



AC Current Input Modules

401020
110739
401025

Product Overview

The AC Current Input Module provides 4 isolated current channels for TESLA Power System Recorder. The current modules provide conditioning and isolation between the main CT secondaries and the inputs to the recorder. The nominal current input to these modules can be either 1A or 5A and outputs from the modules are scaled to connect directly to the TESLA's analog input terminals.

Due to impedance matching requirements, module channels cannot be connected to more than one TESLA input channel.

The modules may be located up to 1200 meters (4000 feet) from the recorder using shielded wire (e.g. Belden 9728/30) to connect to the recorder's inputs. The ground cable should be attached only at the recorder end.

Model Options

The modules are available in two options with different characteristics externally identifiable by the casing – plastic casing and CE compliant metal casing.

The metal casing modules have a user-selectable Nominal current input setting (1A or 5A) whereas the green plastic casing modules are available as 1A or 5A versions which need to be specified at the time of order.

These options are summarized in Table 1 below.

Table 1: AC Current Input Modules Options				
Part No	Case Material	Mounting Style	Nominal (In)	Module Type in TESLA Control Panel
101955	Plastic	DIN	1A	401020
110739	Plastic	DIN	5A	110739 5A Himax
114153	Metal	DIN	User selectable: 1A or 5A	401025 1Aac or 401025 5Aac
114260	Metal	Rack	User selectable: 1A or 5A	401025 1Aac or 401025 5Aac
114261	Metal	Surface	User selectable: 1A or 5A	401025 1Aac or 401025 5Aac

NOTE:

The metal casing modules (module type 401025) cannot be used with TESLA 2000 and TESLA 3000. The Plastic casing modules (Module type 401020 and 110739) can be used with all TESLA models.



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AC Current Input Modules with Plastic Casing



These modules are available in two variants as below:

- 5A nominal input Part No 110739
- 1A nominal input Part No 101955

The correct part number must be specified at the time of order.

Apply the nominal phase current (I_n) – 5 A or 1 Arms – into the odd numbered input terminals with the dot (indicating ac instantaneous polarity) and out of the even numbered terminal for each current input. When the 5A input module Part no 110739 is used with TESLA 3000 in applications requiring maximal input accuracy, such as PMU applications, the TESLA 3000 must be upgraded to firmware version v2.7 on greater.

The ratings for these two current modules are as per details in Table 2 below.

Table 2: Modules ratings			
Part No	Nominal (I_n)	Module Type in TESLA Control Panel	Rating
101955 110739	1A Nominal 5A Nominal	401020 1Aac 110739 5A Himax	Continuous: 4x I_n Full scale: 20x I_n Thermal withstand: 80x I_n for 1 second Burden: <0.25 VA @ 5 Arms Ratio (1 kΩ load): 1A 79 mV/A, 5A 15.8 mV/A Dimensions L x W x H in mm: 172 x 113 x 67.2

These modules can be used in applications where CE compliance is not mandatory and where the full scale rating of 20 x I_n is sufficient to capture oscillography of fault currents.

See Figure F1 for this module's drawings.

