

CD120 SERIES INCREMENTAL DRAW WIRE

Introduction

Draw wire sensor assemblies combine a rotary sensor such as an encoder with a spring-loaded retractable cable on a drum. This provides a means to translate the precision of a rotary encoder into a linear measurement.



Features

- A full 120 inches (10 feet) of measurement capability.
- Wire drum is scaled so that one revolution = 1 foot of measurement.
- Mounting bracket and encoder position can be rotated in 90° increments to accommodate a variety of installation requirements.

Applications

- Concrete, wood, steel sawing
- Mast height measurement for fork truck AGV's
- Extension measurement for small cranes
- Flood Control gates
- Hydraulic Cylinder Position



Mechanical

Output Signal type	Optical Incremental Encoder in Quadrature with Index	
Linearity	+/- 0.05% of full scale	
Resolution	Range of Pulses per inch (Ref ordering block)	
Cable Type	0.024" (0.60 mm) diameter stainless steel	
Cable Tension	2.9 - 4.0 pounds (13 - 18 N)	
Enclosure material	Aluminum	
Weight	4.4 pounds, (2 Kg)	

Electrical

Input Current	100mA (no load), up to 160 mA full load	
Input Voltage	5-28 Vdc; Vout=Vin	
Connector	M16, 7 pin Connector M18, 10 pin Connector SCS, cable Gland Seal	
Mating Connector/Cable	31186-18XX, XX = cable length in feet	
Drum Circumference	12 inches (304.8 mm)	



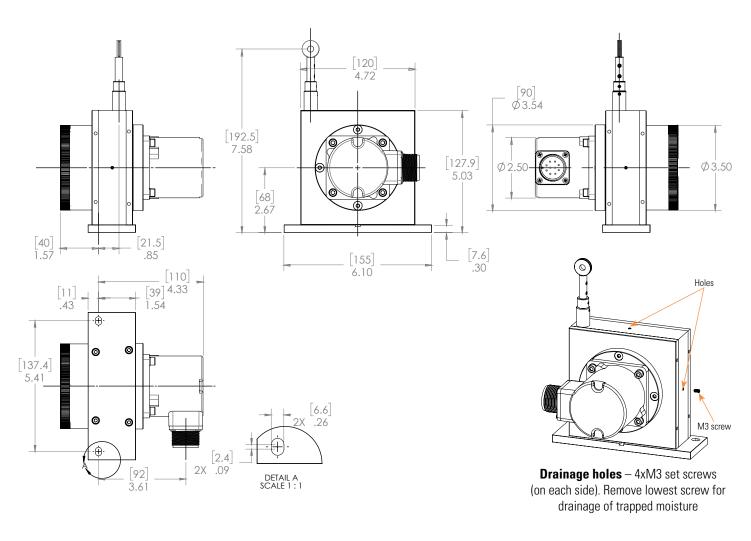
Enviromental

Enclosure Protection Rating	IP66 with M16 or M18 connector IP65 with cable Gland Seal	
Operating Temperature	-20°C to + 85°C	
Storage Temperature	-20°C to + 85°C	

Other Specifications

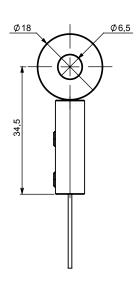
Maximum Velocity of cable	10 m/s
Maximum Acceleration of Cable	7 m/s ²



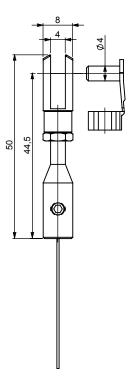


CD120 DRAW-WIRE, AVAILABLE FEATURES

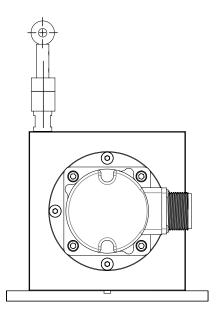
All dimensions are in mm



Standard termination with a captive washer which accepts a 6 mm (1/4") screw



CP termination: Threaded cable termination is attached to a clevis. The 4 mm diameter clevis pin is provided.



B2: A cleaning brush is factory installed to wipe away dust and moisture as the cable retracts

