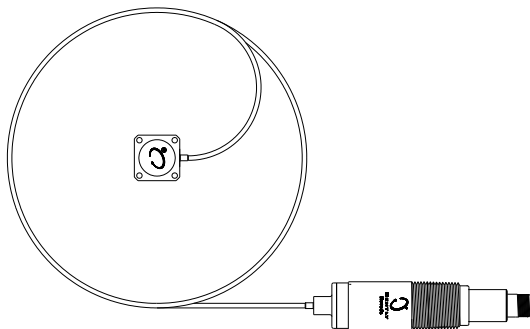


330750 and 330752 High Temperature Velomitor* System

Product Datasheet

Bently Nevada* Asset Condition Monitoring



Description

The 330750 and 330752 High Temperature Velomitor System sensor head and integral cable are designed for high temperature environments. This enables you to mount the sensing head on surfaces with temperatures as high +400°C (+752°F).

To accomplish this, the transducer design segregates the sensing element from the signal conditioning electronics. The two are permanently connected using an integrated cable. The integrated cable eliminates connectors which are a significant source of transducer failures.

The cable enables you to position the signal conditioning electronics in a cooler location. The internal electronics withstands temperatures of 55°C to +121°C (–67°F to +250°F).

The integrated design makes it possible to capture machinery performance data comparable to other Bently Nevada Velomitor transducers, but at significantly higher temperatures.

For lower temperature environments, use the standard 330500 Velomitor* Piezo-velocity Sensor. You can install it in locations with a maximum operating temperature of +121°C (+250°F).



Measuring Housings for Transducer Placement

If you are measuring a machine housing to determine where to place transducers, consider which kinds of measurements you want to obtain. Most common machine malfunctions like imbalance or misalignment originate at the rotor and cause a change—usually an increase—in rotor vibration.

To obtain the best quality data, you need to place the transducer on the bearing housing or machine casing where machine vibration is best transmitted through the housing. Choose a location that maximizes amplitude and frequency response and avoids detecting signals that don't represent actual machine vibration. Improper installation can degrade the transducer's performance or produce signals that don't represent actual machine vibration.

Bently Nevada provides engineering services to determine the optimum location to place transducers. We also can install transducers if needed. For assistance, contact your local customer care representative or Bently Nevada at www.gemeasurement.com.

 **Note:** Earlier versions of the 330750 and 330752 High Temperature Velomitor* System were limited to environments with a maximum temperature of +300°C (+572°F). The serial number of current versions are preceded by the letter "G".

Specifications

Parameters are specified from +20 to +30°C (+68 to +86°F) and 100Hz unless otherwise indicated.

 **Note:** Operating the transducer outside the specified limits may result in false readings or failure of the transducer.

Electrical

Sensitivity	5.7 mV/mm/s (145 mV/in/s) ±5%
Frequency response	15 to 2000 Hz (900 to 120,000 cpm) ± 3.0 dB; 20 to 1000 Hz (1,200 to 60,000 cpm) ± 0.9 dB
Transient temperature sensitivity	0.0762 mm/s/°C (0.003 in/s/°C), typical, as defined in ISO 5347-18:1993(E)
Amplitude range	635 mm/s (25 in/s) peak below 680 Hz. 2940 m/s ² (300 g) peak above 680 Hz. Vibration at frequencies above 2 kHz will decrease this range.
Transverse sensitivity	Less than 5% of Sensitivity
Amplitude linearity	±2% to 152 mm/s (6 in/s) peak
Mounted resonant frequency	Greater than 5 kHz
Output Bias Voltage	-12 ±2.0 VDC
Broadband noise floor (15Hz to 2kHz)	0.127 mm/s (0.005 in/s) rms nominal
Grounding	Case Isolated
Maximum cable length	305 metres (1000 feet) with no degradation of signal.

Compliance and Certifications

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

EMC Directive 2014/30/EU
Standards

EN 61000-6-2

EN 61000-6-4

Standards

EN 61326-1

Hazardous Area Approvals

For a detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (document 108M1756) at www.GEmeasurement.com.

