated from the input and from each other; each rail has an independent return which is not bonded to the platform chassis.

PowerGuard
TPS-24DCAC
Power Conversion Unit

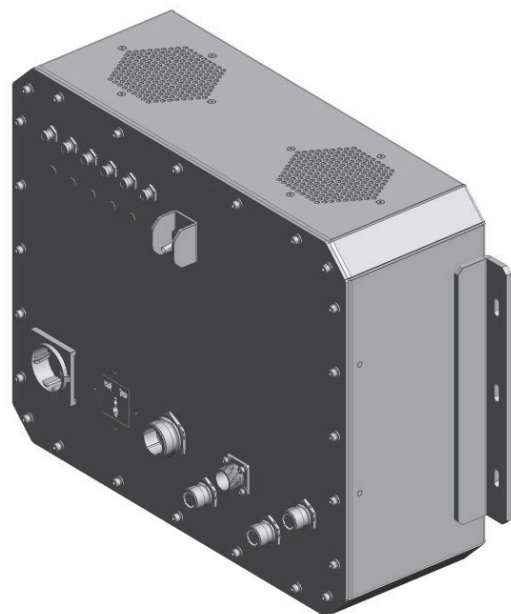
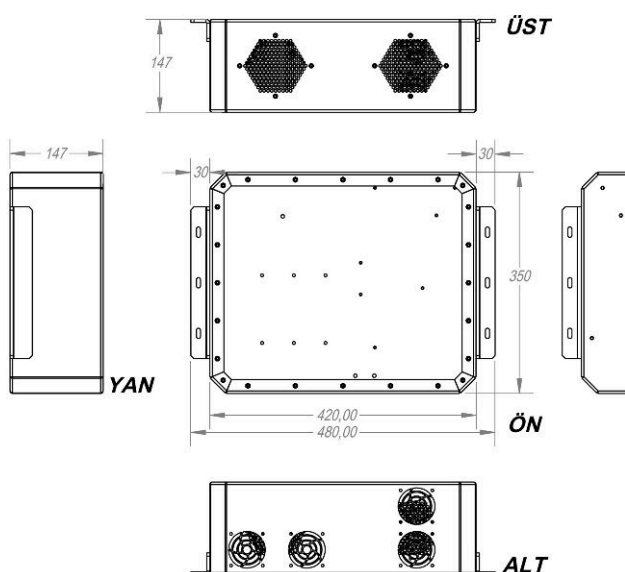


Part No: TDG-059-A0000
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Mechanical Interface

MECHANICAL SPECIFICATIONS

Parameter	Value
Enclosure Dimensions (W × H × D)	420 × 350 × 147 mm
Depth incl. Front Panel	150 mm (3 mm panel plate)
Overall Installation Envelope (W × H × D)	480 × 355 × 176 mm (incl. connector and switch protrusions)
Connector Protrusion	Approx. 19 mm from the panel face; BLACKOUT guard 26 mm
Mounting Brackets	Two, on the rear face; 30 mm overhang each side, 240 mm high
Mounting Holes	3 slotted holes per bracket (6 total)
Front Panel Fixing	24 × M4 (DIN 912) perimeter screws – fully removable
EMI Sealing	Peripheral EMI gasket between panel and body
Enclosure Material	Aluminium sheet, welded assembly
Surface Treatment	MIL-C-5541 Class 1A aluminium chromate conversion coating
Paint	RAL 9005 matt black powder coat
General Tolerances	ISO 2768-mK • GD&T: ASME Y14.5-2009
Ventilation	Two EMI-shielded hexagonal vents on the top face
Cooling	Four 24 VDC fans on the bottom face, thermostat controlled at 60 °C
Reference Documents	TDG-059-A0000-00 (final model) • TDG-059-A0001-00 (enclosure drawing)
Weight	Approx. 17–20 kg



Enclosure mechanical dimensions (mm) – Ref: TDG-059-A0001-00

Final assembly model – TDG-059-A0000-00

PowerGuard TPS-24DCAC Power Conversion Unit

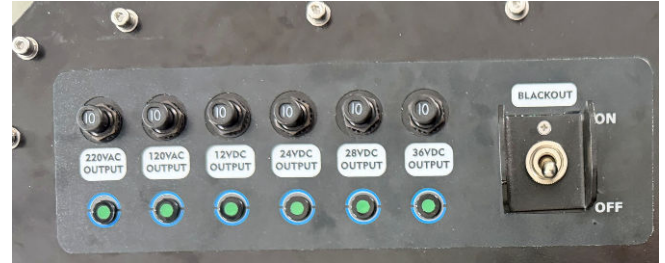


Part No: TDG-059-A0000
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Product Photographs



Front panel – general view



Detail – 10 A breakers, LED indicators and BLACKOUT switch



Detail – 220 VAC Schuko, 120 VAC universal socket and DC input connector



Side perspective – enclosure depth and mounting brackets



Top perspective – ventilation grille and bracket fixings



Product label – part number, serial number and QR code

Images show a pre-production qualification unit.