BEISENSORS

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CD120 - 500 - ABZC - 28	V/V - M	118 - E	32
Family			
Draw-Wire Assembly 120 inches maximum travel Aluminum Housing			
Resolution Note: programmable resolution, OMNI , must use an M18 termination			
10 counts per inch to 500 counts per inch (See Table, Below)			
Output Type			
ABZC = Two Channels in Quadrature + Index and complements = Std ABZ = Two Channels in Quadrature + Index ABC = Two Channels in Quadrature plus complements Check with factory for other output types.			
Electrical Options ————————————————————————————————————			
28V/V = 5 – 28 V in. Vout = Vin 28V/5 = 5 – 28 V in. Vout = 5V regulated 28V/OC = 5 – 28 V in. Vout = Open Collector			
Termination ————————————————————————————————————			
M18 = M18, 10 Pin Connector (used with ABZC) M18 - 10 = M18 Connector with Mating Cable/Connector Assembly, -10 = 10 foot length. Available lengths are 10, 20, 30, and 50 feet. M16 = M16, 7 Pin Connector (used with ABC or ABZ) M16 - 10 = M16 Connector with Mating Cable/Connector Assembly, as above. SCS-XX = Cable Gland Seal with XX feet of cable. Available lengths (XX) = 10, 20, 30 and 50 feet.			
Available Features ————————————————————————————————————			
BLANK = Standard Termination B2 = Built-in Cleaning Brush for cable CP = Clevis Termination			



RESOLUTIONS TABLE

Resolution	Distance/ Count
10	0.100 "
25	0.040 "
50	0.020 "
100	0.010"
250	0.004"
500	0.002"
OMNI*	Programmable

^{*}Available with M18 termination only



PINOUT AND CONNECTION TABLES

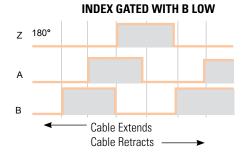
The connector style will determine pinouts. For example, an encoder with ABC channels and an M18 connector uses the table to the right.

M16 Connector	Channels Designated in Model Number		
Pin	ABZ	ABC	
А	А	А	
В	В	В	
С	Z	Ā	
D	+V (Supply Voltage)		
Е	<u>—</u> В		
F	OV (Circuit Common)		
G	Case Ground (CG)		

Wire Color	Channels Designated in Model Number		Number
(22AWG)	ABZ	ABC	ABZC
YEL	А	А	А
BLUE	В	В	В
ORN	Z		Z
W-Yel	<u>—</u>	Ā	Ā
W-Blu		B	B
W-Orn	<u>—</u>		Z
RED	+V (Supply Voltage)		
BLK	OV (Circuit Common)		
GRN	Case Ground (CG0)		
WHITE	Shield Drain (Shielded Cable Only)		

M18 Connector		
Pin	Channel	
А	А	
В	В	
С	Z	
D	+V	
E		
F	0V	
G	CG	
Н	Ā	
I	B	
J	Z	





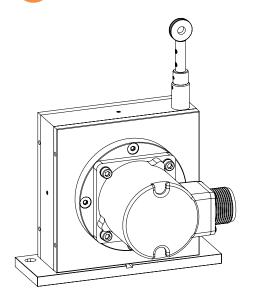


AGENCY APPROVALS & CERTIFICATIONS ROHS EN 61000-6-4 and EN 61000-6-2





MOUNTING INSTRUCTIONS



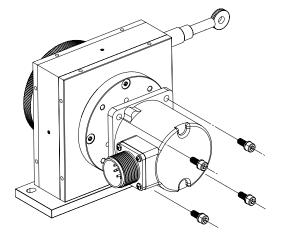
CD120 Mounting Instructions

- 1. Mount the CD120 mounting plate securely to a stable flat surface using M6 or 1/4" bolts and washers.
- 2. Attach the draw wire to your moving equipment using the eyelet provided with an M4, #8 screw or a 3/16" pin. If you have purchased a special termination, then use the mounting instructions for that wire termination.

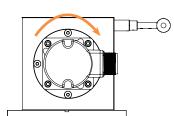


WARNING:

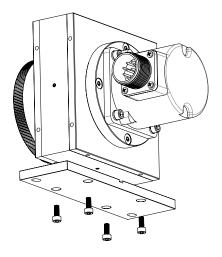
- Damage may occur if draw wire is released and allowed to freely retract without tension.
- Make certain the draw wire path is clear of objects or sharp edges to prevent cable damage.
- Draw wire should exit as straight as possible. A pulley may be used to redirect it



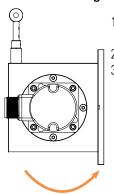
How to Change Encoder Positioning



- 1. Remove the four #10-32 hex socket cap screws and washers from the encoder flange. (5/32 in. hex driver).
- 2. Rotate the encoder flange in 90° increments. You may need to pull it out a little to get it loose enough to turn.
- If the encoder is completely removed, you can rotate the encoder shaft a little to align the driving gear with the draw wire hub. It should insert with little or no resistance. Do Not Force the gear into place.
- 4. Replace the screws and lock washers and tighten to 13 in-lb [1.4 N-m].



How to Change the Mounting Plate Position



- 1. Remove the four M4 hex socket cap screws from the mounting plate (3 mm hex driver)
- 2. Align the mounting plate on the side you wish to attach it.
- 3. Replace the screws and tighten to 13 in-lb [1.4 N-m].

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