

Electrical and Communications Instruction Manual

Gear Drives

How to Use the Instructions

These instructions describe how to connect the Rexnord Edge to electrical power and ethernet communications for all Rexnord Smart Condition Monitoring System models. This work is intended for a licensed electrician as proper safety precautions should be taken when working with high voltage. These instructions also cover how to connect the transducer used to monitor motor current when provided as part of the model package. For details on sensor placement and attachment, please refer to the proper model installation instructions found on Rexnord.com.

Smart Condition Monitoring System Model 1050 installed on a Rexnord V-Class® Gear Drive.



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Safety Requirements

The gear drive and power to Edge Device needs to be locked out during installation and troubleshooting.

Exploded View

Figure 1 – Exploded view of Edge Device assembly

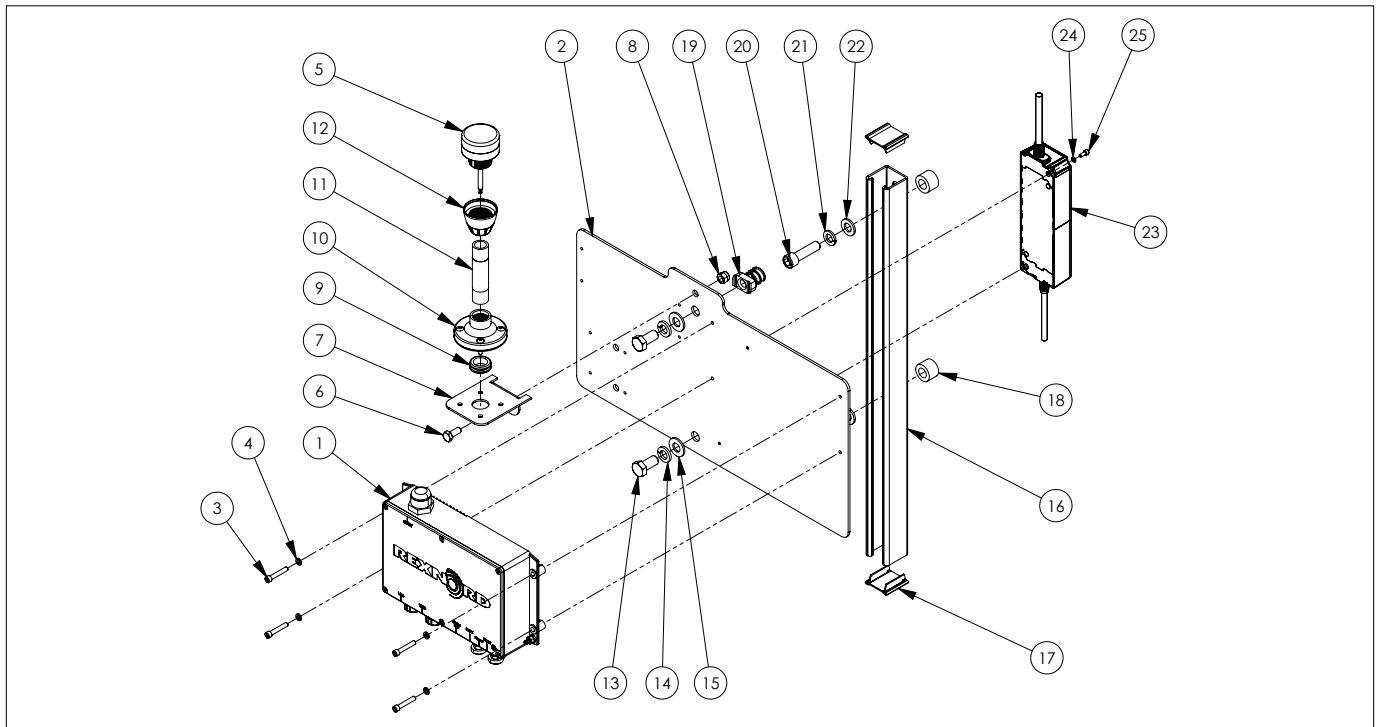


Table 1 – Parts list of the Edge Device mounting for foot mounted gear drives

Item number	Description	Quantity
1	Serial Edge Device	1
2	Edge Device mounting plate	1
3	Socket head cap screw, #12-24UNC x 1-1/4"	4
4	Lock washer #12	4
5	Andon light	1
6	Hex head cap screw, 5/16-18UNC x 3/4", grade 5	1
7	Andon light bracket	1
8	Lock nut 5/16-18UNC	1
9	Rubber grommet	1
