



2RM

CE

### Introduction

Mini shaft encoder  
 Std. IP 64 ( option; Ribbon cable +IDC connector = IP 50 )  
 Thermal shutdown at 155°C  
 Strong compact electronics  
 Based on 2 precision ball bearings for industrial environments

### MECHANICAL SPECIFICATIONS

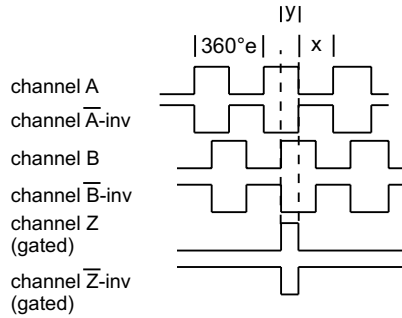
Weight	About 30g (+cable = 0,040 Kg/meter)
Material	Housing - Electroplated steel and brass Shaft - Stainless Steel Bearings - Lifetime lubricated ball bearings
Shaft Loads	axial maximum = 20 N radial maximum = 20 N
Max. rev.	12,000 rev./min.
IP-rating	Standard IP 64
Start Torque	< 0,005 Nm at 25° C
Mass Moment of Inertia	0,8 gcm <sup>2</sup>
Shock	maximum 100G / 11 ms
Bump	10G - 16 ms (1000 X 3 axis)
Vibration	(10-2000Hz)/ 10G

### ELECTRICAL SPECIFICATIONS

Output Waveform	Incremental (A, B, Z and inverted )
Output Signals	Standard, Inverted, Differential,
Current No Load	35 mA
Max. load pr. output	20 mA*
Supply-Voltage(Vin)	Min 4,5V to Max. 30V* , Reverse polarity protection
V <sub>out</sub> low	maximum 500 mV @ I = 10 mA
V <sub>out</sub> high	minimum (Vin -0.6) @ I = -10 mA minimum (Vin -1.3) @ I = -25 mA
Operating Temp.	- 40°C to +85°C
Storage Temp.	- 40°C to +85°C

## OUTPUT WAVEFORM

Rotation: Clockwise (cw) from shaftside



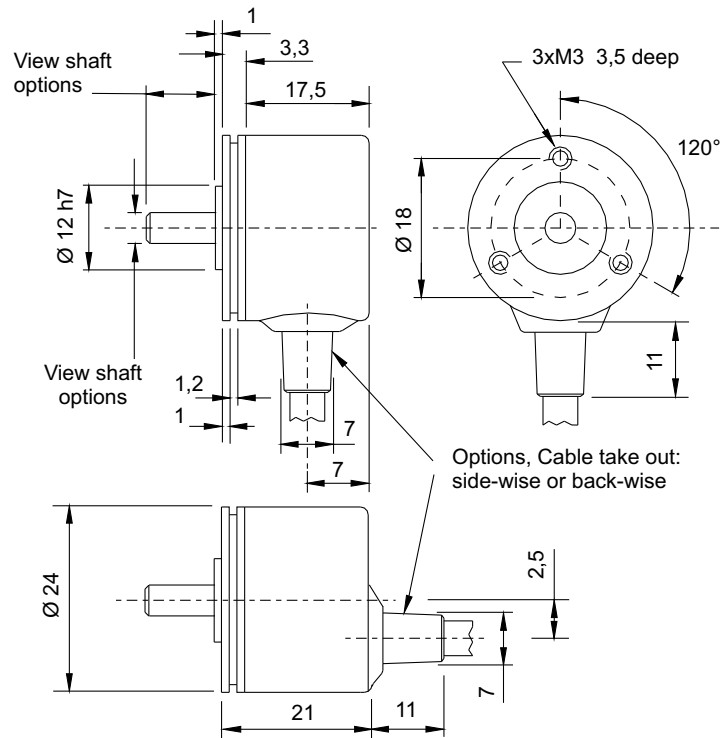
$X = 180^\circ e \pm 36^\circ e$  and  $Y = 90^\circ e \pm 18^\circ e$   
Z puls: Gated with A and B (standard)

**Options:** TTL or HTL compatible. Open Collector NPN or PNP  
Gated Z-puls or none-gated Z-puls.  
View more Output options in section 15 - page 1 to 2

## CONNECTIONS

Color code	Standard	Color code	Differential
Green	Ch A	Pink	Ch A
Yellow	Ch B	Grey	Ch A inv
Grey	Ch Z	Green	Ch B
Brown	Vcc	Yellow	Ch B inv
White	0-Volt	White	Ch Z
		Brown	Ch Z inv
		Red	Vcc
		Blue	0-Volt