Multiple approvals for hazardous areas certified by Canadian Standards Association (CSA/US/C) in North America and by LCIE in Europe.

North America	Ex ia IIC
	Class I, Zone 0, AEx ia IIC
	Class I, Div. 1, Groups A, B, C, and D; Class II, Div. 1, Groups E, F, and G; Class III, Div 1
	Ex nL IIC
Europe/ ATEX	Class I, Div. 2, Groups A, B, C, and D
	 II 1 G
	Ex ia IIC or IIB T4/T1, Ga
	T4: -40 °C ≤ Tamb ≤ +100°C (electronic housing)
	T1: -40 °C ≤ Tamb ≤ +400°C (sensor and cable)
	 II 3 G
	Ex nA IIC or IIB T4/T1, Gc
	T4: -40 °C ≤ Tamb ≤ +100°C (electronic housing)
	T1: -40 °C ≤ Tamb ≤ +400°C (sensor and cable)

Environmental Limits

Operating and storage temperature range	
Sensing head	Maximum mounted surface temperature –55°C to +400°C (–67°F to +752°F)
Integral hardline cable	–55°C to +400° (–67°F to +752°F)
Electronics	–55°C to +121°C (–67°F to +250°F)
Shock survivability	24,535 m/s ² (2500 g) peak
Relative humidity	To 100% non-submerged; case is hermetically sealed.

Physical

Weight (typical)	
2 metres	635 grams (1.40 lb)
4 metres	794 grams (1.75 lb)
6 metres	953 grams (2.10 lb)
8 metres	1111 grams (2.45 lb)
Mounting	See Figure 1 and Figure 2.
Case	300 series stainless steel
Connector	2-pin Mil-C-5015 receptacle, hermetically-sealed, 304 stainless steel shell.
Polarity	Pin A becomes positive with respect to Pin B when the applied velocity is from the base to the top of the transducer.
Bend radius	Minimum bend radius of 51mm (2.0in)



Note: Before installing this product, we recommend you read the 330750 & 330752 High Temperature Velomitor® System Operation Manual (part number 135090-01).

Ordering Information

For a detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (document 108M1756) located at the following website:

www.GEmeasurement.com.

330750-AA-BB

AA: Length

20	2 metres
40	4 metres
60	6 metres
80	8 metres

BB: Approvals

05	Multiple Approvals (CSA, ATEX, and IECEx)
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330752-AA-BB

AA: Length

25	2.5 metres
40	4 metres
60	6 metres
80	8 metres

BB: Approvals

05	Multiple Approvals (CSA, ATEX, and IECEx)
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Interconnection Cables

The standard cable lengths below are available. You can order custom cable lengths in increments of one foot at additional cost. Some cables have a minimum and maximum length. For details, see each part description below.

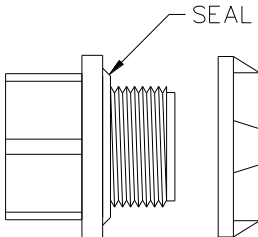
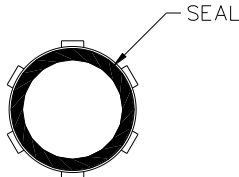
Standard Cable Lengths

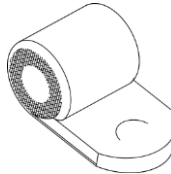
Feet	Meters (approximate)
6 ft	1.8 m
8 ft	2.4 m
10 ft	3.0 m
12 ft	3.6 m
15 ft	4.5 m
17 ft	5.0 m
20 ft	6.0 m
25 ft	7.6 m
30 ft	9.0 m
33 ft	10.0 m
50 ft	15.2 m
99 ft	30.0 m

Cable Part Numbers

Part number	Description
 Note: When given, use 'NN' in the part numbers to specify the length (in feet) of the cable you want to order.	
9571-NN	Standard interconnect cable Shielded 0.382 mm ² (22 AWG) cable with a moisture resistant female connector at the HTVS end and ring lugs at the monitor end. Temperature range -29 to 121°C (-20 to 250°F). See Figure 5.

