

OPERATION MANUAL



**CMCP320 Series
Switch Box**

**V1.1
Issued 01/2024**

Model Description:

The CMCP320 Series Switchable BNC Box allows for the use of up to twelve (12) dual output 4-20mA sensors and/or standard accelerometers. An internal selector switch allows the user to select if the sensor input is from either a dual output 4-20mA sensor or a standard accelerometer. When set to 4-20, the 4-20mA signal is passed to the output terminals for connecting to a PLC, SCADA or DCS system and the dynamic (raw) signal is passed to the BNC output to allow for connections with a portable data collector. When used with accelerometers, the signal is sent to both the BNC, for use with portable data collectors, and the output terminal for use with an online system. The CMCP320 Series is available in either a polycarbonate, painted steel or stainless steel NEMA4/4X, IP66 rated enclosure. Optional IP68 cord grips are available and will come installed when ordered.

The **CMCP320 Series** Switchable BNC Boxes are available in three (3) types of enclosures to best suit the environment in which they will be installed.

- Polycarbonate, NEMA4X
- Painted Steel, NEMA 4
- Stainless Steel, NEMA 4X

Mounting:

Powder Coated Steel (PS) and Stainless Steel (SS) enclosures provide welded on mounting feet. Polycarbonate (PC) versions are shipped with field installable mounting feet (qty. 2) inside of each enclosure.

See Page 5 Dimensions

Wiring:

It is strongly recommended that the **CMCP320 Series** Switch Box be mounted as close as practical to the associated machine. This will prevent signal distortion associated with current drive limitations and will minimize interference from external electro-magnetic noise sources (EMI). A well shielded, properly installed transducer cable is necessary to obtain reliable operation. The cable should be routed as far away from other electrical circuits as possible and run in metal conduit where possible. Twisted-shielded cables designed and pre-fitted with the proper transducer connector and sold for this specific purpose are highly recommended. A common cable grounding scheme should be used on all sensors to avoid ground loops.

Installation:

Note: When opening the enclosure, the circuit board will be visible as shown in the image.

1. Feed sensor cables through cable gland or conduit.
2. Strip off 1" to 2" of the outer jacket of the sensor cable taking care not to damage the inner conductors.
3. Separate the individual wire.
4. Strip off 0.5" of insulation off each wire.
5. Using a small screwdriver (1/8" tip") connect each wire to its corresponding terminal.
6. The terminals are removable to make installation easier.
7. Refer to Page 4 for wiring instructions. Be sure to set the DIP switch to the appropriate position.
8. Secure all cables to the circuit board using the supplied cable tie holders.

Wire Color Code Using STI's CMCP603L or CMCP603H Cable Assemblies

Dual Output Sensors

Pin	Wire Color	Function
A	White	4-20mA
B	Black	0V
C	Red	Dynamic Output
N/A	Bare	Shield