Front Panel Interfaces

Circuit Breakers	Six 10 A push-pull thermal breakers for the 220VAC, 120VAC, 12VDC, 24VDC, 28VDC and 36VDC rails
Status Indicators	Green LED power indicator per rail
BLACKOUT Switch	ON / OFF – extinguishes all panel illumination
AC Socket Outputs	220 VAC Schuko socket + 120 VAC universal socket
DC Input	D38999/24WE6PN MIL-type circular connector (with cap)
DC Outputs	12 / 24 / 28 / 36 VDC MIL-type circular connectors (with caps)
Identification	Laser-marked metal product label with QR code traceability

SENTRA

KBM

Camera Power Distribution Module

Vehicle Camera & Display Power Module

Part No: TDG-064 | Input: 28 VDC (MIL-STD-1275E) | Rating: IP55



SENTRA KBM Camera Power Distribution Module

TEDEG

Part No: TDG-064
TDG-SMT-DS-001 / Rev. 02

11×

ISOLATED CAMERA
OUTPUTS · 12 VDC

200 W

COMPUTER OUTPUT · 24
VDC

IP55

INGRESS PROTECTION

-32 / +55 °C

OPERATING TEMPERATURE

Overview

SENTRA is a military-grade power distribution module designed for unarmoured / armoured tactical wheeled vehicles, consolidating the supply of multiple cameras, displays, the mission computer and the seat module into a single compact unit. Galvanically isolated outputs, reverse polarity protection and a MIL-STD-1275E compliant 28 VDC power input provide uninterrupted, protected power to in-vehicle camera systems.

With an IP55 rated aluminium enclosure, MIL-DTL-38999 circular connectors and MIL-STD-810G environmental ruggedness it operates in the harshest field conditions. Its commercial off-the-shelf (COTS) product structure offers rapid procurement and long service life.

Applications

- Tactical wheeled vehicles – multi-camera and vision systems on unarmoured / armoured vehicles
- Situational awareness – 360° camera network, night vision and driver assistance supply
- Mission systems – mission computer, operator display and seat module power
- Field operations – uninterrupted, protected supply in harsh terrain and climate

Key Features

Military Power Input

MIL-STD-1275E compliant 28 VDC vehicle electrical system input

Input Protection

Reverse polarity protection and galvanic isolation

Multi-Output Architecture

11 × 12 VDC isolated camera outputs

Display and Computer Supply

Display 24 VDC / 25 W · Computer 24 VDC / 200 W

Seat Module Output

Separate 24 VDC isolated output

Video Distribution

Min. 12 × video lines over a single harness, 75 Ω standard impedance

Military Connectors

MIL-DTL-38999 circular connectors for power, camera and computer interfaces

Rugged Enclosure

IP55 rated, chromate-coated aluminium body with base-flange mounting

Environmental Ruggedness

MIL-STD-810G · EMI/EMC MIL-STD-461G

Fasteners

A4-70 stainless steel, corrosion protected

Long Service Life

≥ 30 years (with periodic maintenance)

COTS

Commercial off-the-shelf product; rapid procurement, MIL-STD-130L marking

POWER INPUT AND OUTPUTS

Parameter	Value
Input Standard	MIL-STD-1275E – 28 VDC military vehicle electrical system
Input Protection	Reverse polarity protected · galvanic isolation
Camera Outputs	Min. 11 × 12 VDC · isolated
Display Output	24 VDC ±0.2 V · isolated · min. 25 W
Computer Output	24 VDC ±0.2 V · min. 200 W
Seat Module Output	24 VDC ±0.2 V
Video Lines	Single harness · min. 12 × 75 Ω impedance

CONNECTORS (MIL-DTL-38999)

Interface	Connector	Contacts
Power Input Connector	D38999/24WC4SN	4 pin
Camera Connectors	11 × D38999/24WA35PN	5 pin (V+, GND, video, audio, IR control)
Computer Interface	D38999/24WC35SN	16 pin
Power Output Connector	D38999/24WD18PA	18 pin

GENERAL AND STRUCTURAL

Parameter	Value
Ingress Protection	≥ IP55
Enclosure	Aluminium · chromate coating · base-flange mounting
Fasteners	A4-70 stainless steel · corrosion protected
Service Life	≥ 30 years (with periodic maintenance)
Marking	MIL-STD-130L
Part Number	TDG-064

Note: COTS (commercial off-the-shelf) product. Configuration, pin assignments and harness interfaces are finalised through an ICD before order. Technical values are based on the applicable Technical Requirements Document (DOC-260110, Rev. 01).