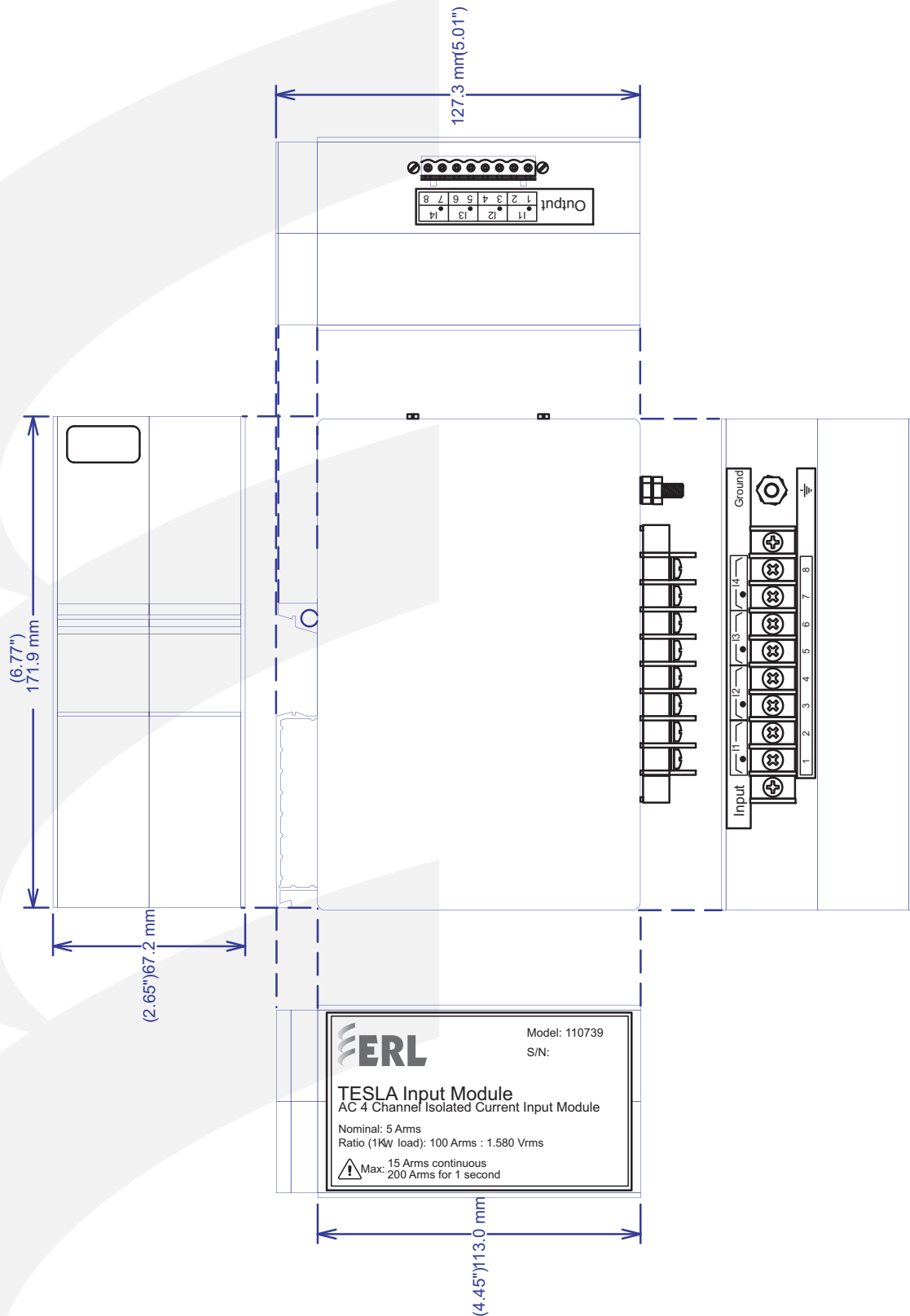


Figure F.1: Part No 101955 and 110739 - AC Current Input Module

AC Current Input Modules with Metal Casing - Model 401025

Conforming to CE requirements.



- Part No 114153 – DIN rail mount
- Part No 114260 – Rack mount
- Part No 114261 – Surface mount

The Modules have user selectable 1A and 5A nominal input ratings. The selection is made by connecting to either the 1A terminal or the 5A terminal on the input connector and also indicated in the TESLA Control Panel by selecting either the 1Aac or the 5Aac module type from the module type pulldown menu

The Full Scale rating is also user selectable as 10x/20x/40x In for each module. The selection is guided by the faults expected in the power system – choosing a higher full scale rating would more faithfully capture high fault currents but sacrifices sensitivity at low fault levels and vice versa. This selection is made on the module by changing the shunt resistor (labeled “Rsh” on the module) on the output connector as shown in Table 3: Full Scale Rating Adjustment. The Full Scale rating must also be correctly entered in Control Panel to match the Rsh installed.

Full Scale	Shunt Resistor (Rsh)
10x In	Rsh = 0 ohms (short)
20x In	Rsh = 1500 ohms (default)
40x In	Rsh = open (empty)

The ratings for these modules are as given below in Table 4.

