

Bi-Directional, Dual Channel, Hall Effect Speed Sensors

AI-Tek bi-directional, zero velocity sensors are self-calibrating to the specific customer application and provide two independent frequency outputs and a direction signal output to indicate change in direction of the sensed, ferrous target.

The bi-directional sensor can also be referred to as a dual channel sensor since it utilizes two Hall effect sensing elements, physically offset from each other. Each element generates a single channel of target information, identical in frequency and polarity, but offset in the time domain (phase shifted). Special circuits inside the sensor are designed to calibrate each channel to its application target, then analyze these two channels of information for a phase lead / lag condition. The direction output will then provide a logic 1 level for clockwise or a logic 0 level for counterclockwise rotation, assuming proper sensor orientation.

UL/CSA/ATEX

AI-Tek will be pursuing UL/CSA/ATEX approval for its line of Bi-Directional, Dual Channel, Hall Effect speed sensors.

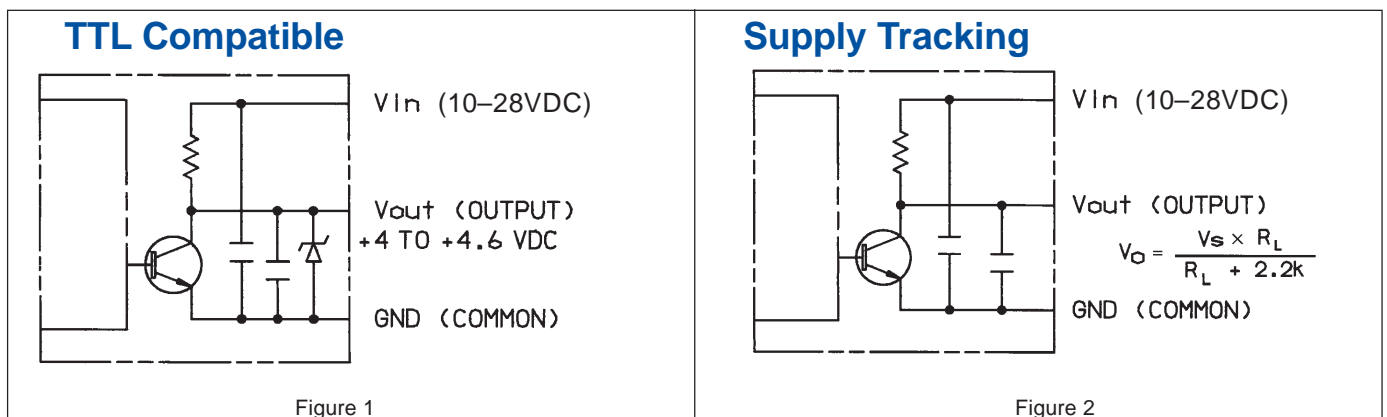
Please contact Factory or Distributor for the status of this approval.

It is the customer's responsibility to determine whether the product is proper for customer's use and application.

Bi-Directional, Dual Channel, Hall Effect Speed Sensors

Cable	5 conductor, 22 AWG irradiated cross-linked polyolefin	
Connector (mates with)	Bendix PT06W-10-6S or Souriau 851-06J10-6S50	
Housing Material	300 series stainless steel	
Voltage**	10 to 28 vdc	
Current	100mA max.	
Output impedance	2.2KΩ	
Outlook Logic levels	Logic 0	Logic 1
TTL	0.6 vdc. Max.	4.5 +/-0.5 vdc @ 5mA.
ST (Supply Tracking)	0.6 vdc. Max.	$V_o = V_s(R_L / R_L + 2.2K\Omega)$
Direction logic	Output high (logic 1) with direction of rotation towards notch	
Output current	Source = 1.0mA max., Sink = 20mA max.	
Frequency	DC to 15KHz	
Rise/Fall time	5μS / 3μS typical	
Duty Cycle	40% to 60%	
Channel phasing (quadrature)**	45° to 135°	
Gear pitch vs. airgap**	8 - 32DP, .005" - .080" air gap / 3.2 - .79Mod., 0.13 – 2 mm	
Operating temperature	-40°C to +125°C	
Environmental <ul style="list-style-type: none"> • Thermal Shock • Salt Spray • Humidity • Dielectric Strength • Insulation Resistance • Vibration • Shock 	Design principles consistent with "H" series Hall Effect Sensors to withstand severe environmental stresses.	
EMC <ul style="list-style-type: none"> • Conducted emissions and susceptibility • Radiated emissions and susceptibility • Transients 	Design principles consistent with BS/EN and MIL-STD's for EMC hardness.	