10	Andon light mounting flange with M5 hardware	1
11	Conduit nipple electrical 0.50-14NPT x 3-1/2"	1
12	Andon light pipe cover	1
13	Hex Head Cap Screw, 1/2-13UNC x 1", grade 5	2
14	Lock washer, 1/2"	2
15	Flat washer, 1/2"	2
16	Channel 1-5/8" x 1-5/8" slotted, galvanized	1
17	Unistrut end cap	2
18	Mounting post, 190V-220V gear drives only	2
19	Channel Nut with Spring, 1-5/8" series, 1/2-13UNC	2
20	Socket head cap screw, M12x1.75 x 30 mm, grade 8.8 (V-Class 120V - 180V)	2
	Socket head cap crew, M12x1.75 x 45 mm, Grade 8.8 (V-Class 190V - 220V)	2
	Socket head cap screw, 5/16-18UNC x 5/8" (A+Plus and Y-Unit)	2
21	Lock washer, M12 (V-Class)	2
	Lock washer, 5/16" zinc plated (A+Plus and Y-Unit)	2
22	Flat washer, M12 (V-Class)	2
	Flat washer, 5/16" stainless (A+Plus and Y-Unit)	2
23	Power supply for Edge Device	1
24	Socket head cap screw #8-32 x 3/8"	2
25	Lock washer #8	2

Electrical Connection

CONNECTING AC INPUT POWER TO SCMS AC POWER SUPPLY UNIT (See item 23 in Figure 1)

The Smart Condition Monitoring System Edge device power supply unit must be connected to AC power to operate. The input power specifications include:

- Nominal voltage: 100V to 240V ac nominal 50-60Hz
- Maximum power: 120 Watts

Figure 2 – Drawing of third generation Smart Condition Monitoring System Serial Edge Device showing variant with optional cellular antenna.

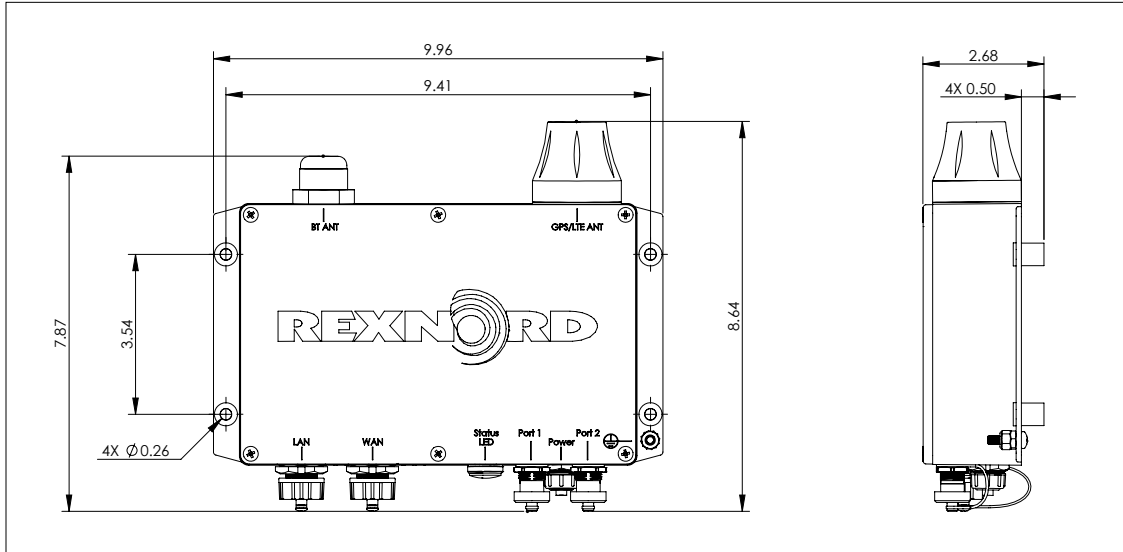
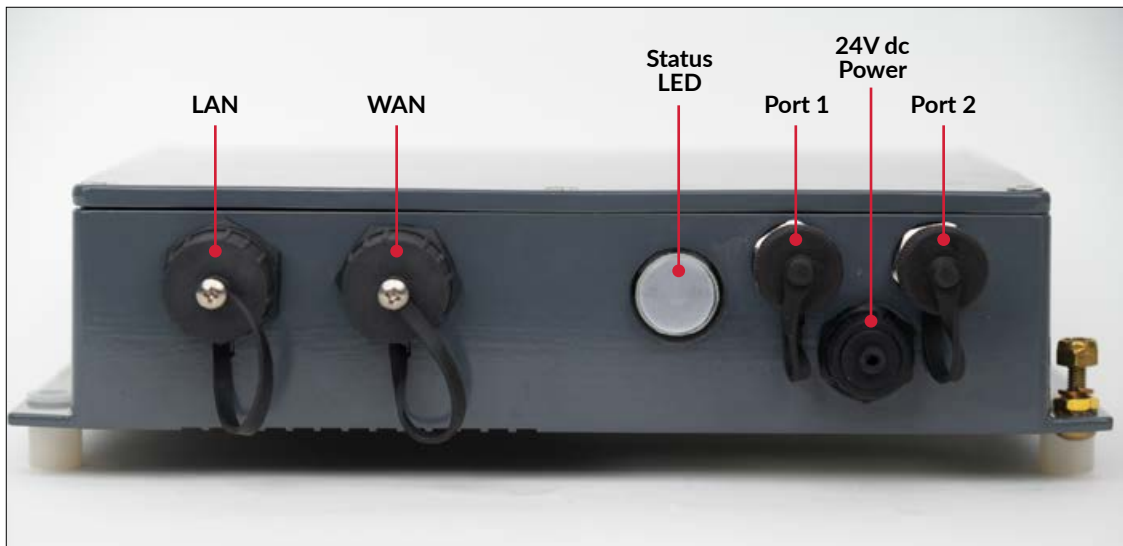