SENTRA
KBM
Camera Power Distribution Module



Environmental Ruggedness

ENVIRONMENTAL TESTS (MIL-STD-810G CHG-1)

Test Category	Standard and Detail
Operating / Storage Temperature	-32 °C ... +55 °C – Method 501.6 / 502.6, Procedure I & II
Humidity	95% RH @ 30 °C, non-condensing – Method 507.6
Altitude	≥ 2,500 m above sea level – Method 500.6
Rain	Mission ≥ 16 mm/h · Endurance ≥ 20 mm/h – Method 506.6
Sand & Dust / Salt Fog	Method 510.6 (sand-dust) · Method 509.6 (salt fog)
Solar Radiation	Method 505.6, Category A2
Vibration	Method 514.7 – road / rail / air / sea / off-road
Shock	20 g, 11 ms (sawtooth) – Method 516.6, Procedure I
EMI / EMC	MIL-STD-461G – CE102, CS101/114/115/116, RE102, RS103

COMPLIANCE AND STANDARDS

Standard	Scope
MIL-STD-1275E	28 VDC military vehicle electrical system
MIL-STD-810G	Environmental engineering & laboratory tests
MIL-STD-461G	Electromagnetic interference (EMI) control
MIL-STD-464C	Electromagnetic environmental effects requirements for systems
MIL-DTL-38999	Circular, environment resistant connectors
MIL-STD-130L	Item identification & marking

SENTRA KBM Camera Power Distribution Module

TEDEG

Part No: TDG-064
TDG-SNT-DS-001 / Rev. 02

Product Photographs



Label face - product identification plate and ESD warning



Detail - MIL-DTL-38999 camera connector group



Perspective - connector face, ventilation and mounting flange



Top perspective - connector layout



Product label - part number, serial number and standards



Power input connector and reverse polarity warning

Images show a pre-production qualification unit (S/N 001, manufactured 06/2026).

Interfaces and Marking

Power Input	D38999/24WC4SN - 28 VDC, MIL-STD-1275E; with reverse polarity warning label
Camera Outputs	11 × D38999/24WA35PN - 12 VDC isolated supply + video / audio / IR control
Computer Interface	D38999/24WC35SN - 16 pin
Power Output	D38999/24WD18PA - 18 pin (display, computer, seat module)
Mounting	Four-point bolted mounting via base flange
Marking	MIL-STD-130L compliant laser-marked identification plate; ESD warning label

PowerGuard

EBB

Auxiliary Battery Unit

Supercapacitor-Based Power Backup for Tactical Wheeled Vehicles

3600 F Supercapacitor | 16-32 VDC | CAN-Bus | MIL-STD-810G



3600 F

SUPERCAPACITOR CAPACITY

16–32 VDC

OPERATING VOLTAGE

≥ 10 minAUXILIARY POWER
SUPPORT**30 min**

0 → 90% CHARGE TIME

Product Description

The PowerGuard Auxiliary Battery Unit (EBB) is a power backup solution designed specifically for tactical wheeled vehicles and platforms. It ensures uninterrupted operation of mission-critical systems and acts as a backup power source in emergencies, providing reliability and flexibility.

The unit is positioned to engage during battery failure or special missions requiring additional power. It stores the electrical energy needed to activate and control the vehicle system in supercapacitor cells and delivers it rapidly; after the vehicle ignition is switched off it continues to supply power for 3 hours.

Over the CAN bus it reports voltage, state of charge, state of health and capacity; its BIT (Built-In Test) function diagnoses faults in at least 4 different groups.