Part number	Description
84661-NN	Standard armored interconnect cable Stainless steel armor over shielded 0.382 mm ² (22 AWG) cable with a moisture resistant female connector at the HTVS end and ring lugs at the monitor end. Temperature range -29 to 121°C (-20 to 250°F). See Figure 6.
89477-NN	Right angle interconnect cable Standard Armored Interconnect Cable
122129-NN	Short run interconnect cable Shielded 0.963 mm ² (18 AWG) cable with a moisture resistant female connector at the HTVS end and ring lugs at the monitor end. Temperature range -29 to 121°C (-20 to 250°F). See Figure 8.
02173034	CE installation interconnect cable (**Required for CE installations) Shielded 0.382 mm ² (22 AWG) cable with a splash-proof boot over a female connector at the HTVS end and flush cut at the monitor end. Temperature range -55 to 125°C (-67 to 257°F). See Figure 9.
02173006	0.963 mm² (18 AWG) bulk cable Shielded twisted pair. Same cable as used on 89477-NN and 122129-NN. Specify number of feet.
02173007	0.382 mm² (22 AWG) bulk cable Shielded twisted pair. Same cable as used on 9571-NN and 84661-NN. Specify the number of feet. The maximum length that should be used with the HTVS is 305 m (1000 ft)
00502025	Spare connector Same connector as used on 9571-NN and 84661-NN
101212-01	Right angle connector Right angle connector kit. Same connector as used on 89477-NN.
135090-01	330750 & 330752 manual <i>330750 & 330752 High Temperature Velomitor® System Operation Manual (part number 135090-01)</i>

Part number	Description
00531061	Spare mating connector Mating connector for 330750 & 330752 Velomitor System.
330535	Standard temperature cable 22 AWG, double-shielded cable
00530574	Cable Mounting Clamp Mating connector clamp to be used with 00531061
03818073	Electronics Housing Strap 1-inch rigid conduit strap for securing the electronics housing. 
03818071	Electronics Mounting Hub 1-inch weather tight hub used to mount the electronics housing in a weatherproof enclosure. 
03818072	Seal Ring 1-inch sealing lock ring used to mount the electronics housing. Two rings are required to mount the electronics. 

Part number	Description
169546	Cable Clamp Stainless steel mesh tie down clamp for the hardline cable. For temperatures greater than 260C (500F). 

