

Instruction Manual

Junction Box for
PR-43 Refractometer

VAISALA

PUBLISHED BY

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General safety considerations

It is the user's responsibility to follow manufacturer's safety and operating instructions. The client's organization has the responsibility to develop and maintain occupational safety and create a safety culture where individuals are expected to follow safety instructions at all times. Any negligence towards safety instructions or failure to comply with safe practices should not be tolerated. It is the manufacturer's responsibility to produce goods that are safe to use when instructions are followed.

Electric safety

Check the incoming voltage and frequency before making any connections. Follow the applicable safety regulations. Make sure that the feed into the junction box is shut off before opening the box. Only appropriately trained and authorized persons may make the electronic connections.

Disposal

When wishing to dispose of an obsolete instrument, please observe local and national regulations and requirements for the disposal of electrical and electronic equipment.



Symbols and terms used in this manual:



This indicates a **warning**. It provides safety precaution information needed to avoid injury while operating the refractometer system.



This indicates that something is **important** for the operation of the refractometer system.

Note. Notes contain additional information and hints.

This product manual is delivered to the end user with a Vaisala K-PATENTS® product. Information in this manual is subject to change without notice. When the manual is changed, a revised copy is published at <http://www.kpatents.com/>

Warranty

For standard warranty terms and conditions, see www.vaisala.com/warranty.

Please observe that any such warranty may not be valid in case of damage due to normal wear and tear, exceptional operating conditions, negligent handling or installation, or unauthorized modifications. Please see the applicable supply contract or Conditions of Sale for details of the warranty for each product.

Technical support

Contact Vaisala technical support at helpdesk@vaisala.com. Provide at least the following supporting information:

- Product name, model, and serial number
- Name and location of the installation site
- Name and contact information of a technical person who can provide further information of the problem

For more information, see www.vaisala.com/support.

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1 Introduction

The junction box serves multiple purposes. The junction box provides a secure environment and ensures a stable 24 V power supply to the refractometer. The junction box is also an alternative to the split cable, providing an ethernet connection for configuration and data collection. In the US it enables the customer to install refractometer cabling in conduits.

The junction box enclosure is either plastic or metal with IP66/67 protection class.

Alternatively, a PR-10940 installation package with the components of the junction box can be installed on a DIN rail considering the local electrical safety regulations.

2 Mounting

The junction box can be mounted either indoors or outdoors. It is mounted on a wall, preferably with easy access. Vaisala recommends that the junction box is protected from rain and dripping water. The standard cable from the box to the refractometer is 10 meters long, but it can be longer, up to maximum of 90 m.

2.1 Wall mounting polycarbonate box (JB-UN-PCE)

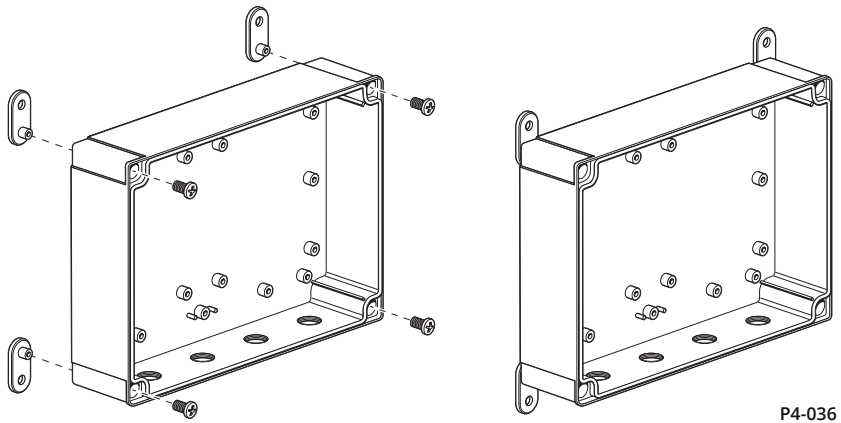


Figure 2.1 Mounting the polycarbonate junction box (JB-UN-PCE) on a wall

For the exact placement of the mounting feet, see Figures 5.1 and 5.2.