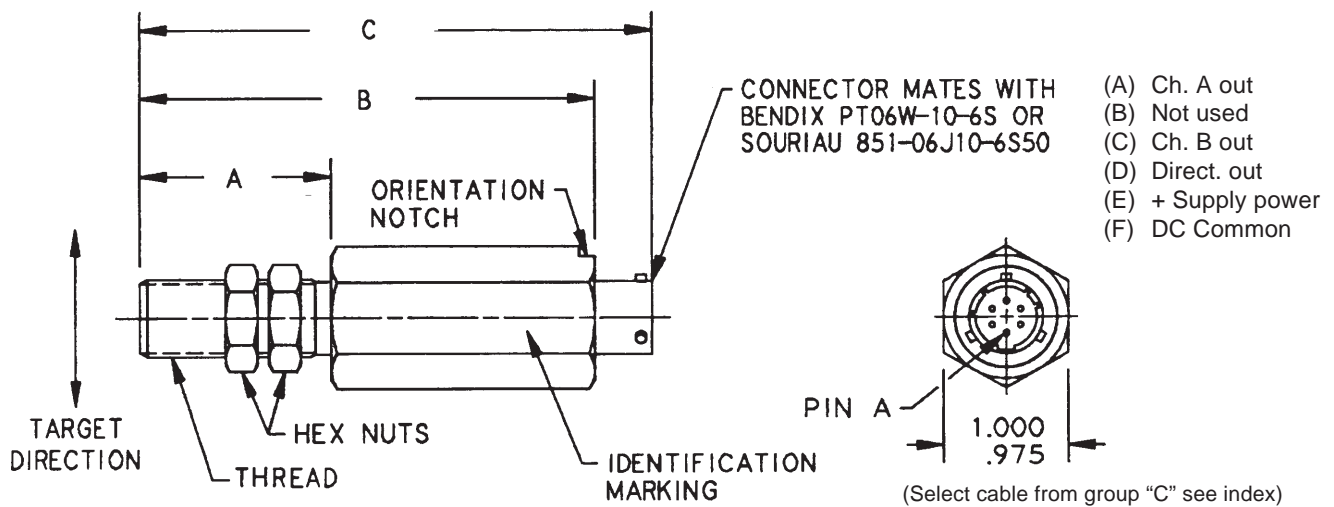
**Consult factory for application assistance.



Note: Either output will work with any AI-Tek Tachometer.

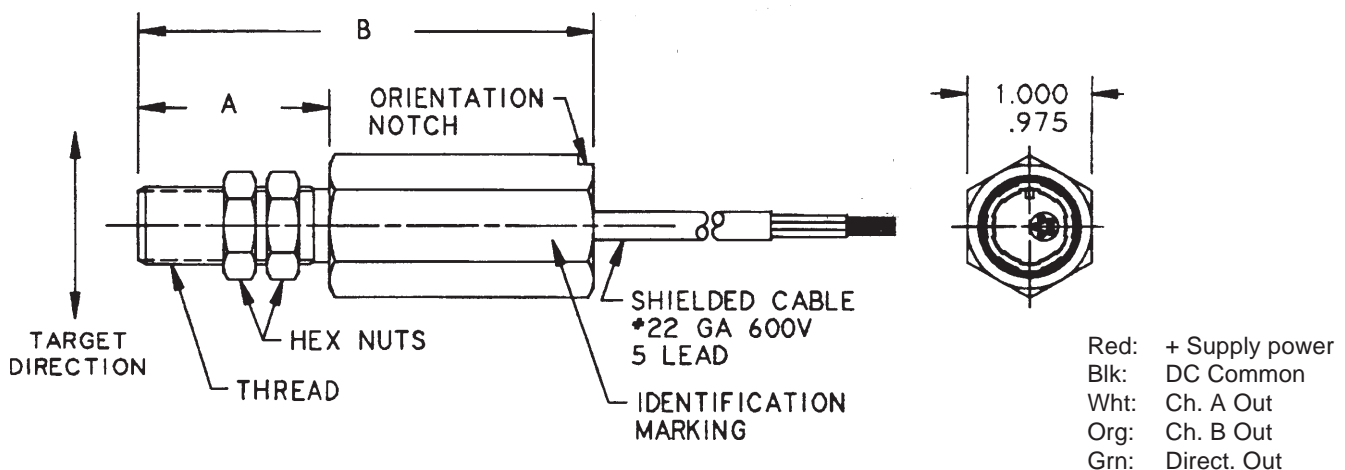
Bi-Directional, Dual Channel, Hall Effect Speed Sensors - 5/8 and 3/4 Threads

Bi-Directional, Hex Body with 6 Pin Connector



Part Num.	Thread	"A" Dim.	"B" Dim.	"C" Dim. (max.)	Output
BH1512-001	.625-18UNF-2A	1.500 (38.1)	3.375 (85.7)	3.875 (98.4)	TTL Compatible
BH1522-001					Supply Tracking
BH1512-002	.625-18UNF-2A	2.750 (69.9)	4.625 (117.5)	5.125 (130.2)	TTL Compatible
BH1522-002					Supply Tracking
BH1612-001	.750-20UNEF-2A	1.500 (38.1)	3.375 (85.7)	3.875 (98.4)	TTL Compatible
BH1622-001					Supply Tracking
BH1612-002	.750-20UNEF-2A	2.750 (69.9)	4.625 (117.5)	5.125 (130.2)	TTL Compatible
BH1622-002					Supply Tracking

