



PFA-DT Sensor Distribution Box Datasheet



2023

PFA-DT Sensor Distribution Box Description

The PFA-DT Sensor Distribution Box is an accessory used to facilitate connections from the 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 using Dover Motion's DOF-5, the cable required to connect to the DOF-5 stage is provided with the distribution box. 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 and DOF-5 Application Note for more details.

For systems that include WDI MMS components, the distribution box is required and different cable assemblies are included with the distribution box, depending on the connected WDI components. Please see the PFA-DT MMS User Guide for more details.

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.

Ordering Info

Table 1 PFA-DT Sensor Distribution Box Types

KIT Accessories	Part Number	Remarks
PFA-DT/LN Stand-alone Accessory	970140	Includes Distribution Box-SA. For stand-alone configuration.
PFA-DT/LN MMS PBI-ZAA Accessory	970110	Includes Distribution Box-MMS and Cable (CAB-DB-PFABUS ZAA), 300 mm. For MMS with PFABUS(PB) ZAA configuration.
PFA-DT/LN MMS PBI-ZAA-LLC Accessory	970120	Includes Distribution Box-MMS and Cable (CAB-DB-PFABUS ZAA-LLC), 300 mm. For MMS with PFABUS(PB) ZAA & LLC configuration.
PFA-DT/LN DOF5 Accessory	970150	Includes Distribution Box-DOF5 and Cable (CAB-DB-DOF), 300 mm. For DOF5 configuration.

Electrical Connections

Figure 1, *Figure 2*, and *Figure 5* shows the different PFA-DT Sensor Distribution Box options and the electrical connections for each. *Table 2* provides descriptions for the signals available on the customer interface connector.