Part No	Dimensions L x W x H	Mounting	Rating
114153	152.6 x 137.2 x 80.8 mm	DIN Rail	Nominal In: 1 Arms and 5 Arms (connection option) Continuous: 4x In Full scale: user configurable from 10x In, 20x In, 40x In Thermal withstand: 50x In for 3 seconds, 100x In for 1 second Burden: 1A Input: < 0.07VA @ In, 5A Input: < 0.15VA @ In Ratio (1 kΩ load): Full Scale set to 40x In: 40Arms/200Arms:1.774Vrms Full Scale set to 20x In: 20Arms/100Arms:1.764Vrms Full Scale set to 10x In: 10Arms/50Arms:1.737Vrms
114260	149.6 x 137.2 x 81.3 mm	Rack	
114261	149.6 x 137.2 x 80.8 mm	Surface	

The 3 part numbers for these modules are for 3 different mounting arrangements which have to be specified at the time of order. The part number and drawings are as below:

- Part No 114153 – DIN rail mount – Figure F2
- Part No 114260 – Rack mount – Figure F3
- Part No 114261 – Surface mount – Figure F4

The rack mount plate (Part No 114248 Figure F5), allows up to 3 modules to be installed in 2U of a 19” rack. The rack mount style modules are ordered separately from the rack mount plate and the modules must be installed into the plate by the customer. Figure F6 shows how to install the modules into the plate. Use 4 #10 or M6 screws to mount the rack mount plate into the 19 inch rack.