Wire Color Code Using STI's CMCP602L or CMCP602H Cable Assemblies

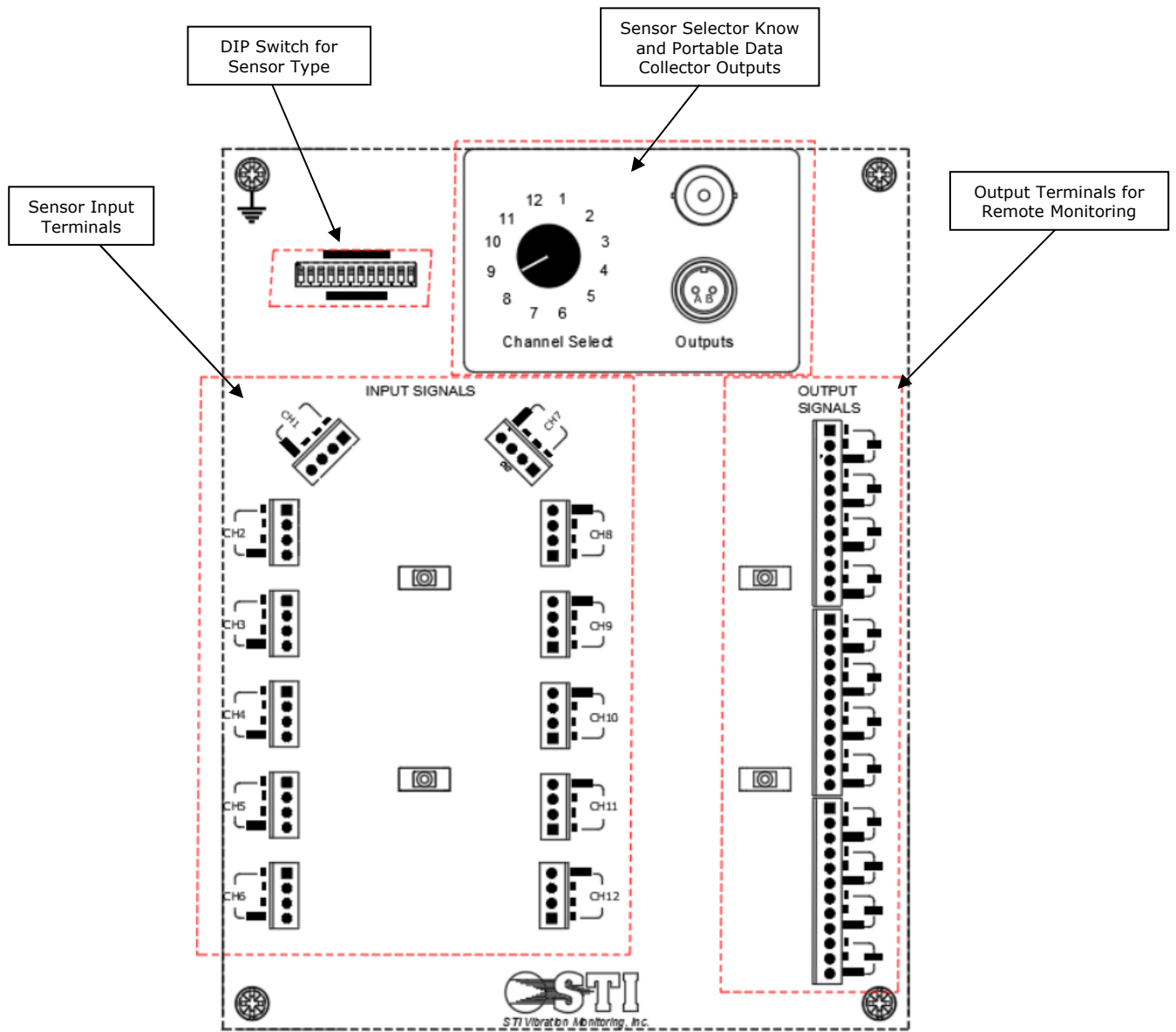
IEPE Accelerometers or Velocity Sensors

Pin	Wire Color	Function
A	White	Power/Signal
B	Black	0V
N/A	Bare	Shield

Output Signals:

9. Feed sensor cables through cable gland or conduit.
10. Multi-core cabling is suggested for connecting to a control or online system.
11. Strip off 1" to 2" of the outer jacket of the sensor cable taking care not to damage the inner conductors.
12. Separate the individual wire and strip off 0.5" of insulation off each wire.
Using a small screwdriver (1/8" tip") connect each wire to its corresponding terminal.

13. System Layout (Interior)



Input Terminal Markings:

Marking	Function
A:	4-20mA + to Sensor
B:	0V to Sensor
C:	Dynamic Output (i.e 100mV/g) from Sensor
SHLD:	Shield

Output Terminal Markings:

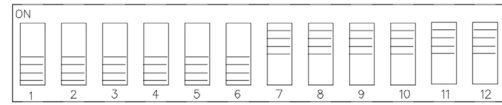
Marking	Function
A:	4-20mA + to PLC, DCS or SCADA
B:	0V to PLC, DCS or SCADA
SHLD:	Shield

ACCELEROMETERS

DIP Switch Operation

The DIP switch set located at the top left of the panels allows the user to set the type of sensor input.

When set to the downward position, the CMCP320 can be used with dual output 4-20mA sensors which have a dynamic (i.e 100mV/g) output. The 4-20mA signal is connected to the output terminals, for connecting to a control system, and the dynamic output is sent to the selector switch and BNC set which can be used with a portable data collector.



4-20MA SENSORS

When set to the upward position, the CMCP320 can be used with standard IEPE accelerometers or velocity sensors. The signal is then available on both the BNC output and the output terminals which allow the user to connect to an online system while maintaining a BNC connection for a portable data collector. The images below show the switches setup for either 4-20mA or Accelerometers. Note, a combination of 4-20mA and standard accelerometers may be used by selecting the appropriate switch for each channel.

