

OP7818 16 Analog Inputs Module

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The OP7818, designed for use with the OP7000 chassis, features 16 analog input channels. It is perfectly suited to interface simulator signals to real-life environment signals, providing electrical isolation.

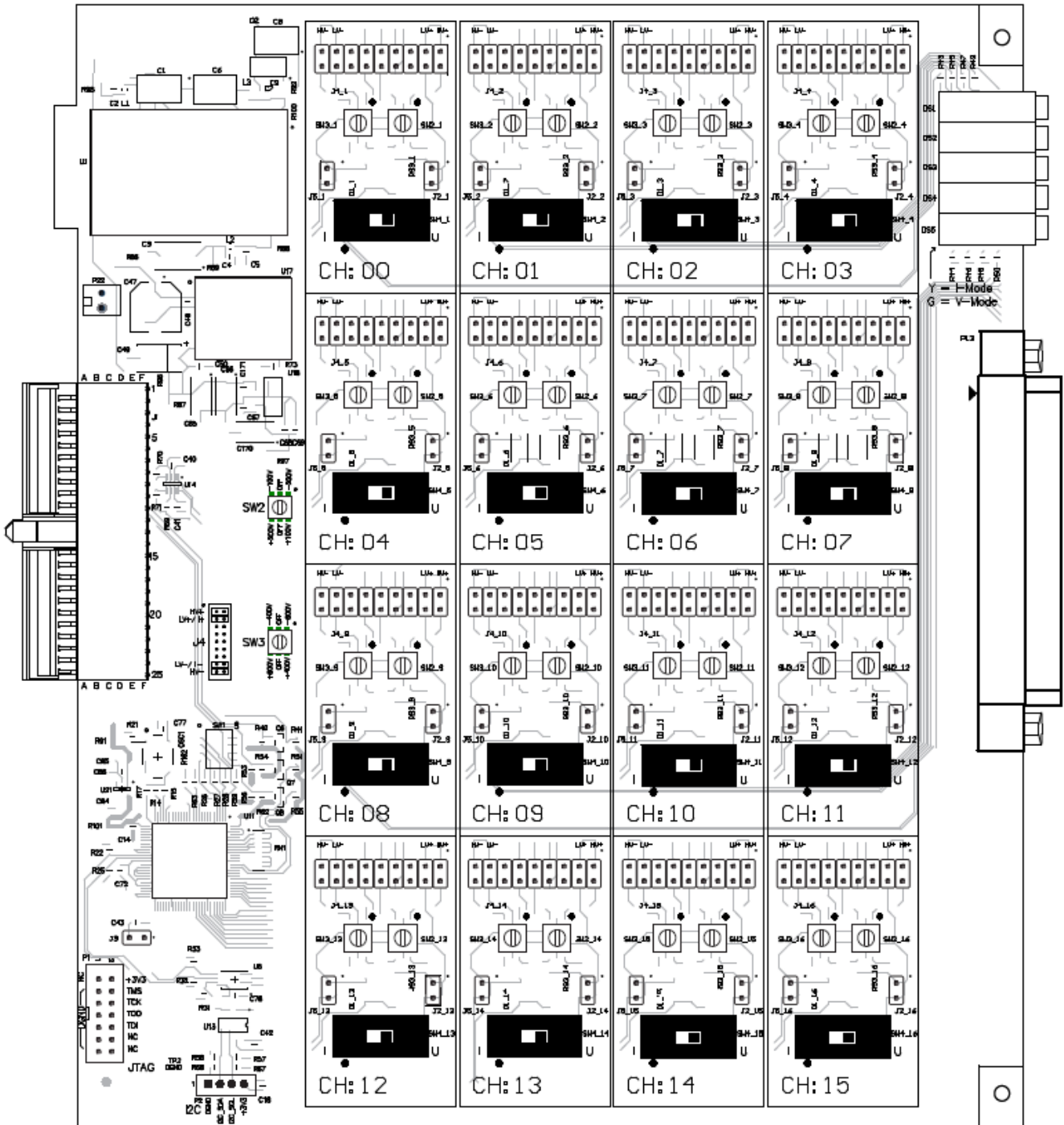


This board is not supported with the OP7000V2 chassis.