Graphs and Figures

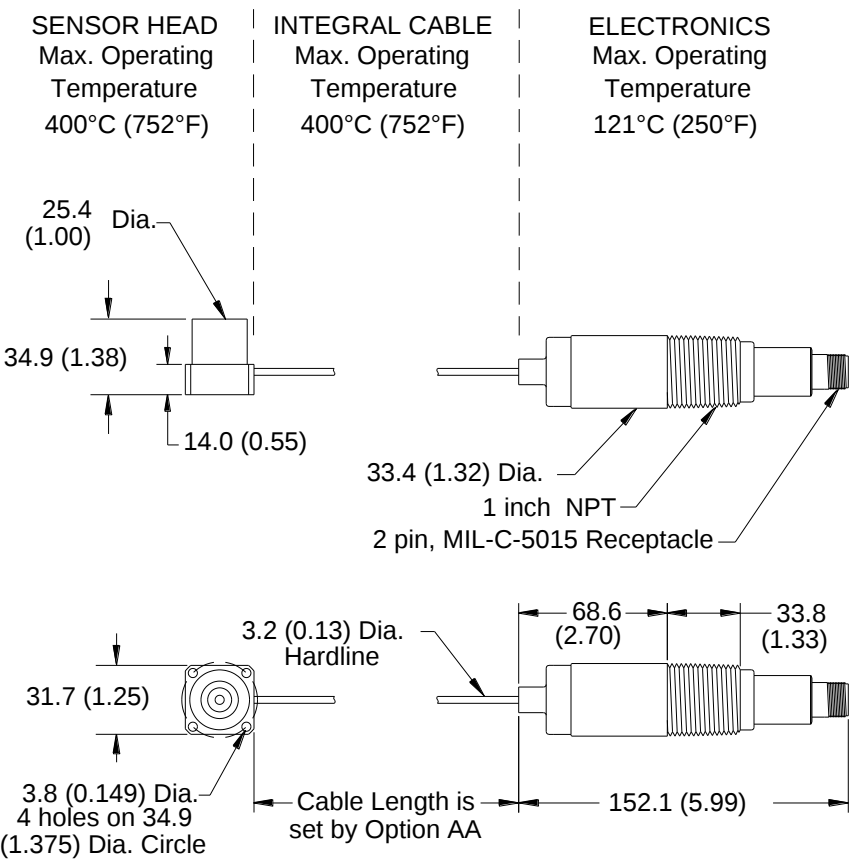


Figure 1. 330750 System Dimensional Drawing

Dimensions are in millimeters (inches)

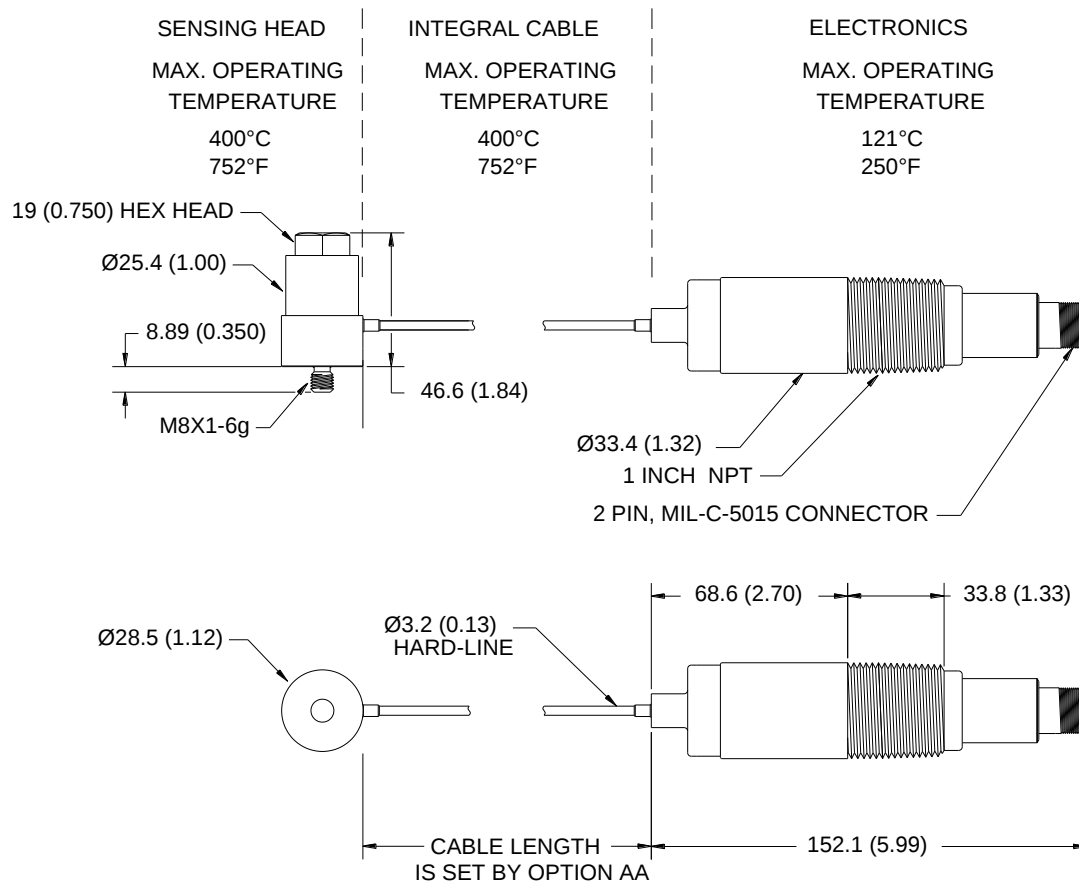


Figure 2. 330752 System Dimensional Drawing

Dimensions are in millimeters (inches)