Each channel can be independently configured to allow a mix of dual 4-20mA and IEPE style sensors.

Sensor Wiring

4-20mA Vibration Sensor with Dynamic Output:

Sensor Input Signal:

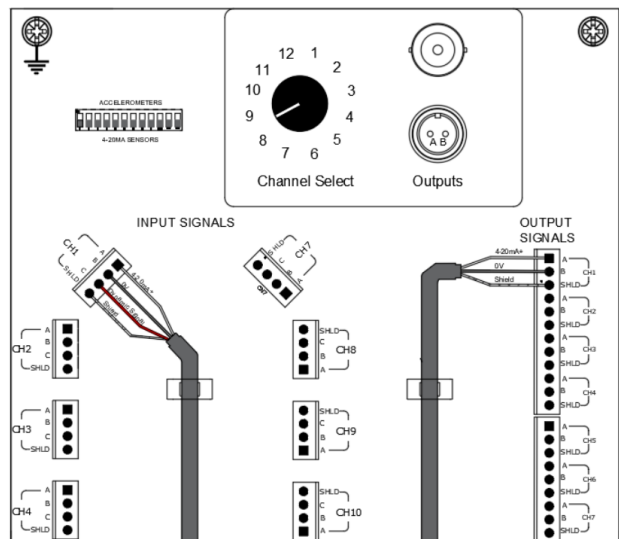
A: 4-20mA +
 B: 0V
 C: Dynamic Signal
 SHLD: Shield

Output Terminals for Control System

A: 4-20mA Input
 B: 0V
 SHLD: Shield

DIP Switch:

Down (for 4-20MA Sensors)



IEPE Accelerometers or Velocity Sensors

Sensor Input Signal:

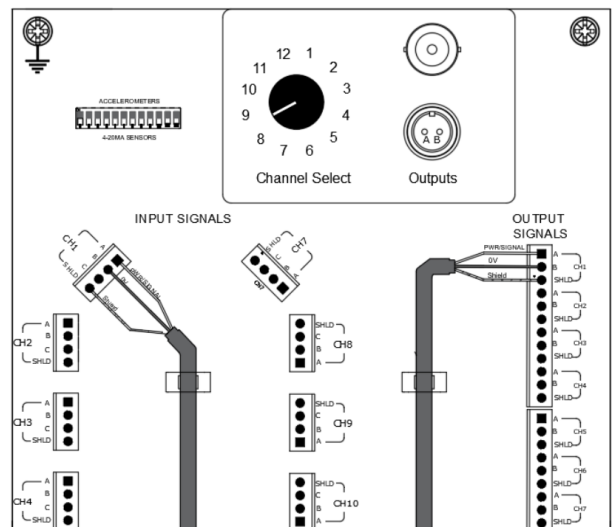
A: PWR/SIGNAL
 B: 0V
 C: Not Used
 SHLD: Shield