The board features:

- 16 high impedance isolated input channels (differential impedance of 20 MOhms and single-ended impedance of 10 MOhms per channel),
- a maximum voltage of up to 400V, configurable by jumpers,
- selectable voltage, current or resistive sensor mode per channel.

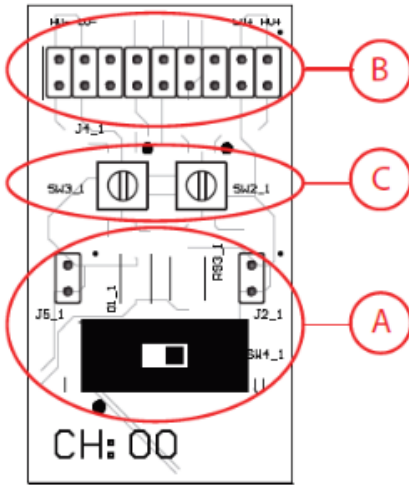
Board Layout



Configuration

Jumper and Switch Positions

Each channel has a series of jumpers and switches, seen in the figure below, that enables onboard mode selection (voltage or current) and, subsequently, voltage range configurations. Each element enables a function that allows setting a very precise configuration for the OP7818 board.



A Mode Selection

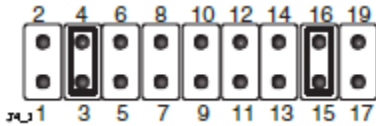
Switch (SW4) lets you place the board in either voltage or current mode. Slide the switch to the right (towards U) to set the channel to Voltage mode or to the left (toward I) to set the channel to Current mode..



Voltage Mode

B Voltage Level Selection

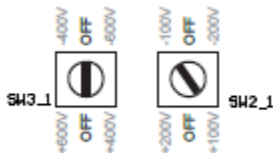
- **Low voltage** or **current** mode: the jumpers must be on pins 3/4 and 15/16. Voltage range selectors must be in OFF positions.



- **High voltage** mode: the jumpers must be on pins 1/2 and 17/18. Voltage range selectors (SW2 and SW3) must be set according to the desired voltage. (see list C below).

C Voltage Range Selection

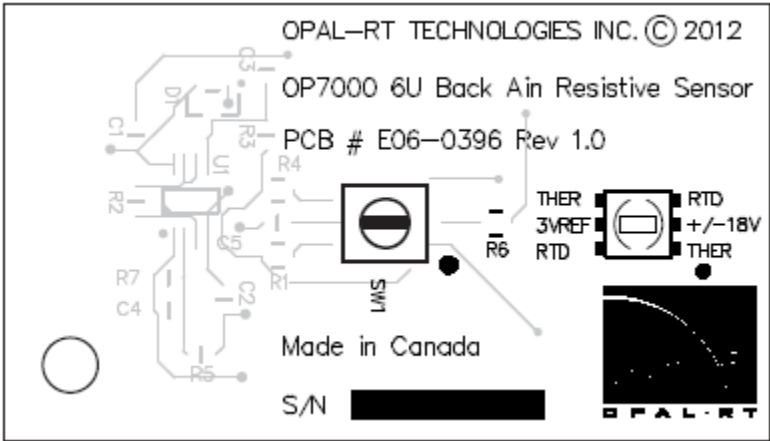
To obtain +/- 20V, both the SW3 and SW2 screws must be in the OFF position.



- To obtain 100V, the SW2 screw must be in the +/-100V position and SW3 in the OFF position
- To obtain 200V the SW2 screw must be in the +/-200V position and SW3 in the OFF position
- To obtain 400V, the SW2 screw must be in the OFF position and SW3 in the +/-400V position
- To obtain 600V the SW2 screw must be in the OFF position and SW3 in the +/-600V position

Optional Mezzanine Board

When working in low voltage mode, the Ain Resistive Sensor mezzanine can be used to take temperature measurements using either a thermistor or a resistive sensor.