Graphs – 330750 and 330752

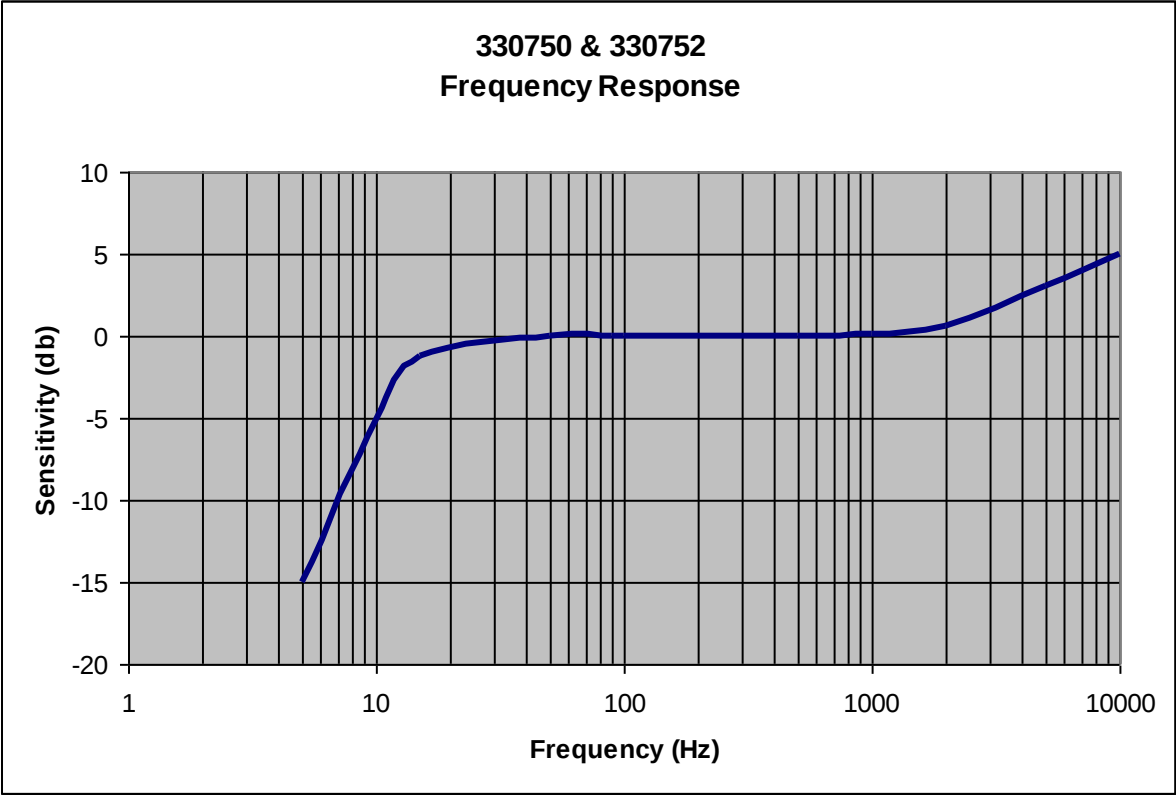


Figure 3. Velocity Amplitude

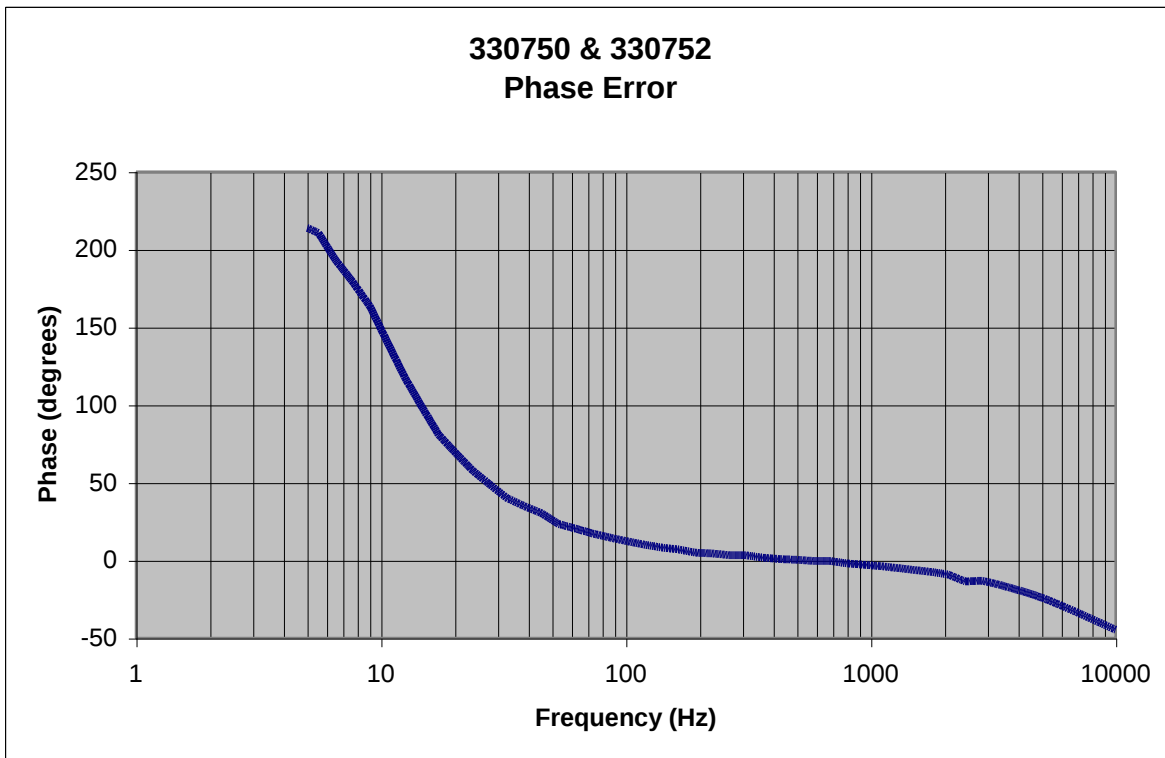


Figure 4. Velocity Phase Error



Note: The Velomitor requires a two-conductor cable. We recommend using a double-shielded cable to minimize noise interference.