Applications

- Power backup for mission-critical systems on tactical wheeled vehicles
- System activation and control during battery failure
- Supplying mission equipment with ignition off (silent watch)
- Special missions requiring additional power

Features and Functions

Auxiliary Power Support

Provides the additional power required by the system for at least 10 minutes

Post-Ignition Supply

Continues supplying power for 3 hours after ignition off

Operational / Maintenance Mode

Mode change via an easily accessible selector switch

Wide Voltage Range

Compatible with 16–32 VDC vehicle electrical systems

Comprehensive Protection

Over-charge, over-discharge, over-current, short circuit and temperature protection

Authorised Disconnect

Power flow can only be cut via a digital key accessible to authorised users

CAN-Bus Reporting

Voltage, state of charge (SoC), state of health (SoH) and capacity; 500 kbps and selectable rates

BIT (Built-In Test)

Diagnoses faults in at least 4 different groups

Status Indicators

Charge, discharge and fault LED indicators

Military Standard Compliance

Mechanical interfaces compliant with MIL-STD-810G

TECHNICAL SPECIFICATIONS

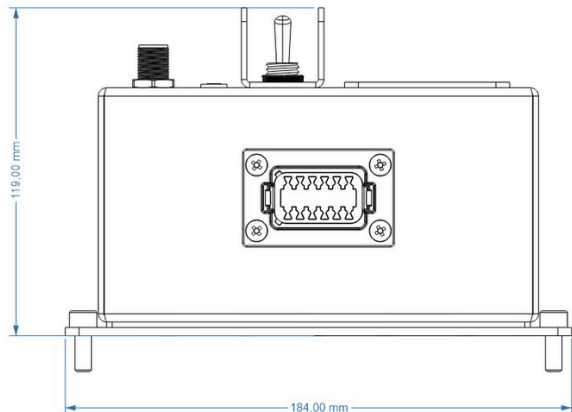
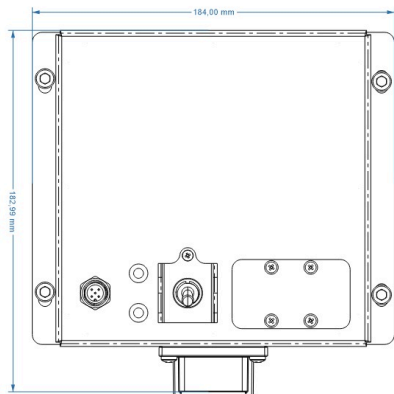
Feature	Value
Application	Power backup solution for tactical wheeled vehicles
Main Function	Additional power during battery failure and for special missions
Power Capacity	3600 F
Operating Voltage	16–32 VDC
Energy Storage Cell	Supercapacitor
Charge Time	0% to 90% in 30 minutes at 22 ± 5 °C
Operating Temperature	–40 °C ... +60 °C
Storage Temperature	–55 °C ... +70 °C
Protection	Over-charge, discharge, current and temperature protection
Interfaces	CAN bus, programming socket
Indicators	LED indicators (charge, discharge, fault)
Connectors	DT04-12PB-L012 or equivalent
Cables	Compliant with IPC/WHMA-A-620
Fuses	Automotive 30 A blade fuses

EBB reports battery voltage, state of charge, state of health and capacity over the CAN bus at 500 kbps and selectable rates.

Mechanical Interface

MECHANICAL SPECIFICATIONS

Feature	Value
Dimensions	185 × 180 × 120 ±10 mm
Weight	Maximum 1 kg
Material	Aluminium 5754-H0/111 or equivalent
Mounting	Four-point mounting via side flanges
Mechanical Interface	MIL-STD-810G compliant



PowerGuard
EBB
Auxiliary Battery Unit



Product Photographs



Perspective – top panel and connector face



Front face – label, indicators and fuses



Connector face – DT04-12PB power / CAN connector



Perspective – front panel and mounting flange

Images show a qualification unit.

Front Panel Interfaces

Mode Selector Switch	Operational / Maintenance mode
LED Indicators	Charge, discharge and fault status
Programming Socket	Circular connector
Fuses	2 × automotive 30 A blade fuses (covered holder)
Power / CAN Connector	DT04-12PB-L012 or equivalent (12 pin)

PowerGuard

TPB-01

Reverse Polarity Unit

Reverse Polarity and Alternator Protection for Vehicle Battery Systems

12 / 24 VDC | Up to 500 A | IP67 | 8 s time control



500 AMAXIMUM CURRENT
CAPACITY**12 / 24 V**

BATTERY SYSTEM

IP67

INGRESS PROTECTION

8 sALTERNATOR SHUT-OFF
DELAY

Product Description

The TEDEG Reverse Polarity Protection Unit is designed specifically to protect the alternator and other sensitive components against wrong-polarity connections in vehicle battery systems. The current that flows when a vehicle battery is connected in reverse can damage electronic components and vehicle electrical systems.