2.2 Wall mounting steel junction box (JB-UN-SS)

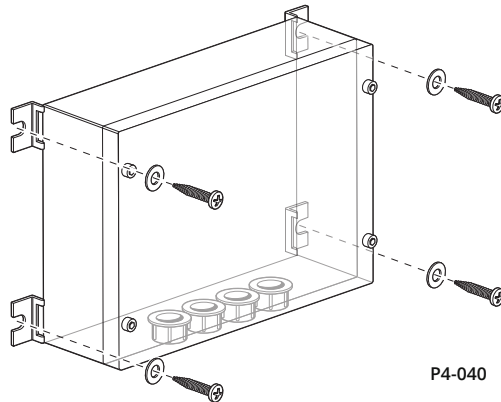


Figure 2.2 Mounting the steel junction box (JB-UN-SS) on a wall

For the exact placement of the mounting screws, see Figures 5.3 and 5.4.

2.3 Mounting PR-10940 Terminal connection rail

PR-10940 Terminal connection rail can be mounted on a DIN rail. For PR-10940 dimensions see Figure 5.5.

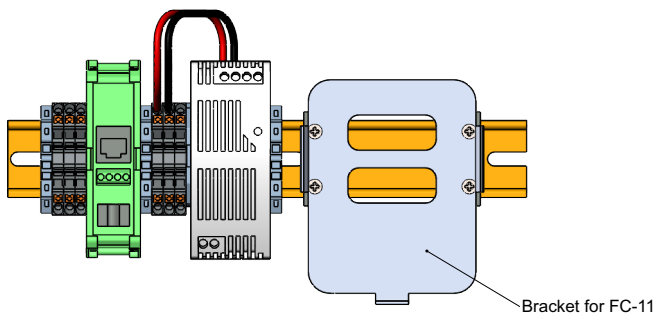


Figure 2.3 PR-10940 Terminal connection rail

3 Junction box connections

Cable connection order:

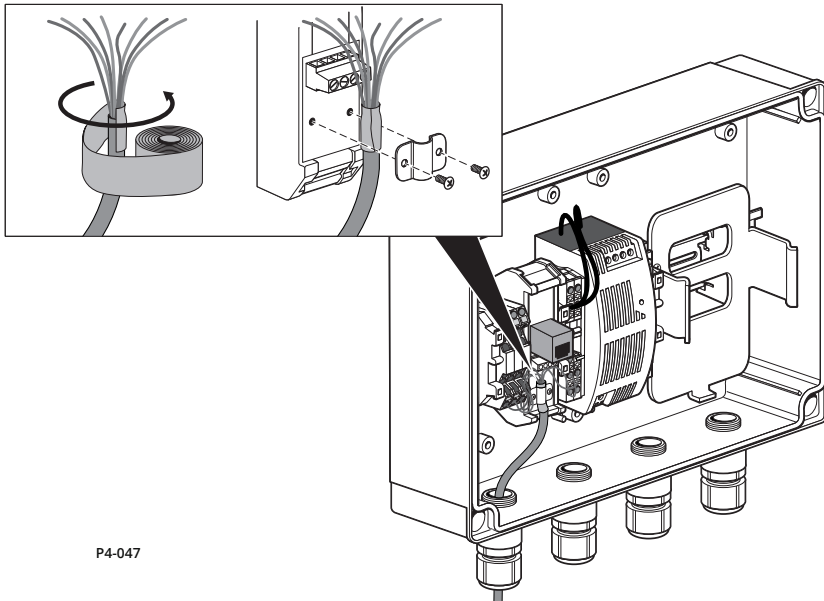
1. Connect the refractometer cable PR-8437
2. Connect the mA cable and the RJ45 Ethernet cable
3. Connect mains power supply cable. An external power switch is recommended. It should be located near the junction box in a location with easy access.

