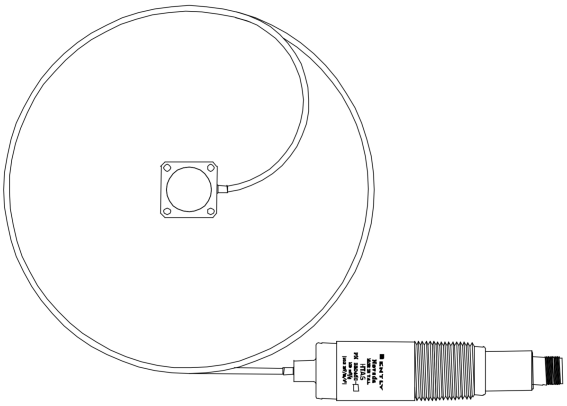
330450 High Temperature Acceleration System

Datasheet

Cordant™

169885 Rev. H



Description

The 330450 High Temperature Acceleration System (HTAS) segregates the sensing element from the signal conditioning electronics, with the two permanently connected via a hardline cable. Due to the segregated design, the signal conditioning electronics can be installed in a cooler location. This achieves overall transducer system performance comparable to other acceleration transducers, but permits use at significantly higher temperatures.

Earlier versions of the standard 330400 Accelerometer located the electronics in the same case as the sensing element. This limited the sensor to a maximum operating temperature of +300°C (+572°F). The serial number of current versions that measure up to +400°C (+752°F) are preceded by the letter "G".

By eliminating connections between the sensing head and its associated signal conditioning electronics, a significant source of potential transducer failures (connector problems) is eliminated.

Baker Hughes

Most common machine malfunctions (unbalance, misalignment, etc.) occur on the rotor and originate as an increase (or at least a change) in rotor vibration. For any individual casing measurement to be effective for overall machine protection, the system must continually transmit a significant amount of rotor vibration to the machine casing, or mounting location of the transducer.

In addition, be careful to install the accelerometer transducer on the bearing housing or machine casing. Improper installation may decrease the transducer amplitude and frequency response and/or generate false signals that do not represent actual vibration. Refer to the appropriate instruction manuals and Application Notes.

Upon request, Bently Nevada provides engineering services that can identify the appropriate machine housing measurements and installation assistance if needed.

Earlier versions of the sensor were limited to a maximum of +300°C (+572°F). The serial number of more recent versions is preceded by the letter “G”.

Specifications

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

> Operation outside the specified limits may result in false readings or loss of machine monitoring.

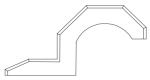
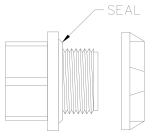
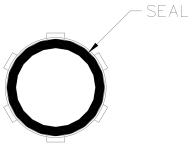
Electrical

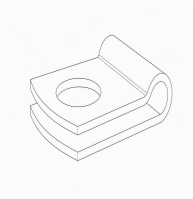
Sensitivity	10.2 mV/m/s2 (100 mV/g) ±5%.
Acceleration Range	785 m/s2 (80 g) peak overall acceleration within the 15 to 10000 Hz frequency span.
Amplitude Linearity	±2% to 785 m/ s2 (80 g) peak.
Broadband Noise Floor (10 Hz to 15 kHz)	0.059 m/s2 (0.006 g) rms.
Frequency Response	15 to 10000 Hz (900 to 600,000 cpm) ±3dB; 40 to 4000 Hz (2400 to 240,000 cpm) ±5%
Transverse Sensitivity	Less than 5% of axial.
Mounted Resonant Frequency	Greater than 15 kHz.
Maximum Cable Length	305 metres (1000 ft) with no degradation of signal.
Power requirements	
Input Voltage	-24 ± 0.5 Vdc.
Bias Current	2 mA nominal.
Output Bias Voltage	-12 ± 0.5 Vdc.
Grounding	Case isolated.

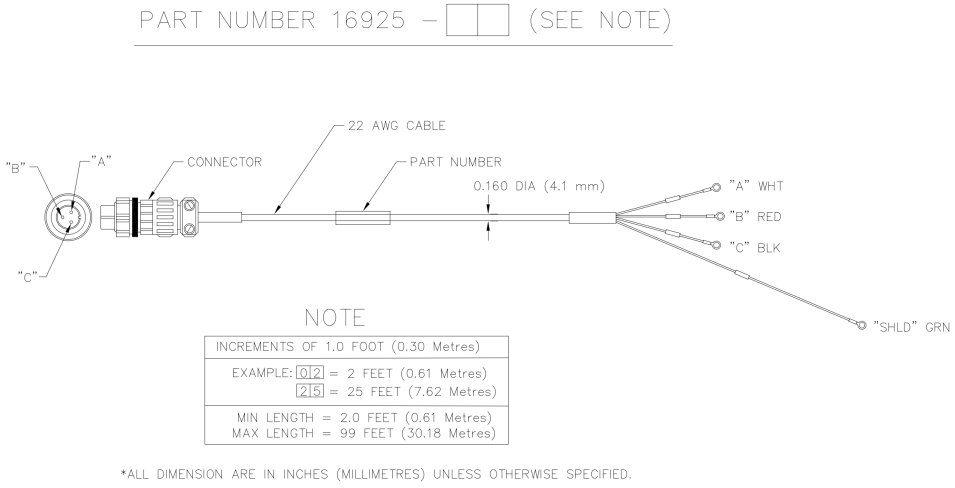
Environmental Limits

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 +100°C (-67°F to +212°F)
Shock Survivability	24,535 m/s2 (2500 g) peak
Relative humidity:	To 100% non-submerged; case is hermetically sealed.

Table 1: Interconnection Cables and Accessories

APPLICATION	PART NUMBER	DESCRIPTION
†Note: AA - Specifies the length (in feet) of cable required		
Standard Interconnect Cable	6925-AA†	3-conductor shielded 22 AWG (0.5 mm2) cable with 3-socket plug at one end, terminal lugs at the other end. Minimum length of 2.0 ft (0.6 m), maximum length of 99 ft (30 m). See Figure 4
Standard Armored Interconnect Cable	16710-AA†	3-conductor shielded 22 AWG (0.5 mm2) armored cable with 3-socket plug at one end, terminal lugs at the other end. Minimum length of 3.0 ft (0.9 m), maximum length of 99 ft (30 m). See Figure 5
Interconnect Cable with Boot	130539-AA†	3-conductor shielded 18 AWG (1.0 mm2) cable with 3-socket plug and fluorosilicone elastomer boot at one end, terminal lugs at the other end. Minimum length of 2.0 ft (0.6 m), maximum length of 99 ft (30 m). A manual is available to assist with installation of this cable (part number 133080-01). See Figure 6
Spare Mating Connector	00531080	Mating connector for 330450 HTAS.
Electronics Housing Strap	03818073	1 inch rigid conduit strap for securing the electronics housing. 
Electronics Mounting Hub	03818071	1 inch weather tight hub used to mount the electronics housing in a weatherproof enclosure. 
Seal Ring	03818072	1 inch sealing lock ring used to mount the electronics housing. Two rings are required to mount the electronics. 

APPLICATION	PART NUMBER	DESCRIPTION
Cable Clamp	169546	Stainless steel tie down clamp for the hardline cable. For temperatures greater than 260°C (500°F). 



Standard Lengths	
Feet	**Metres (approx.)**
6	1.8
8	2.4
10	3.0
12	3.6
15	4.5
17	5.0
20	6.0
25	7.6
30	9.0
33	10.0
50	15.2
99	30.0

Non-standard/custom lengths can also be ordered at additional cost.

Figure 4: Standard Interconnect Cable