WDI
WISE DEVICE INC

PFA-DT and PFA-LN Sensor Distribution Box Datasheet

2025

Distribution Box Description

The Distribution Box is an accessory used to facilitate connections from a PFA-DT or PFA-LN sensor to the other system components. Depending on the system configuration, the appropriate cable may be included with the distribution box for that specific system.

For systems with third-party Z-axis stages, aka stand-alone (SA), the Distribution Box is recommended as it simplifies connections to the sensor by removing the need to build a DB26-HD cable assembly for these connections.

For systems using Dover Motion's DOF-5, the cable required to connect to the DOF-5 stage is provided with the Distribution Box Plus. These accessories are highly recommended for applications with Dover Motion's DOF-5, as it addresses most system wiring needs. Please see the PFA-DT/LN and DOF-5 Application Note for more details.

Ordering Info

Table 1 Distribution Box Types

Distribution Box Type	Part Number	Remarks
PFA-DT/LN Distribution Box	970140	Includes Distribution Box and the new connector kit for stand-alone configuration.
PFA-DT/LN DOF-5 Distribution Box Plus	970150	Includes Distribution Box Plus and the new DOF-5 cable.

Electrical Connections

Figure 1, and *Figure 2* shows the different Distribution Box options and the electrical connections for each. *Table 2* provides descriptions for the signals available on the customer interface connector.