! **Important:** Make sure that the twisted pairs of the Ethernet cable are twisted all the way to the screw terminals.

The mA output is active with compliance of 1000 Ω .

The cables can be multistranded, solid or with end terminals.

! **Important:** Make sure that refractometer cable shield is not in contact with cable clamp by taping the shield.



P4-047

Figure 3.1 Taping the refractometer cable shield

3.1 Connection cables

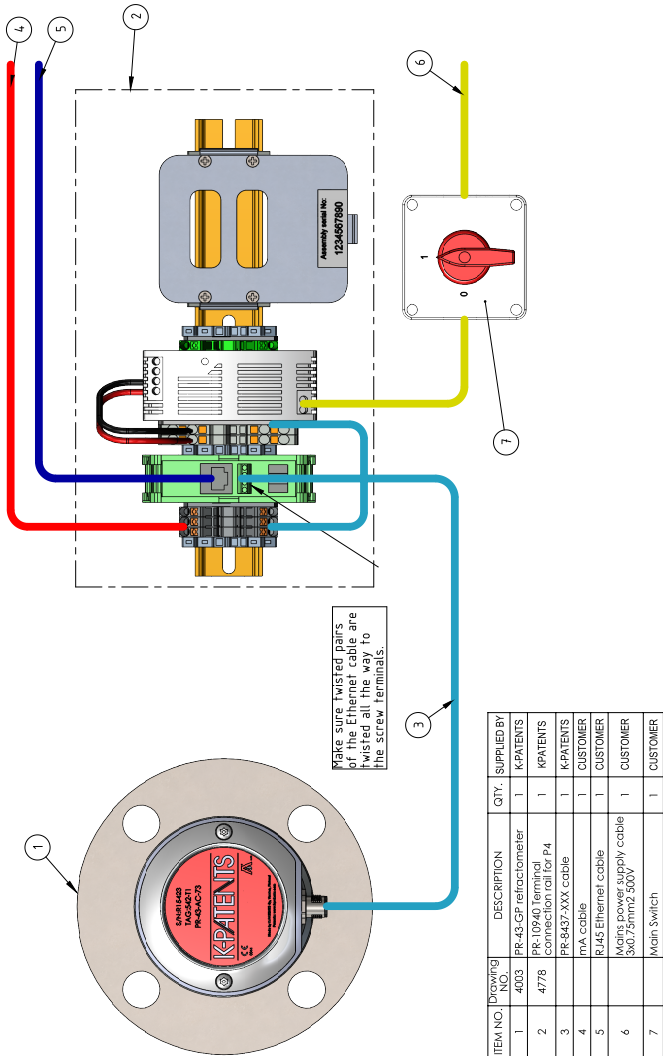


Figure 3.2 Connecting junction box (drawing 4868)