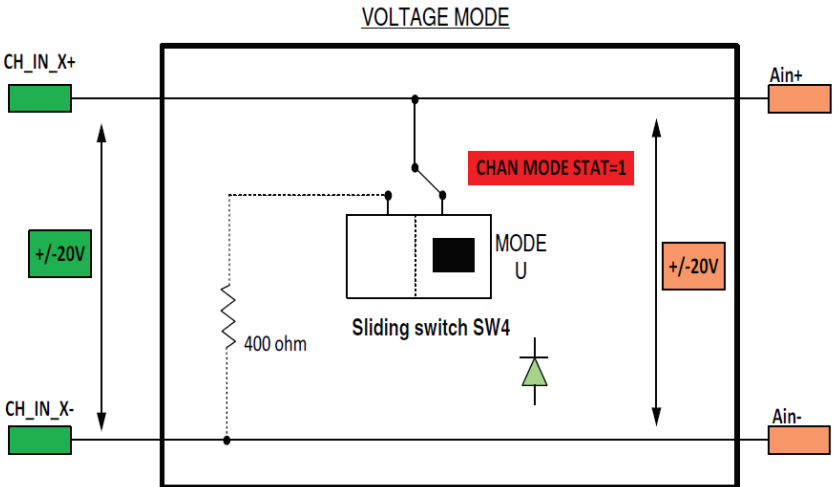
Optional Mezzanine Mode Selection

Mode	Screw Position	Resistor Description	
+/-18V 3VREF	Off	If the board is using the resistive sensor module, it can acquire analog signals up to +/-3V which are then amplified to +/-18V	
RTD	+/-100V	pull-up=2.05KOhm	
Thermistor	+/-200V	pull-up=3.32Kohm one pull-down=47.5KOhm	

Typical application diagrams

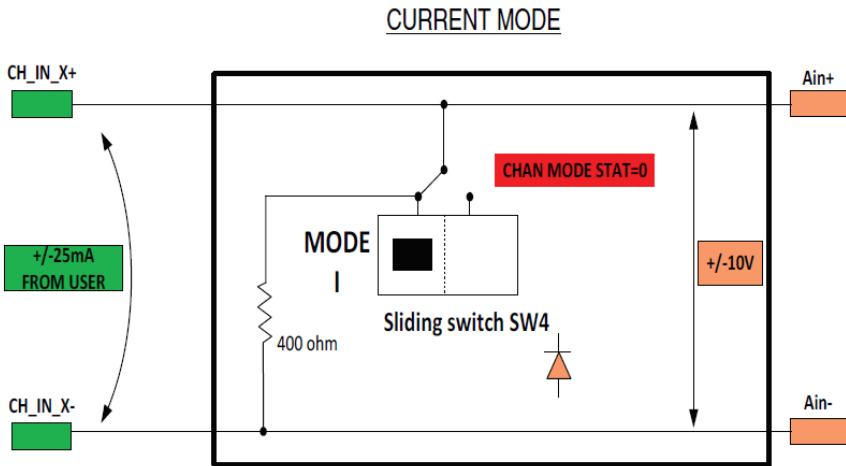
Voltage Mode Diagram

The following diagram applies when the board is set to operate in Voltage mode: jumpers are on pins 3/4 and 15/16 (J4) and SW2 and SW3 screws are in off position and switch SW4 is in Voltage mode (position U).



Current Mode Diagram

The following diagram applies when the board is set to operate in Voltage mode: jumpers are on pins 3/4 and 15/16 (J4) and SW2 and SW3 screws are in off position and switch SW4 is in Current mode (position I).