PFA-DT/LN Distribution Box

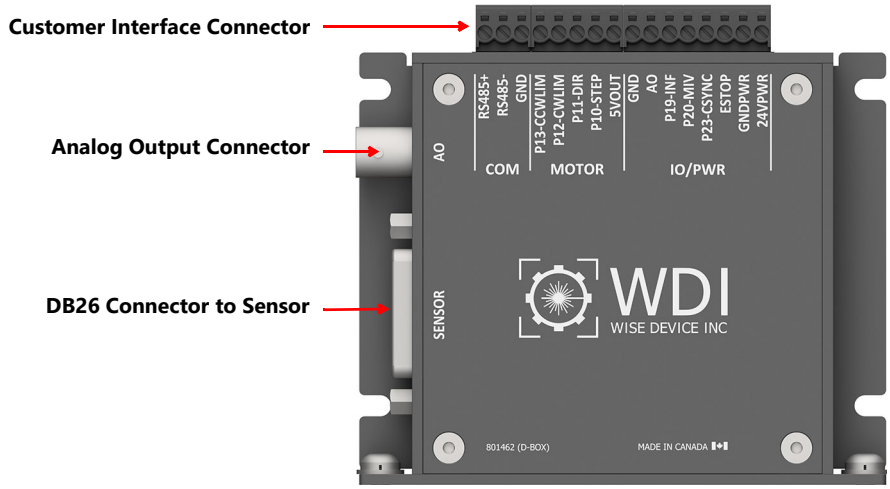


Figure 1 *PFA-DT/LN Distribution Box*

PFA-DT/LN DOF-5 Distribution Box Plus

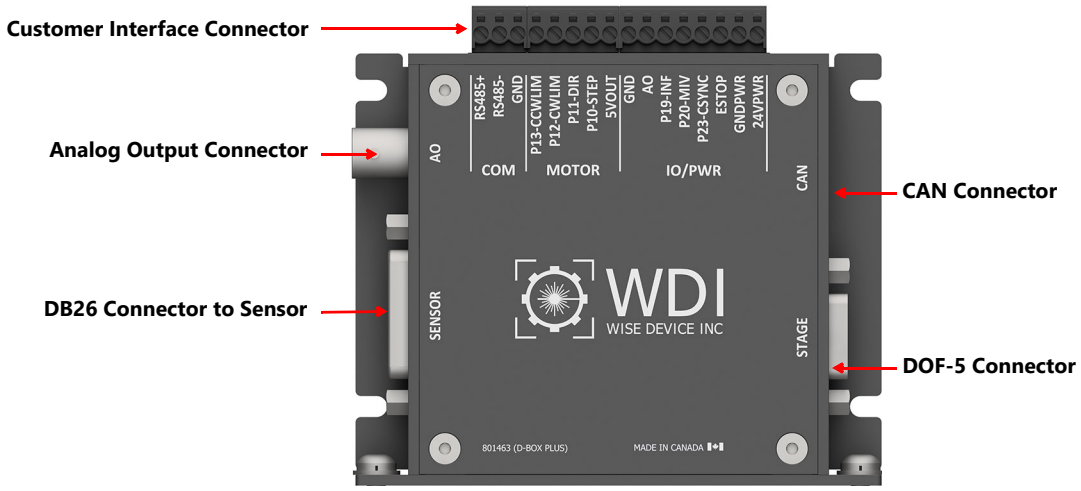


Figure 2 *PFA-DT/LN DOF-5 Distribution Box Plus*

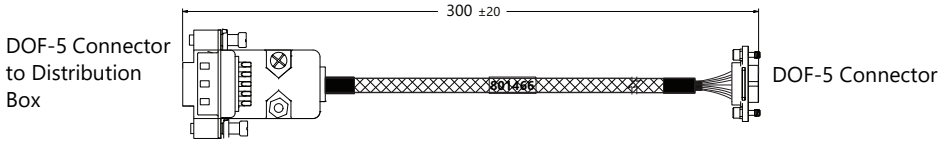


Figure 3 *PFA-DT/LN DOF-5 Distribution Box Plus - DOF-5 Cable Assembly*

Table 2 Distribution Box Customer Interface Connector

Signal Name	Description
IO/PWR	
24VPWR	+24V Power Supply.
GNDPWR	Power Supply Return.
ESTOP	Emergency Stop (Laser Enable), normally wired to supply voltage through a mushroom button. Actively drive high to enable laser diode.
P23-CSYNC	Camera Sync Input, immediately disables the laser for the duration of the pulse. Active high.
P20-MIV	Material In View (In Range). Open Drain with internal 1KΩ pull up to +5V.
P19-INF	In Focus. Open Drain with internal 1KΩ pull up to +5V.
AO	Analog Output.
GND	Motor control return.
MOTOR	
5VOUT	5V for motor driver brick optocouplers (max 50-100mA).
P10-STEP	Motor Step pulse. Open Drain with internal 1KΩ pull up to +5V.
P11-DIR	Motor Direction. Open Drain with internal 1KΩ pull up to +5V.
P12-CWLIM	CW Limit Switch Input. Drive high-switch not tripped, floating or low-switch tripped.
P13-CCWLIM	CW Limit Switch Input. Drive high-switch not tripped, floating or low-switch tripped.
COM	
GND	Serial Comm / IO Return.
RS485-	Inverting RS485 Receiver Input and Driver Output.
RS485+	Non Inverting RS485 Receiver Input and Driver Output.

Electrical Specifications

The Distribution Box is a passive device. The electrical specifications are included to determine the input requirements to power all of the components connected through the Distribution Box. For the stand-alone version, only the PFA-DT or PFA-LN sensor is powered through the distribution box. *Table 3* shows the stand-alone power requirements. For the DOF-5 Distribution Box Plus, both the sensor and the DOF-5 are powered through the distribution box. *Table 4* shows the combined power requirements.

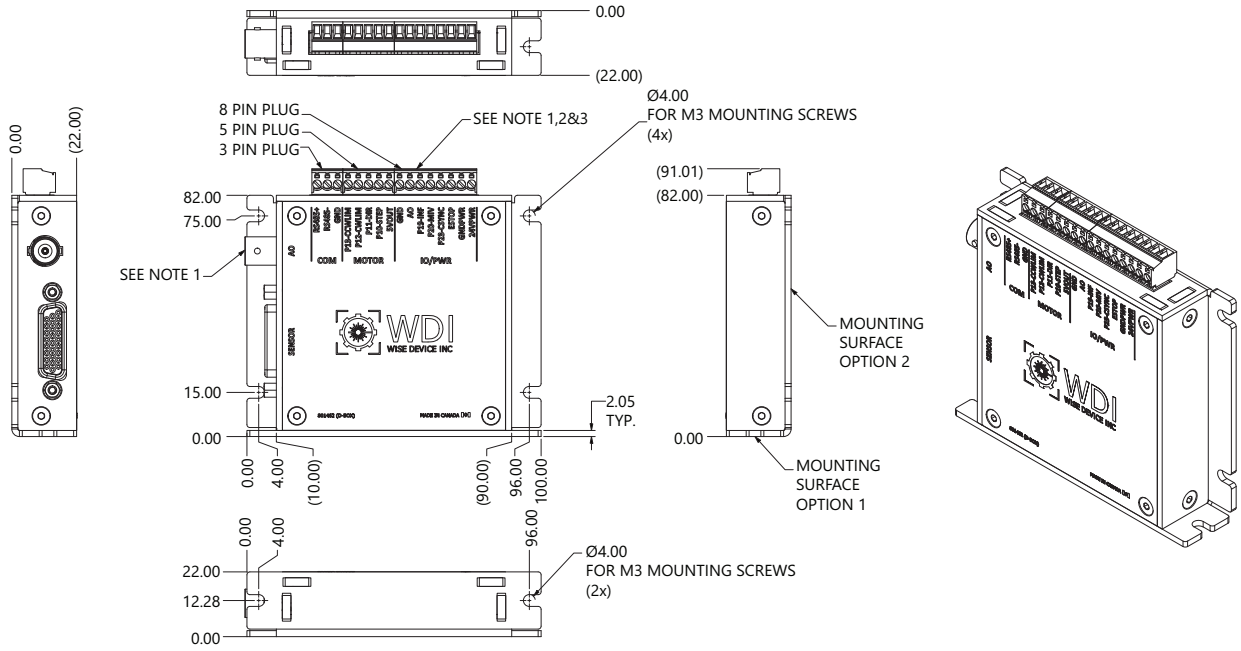
Table 3 Distribution Box Electrical Specifications

