A6601

CMS Outer Tracker Power Supply Module

The A6601 is a CMS Outer Tracker power supply module for installation near the detector in a hostile experiment environment. Each card is a complete PSU, providing one MainLV channel adjustable from 8 to 14 V with 12 individually controlled and monitorable outputs, one AUX channel adjustable from 8 to 20 V with 30 W maximum power, and three HV channels adjustable from 0 to -800 V with 15 mA maximum current.
A dedicated crate accommodates up to 10 A6601 cards; integrated backboard routing supports card extraction without disconnecting output cables.

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Tools for Discovery

Overview

Product Highlights

- Designed for hostile environments: the crate is installed directly in the experiment area, close to the detector
- Modular crate architecture hosting up to 10 A6601 power supply cards and one A6600 interface card
- Complete PSU on each A6601 card, generating all the voltages required by the subdetector
- Multiple outputs per card: 1 MainLV channel (8–14 V, 12 individually controlled outputs), 1 AUX channel (8–20 V, 30 W max) and 3 HV channels (0 to -800 V, 15 mA max)
- Hot-swap friendly design: outputs routed through an integrated backboard, so cards can be extracted without disconnecting cables
- Centralized interface via A6600: distribution of interlock signals, EASY-bus communication and 48 V service power over the backplane

Product Description

The CMS Outer Tracker power supply system is a CAEN solution designed for installation directly in the hostile environment of the experiment. It is based on a dedicated crate hosting up to ten A6601 power supply cards and one A6600 interface card, powered from a nominal 380 Vdc line through a rear 3-pin Harting connector.

Each A6601 card acts as a complete power supply unit, generating all the voltages required by the subdetector. It provides one MainLV low voltage channel, adjustable from 8 to 14 V and split into 12 individually controllable and monitorable outputs for powering remote DC-DC converters; one AUX channel, adjustable from 8 to 20 V with 30 W maximum power, dedicated to the cooling service; and three high voltage channels, adjustable from 0 to -800 V with 15 mA maximum current, for detector bias.

The cards receive power and communication signals from the crate backplane, while their outputs are routed to a backboard integrated in the crate and wired to the corresponding connectors on the rear panel. This architecture allows each card to be extracted without disconnecting the output cables, simplifying maintenance and minimizing downtime.

The A6600, installed in slot 0, is the crate interface card: it receives from the remote control system and distributes over the backplane the interlock signals, the EASY-bus communication and a 48 V service power line.

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Technical Specifications

Vset & Vmax software

LV	AUX	HV
8 ÷ 13 V	8 ÷ 20 V	0 ÷ -800 V

Vset / Vmax sw resolution

10 mV	10 mV	100 mV

Vconn

Up to 28 V	Up to 40 V	N.A.

Vmon/Vconn Resolution

10 mV	10 mV	100 mV/N.A.

Iset

0 ÷ 1.9 A	0 ÷ 1.9 A	0 ÷ 15 mA

Iset / Imon Resolution

10 mA	10 mA	1 µA

Ramp Up/Down

N.A.	N.A.	1÷ 100 Volt/sec, 1 Volt/sec step

VMon vs. VOut, VSet vs. VOut

typical:± 1%± 30mV max: ± 1% ± 50mV	typical:± 1%± 30mV max: ± 1% ± 50mV	typical: ± 1% ± 0.3 V max: ± 1% ± 0.5 V

IMon vs. IOut, ISet vs. IOut

typical: ± 2% ± 0.05A max: ± 2% ± 0.1A	typical: ± 2% ± 0.05A max: ± 2% ± 0.1A	typical: ± 2% ± 2 µA max: ± 2% ± 5 µA

Max Ripple

10 mVpp	10 mVpp	50 mVpp

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Technical Specifications (continued)

Magnetic field tolerance

200 mT

Radiation tolerance

100 Gy, 5×10^{11} p_>20MeV/cm, 5×10^{12} n_eq/cm^2

Ordering Information

ORDERING CODE	DESCRIPTION
WE6601CMSTKX	A6601 – CMS Outer Tracker Power Supply Module

1. Ordering codes and descriptions are reproduced from the product record. Availability is confirmed at order entry.

Related Products

EASY BRIC — B and Rad tolerant Intermediate Converter

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