





Severe Duty Encoder for TDS9/10/11 Mounting with Flameproof and Explosion Proof Ratings

Explosion Proof Bearingless Encoder

XPH1

- | Fits NOV TDS 9, 10 & 11 Top Drives Directly
 - | No Barrier or Isolator Needed
- | No Intrinsic Safety Ground Required
- |  Class I Div 1 Groups C, D Listed
 - | AEx Zone 1 Certified
- |  Zone 1 & 2 Certified
 - | Fully Protected Against Shorts and Wiring Errors
- | Drives up to 1000 feet [305m] of cable without repeaters
 - | 2 Year No-Hassle Warranty
 - | -50°C to +85°C Operation

Dramatically slash encoder-related downtime on top drive applications!

XPH1 SMARTSafe™ encoders are the world's first explosion-proof encoders with removable electronics and no external barrier! They are cULus, ATEX, IECEx certified and offer incredibly reliable no-bearing construction! SMARTSafe XPH1 encoders can be used in ATEX/IECEx, cUL AEX, and UL gas hazardous environments including NEC500 and NEC 505.

XPH1 comes complete with auto-centering jig, base plate, riser shaft, sensor and rotor to fit NOV TDS9, TDS10, and TDS11. Also available: no-bearing modular sensors (XP5), 8.5" C-face XPH8 as well as intrinsically safe models ([XR5](#), [XR12](#), [XR56](#), [XR125](#), [XR485](#), [XR685](#), [XR850](#)) and hollow shaft models [M6C](#).

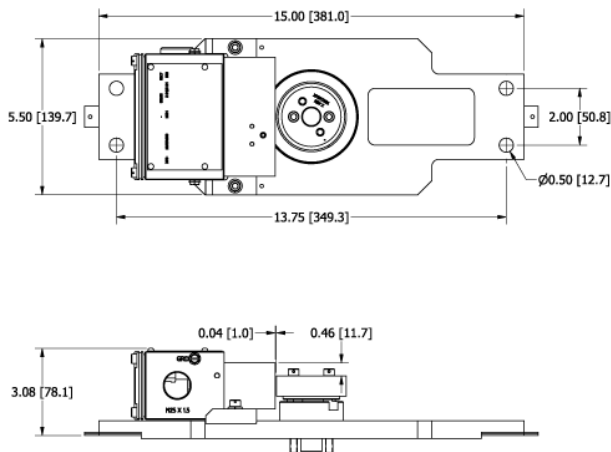
Use the XPH1 directly in your application with no barrier or isolator required with 1000 feet of cable or more!

Unlike the competition, Avtron SMARTSafe encoder systems are protected against short circuits, power-to-output wiring, and output-to-ground faults. They feature full diagnostics: it's easy to determine that signal quality is good-just look for the green LED. Worried about wiring short circuits and errors? XPH1 will indicate any short circuit conditions with an orange LED and will survive this condition!

No encoder bearing failures, no more sealing problems. Mount XPH1 directly on your motor, build it right into your machine. So many applications benefit from a more reliable no-bearing encoder. Vibration, shock, liquids, dust and dirt won't harm SMARTSafe XPH1 encoders!

Eliminate the biggest cause of hazardous duty encoder failure--eliminate the bearings with XPH1 hazardous duty encoders!

OUTLINE DRAWING



Check out our website for more detailed specifications, drawings, and installation instructions. www.avtronencoders.com

MORE XPH1 ADVANTAGES

- ▮ All-digital design, no trim pots or adjustments for longer life
- ▮ Advanced sensor technology
- ▮ Superior line drivers withstand short circuits and reverse voltage wiring errors
- ▮ Fully Potted Electronics
- ▮ SMARTSafe sensors find problems before they cause failure
- ▮ Allows Gland or Conduit Connections
- ▮ Full protection against motor shaft currents

XPH1 SPECIFICATIONS

Operating Power: 5-24VDC in/out
 400mA max @ 5V; 200mA max @ 12V; 100mA max @ 24V (plus cable load)

Output Format: A Quad B with marker (A,A-, B,B-, Z,Z-)

Frequency Range: 0 to 250 KHz

PPR: 8-100000

Speed: 6000 RPM Max. (contact factory for higher speeds)

Maximum Cable Length: 1000 ft (305m) (contact factory for longer distances)

Rotor Positioning: Up to +/-0.100" [±2.54mm] movement/misalignment

Sensor-Rotor Gap: 0.040", +0.015/-0.030" [1mm+0.38/-0.76]

Temperature: -50°C to 85°C
 (rotor -50°C to 100°C continuous, +135°C intermittent)

Environmental: IP65 fully potted sensors

Vibration: 5-2000Hz, 18G; 100G Shock

Weight: 15lbs. [6.8kg]

Certifications:

Class I Div 1, Groups C and D
 Class I Zone 1, Ex db ia IIB T4 Gb
 Class I Zone 1, AEx db ia IIB T4 Gb
 Ex db ia IIB T4 Gb (ATEX/IECEX)



*See installation drawings for Warnings and Limitation
 **Consult NOV for installation guidelines and details

SELECTION GUIDE

XPH1 Encoder Part Numbers									
Model	Rotor Style/Bore	Cover	Output	PPR		Connection Options Terminal Box			Modifications
XPH1-TDS10/11 with 64mm rotor	XX- No Rotor A1- TDS10/11 w/shaft adapter	X- No Cover	8- Hi Power 5-24V in/ 5-24V out (Hx)	Left PPR	Right PPR	A- Left Exit M25 thread	Right Exit Blanking Plug	Phasing A->B CW	000- none 004- Super Magnetic Shielding
				XX-None BC-50 AF-60 AK-80 AG-100 AH-120 AA-128 AM-200 AL-240 AN-256 AP-300 AE-360 AC-400 AB-480 AQ-500 AR-512 AS-600 AV-900 AJ-960 AW-1000 AY-1024 AZ-1200 CX-1500 A3-2000 A4-2048 A5-2500 A7-3600 AD-4096 A8-4800 A9-5000 00-Special XX-None	BC-50 AF-60 AK-80 AG-100 AH-120 AA-128 AM-200 AL-240 AN-256 AP-300 AE-360 AC-400 AB-480 AQ-500 AR-512 AS-600 AV-900 AJ-960 AW-1000 AY-1024 AZ-1200 CX-1500 A3-2000 A4-2048 A5-2500 A7-3600 AD-4096 A8-4800 A9-5000 00-Special XX-None	<div>Left-Right orientation is viewed with terminal box facing up</div>			



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 respective owners. Nidec Industrial Solutions' standard warranty applies.
 All dimensions approximate.