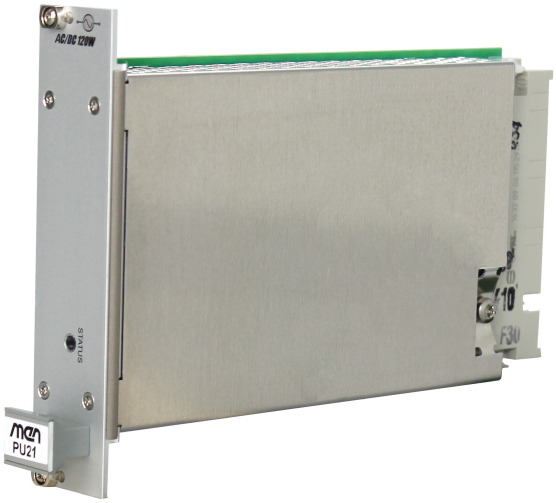
PU21

Wide-Range Railway Power Supply Unit, 100 to 240 VAC, 120 W

3U 6 HP PSU

- 3U, 6 HP, 19" rack mountable
- Input voltage range of 100 to 240 VAC
- Output power 120 W without derating
- Holdup time 20 ms
- Active power sharing
- Inverse current protection
- Redundant output voltage monitoring
- H15 rear connector
- -40°C to +85°C
- Conformal coating
- Fully EN 50155 compliant



Designed for Rail Applications, Vehicle and Wayside

The PU21 is a plug-in power supply unit for 19" systems (like VMEbus and CompactPCI Serial). It is especially designed for computer systems in public transport vehicles and for harsh environments, like railway applications, making it suitable for both onboard and wayside use.

Wide-Range Input

The PU21 has a nominal input power range of 100 to 240 VAC with a max. input voltage range of 90 to 264 VAC.

Advanced Power Supply Functionality

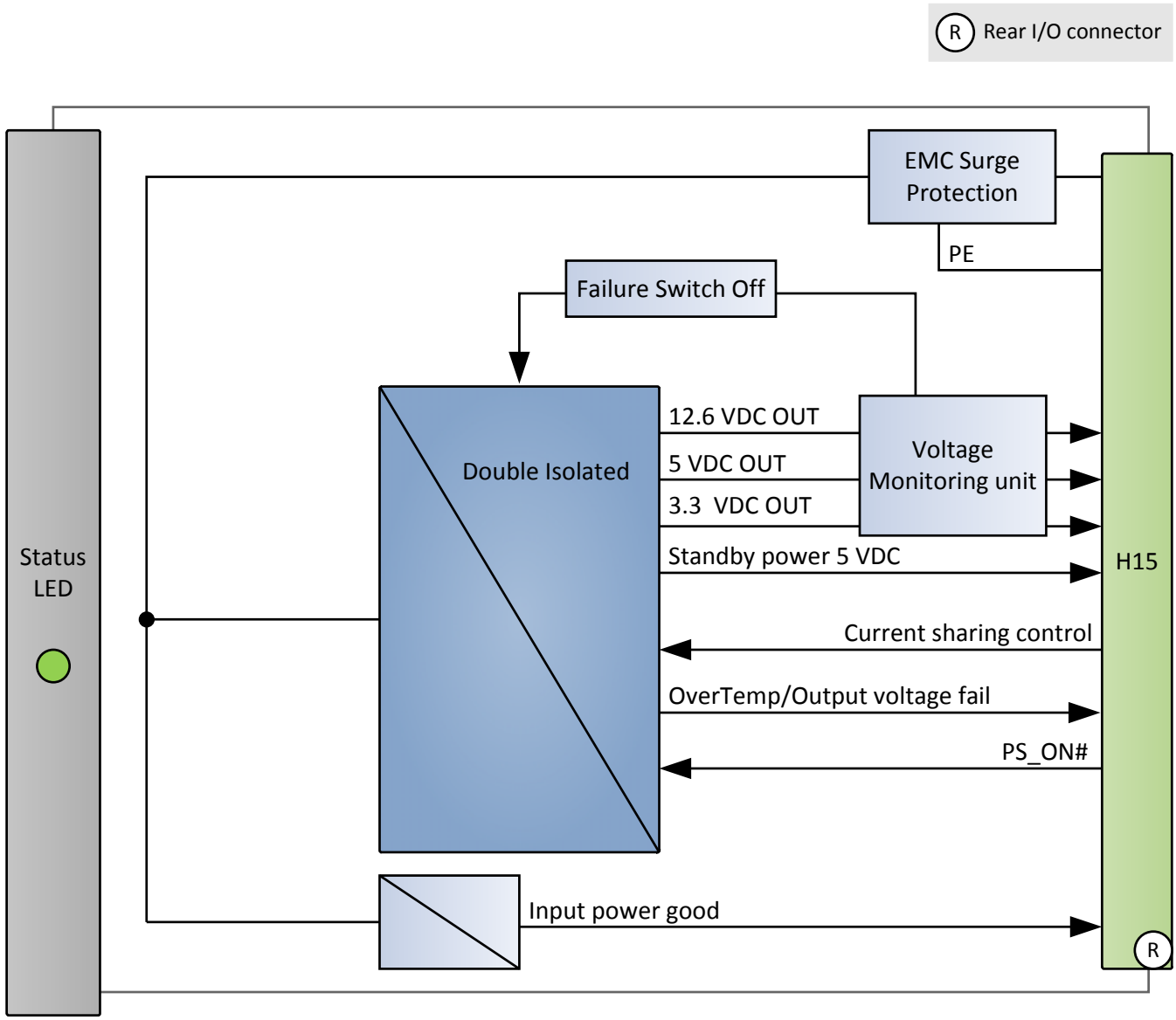
The output power is 120 W, with a dynamic load sharing of between 5 V and 12 V. The output power at 3.3 V is 30 W, which is shared with the 5 V load. Switch-on behavior is independent of the load.
The PU21 also has a standby voltage of 5 V with 5W to supply the independent shelf controller, and to support wake-on-LAN functionality.