PFA-DT Sensor Distribution Box – SA

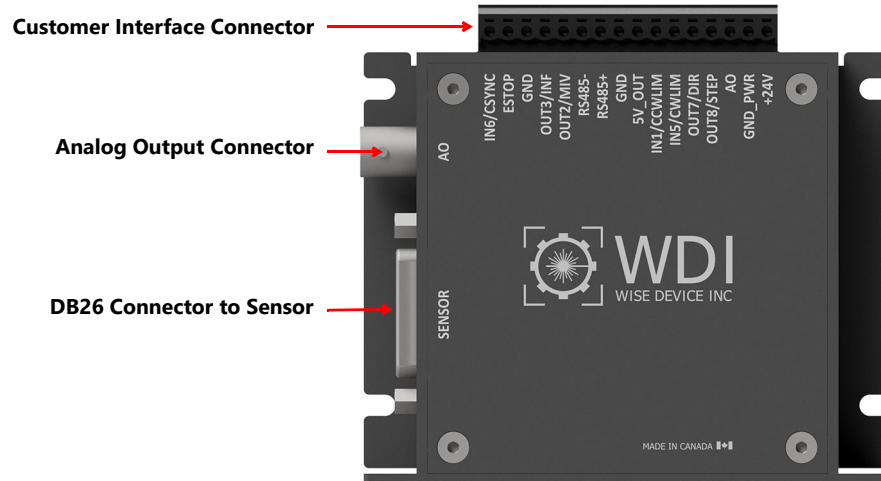


Figure 1 PFA-DT Sensor Distribution Box – SA

PFA-DT Sensor Distribution Box – MMS

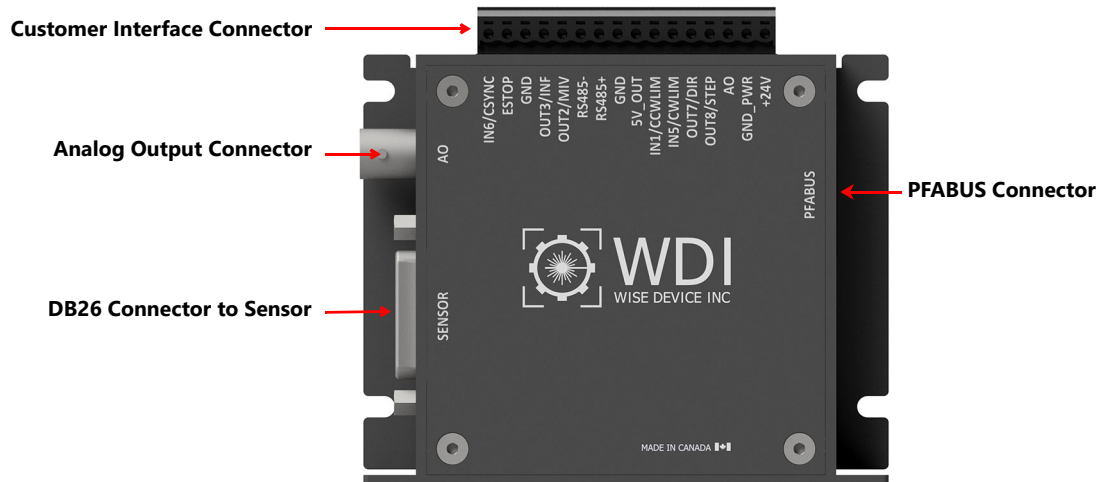


Figure 2 PFA-DT Sensor Distribution Box – MMS

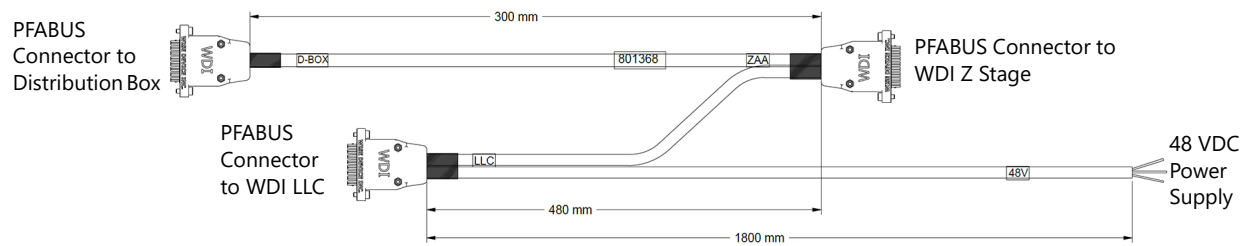


Figure 3 PFA-DT Sensor Distribution Box – MMS with ZAA and LLC Cable Assembly

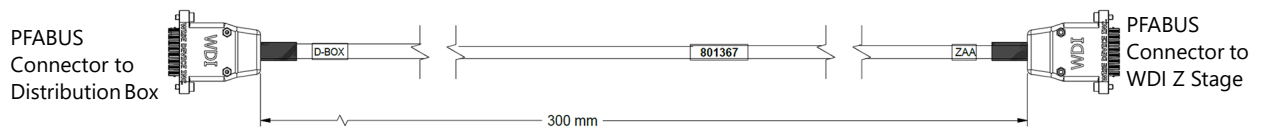


Figure 4 PFA-DT Sensor Distribution Box – MMS with ZAA only Cable Assembly

PFA-DT Sensor Distribution Box – DOF-5

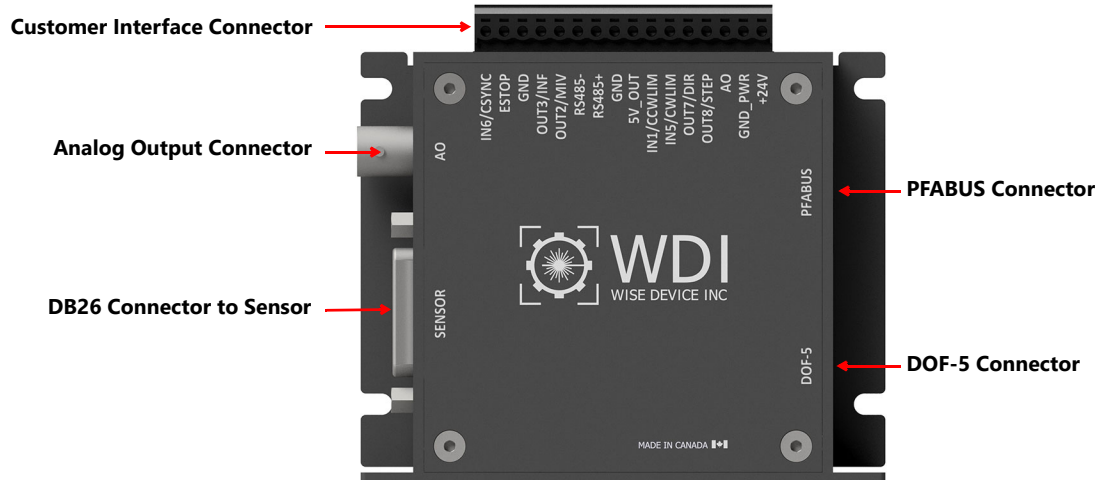


Figure 5 PFA-DT Sensor Distribution Box – DOF-5

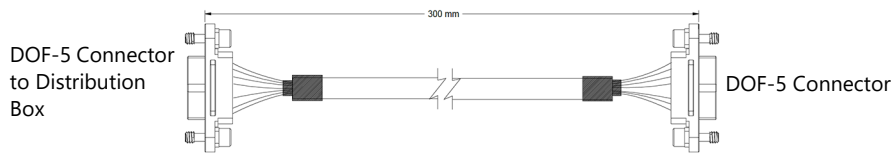


Figure 6 PFA-DT Sensor Distribution Box – DOF-5 Cable Assembly

Table 2 PFA-DT Sensor Distribution Box Customer Interface Connector

Signal Name	Description
+24V	+24V Power Supply.
GND_PWR	Power Supply Return.
AO	Analog Output.
OUT8/STEP	Motor Step pulse. Open Drain with internal 1KΩ pull up to +5V.
OUT7/DIR	Motor Direction. Open Drain with internal 1KΩ pull up to +5V.
IN5/CWLIM	CW Limit Switch Input. Drive high-switch not tripped, floating or low-switch tripped.
IN1/CCWLIM	CW Limit Switch Input. Drive high-switch not tripped, floating or low-switch tripped.
5V_OUT	5V for motor driver brick optocouplers (max 50-100mA).
GND	Motor control return.
RS485+	Non Inverting RS485 Receiver Input and Driver Output.
RS485-	Inverting RS485 Receiver Input and Driver Output.
OUT2/MIV	Material In View (In Range). Open Drain with internal 1KΩ pull up to +5V.
OUT3/INF	In Focus. Open Drain with internal 1KΩ pull up to +5V.
GND	Serial Comm / IO Return.
ESTOP	Emergency Stop (Laser Enable), normally wired to supply voltage through a mushroom button. Actively drive high to enable laser diode.
IN6/CSYNC	Camera Sync Input, immediately disables the laser for the duration of the pulse. Active high.

Electrical Specifications

The PFA-DT Sensor 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 PFA-DT Sensor Distribution Box. For the stand-alone version, only the PFA-DT sensor is powered through the distribution box. [Table 3](#) shows the stand-alone power requirements. For DOF-5 and MMS, the DOF-5 and WDI Z-stage (respectively) are also powered through the distribution box. [Table 4](#) shows the combined power requirements.