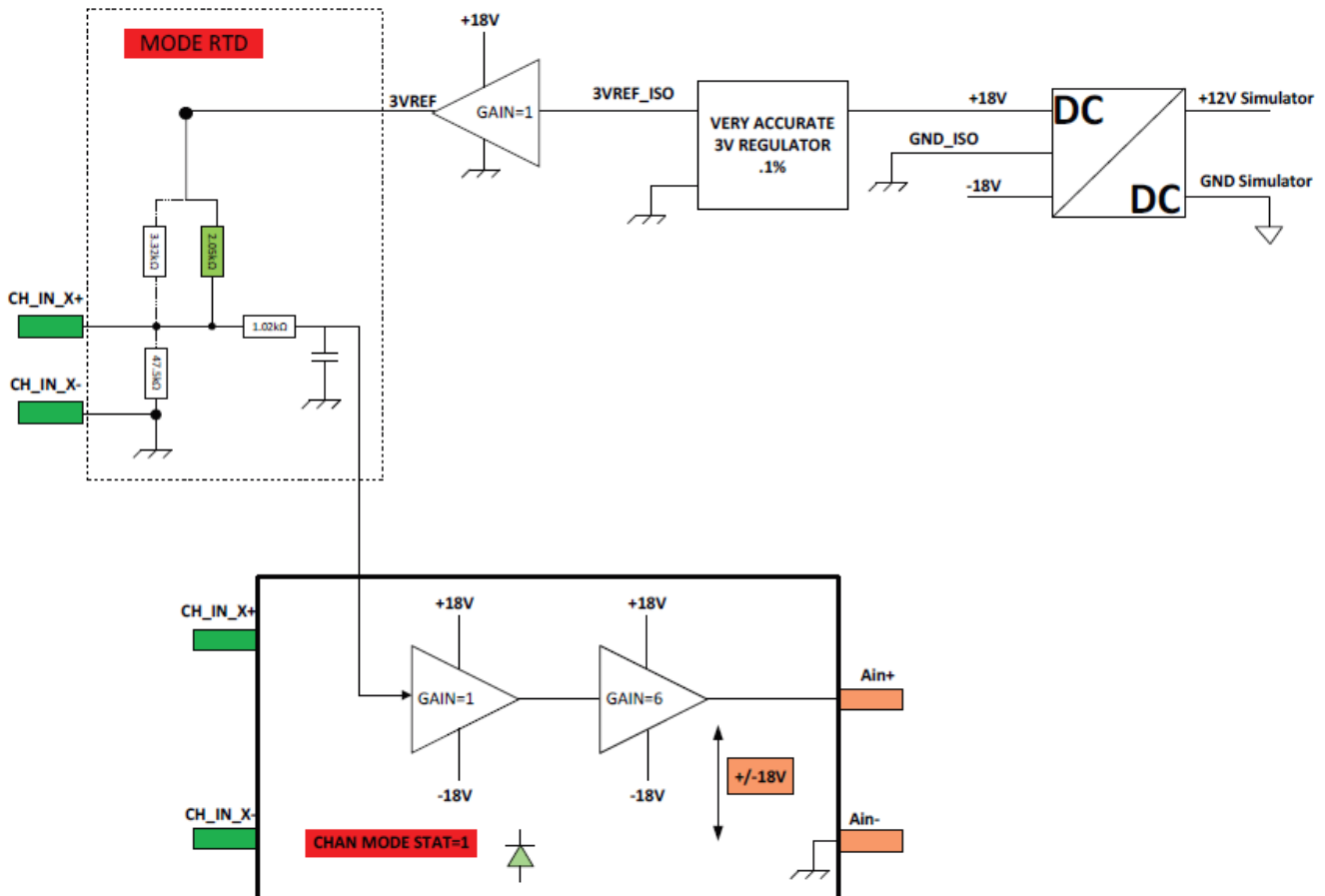


Resistive Sensor Mode Diagram

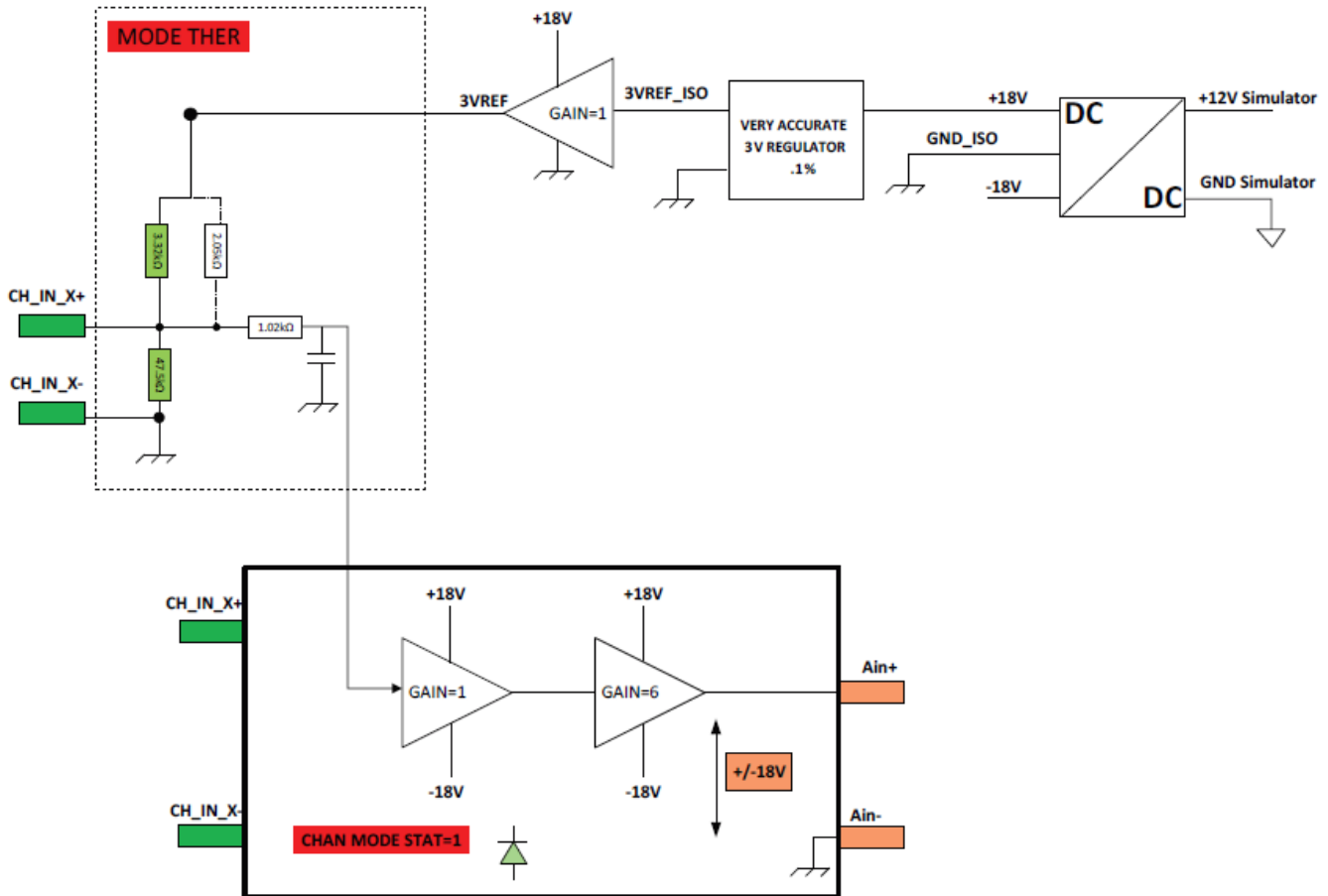
The following diagram applies only when the optional Resistive Sensor mezzanine board is in place.