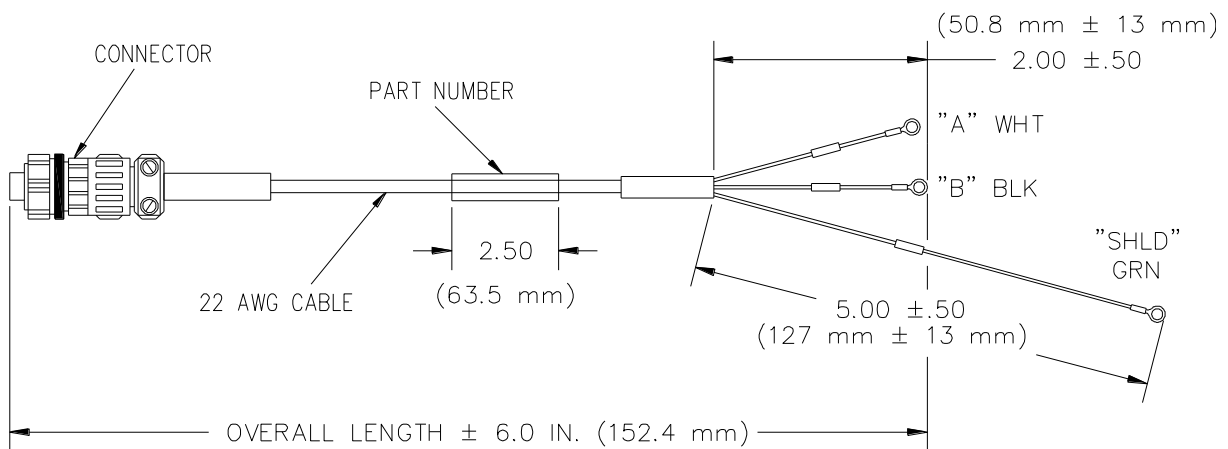


Figure 5. Standard Interconnect Cable

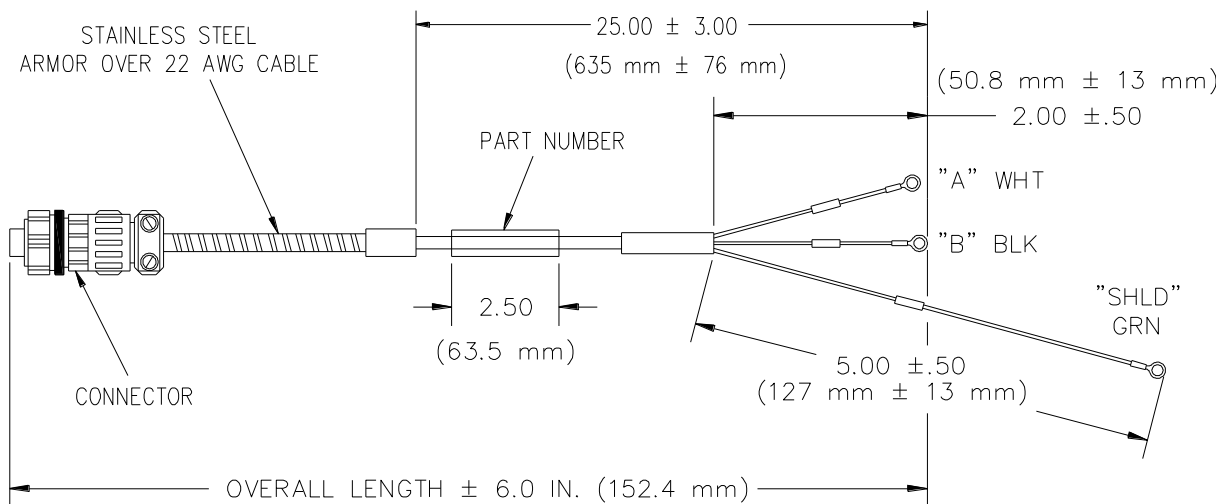


Figure 6. Standard Armored Interconnect Cable

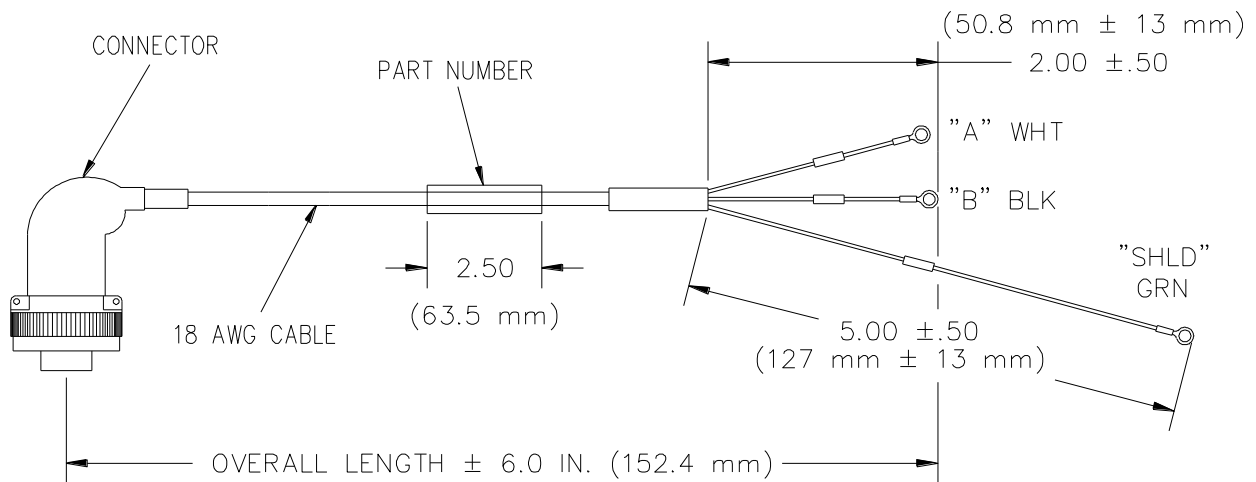


Figure 7. Standard Right-angle Interconnect Cable