Figure 3 – Serial Edge Device showing all available user connections.



Electrical Connection

ATTACHING THE AC INPUT POWER CONNECTOR TO POWER SUPPLY UNIT (PSU)

1. Mount the PSU to the backside of the EDGE mounting plate as shown in **Figure 1**. Use 2 each of M4 hardware consisting of pan head screws, flat washers and nylon locknuts. Make sure the PSU is mounted vertically with the 24V dc outlet wire on the bottom.
2. Each PSU includes the mating connector for the ac cord in the box. Open the bag and carefully remove the contents. Choose the correct cable sealing compression grommet for the size of cable being provided. This is indicated on the side of the bag. See **Figure 4**.
3. Assemble the compression clamp, the correct size cable compression grommet and the connector back shell onto the cable in the order and orientation shown in **Figure 5**.
4. Strip back the outer cable sheath 1 inch (25 mm) and strip each core wire 1/4 inch (6 mm) – see **Figure 5**.
5. Twist the wire elements and insert each wire into its correct location in the connector front after slackening the core wire clamp screws. Typically the wires will be black to “L”, white to “N” and green to ground symbol on connector front. See **Figure 6**.
6. Hold the front of the connector very firmly with dry fingers and screw on the connector backshell. Do not use tools or you will overtighten and break the connector. Firmly hand tight will achieve a good IP65 seal. See **Figure 7**.
7. Push the cable sealing compression grommet into the connector backshell fingers. See **Figure 8**.
8. Hold the connector backshell firmly with fingers and screw the compression clamp onto the connector backshell. A firm hand tightening will achieve a good seal to IP65. Do not use tools as you are likely to damage or overtighten the connector. See **Figure 9**.
9. Attach this female connector onto the mating male connector on the end of the ac lead cable on the PSU by turning it slowly until it fits on and turning the locking bayonette ring through half a turn. See **Figure 10**.
10. Apply ac power to the incoming ac power cable and test the 24V dc output by plugging a Gen III Serial Edge Device onto the dc cable from the PSU.

Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10



Electrical Connection

Figure 11 – Reference schematic of power supply unit

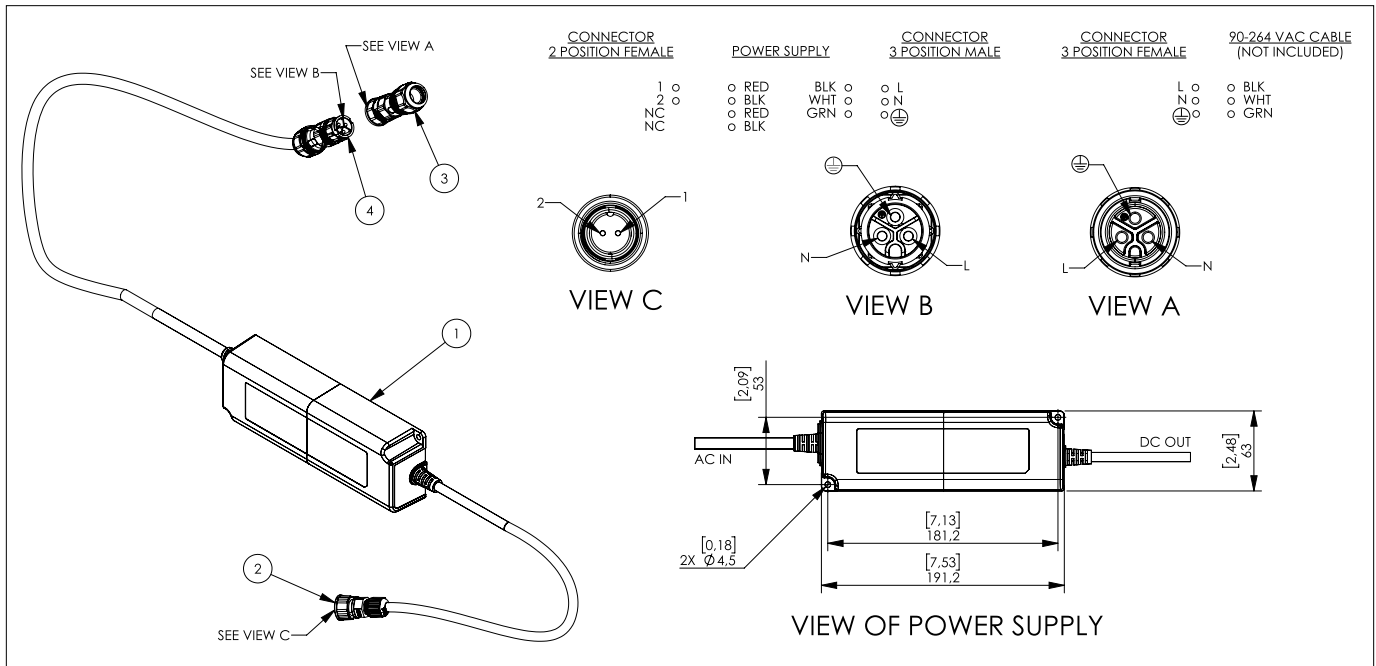
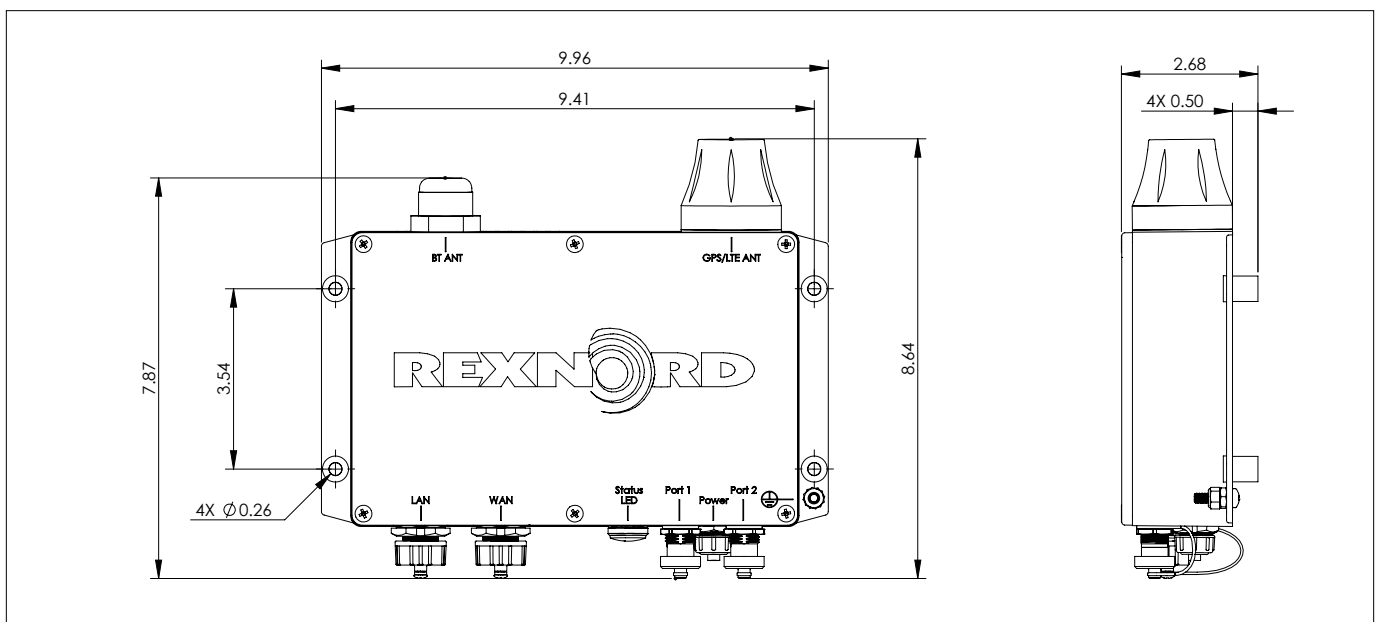