Using the screw (SW1) on the mezzanine board, the OP7818 can be set to operate with a thermistor or resistive sensor. Note that with the mezzanine board in place, there can be no jumpers on pins for jumper array (J4) and SW2 and SW3 screws must be in the off position and switch SW4 is in Current mode (position I).

In Resistive sensor mode, the screw must be turned to the left, to RTD.



In Thermistor mode, the screw must be turned to the right, to THER.



Installation

The OP7818 analog input signal conditioning module must be inserted at the back of the OP7000 simulator in the odd-numbered slot corresponding to the front slot where the OP7220 is installed. See page [OP7000V2: Adding or Replacing Boards](#) for more details (the same applied for the OP7000 chassis).

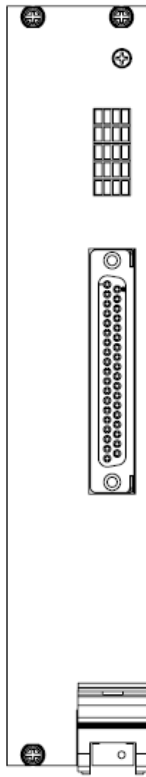
Make sure that the board is properly aligned using the guide tracks before pressing it into place.

Face Plate

The faceplate provides a DB37F connector (see "[connector pin assignments](#)" for details) and a series of status LEDs.

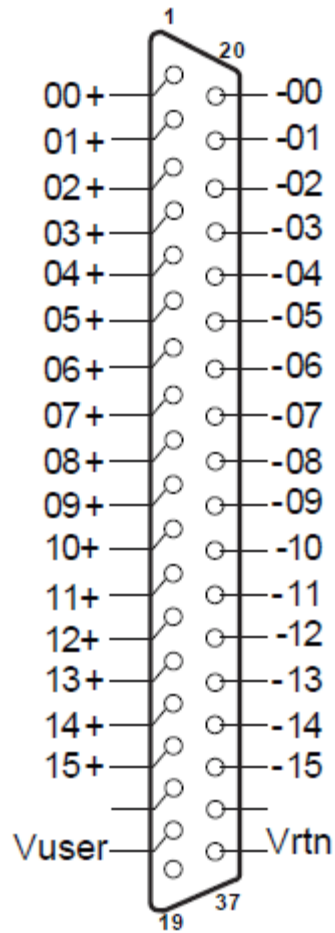
Each LED represents a channel, as shown in the table below. If the LED is green, it indicates that the channel is in Voltage mode. If the LED is orange, the channel is in Current mode.

LED - Channel assignments			
0	1	2	3
4	5	6	7
8	9	10	11
12	13	14	15
n/a	n/a	n/a	n/a



DB37F Connector Pins Assignment

DB37 Connector	Channel	DB37 Connector	Channel
1	+IN00	20	-IN00
2	+IN01	21	-IN01
3	+IN02	22	-IN02
4	+IN03	23	-IN03
5	+IN04	24	-IN04
6	+IN05	25	-IN05
7	+IN06	26	-IN06
8	+IN07	27	-IN07
9	+IN08	28	-IN08
10	+IN09	29	-IN09
11	+IN10	30	-IN10
12	+IN11	31	-IN11
13	+IN12	32	-IN12
14	+IN13	33	-IN13
15	+IN14	34	-IN14
16	+IN15	35	-IN15
17		36	
18		37	



Specifications

Product name	OP7818
Part number	126-0391
Product type	OP7000 back 16 Ain
Number of channels	16
Input modes	Voltage, current or resistive sensor
Isolation	Provided by OP7000
Maximum Current	±25 mA
Maximum voltage	±20 V
Dimensions	18.8 x 16.4 cm (7.4 in x 6.46 in)
I/O connector	DB37F
Operating temperature	10 to 40 °C (50 to 104°F)
Storage temperature	-55 to 85°C (-67 to 185°F)
Relative humidity	10 to 90%, non condensing
Maximum altitude	2,000 m (6562 ft.)