Bi-Directional, Hex Body with Cable

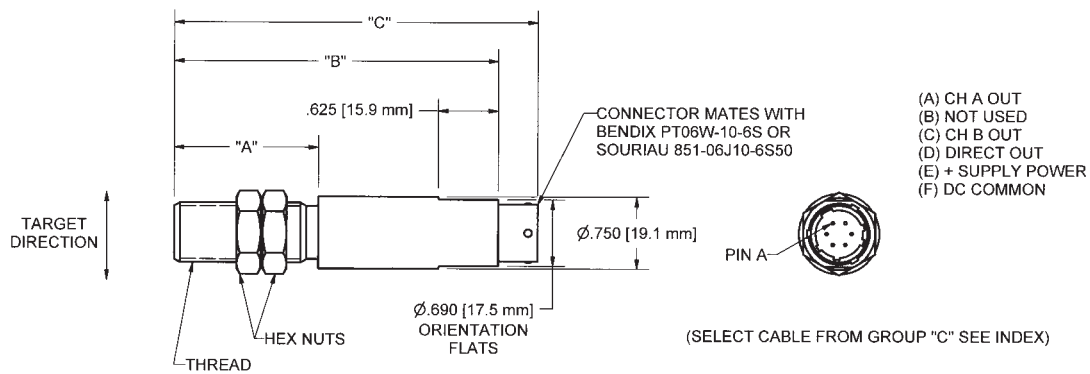


Part Num.	Thread	"A" Dim.	"B" Dim.	Cable Length	Output
BH1512-013	.625-18UNF-2A	1.500 (38.1)	3.375 (85.7)	10 ft. (3.05m)	TTL Compatible
BH1522-013					Supply Tracking
BH1512-014	.625-18UNF-2A	2.750 (69.9)	4.625 (117.5)	10 ft. (3.05m)	TTL Compatible
BH1522-014					Supply Tracking
BH1612-013	.750-20UNEF-2A	1.500 (38.1)	3.375 (85.7)	10 ft. (3.05m)	TTL Compatible
BH1622-013					Supply Tracking
BH1612-014	.750-20UNEF-2A	2.750 (69.9)	4.625 (117.5)	10 ft. (3.05m)	TTL Compatible
BH1622-014					Supply Tracking

Dimensions in inches and (mm).

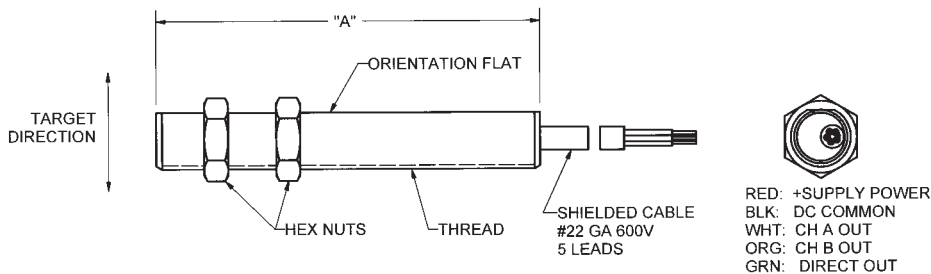
Bi-Directional, Dual Channel, Hall Effect Speed Sensors - 5/8 and 3/4 Threads

Bi-Directional, Round Body with Connector



Part Num.	Thread	"A" Dim.	"B" Dim.	"C" Dim. (max.)	Output
BH1512-005	.625-18 UNF-2A	1.500 (38.1)	3.375 (85.7)	3.875 (98.4)	TTL Compatible
BH1522-005					Supply Tracking
BH1512-006		2.750 (69.9)	4.625 (117.5)	5.125 (130.2)	TTL Compatible
BH1522-006					Supply Tracking
BH1612-005	.750-20 UNEF-2A	1.500 (38.1)	3.375 (85.7)	3.875 (98.4)	TTL Compatible
BH1622-005					Supply Tracking
BH1612-006		2.750 (69.9)	4.625 (117.5)	5.125 (130.2)	TTL Compatible
BH1622-006					Supply Tracking

Bi-Directional, Fully Threaded with Cable



Part Num.	Thread	"A" Dim.	Cable Length	Output
BH1512-009	.625-18 UNF-2A	4.000 (101.6)	10 ft. (3.05m)	TTL Compatible
BH1522-009				Supply Tracking
BH1512-010	6.000 (152.4)			TTL Compatible
BH1522-010				Supply Tracking
BH1612-009	.750-20 UNEF-2A	4.000 (101.6)		TTL Compatible
BH1622-009				Supply Tracking
BH1612-010	6.000 (152.4)			TTL Compatible
BH1622-010				Supply Tracking

Dimensions in inches and (mm).