3.2 Wiring

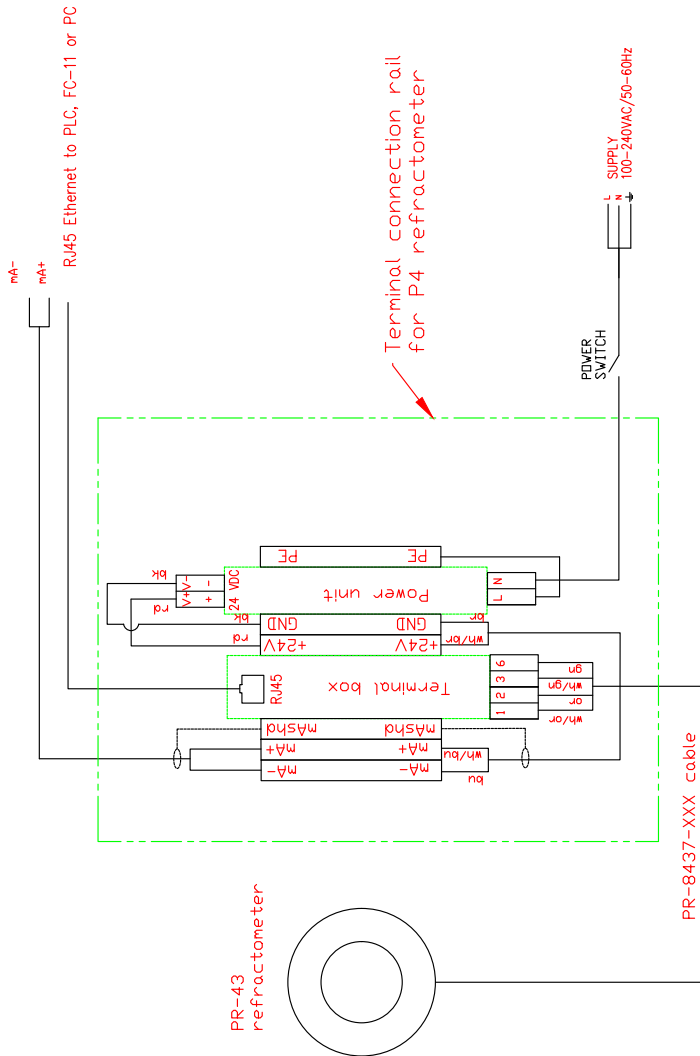


Figure 3.3 Junction box wiring according to WRG-576

3.3 Connecting Field communicator FC-11

In case of need for data logging, a Vaisala K-Patents® Field communicator FC-11 can be installed inside the junction box. The FC-11 is powered directly from junction box with cable PR-8819 and is connected with ethernet connection cable PR-8822. FC-11 and cables can be ordered separately.