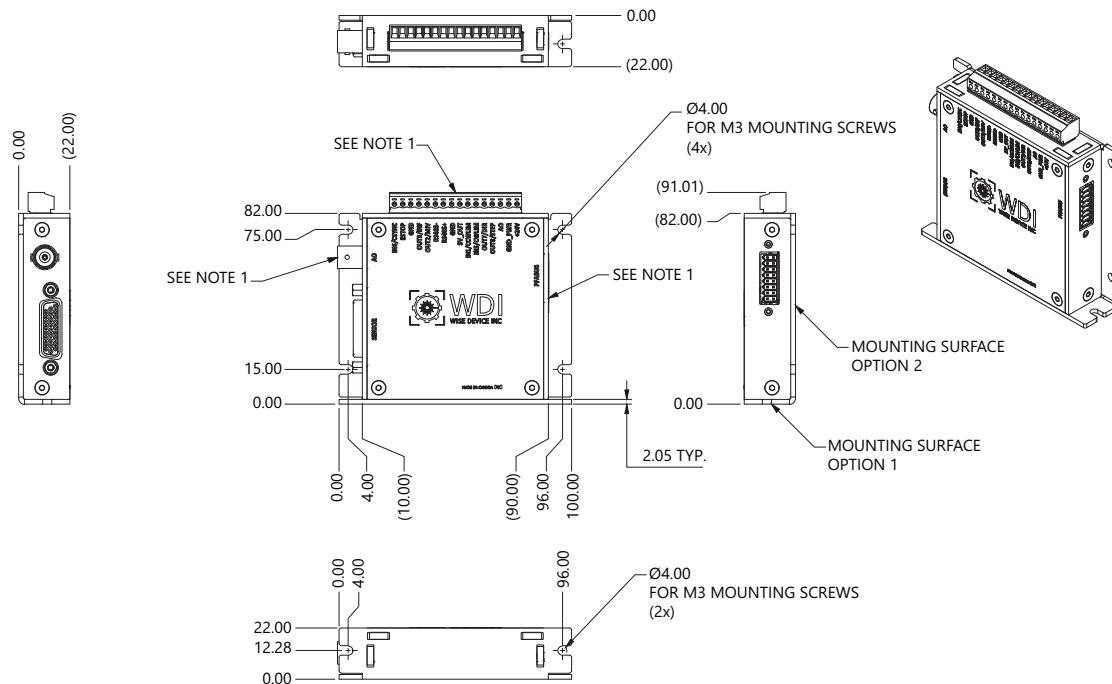
Table 3 PFA-DT Sensor Distribution Box Electrical Specifications – SA

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

Table 4 PFA-DT Sensor Distribution Box Electrical Specifications – DOF-5 and MMS

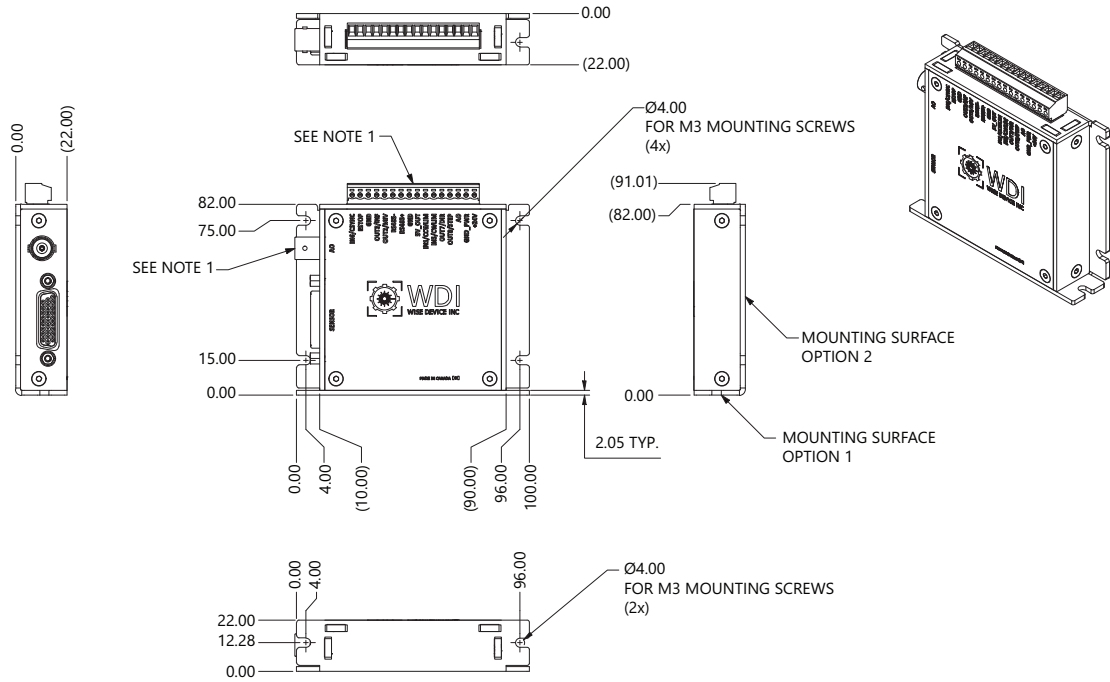
Description	Value
Power Supply Voltage	21.6 VDC to 26.4 VDC, 24 VDC typical
Power Consumption (with PBI-ZAA and Illuminator)	72W maximum