Table 2 – Power supply unit parts

Item number	Description
1	Gen III Serial Edge Device 24V dc power supply
2	24V dc connector for connecting to Gen III Serial Edge Device
3	100-240V ac power plug included with power supply. Attach to customer supplied ac power lead – see instructions above
4	Mating ac power plug on power supply that connects to newly terminated connector from #3 above.

Figure 12 – Overall dimensions for Edge Device



Data Cable Connection

ATTACHING THE SUPPLIED ETHERNET CONNECTOR TO CAT 5 CABLE

1. Place sealing "O" ring over connector body and slide coupling ring onto body (**Steps A, B then C**).
2. Slide sealing nut, cable grip grommet and assembly just created onto cable. Push the grommet into the connector body then loosely tighten the sealing nut (**Steps D, E then F**).
3. Strip the outer sheath of the cable back 14 mm, untwist and straighten the 8 core wires and arrange the colors as required for EIA/TIA 568B (Orange/White, Orange, Green/White, Blue, Blue/White, Green, Brown/White, Brown - pins 1 to 8) then trim to a neat straight line (**Steps G, H then I to give J**).
4. Push the wires into the clear RJ45 connector. Pin 1 is to the left when the cable is facing you and the tang is under the connector as shown in **Step K**.
5. Crimp the wire cores into the RJ45 connector using suitable crimping pliers (**Step L**).
6. Gently pull the RJ45 plug back into the connector shell, slip the snap ring onto the connector body and push firmly until it snaps into place locking the plug into the connector body (**Steps M, N then O**).
7. Test the completed cable end to end with a suitable LAN cable tester.

Step A



Step B



Step C



Step D



Step E



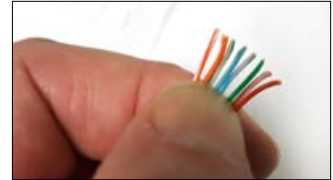
Step F



Step G



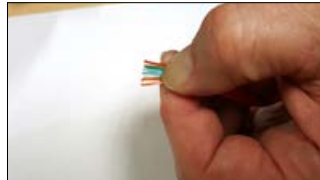
Step H



Step I



Step J



Step K



Step L



Step M



Step N



Step O



Step P



Transducer Connection

CONNECTING THE REXNORD SUPPLIED CURRENT TRANSDUCER

Electrical Connections

(tool needed 1/8" or 3 mm blade screwdriver)

Input Connections

Current Measurements

The current transducer is a non-contact sensor that measures the magnetic field generated from electrical current running through a wire. The sensor converts the measured magnetic field into an analog output in relation to the current passing through the sensor.

Best practice is to install the current transducer where electrical current travels from the source to the load (as shown in **Figure 13**).

All non-contact current measurements are based upon the individual measured wire (V dc or 1Ø V ac) passing through the sensor's hole with the analog signal wire connected to the CT as shown in **Figure 14**.

Connecting to the Rexnord Edge

Converter

The Rexnord Edge serial connection to the CVAT-M1100 converter is terminated to the 5-position M12 connector. Additionally; for best performance, install the included round cable snap ferrite core over the serial communication cable (near end of cable by 5-position M12 connector) as shown in **Figure 15**.