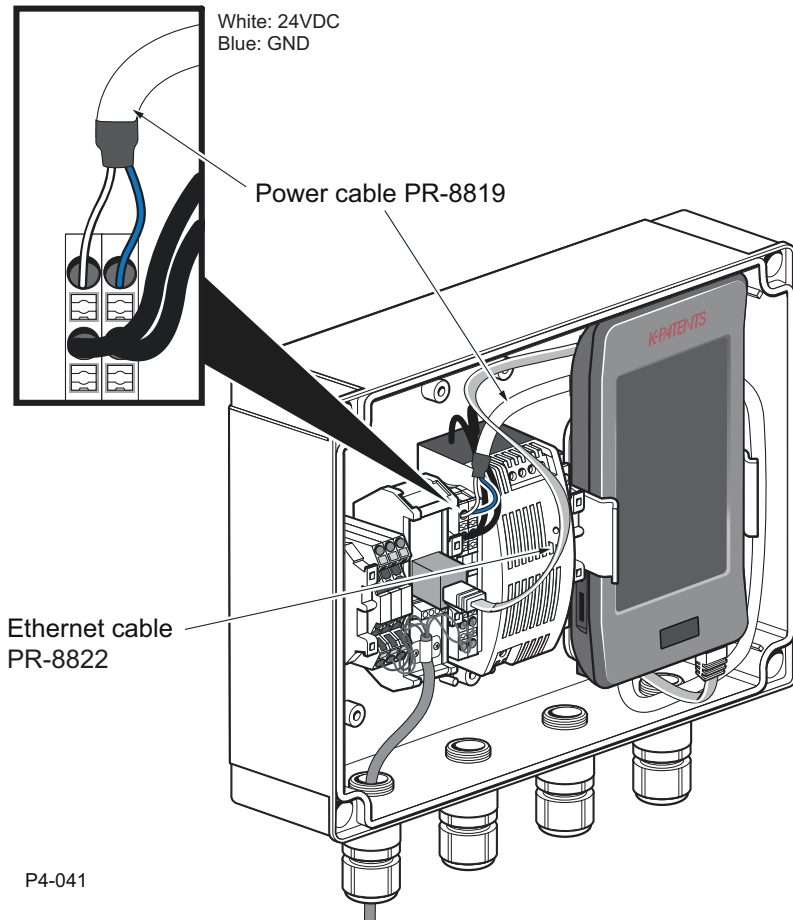


Figure 3.4 Connecting a FC-11

4 Maintenance

4.1 Cleaning

Clean the enclosure with a damp cloth. Do not use solvents on the polycarbonate box. Before you open the box, dry it and make sure that the groove between the cover and the body of the box is clean.

5 Specifications

Maximum altitude for use of the junction box is 2000 meters above sea level.

5.1 Power unit specifications

Ambient temperature (operation)	-25°C ... 70°C (> 55°C derating: 2.5%/K)
Nominal input voltage range	100 V AC ... 240 V AC
AC frequency range	45 Hz ... 65 Hz
Nominal power consumption	21.4 W
Input fuse	1.25 A (Slow-blow, internal)
Choice of suitable circuit breakers	6 A ... 16 A (Characteristics B, C, D, K)
Nominal output voltage	24 V DC \pm 1 %
Nominal output current (I_N)	0.75 A (-25°C ... 55°C)
Output power	18 W
UL approvals	UL/C-UL listed UL 508 UL/C-UL Recognized UL 60950 NEC Class 2 as per UL 1310

5.2 Enclosure specifications

Material	Polycarbonate	AISI 316L
Weight	3.8 kg	4.6 kg
Protection class	IP66/67, NEMA 1, 4, 4X, 6, 12, 13	IP66/67, NEMA 4
Ambient temperature	-25°C ... +70°C	
UL approvals	cUL/UL FILE E 75645 Vol. 1 Sec. 7	

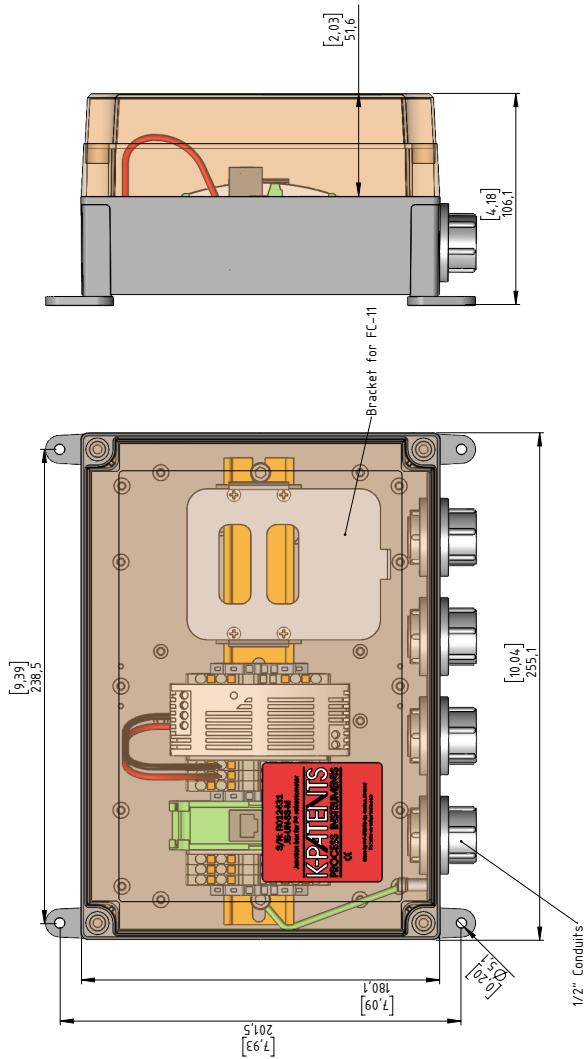


Figure 5.1 Polycarbonate enclosure with conduits (JB-UN-PCE-U-AC) (drawing 5134)