Using internal diode technology, the unit detects reverse polarity and breaks the circuit instantly, keeping every component of the system safe. Its time control, which shuts the alternator down 8 seconds after the excite signal is removed, protects the alternator from short circuit and over-current caused by reverse polarity.

Applications

- Military vehicles
- Commercial vehicles
- Heavy construction machinery
- Automotive, defence and industrial battery systems

Key Features

High Protection Capacity

Effective protection on 12 V and 24 V battery systems

Fast Response

Breaks the circuit within milliseconds on reverse polarity

Time Control

Shuts the alternator down 8 seconds after excite is removed

Alternator Protection

Protects the alternator from reverse-polarity short circuit and over-current

Internal Diode Technology

Maximum protection with minimum energy loss

Compact, Rugged Design

IP67 enclosure built for harsh vehicle environments

Easy Installation

Standard terminals and flexible mounting options

PowerGuard
TPB-01
Reverse Polarity Unit



PowerGuard TPB-01
TPB / 09-2026 V1

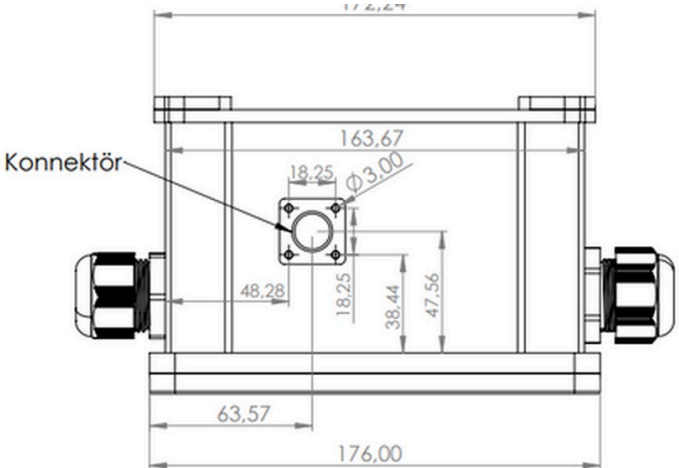
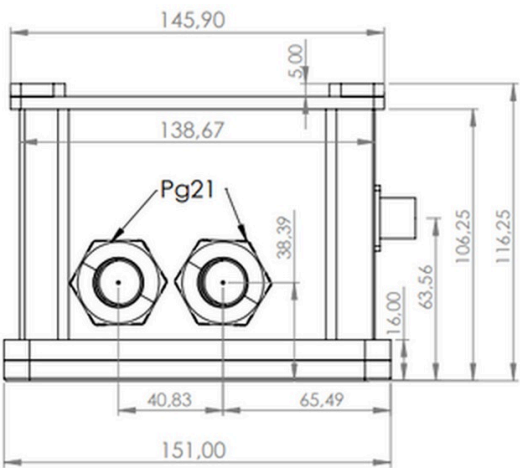
TECHNICAL SPECIFICATIONS

Parameter	Value
Operating Voltage	12 V / 24 V DC
Maximum Current Capacity	Up to 500 A
Operating Temperature	-40 °C ... +120 °C
Ingress Protection	IP67
Connection Type	Standard terminal connections
Time Control	8 second delay
Protection Technology	Internal diode

Mechanical Interface

MECHANICAL SPECIFICATIONS

Parameter	Value
Base Dimensions	151 × 176 mm
Body Dimensions	145.9 × 172.2 mm
Overall Height	116.25 mm
Cable Entries	2 × Pg21 cable glands (BATTERY) + 2 × glands on the opposite face
Signal Connector	J1 – 4-pin circular connector
Mounting	Flanged base, four-point bolted mounting
Enclosure	Black anodised aluminium, bolted gasketed lid



Mechanical dimensions (mm) – battery entry face and connector face

PowerGuard
TPB-01
Reverse Polarity Unit



PowerGuard TPB-01
TPB / 09-2026 V1

Product Photographs



Perspective – cable glands and J1 connector



Connector face – J1 signal connector



Battery entry face – 2 × Pg21 glands



Top perspective – product label

Images show a qualification unit.

Interfaces

BATTERY Input	2 × Pg21 metal cable glands
Load / Alternator Output	Metal cable glands on the opposite face
J1	4-pin circular signal connector (excite / control)
Marking	Laser-marked product label