Mounting and Mechanical

Din Rail Mounting (tool needed 3mm blade screwdriver)

1. Hook the stationary lip of the bottom case to one side of the 35 mm DIN Rail. (The side without the orange clip.)
2. Using the blade screwdriver, push down and pull out on the orange rail clip of the bottom case till the transducer clicks over the other side of the rail.
3. Once it is latched on fully, push the clip in towards the transducer to fully seat the transducer on the rail (**Figure 16**).

Figure 13

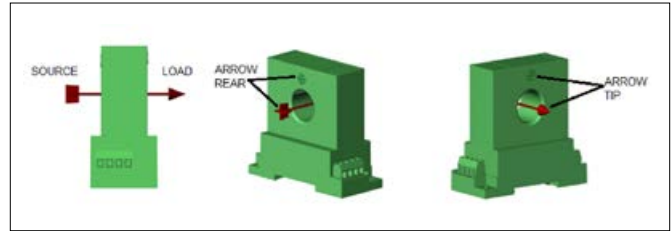


Figure 14

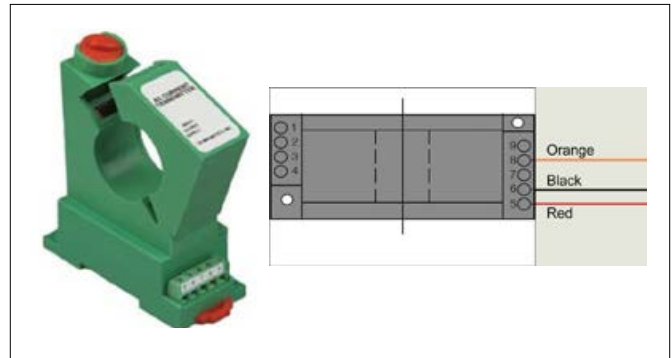
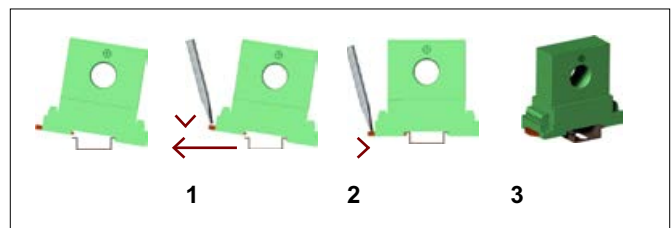


Figure 15

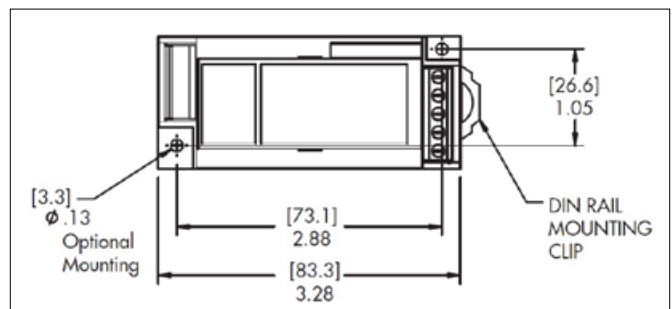


Figure 16



Screw Mounting (Screws are not supplied)

DO NOT over tighten the mounting screws.



Transducer Connection

CONNECTING YOUR OWN 4-20mA CURRENT TRANSDUCER

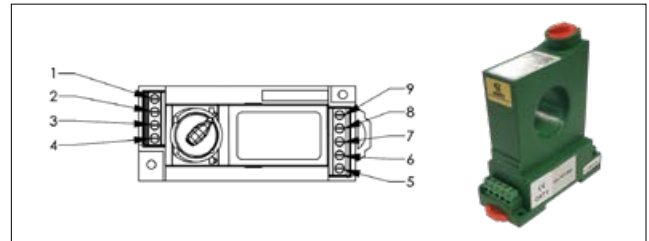
It is very important that you do not connect the cable from the 4-20mA source to the converter without successfully completing this procedure. If it is not possible to successfully complete this procedure, then the cable should be left disconnected and adequate protection to prevent shorting of the wires or dirt contamination be provided until such a time where task can be completed.

