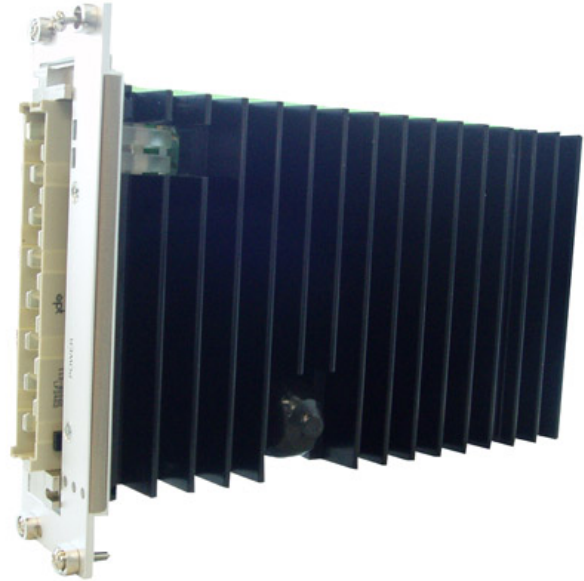


PU2 – 3U 8HP wide-range PSU for 19" systems, 24 VDC nom.

- **19" rack mountable**
- **3U, 8 HP**
- **Input 24 VDC nom. (16.8..30 V)**
- **Max. input voltage range 14.4..33.6 V
(according to EN 50155)**
- **Output 3.3 V and 5 V**
- **Power 35 W**
- **H15 DIN 41612 plug connector (front and rear)**
- **SMBus**
- **External I/Os for key function**
- **-40 to +85°C screened**
- **Conformal coating**
- **Complies with EN 50155 (railways)**



The PU2 3U 8HP power supply unit is a plug-in device for 19" systems (e.g. VMEbus, CompactPCI®) and is especially designed for computer systems in public transport vehicles, being fully compliant with EN 50155.

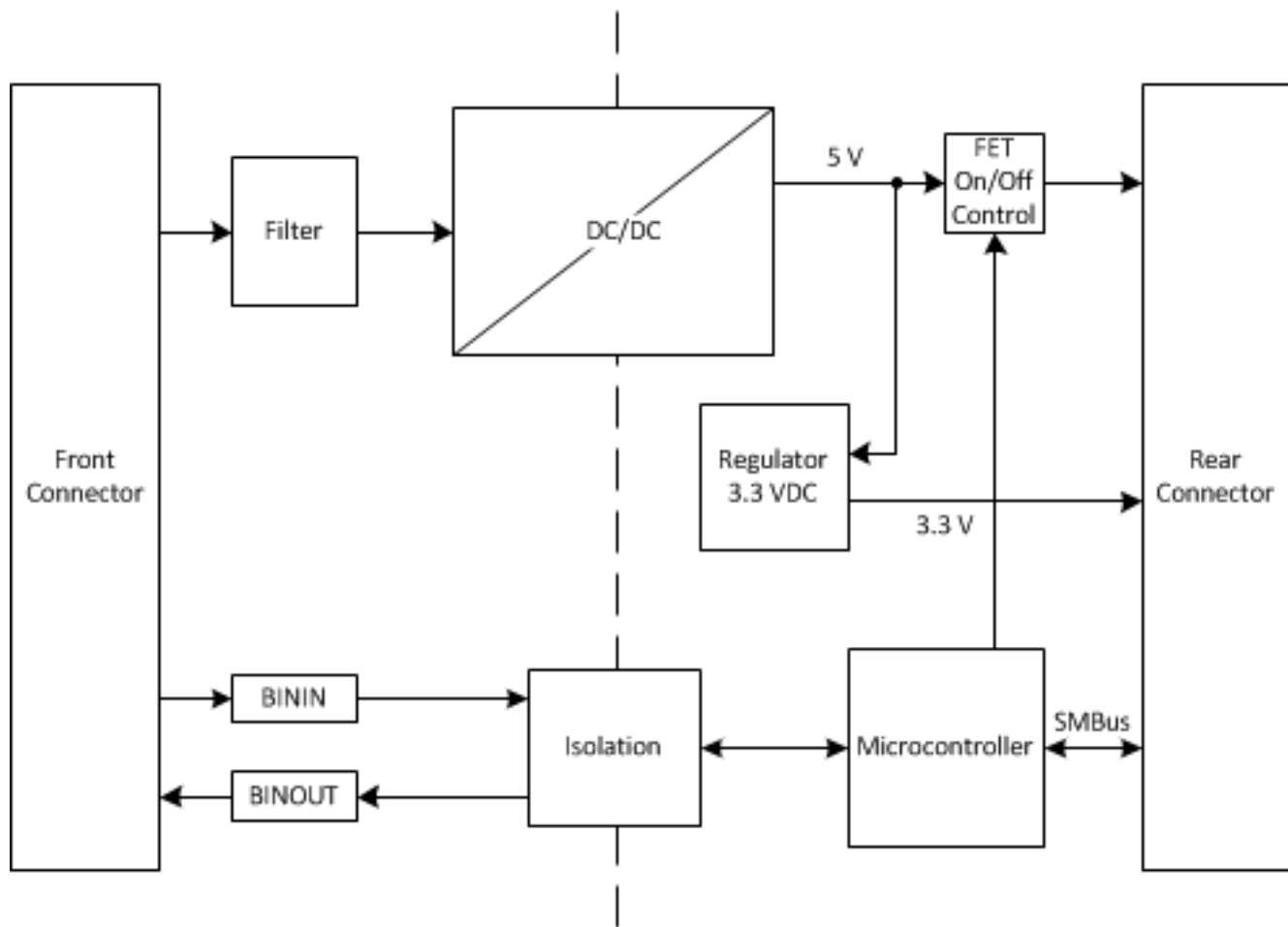
The PU2 has a nominal input voltage of 24 VDC with a wide input range of 16.8..30 V and a max. input voltage range of 14.4..33.6 V (according to EN 50155). The otherwise identical PSU models PU3 and PU4 are available for the nominal input voltages of 36-48 VDC and 72-110 VDC respectively.