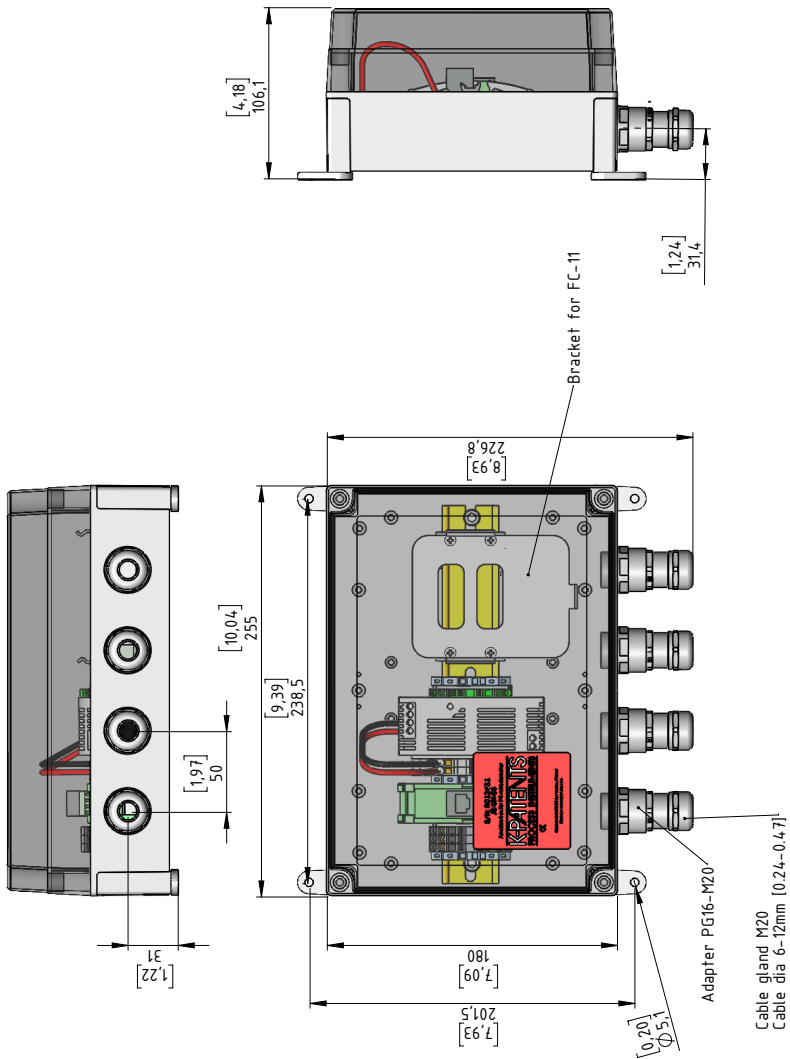


Figure 5.2 Polycarbonate enclosure with cable glands (JB-UN-PCE-M-AC) (drawing 5145)