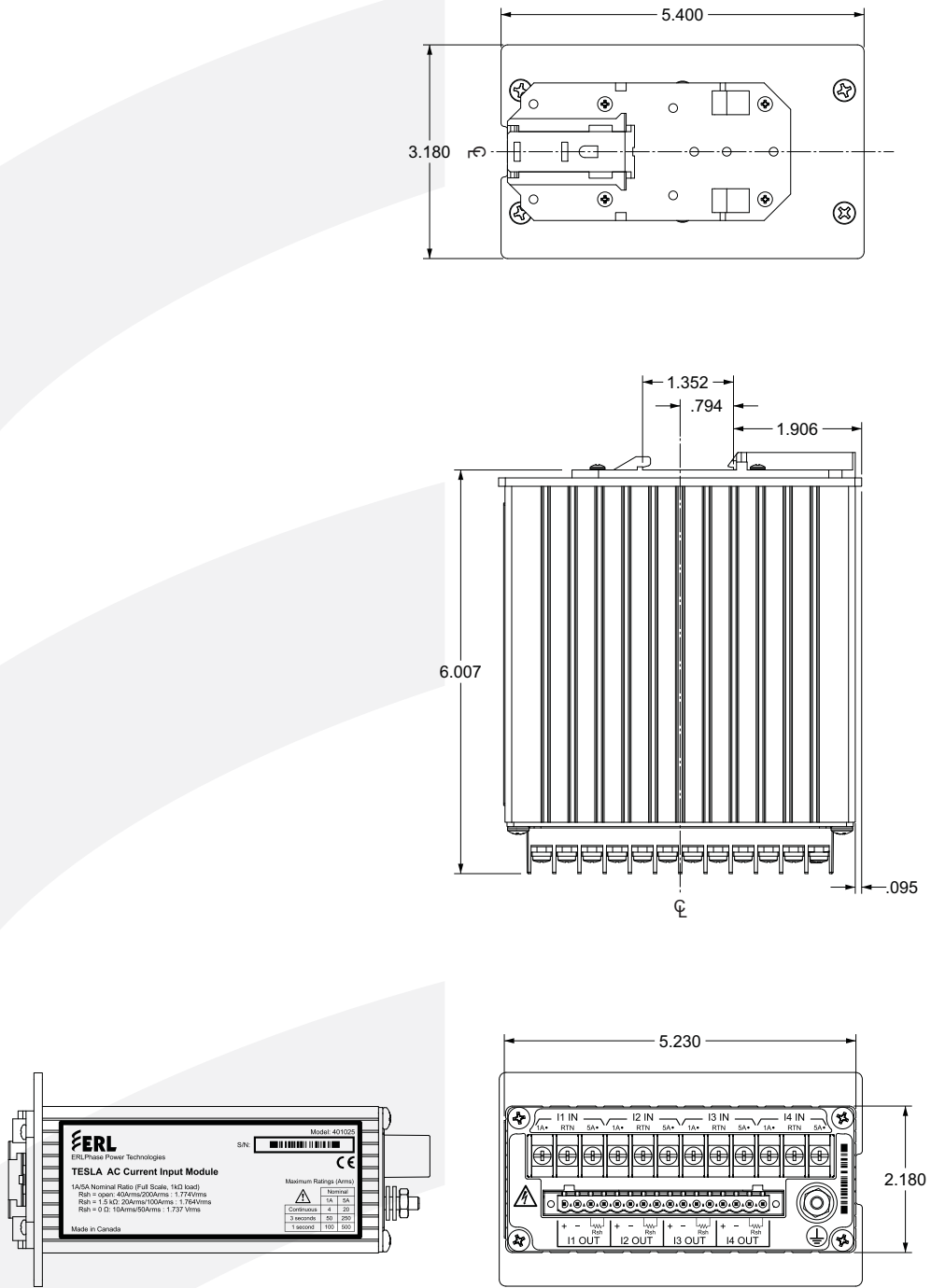


Figure F2: Part no 114153 4 Channel AC Current Input Module, 1A & 5A, DIN Mount
 Dimensions are in inches.

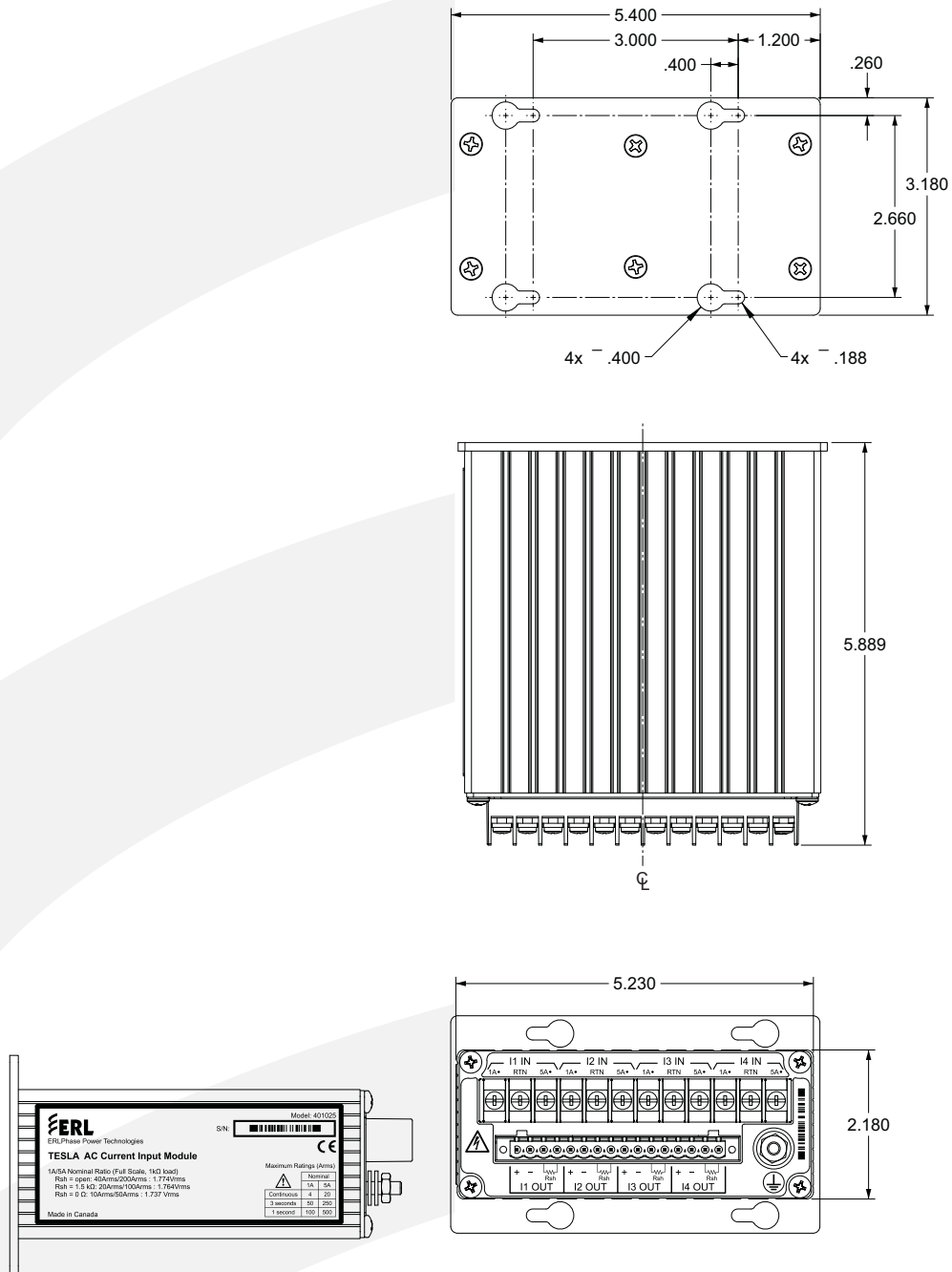


Figure F3: Part No 114261 4 Channel AC Current Input Module – Rack Mount
 Dimensions are in inches.