It is controlled by a microprocessor which supervises the voltage and the temperature, as well as three external inputs and three outputs.

Thanks to the onboard intelligence the PSU can also act as an SMBus slave and communicate with the CPU board via the backplane. This allows the PSU to power on the system at a programmed date or it allows the CPU to make status polls with regard to error messages, time-out, on/off, for example.

The PSU provides a DC/DC converter to generate the isolated 5 V from the input voltage. A buck regulator generates 3.3 V from the 5 Volts isolated side. The maximum output power at full load is 35 W. The subassembly is conformally coated, and components are secured against vibration. The PSU operates in -40 to +85°C environmental temperature. The thermal stress is extremely low due to integrated heat sinks and diversion of dissipated heat over the mounting surface.

Diagram



Technical Data

Microcontroller	■ Output voltage and temperature supervision (readable via SMBus) ■ Overtemperature and overvoltage shutdown ■ Communication with CPU ■ Watchdog functionality
SMBus	■ Signals on back connector ■ Voltage level 3.3 V ■ Controlled by CPU ■ Communication between the power supply unit and the CPU
Binary I/O	■ 3 binary inputs □ Max. voltage 154 VDC □ Electrically isolated □ External switch (key) with binary input □ Switch-on by key input or wake on time □ Switch-off by key input or software □ Status of binary inputs readable via SMBus □ User-specific functionality (depending on firmware) ■ 3 binary outputs □ Max. voltage 154 VDC □ Isolated by relays □ User-specific functionality (controllable via SMBus) □ Maximum switching power: 60 W
Miscellaneous	■ DC/DC Converter □ Fuse-protected ■ Two status LEDs on front panel □ Green LED indicates correct input voltage □ Yellow LED indicates correct output voltage ■ Alternative power supply at the backplane for use as redundant PSU ■ Short circuit protection ■ Reverse polarity protection by internal protector ■ Fixed switching frequency: 250 KHz
Input Characteristics	■ Nominal voltage input: 24 VDC ■ Wide input range: $0.7 \times \text{nominal voltage} < \text{nominal voltage} < 1.25 \times \text{nominal voltage}$ (according to EN50155) □ 16.8..30 VDC ■ Max. input voltage range: $0.6 \times \text{nominal voltage} < \text{nominal voltage} < 1.4 \times \text{nominal voltage}$ with full functionality for 0.1 s, no damage for 1 s (according to EN50155) □ 14.4..33.6 VDC ■ No load input power: 900 mW
Output Characteristics	■ Output power (max.): 35 W ■ 5V tolerance: +5%/-3% ■ 3.3V tolerance: ±3% ■ Overvoltage protection: +0.5 V/-0.2 V ■ Overtemperature shutdown: 50°...90°(adjustable by SMBus command)
Connection	■ Input and output via DIN 41612 plug connector, type H15
Electrical Specifications	■ Isolation (according to EN 50155) □ Input/output: 1,500 VDC/1,000 Vrms □ Input/shield: 1,500 VDC/1,000 Vrms □ Output/shield: 1,500 VDC/1,000 Vrms □ Ground/shield: 1,500 VDC/1,000 Vrms ■ MTBF: 240,600 h @ 40°C (derived from MIL-HDBK-217F)