Output Terminals for Online System

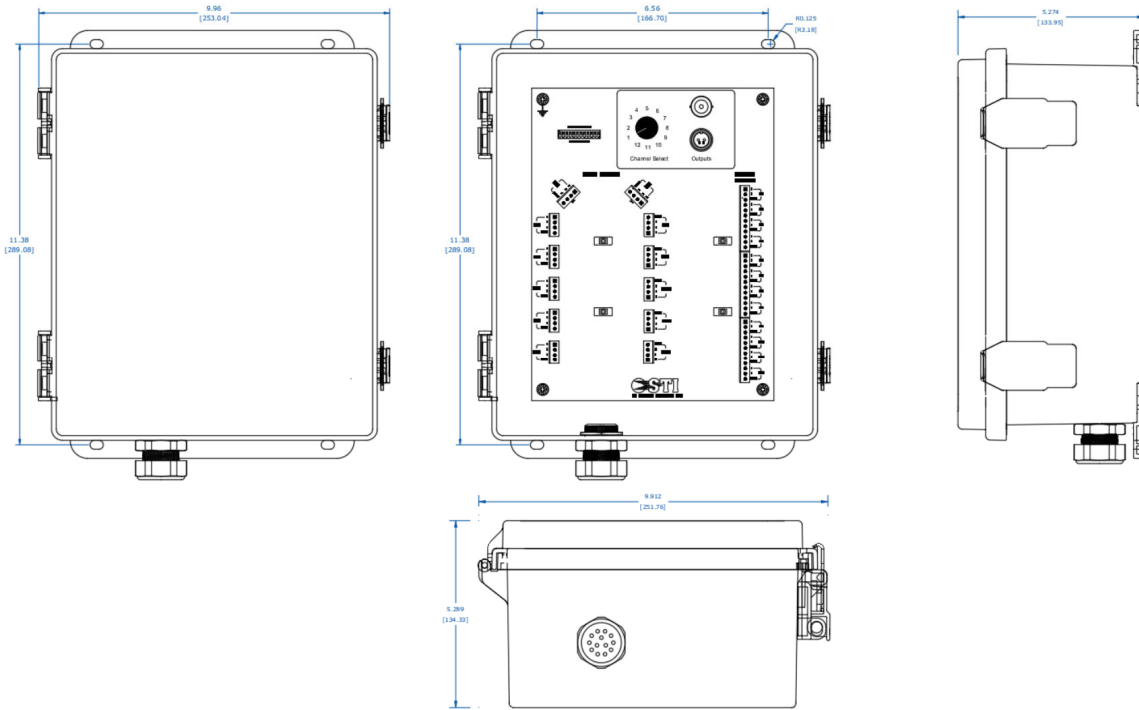
A: PWR/SIGNAL
 B: 0V
 SHLD: Shield

DIP Switch:

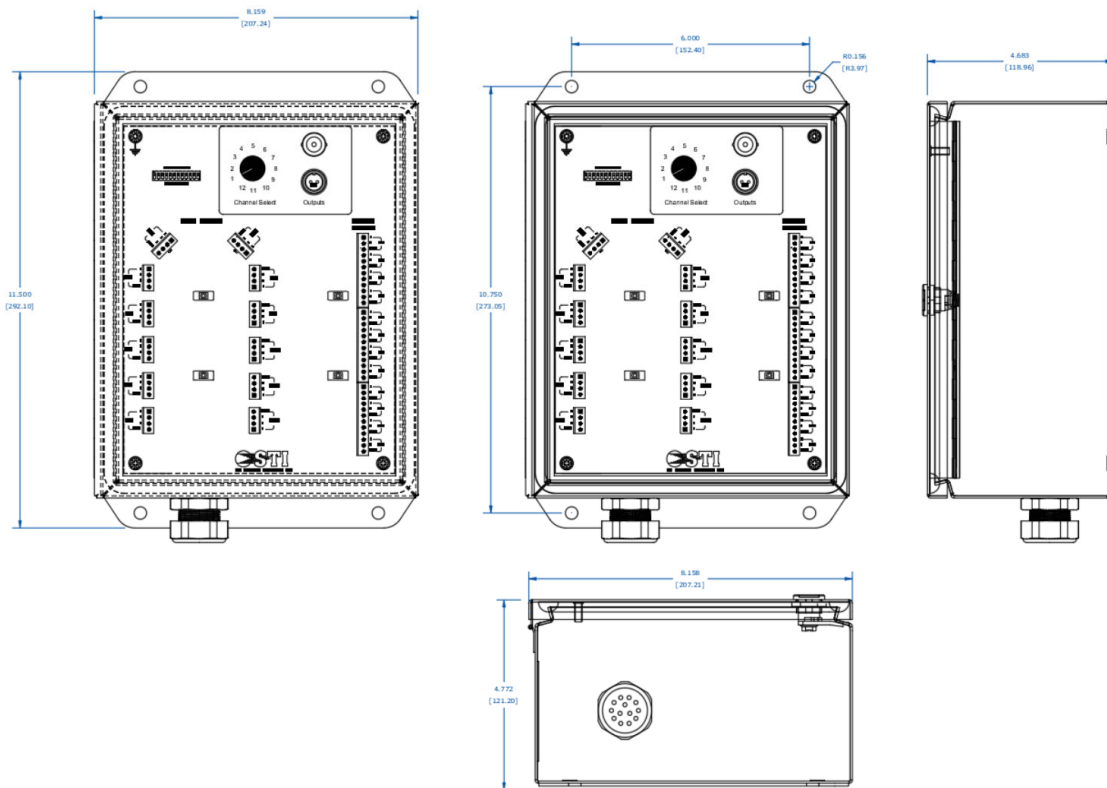
Up (for Accelerometers)



**Dimensions:
Polycarbonate Enclosure (CMCP320PC)**



Painted Steel and Stainless Steel Enclosure (CMCP320PS and CMCP320SS)



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