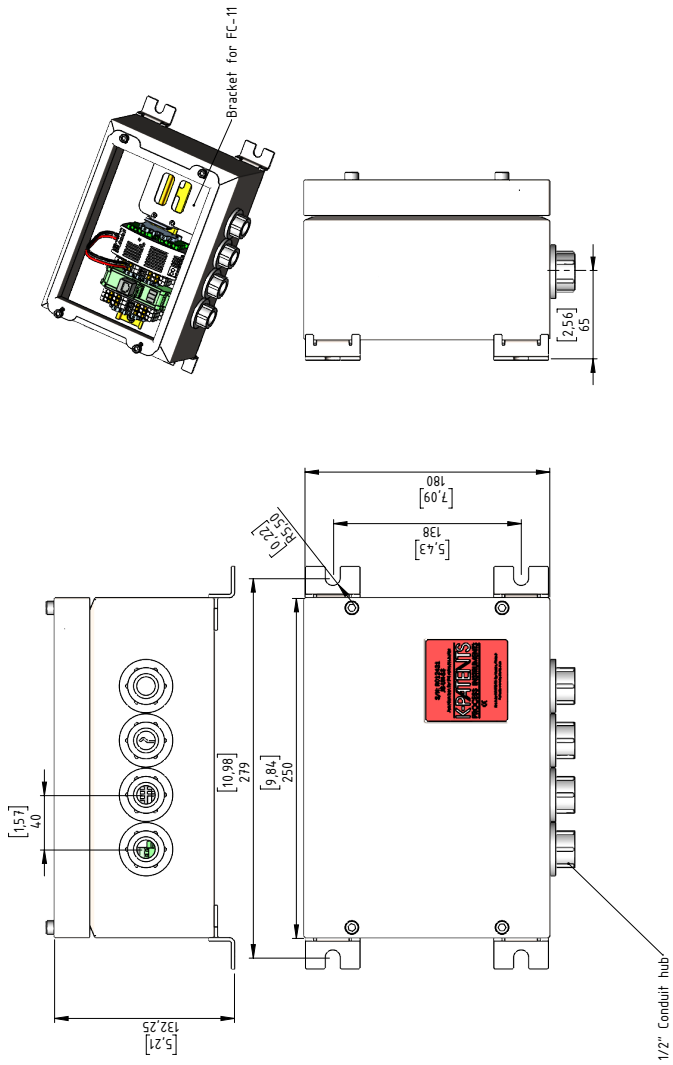


Figure 5.3 Steel enclosure with conduits (JB-UN-SS-U-AC) (drawing 4720)

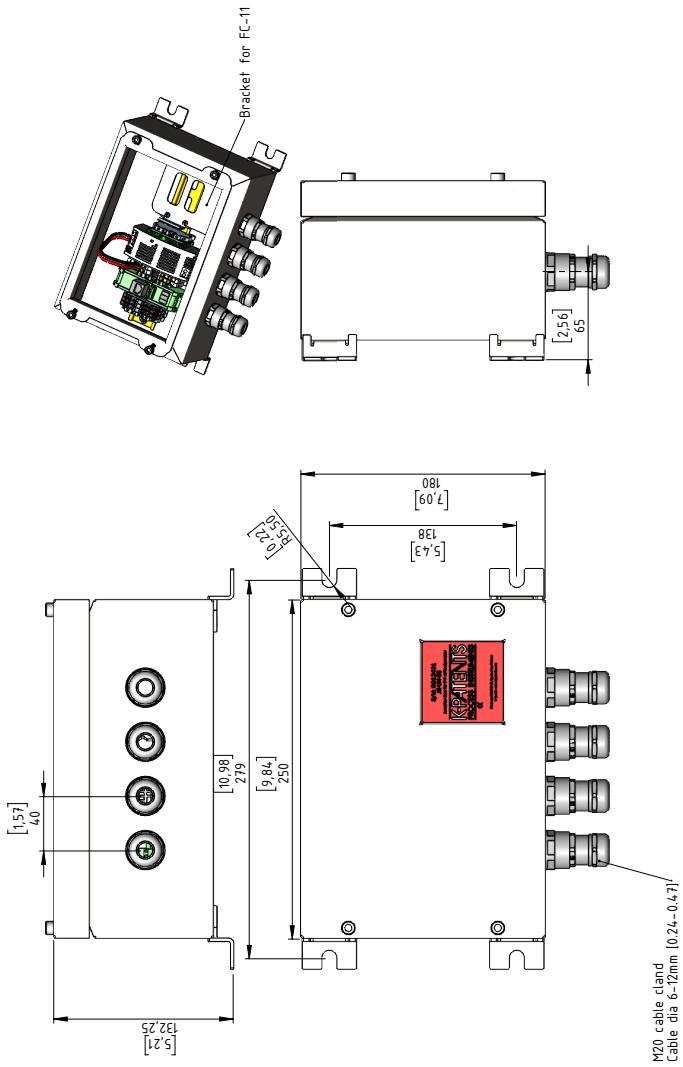


Figure 5.4 Steel enclosure with cable glands
(JB-UN-SS-M-AC) (drawing 5211)