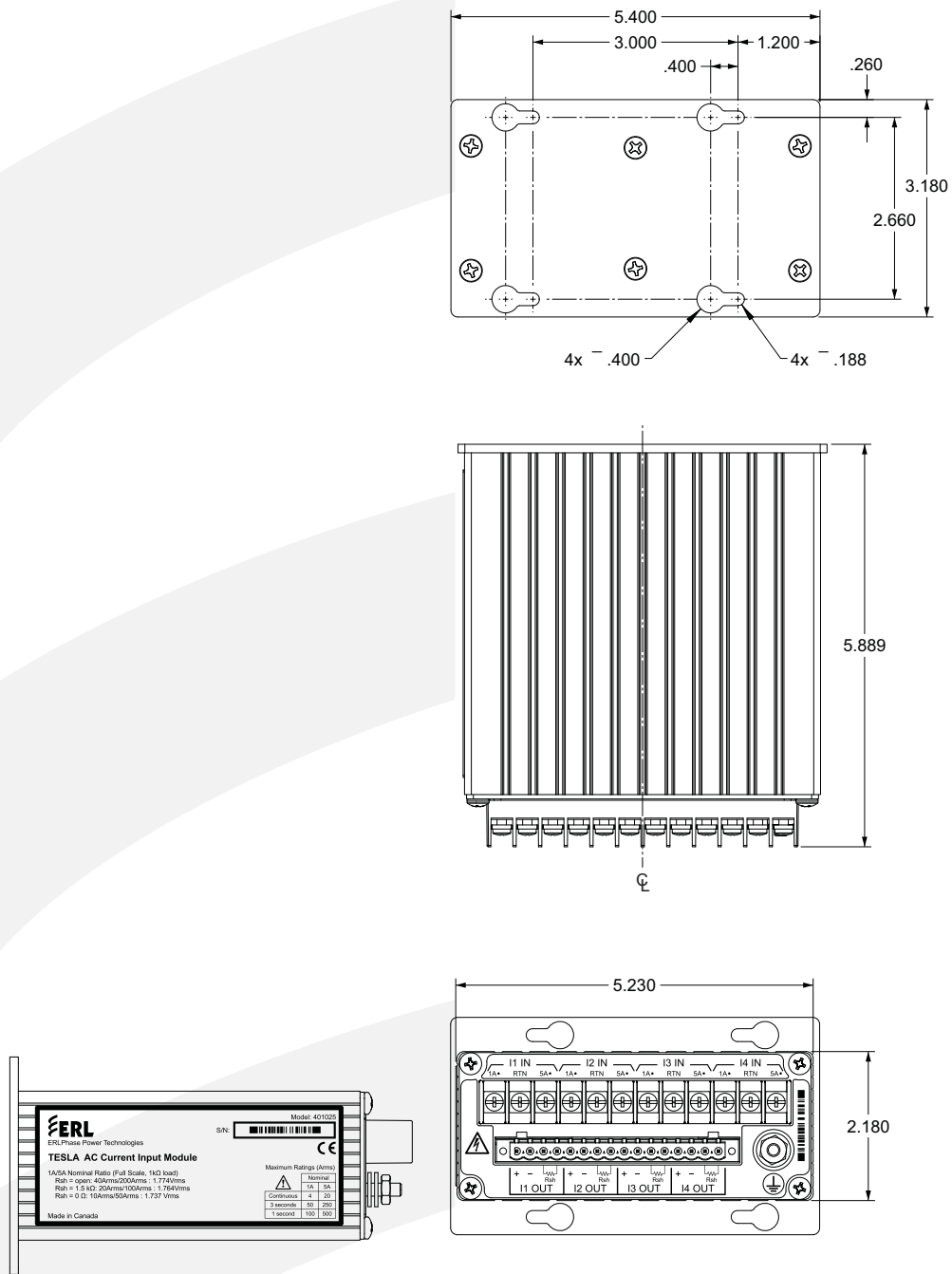


Figure F4: Part No 114261 - 4 Channel AC Current Input Module, 1A & 5A, Surface Mount
 Dimensions are in inches.

