imperix

Power interface – For Opal-RT hardware

OPAL·RT TECHNOLOGIES

Low-Z selection jumpers
Analog inputs RJ45 connectors
Digital outputs Optical fibers
Main power supply
Analog inputs test points
Digital outputs test points
To OPAL digital outputs DB-37 connector
To OPAL analog inputs DB-37 connector
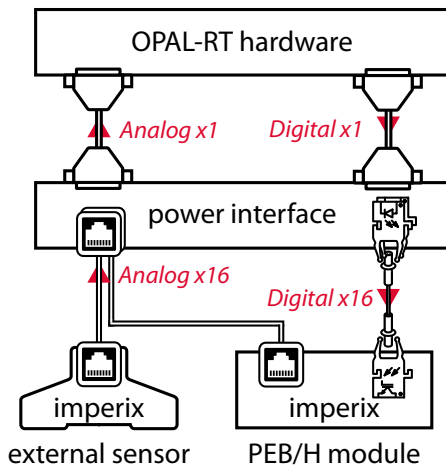44.45 mm (1U)
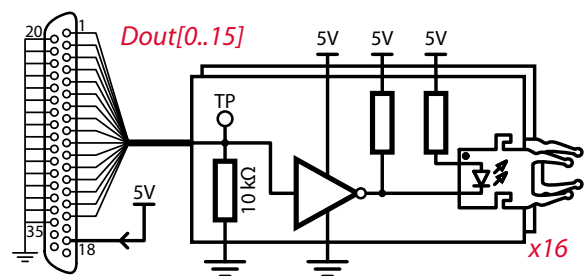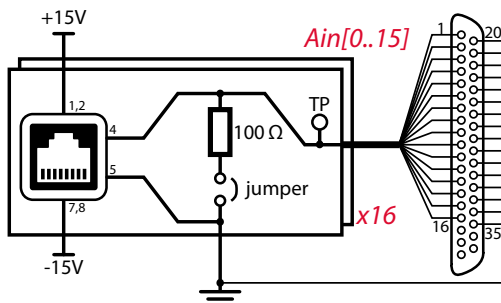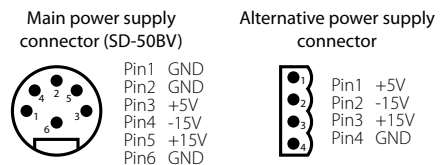428.6 mm
Alternative power supply

GENERAL DESCRIPTION

This interface allows to control **imperix** power modules with an **OPAL-RT** simulator. It provides the necessary signal connections and transformations to easily wire the digital outputs of the OPAL-RT hardware to the command inputs of the power modules, and retrieve any useful measurement to its analog inputs.

> ⚠️ ⚡ The user is responsible of the behavior of the OPAL-RT controller. In particular, the complementarity of the gating signals must be ensured at all time, when the control algorithm is running. It is recommended to power down and discharge the converter prior to any operation that could lead to hazardous gating signals, such as starting up/shutting down the controller, flashing code, disconnecting cables, etc. In addition, only one external power supply must be connected to the power interface at a time.
> Disregarding this warning may lead to injury and/or cause serious damage.

OPAL-RT hardware

Analog x1   *Digital x1*

power interface

Analog x16

Digital x16

imperix external sensor

imperix PEB/H module

POWER SUPPLY

- 5V / +15V / -15V external supply required
- Approx. max consumption: 5W / 12W / 12W
- Recommended external supply: *XP Power AEH45UM32*
- Connector pinouts:

Main power supply connector (SD-50BV)

Pin1	GND
Pin2	GND
Pin3	+5V
Pin4	-15V
Pin5	+15V
Pin6	GND

Alternative power supply connector

Pin1	+5V
Pin2	-15V
Pin3	+15V
Pin4	GND

+15V

Ain[0..15]

100 Ω

TP

jumper

-15V

x16

Dout[0..15]

5V 5V 5V

TP

10 KΩ

5V

x16

ANALOG INPUTS

- 16 channels, RJ45 connectors, -10 to 10V input voltage
- Configurable high-Z or low-Z input (connect jumper for 100Ω low-Z)
- +15V/-15V sensor supply (max 100mA/ch, 800mA tot)

DIGITAL OUTPUTS

- 16 independent channels
- Optical fiber wiring of the gating signals to imperix PEB or PEH power modules
- Max. prop. delay difference between 2 channels: 80ns

ABOUT US

Imperix develops high-end control equipment and prototyping hardware for power electronics, drives, smart grids and related topics. Its products are designed to accelerate the implementation of laboratory-scale power converters and facilitate the derivation of high quality experimental results.