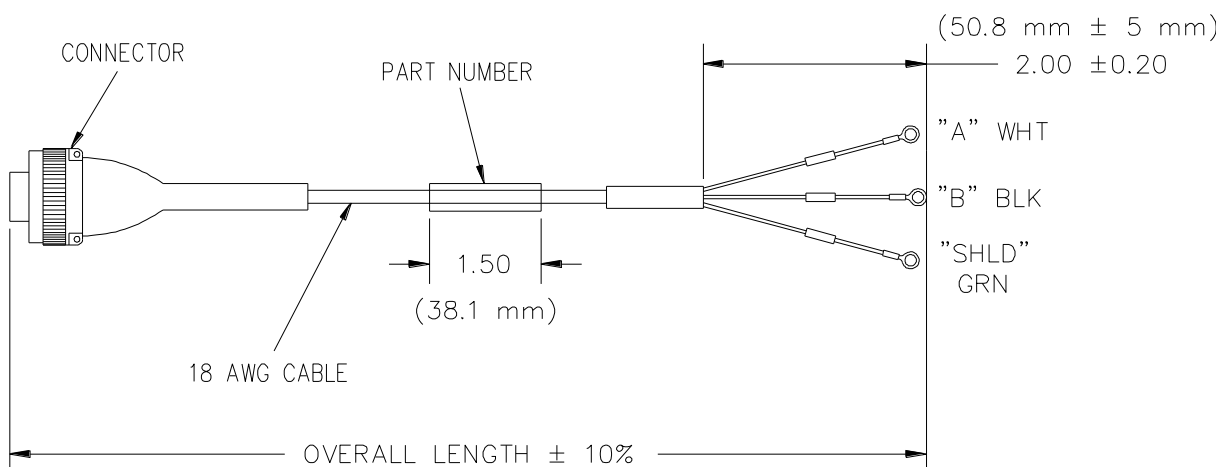


Figure 8. Short Run Interconnect Cable

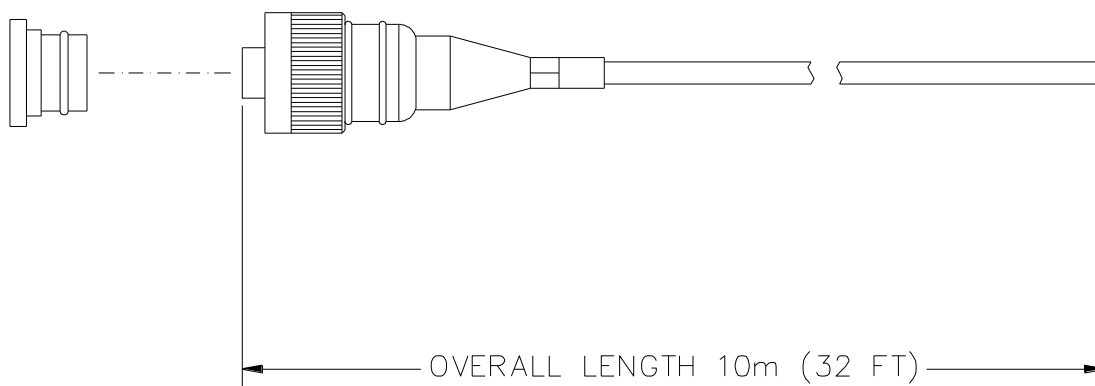


Figure 9. CE Installation Interconnect Cable

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