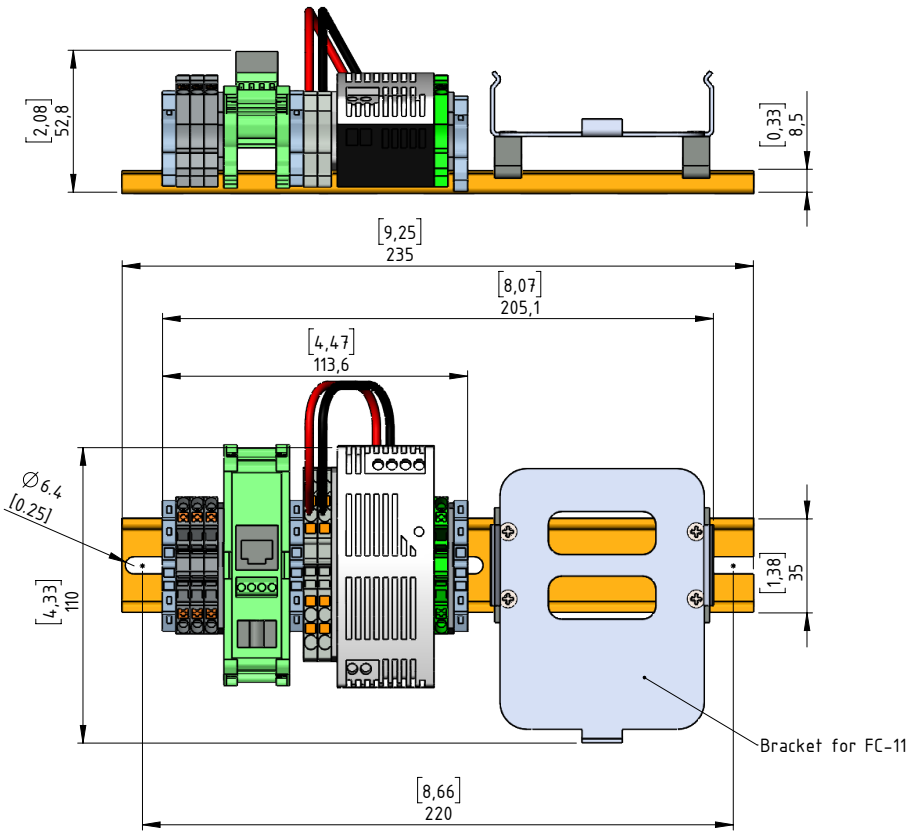


Figure 5.5 PR-10940 Terminal connection rail (drawing 5151)

5.3 Model code

Junction Box for PR-43 refractometer

Model and description	Model
JB = Junction box for PR-43 refractometer	JB
Electrical classification	
-UN = Unclassified area, general purpose, ordinary location	-UN
Enclosure type	
-PCE = polycarbonate	-PCE
-SS = AISI 316 L	-SS
Cable connections	
-U = ½ inch NPT type conduit hubs	-U
-M = M20x1.5 metric cable glands	-M
Power supply	
-AC = Power supply 100–240 VAC 50/60 Hz	-AC

Model and description	Model
PR-8437-010 = Platform 4 cable free ends (for Junction box JB), 10 meters	PR-8437-010

For example junction box JB-UN-PCE-U-AC and cable PR-8437-010.

Cables for FC-11

Model and description	Model
PR-8819 = Power cable for FC-11, 0.5 m	PR-8819
PR-8822 = Ethernet cable for FC-11, 0.5 m	PR-8822

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