The PSU provides three ports on the secondary side which indicate the event of an input power failure, output voltage failure or a fail-over temperature.

Rugged Design

The PSU is coated conformally, and all components are secured against vibration. When more power supplies run in parallel, the performance loss is shared evenly and, in case of a fault in one of the power supplies, the output power is removed completely so as to avoid any negative effects. The double power monitoring ensures that the output voltage is within the valid range. In case of error, the voltage is powered-down as prepared by the SIL applications. The thermal stress is extremely low due to integrated heat sinks, and diversion of dissipated heat over the mounting surface.
The PU21 is fully compliant with EN 50155, meeting all shock, vibration, EMC and isolation requirements. Operating under temperatures ranging from -40 to 70°C with increments to 85°C for 10 minutes (class TX), with a hold up time of 20 ms (at an input of 100 V).

Data Sheet


R Rear I/O connector
EMC Surge Protection
PE
Failure Switch Off
Double Isolated
12.6 VDC OUT
5 VDC OUT
3.3 VDC OUT
Voltage Monitoring unit
Standby power 5 VDC
Current sharing control
OverTemp/Output voltage fail
PS_ON#
Status LED
H15
Input power good
R

Diagram

Input Characteristics

- Nominal input voltage range: 100 VAC to 240 VAC
- Maximum input voltage range: 90 VAC to 264 VAC
- Maximum input power: 135 W
- Input frequency: 40 Hz to 440 Hz
- Standby voltage: 5 V
- Power-on/-off threshold
- Inrush current limiting

Output Characteristics

- Output voltages: 12.6 VDC, 5 VDC and 3.3 VDC
- Standby output voltage: 5 V with a 5 W load
- Accuracy: ±1.5% max. of the nominal value
- Holdup time: 20 ms (at an input of 100 V)
- Dynamic load distribution
  - 120 W for complete temperature range without forced airflow
  - Load sharing between 12.6 VDC output and 5 VDC output, including 3.3 VDC

Connection

- Type H15, DIN 41612 plug connector

Status Indicator

- Indicates
  - Input power failure
  - Output voltage failure
  - Fail-over temperature

Parallel connection

- Up to six power supply units can be used in parallel
  - Extends availability (backup protection against faults)
  - Extends power
  - Increases performance
  - Ensures redundancy

Miscellaneous

- Overload and short circuit protection
- Standby voltage at power down, always available
- Reverse polarity protection for input voltage and short circuit
- Output voltage and temperature supervision
- Overtemperature and overvoltage shutdown
- Status LED on front panel

Electrical Specifications

- Isolation (according to EN 50155)
  - Input/output: 3100 VAC
  - Input/shield: 3100 VAC
  - Output/shield: 1000 VAC
- According to EN 60950-1

Mechanical Specifications

- Dimensions: 3U, 6HP
- Integrated heat sink

Environmental Specifications

- Temperature range (operation): -40°C to +70°C, with up to +85°C for 10 minutes, compliant with EN 50155, class TX (model 17PU21-00), no derating
- Temperature range (storage): -50°C to +85°C
- Cooling concept
  - Air-cooled, natural convection, or
  - Air-cooled, forced convection with fan tray at system bottom
  - Conduction-cooled in MEN CCA frame
- EMC Emission:
  - EN 55022: CISPR 22 - Class B
- EMC Immunity: EN 55024 - Class A
- Airflow: Convection cooling
- Cooling test according to EN 60068-2-1
- Dry heat test according to EN 60068-2-2
- Shock: 50 m/s², 30 ms (EN 61373)
- Vibration (function): 2.02 m/s², 5 Hz - 200 Hz (EN 61373)
- Vibration (lifetime): 11.44 m/s², 5 Hz - 200 Hz (EN 61373)

MTBF

- min. 600 000h @ 40°C according to IEC/TR 62380 (RDF 2000)

Safety

- Flammability (PCBs)
  - UL 94 V-0
- Electrical Safety
  - EN 60950-1
  - Insulation measurement test according to EN 50155 (12.2.9.1)
  - Voltage withstand test according to EN 50155 (12.2.9.2)

EMC Conformity

- EN 55011 (radio disturbance)
- IEC 61000-4-2 (ESD)
- IEC 61000-4-3 (electromagnetic field immunity)
- IEC 61000-4-4 (burst)
- IEC 61000-4-5 (surge)
- IEC 61000-4-6 (conducted disturbances)

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