1. To complete this test, the cable from your 4-20mA CT or PLC providing the signal must be disconnected and isolated at the source.
2. Using a Rexnord 4-20mA Current Transducer molded CVAT-M1100 1.0M cable (SAP# 10832366). Please verify no damage to cable and conductors of cable assembly as shown in **Step 1-A**.
3. This example references a 4-20mA CR Magnetics split core AC current transducer (CR4120S-600). Please reference specific manufacturer part datasheet for selected sensor used to correctly identify connection details for terminating Rexnord cable wires (**Step 1-B**).
4. For the CR4120S-600 CT, connect the 4-20mA Rexnord cable accordingly. Red wire (+24V dc) to position 5, Black wire (0V/GND) to position 6, White wire (4-20mA OUT) to position 6, and Orange wire (4-20mA IN) to position 9 (**Step 1-C**).
5. Verify cable has no loose electrical connections, where each wire termination is securely screwed down into each terminal block position on the CT (**Step 1-D**).
6. Then connect Rexnord cable (8-position M12 connector) to the Rexnord converter (CVAT-M1100).

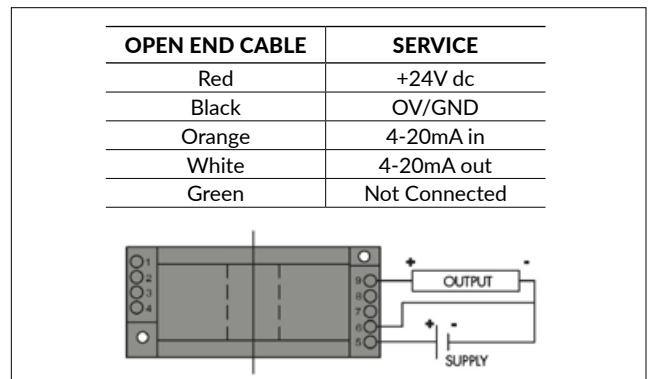
Step 1-A



Step 1-B



Step 1-C



Step 1-D



Transducer Connection

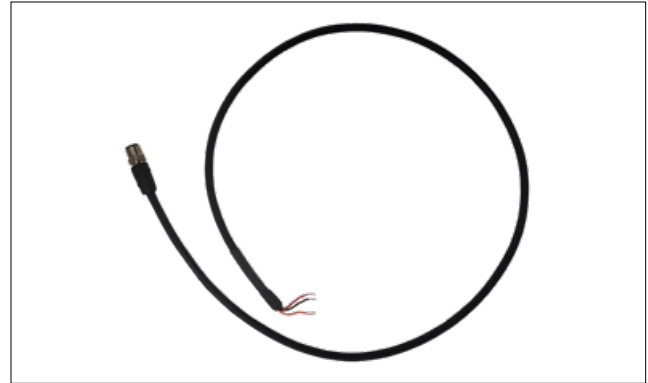
CONNECTING YOUR OWN 0-5V DC OUTPUT CURRENT TRANSDUCER

It is very important that you do not connect the cable from the 4-20mA source to the converter without successfully completing this procedure. If it is not possible to successfully complete this procedure, then the cable should be left disconnected and adequate protection to prevent shorting of the wires or dirt contamination be provided until such a time where task can be completed.

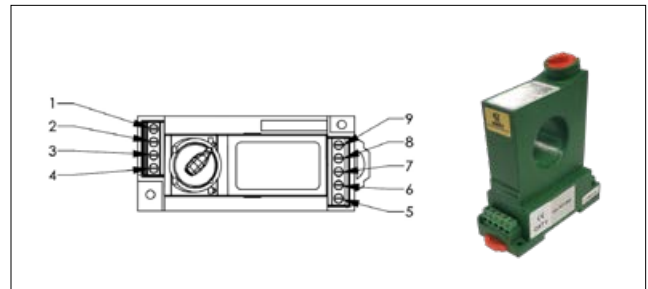
1. To complete this installation and test, the cable from the 0-5V CT or PLC providing the signal must be disconnected and isolated at the source.
2. Using a Rexnord voltage Current Transducer molded CVAT-M1100 1.0M cable (SAP# 10804559). Please verify no damage to cable and conductors of cable assembly as shown in **Step 2-A**.
3. This example references a 0-5V dc CR Magnetics split core AC current transducer (CR4110S-600). Please reference specific manufacturer part datasheet for selected sensor used to correctly identify connection details for terminating Rexnord cable wires (**Step 2-B**).
4. For the CR4110S-600 CT, connect the voltage current transducer Rexnord cable accordingly. Red wire (+24V dc) to position 5, Black wire (0V/GND) to position 6, and Orange wire (0-5V dc OUT) to position 8 (**Step 2-C**).
5. Verify cable has no loose electrical connections, where each wire termination is securely screwed down into each terminal block position on the CT (**Step 2-D**).
6. Then connect Rexnord cable (8-position M12 connector) to the Rexnord converter (CVAT-M1100).