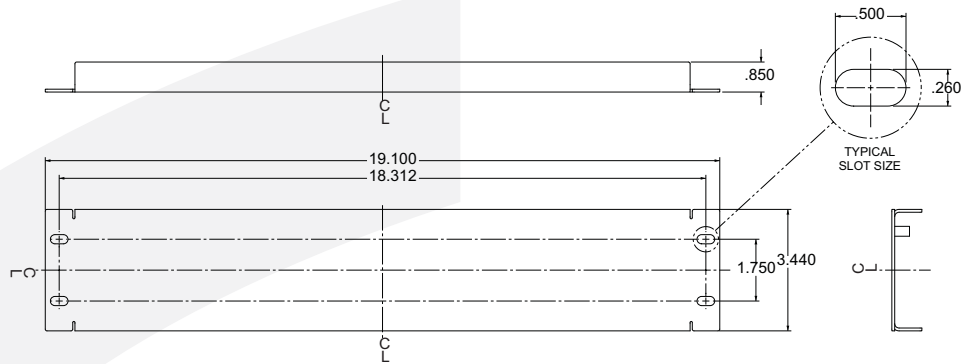


Figure F5: Part No 114248 2U Module Rack Mount Plate
Dimensions are in inches.

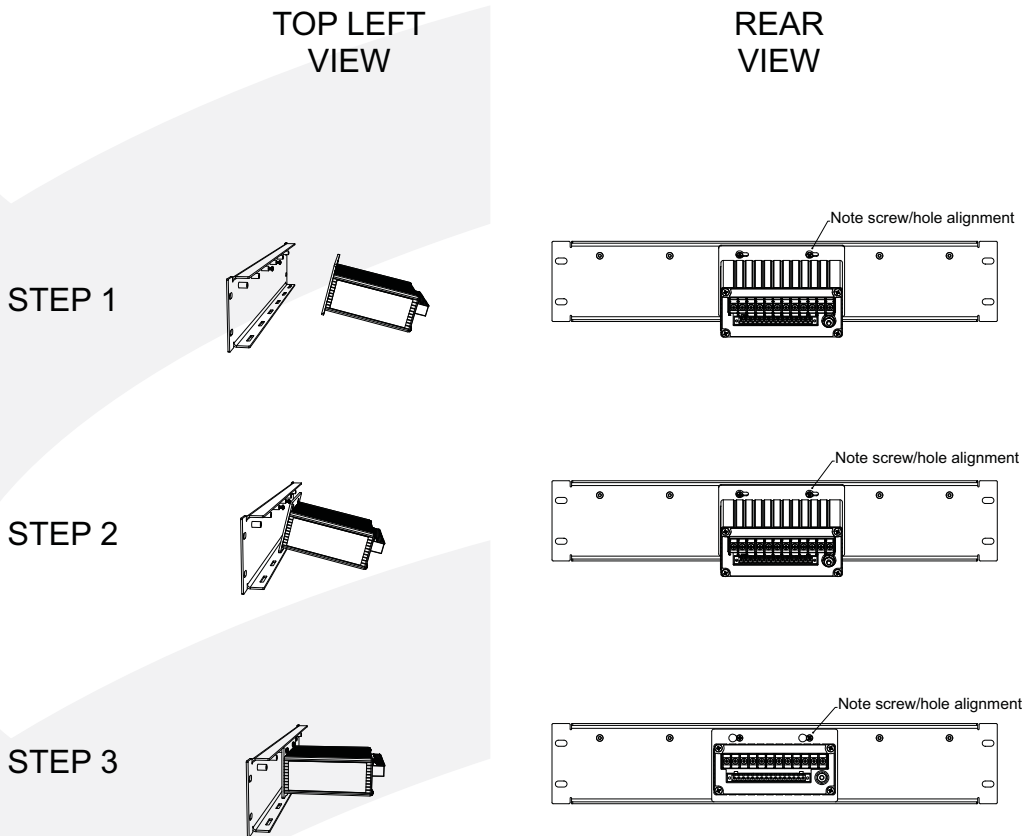


Figure F6: Installing Modules into Rack Mount Plate
Dimensions are in inches.