Description	Value
Power Supply Voltage	10.8 VDC to 26.4 VDC
Power Consumption	12W maximum, 7W nominal

Table 4 DOF-5 Distribution Box Plus Electrical Specifications

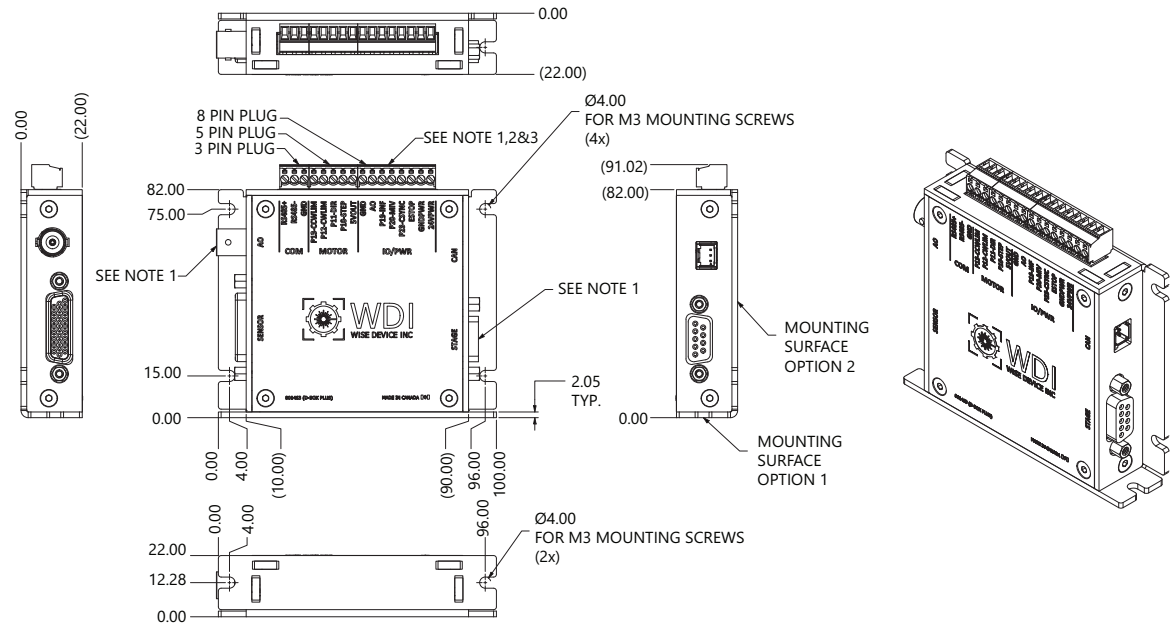
Description	Value
Power Supply Voltage	21.6 VDC to 26.4 VDC, 24 VDC typical
Power Consumption (with DOF-5)	72W maximum

Mechanical Dimensions



NOTES:
1. Allow an extra 70 mm for cable bend radius and connector unplugging.
2. Connect three plugs with proper orientation as shown below.
3. Connectors are provided in a connector kit.
4. Four sets of mounting hardware are provided with the distribution box, which can be used to mount the box in either option 1 or option 2 position, as shown.

Figure 4 *PFA-DT/LN Distribution Box*



NOTES:
1. Allow an extra 70 mm for cable bend radius and connector unplugging.
2. Connect three plugs with proper orientation as shown below.
3. Connectors are provided in a connector kit.
4. Four sets of mounting hardware are provided with the distribution box, which can be used to mount the box in either option 1 or option 2 position, as shown.

Figure 5 *PFA-DT/LN DOF-5 Distribution Box Plus*

Environmental Specifications

Table 5 Distribution Box Environmental Specifications

Description	Value
Operating Ambient Temperature	20ºC to 30ºC
Transport Temperature (sealed container)	-20ºC to 50ºC
Storage Temperature	10ºC to 40ºC
Humidity Temperature	10% to 80% non-condensing