CAUTION: the equipment must be turned off or the test signal deactivated before the cable joint is opened or damage to the PLC or CT could occur.

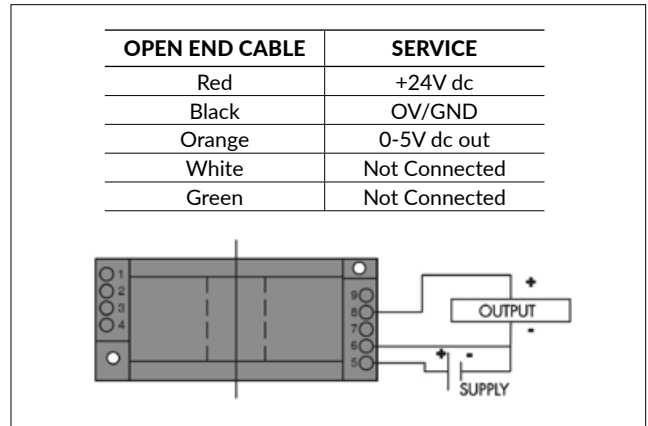
Step 2-A



Step 2-B



Step 2-C



Step 2-D



Network Connection (Security Guidelines)

Allowing the Edge Device on your network

See supplemental document [\(SS5-001\)](#) for instructions on how to set up your network for secure communications.

PLC Interface Set Up

See supplemental document [\(SS3-002\)](#) for instructions on how to set up the Edge to be visible on your PLC network.

Appendix A: Troubleshooting

1. The LED indicator lamp on the underside of the Serial Edge Device does not illuminate.

- a. Check incoming ac power to Serial Edge Device Power Supply Unit is connected and live.
- b. Check dc cable from Power Supply is plugged into Serial Edge Device.
- c. If problem persists, consult 1-866-REXNORD.

2. The remote mounted Andon light does not illuminate.

- a. Verify that the cable connections to the Andon Light are secure and that the cables show no sign of damage.
- b. Check that the Green LED light located on the underside of the Serial Edge Device is illuminated. If not, verify that incoming ac power is properly connected.
- c. Check ac power to the Serial Edge Device Power Supply.
- d. Check dc cable from Power Supply is plugged into Serial Edge Device.
- e. If the problem persists, consult 1-866-REXNORD.

3. The Andon light illuminates, but no data is available from the cloud

- a. If the connection is cellular:
 - Check that the GPS location currently has AT&T cellular coverage (www.att.com/maps/wireless-coverage)
 - Check for excessive metal shielding around the cellular antenna that could impede cellular reception. The GPS/ Cellular antenna is the black round hyperbolic stack located at top-right of the edge device as shown in **Figure 18**. If excessive metal shielding exists, the unit will have to be hard-wired to ethernet via WAN connection.
- b. If the WAN connection is hard-wired with Ethernet:
 - Check that the network settings allow functionality from the Edge device. Please see Rexnord Smart Condition Monitoring System Security Guidelines for additional details. (**SS5-001** in the **Rexnord Documentation Library**)
 - Verify external Ethernet cable to hard wired public internet is connected to “WAN” and the PLC Ethernet connection (if provided) is connected to the port marked “LAN”.
 - If the problem persists, contact 1-866-REXNORD.

Appendix B: Enclosure Details

Figure 17 – Standard Serial Edge Device without cell data



Figure 18 – Serial Edge Device with optional cell data



Appendix C: FCC Statements

Modification statement

Rexnord has not approved any changes or modifications to this device by the user outside of those listed in this document. Any additional changes or modifications could void the user's warranty.

Interference statement

This device complies with Part 15 of the FCC Rules and Industry Canada license exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Wireless notice

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Class A digital device notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Contact Information

Phone: 1-866-REXNORD (739-6673)

rexnord.com