Technical Data

Mechanical Specifications	■ Dimensions: 3U, 8HP, 128.4 mm height ■ Integrated heat sink ■ Weight: 665 g
Environmental Specifications	■ Temperature range (operation): -40..+85°C ■ Temperature range (storage): -40..+85°C ■ Airflow: min. 10 m³/h ■ Shock: according to EN 60068-2-27 ■ Continuous shock: according to EN 60068-2-29 ■ Vibration: according to EN 60068-2-6 ■ Protection □ Class of protection: Class II, EN 60950 □ Degree of protection: IP20 (insert in rack), EN 60529
EMC	■ Tested according to EN 55022 (radio disturbance), EN 61000-4-2 (ESD), EN 61000-4-4 (burst) and EN 61000-4-5 (surge)
Software Support	■ Driver software for Windows®, Linux, VxWorks® ■ For more information on supported operating system versions and drivers see Downloads.

Configuration & Options

Standard Configurations

Article No.	Name	Vin nominal	Vin	Vin max.	Vout	Power	Width	Operation Temperature	Coating
17PU02-	PU2	24 VDC	16.8..30 V	14.4..33.6 V	3.3 V and 5 V	35 W	8 HP	-40..+85°C	Yes
17PU03-	PU3	36-48 VDC	25.2..60 V	21.6..67.2 V	3.3 V and 5 V	35 W	8 HP	-40..+85°C	Yes
17PU04-	PU4	72-110 VDC	50.4..137.5 V	43.2..154 V	3.3 V and 5 V	35 W	8 HP	-40..+85°C	Yes

Options

Input voltage	■ PU2: 24 VDC nom. (16.8..30 V) (this product) ■ PU3: 36-48 VDC nom. (25.2..60 V) ■ PU4: 72-110 VDC nom. (50.4..137.5 V)
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Ordering Information

Standard PU2 Models	0712-0002	PU2 - 3U 8HP PSU, input 24 VDC nominal (16.8..30 V), output 5 V, 3.3 V, 35 W, H15 front/back, SMBus, external I/Os for key function, -40..+85°C screened, conformal coating
Related Hardware	0712-0003	PU3 - 3U 8HP PSU, input 36 VDC nominal (25.2..45 V), output 5 V, 3.3 V, 35 W, H15 front/back, SMBus, external I/Os for key function, -40..+85°C screened, conformal coating
	0712-0004	PU4 - 3U 8HP PSU, input 110 VDC nominal (77..137.5 V), output 5 V, 3.3 V, 35 W, H15 front/back, SMBus, external I/Os for key function, -40..+85°C screened, conformal coating
Software: Linux	This product is designed to work under Linux. See below for potentially available separate software packages from MEN.	
	13AD78-06	MDIS5™ low-level driver sources (MEN) for PU2, PU3, PU4, PU5, PU6 and CCA Rack PSU controller on SMBus
Software: Windows®	This product is designed to work under Windows®. See below for potentially available separate software packages from MEN.	
	13AD78-70	MDIS4™/2004 / MDIS5™ Windows® driver (MEN) for PU2, PU3, PU4, PU5, PU6 and CCA Rack PSU controller on SMBus
Software: VxWorks®	This product is designed to work under VxWorks®. For details regarding supported/unsupported board functions please refer to the corresponding software data sheets.	
	13AD78-06	MDIS5™ low-level driver sources (MEN) for PU2, PU3, PU4, PU5, PU6 and CCA Rack PSU controller on SMBus
For operating systems not mentioned here contact MEN sales .		
Documentation	20AD78-ER	PSU PU2, PU3, PU4 Errata
	20AD78-00	PU2/PU3/PU4 User Manual

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