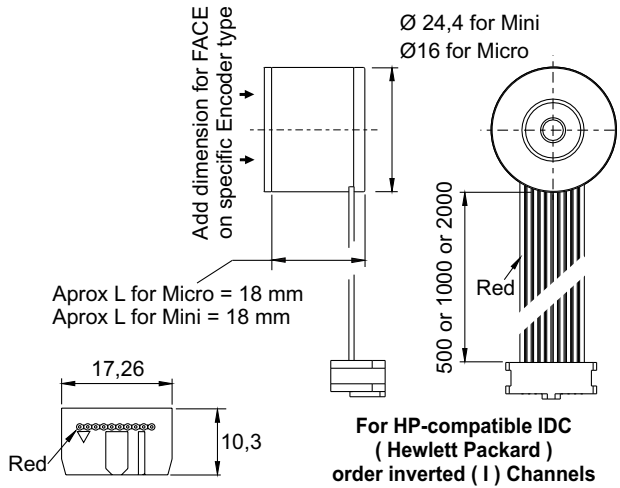
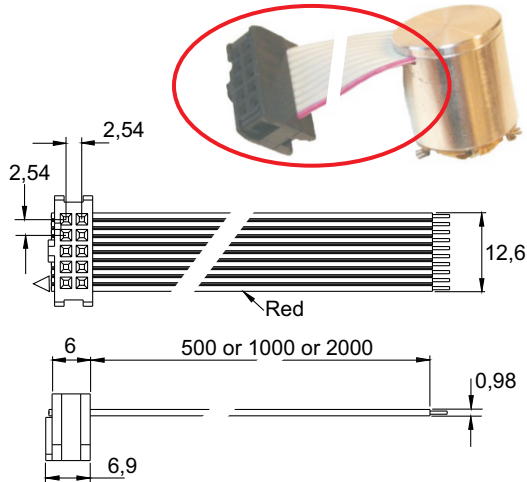
## MECHANICAL DIMENSIONS



**FLAT RIBBON CABLE WITH IDC CONNECTORS — MECHANICAL DIMENSIONS**

**Options**

Flat Cable (only IP 50)  
Ribbon + IDC or AMP

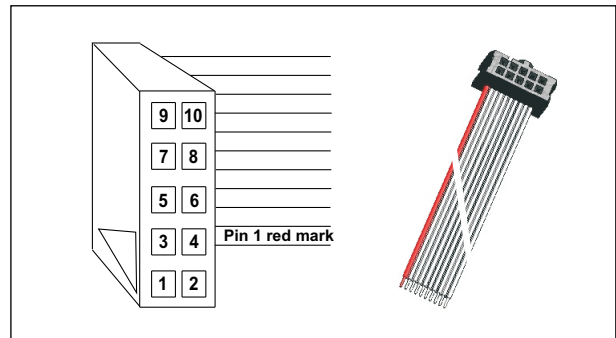


**CONNECTIONS**

IDC PIN NO.	Differential Output; D	Inverted Output; I (HP-compatible)
1	NC	A inv
2	Vcc	NC
3	0 volt (GND)	NC
4	NC	NC
5	A inV	NC
6	A	0-Volt
7	B inv	NC
8	B	B inv
9	Z inv	VCC
10	Z	Z

**NOTE:** Inverted also called HP-Standard (Hewlett Packard)

**CABLE AND PIN OUT**

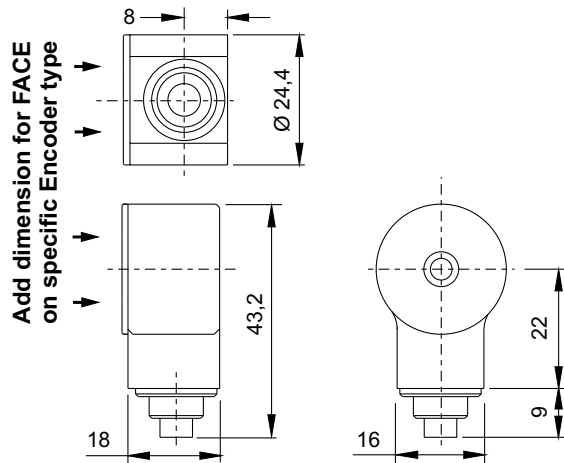
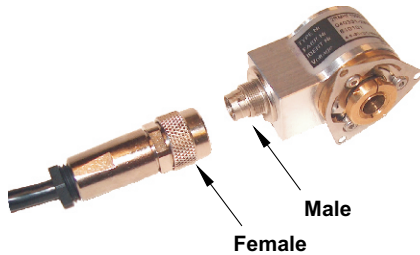