Mechanical Dimensions



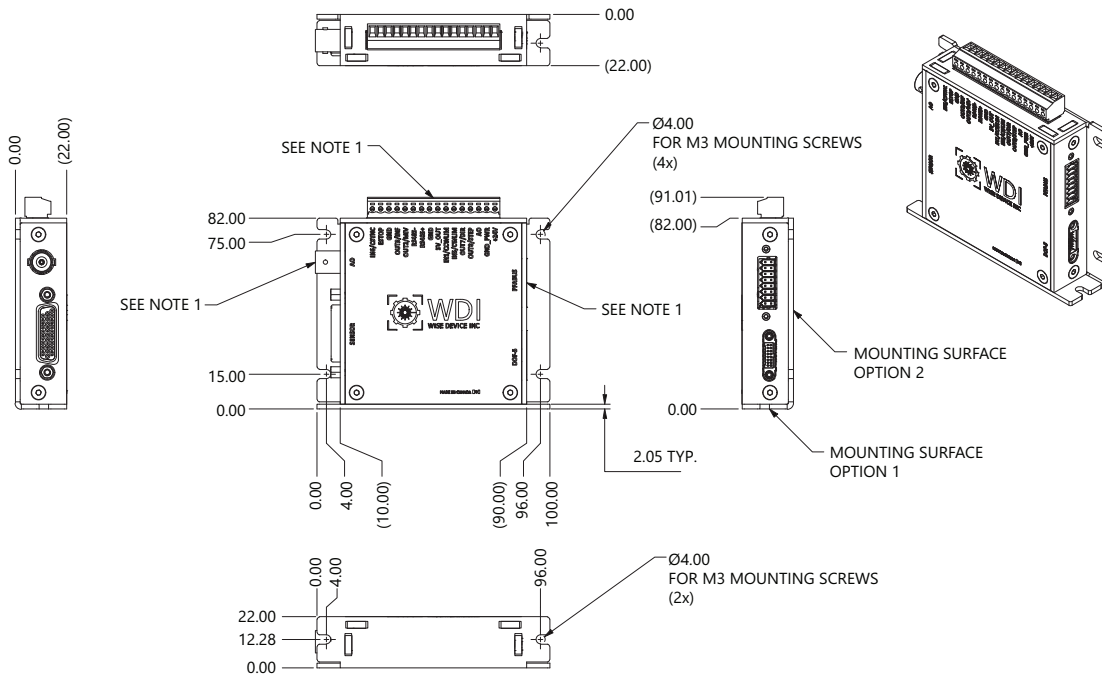
NOTES:
 1. Allow an extra 70 mm for cable bend radius and connector unplugging.

Figure 7 PFA-DT Sensor Distribution Box Dimensions – MMS



NOTES:
 1. Allow an extra 70 mm for cable bend radius and connector unplugging.

Figure 8 PFA-DT Sensor Distribution Box Dimensions – SA



NOTES:
 1. Allow an extra 70 mm for cable bend radius and connector unplugging.

Figure 9 PFA-DT Sensor Distribution Box Dimensions – DOF-5

Environmental Specifications

Table 5 PFA-DT Sensor Distribution Box Environmental Specifications

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