**CHARACTERISTICS**

- IP-rating: IP-50
- CE-marking not available ~~CE~~
- Cable take out only side wise
- Only available with 0,5 meter, 1 meter and 2 meter
- Output signal Differential D or Inverted I only

## BINDER CONNECTOR — MECHANICAL DIMENSIONS

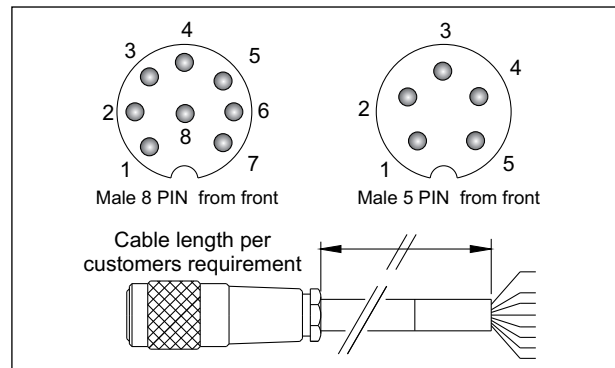
Available for all MINI Types  
Shaft or Hollow Shaft:



## CONNECTIONS

Output 8 PIN			Output 5 PIN		
PIN	COLOUR		PIN	COLOUR	
1	red	Vcc	1	brown	On request
2	blue	0-volt	2	green	On request
3	pink	Channel A	3	white	On request
4	grey	Channel A inv.	4	yellow	On request
5	green	Channel B	5	grey	On request
6	yellow	Channel B inv.			
7	white	Channel Z			
8	brown	Channel Z inv.			

## CABLE AND PIN OUT



## CHARACTERISTICS

- Side take out
- Variable cable lengths
- 5 or 8 PIN male / female Binder
- Male connector on encoder housing
- Select Female connector with or without cable

**ORDERING CODES**

**Ordering Codes System  
Incremental Shaft Encoder — 2RM**

Ordering Codes: 2RM    XXXX — X — XXXXX — XX — XX — X

Pulses pr. rev:	No. of pulses	XXXX						
	4 36 128 360 1250 7500							
	10 50 150 400 2000							
	11 60 180 500 2048							
	12 75 200 512 2500							
	15 90 250 600 3000							
	25 100 256 1000 3600							
	30 125 300 1024 5000							
Output signal:	Normal (TP-Standard) 3 channel = A, B, Z		N					
	TP-Differential, 6 channel A, B, Z and A-inv, B-inv, Z-inv		D					
	Line driver OL 7272 for extra long cable, up to 100 meters (Differential)		M					
	Line driver chip 26C31 (V out low < 0,4 V) (RS-422A compatible @ 5V) Only 5 Volt (Differential)		L					
Shaft dimensions:	Ø 4 × 5 mm			4 × 05				
	Ø 4 × 9 mm (Standard)			4 × 09				
	Ø 5 × 10 mm			5 × 10				
	Ø 6 × 10 mm			6 × 10				
	Ø 6 × 14 mm			6 × 14				
	Ø 6 × 14 mm (flat on shaft)			6F × 14				
	Ø 1/4" (Ø 6,35) × 10 mm			6,35 × 10				
	Ø 1/4" (Ø 6,35) × 20 mm			6,35 × 20				
IP-rating:	IP 64				64			
Cable Length:	Standard 1 meter						01	
	No. of meters						XX	
Cable take out:	Side							S
	Back							B
Cable and connector options:	View Section 14 page 7 to 11							
Anti rotation spring coupling or Flange / Plate:	View Section 6 page 1 to 5							

## WARRANTY

Scancon A/S warrants against manufacturing defects for a period of 12 months from the date of manufacture. Product dimensions, weights and all product illustrations are approximate and may be modified without prior notice.

This warranty does not cover problems or consequences due to common usage (wear and tear) for which the product was designed. Nor does it cover product failures caused by improper installation or use, overloading, incorrect maintenance, or operation outside the product's specifications.

Detailed warranty information can be found in Scancon's Terms & Conditions