

Draw Wire Encoder System

DWS 60

Draw wire Encoder System Absolute & Incremental

- Measurement Range 0 up to 1500 mm
- Easy and flexible Installation
- Variable Encoder Options with different Resolutions and Interfaces available
- High Flex Stainless Steel Wire



Mechanical Specifications

Material Body & Cover

Aluminum

Material Measuring Cable

Stainless Steel

Drum Circumference

150mm/turn

Cable diameter

0.60 mm

Standard Linearity

± 0.05 % full scale

± 0.01 % full scale

Max. Velocity

10 m/s

Max. Acceleration

20 m/s² (before cable deforms)

Protection Class (*DIN EN 60529*)

IP64

Temperature (*operating and storage*)

-20° ... +85° C

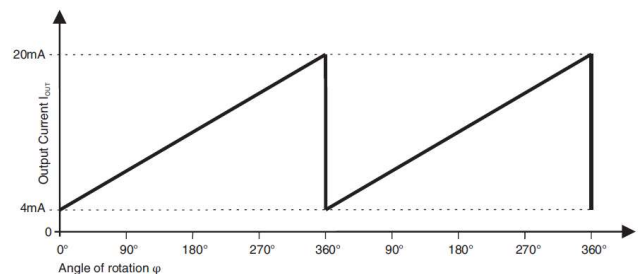
Weight

ca. 1 kg

Electrical Specification Current Output

Supply Voltage V_{cc}	20 to 30 VDC
Current consumption	50 mA plus output current
Output Current	4 to 20 mA
Output loading	$R_L = 0$ to V_{cc}/I_{Outmax}
Nonlinearity	1 %
Short Circuit Protection	100 %

Signals Current Output



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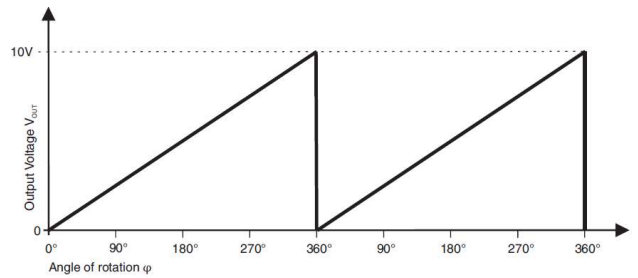
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Electrical Specification Voltage Output

Supply Voltage V_{cc}	20 to 30 VDC
Current consumption	ca. 40 mA
Output Voltage	0 to 10 VDC
Output loading	max. 10 mA
Nonlinearity	1 %
Short Circuit Protection	100 %

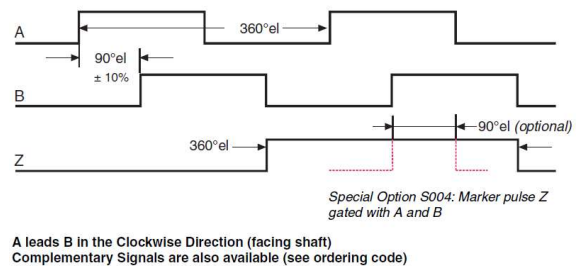
Signals Voltage Output



Electrical Specification Incremental Output

Supply Voltage V_{cc}	5 VDC, 4.75 – 30 VDC
Current consumption (<i>no load</i>)	max. 40 mA
Output Circuit	Push-Pull, TTL, RS422A compatible
Pulse Frequency	max. 100 kHz
Signal Level (high)	$V_{cc} - 0.7 V$
Signal Level (low)	max. 0.25 V
Short Circuit Protection	100 %
ESD (DIN EN61000-4-2)	8 kV
Burst (DIN EN61000-4-4)	2 kV

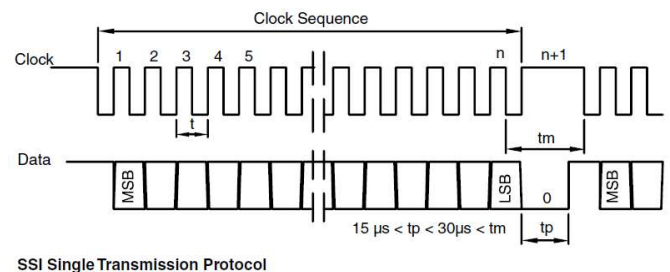
Signals Incremental Output



Electrical Specification SSI

Supply Voltage V_{cc}	5 VDC, 10 – 30 VDC
Current consumption (<i>no load</i>)	max. 80 mA@27 VDC
Output Circuit	RS485/RS422 compatible
Pulse Frequency	max. 500 kHz
Direction Setting DIR <->	DIR = GND → cw, DIR = V_{cc} → ccw
Preset/Reset Setting	Set: Preset = V_{cc} for 2s Rset: Preset = GND
Short Circuit Protection	100 %

Signals SSI





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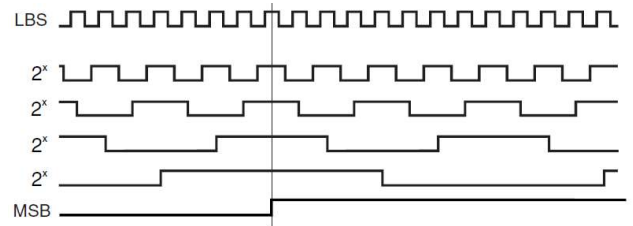
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Electrical Specification Parallel

Supply Voltage V_{cc}	5 VDC, 8 – 30 VDC
Current consumption (<i>no load</i>)	max. 100 mA
Output Circuit	Push-Pull, TTL
Pulse Frequency	max. 200 kHz
Signal Level (high)	$V_{cc} - 0.7 V$
Signal Level (low)	max. 0.25 V
Direction Setting DIR <->	DIR = nc → cw, DIR = GND → ccw
Short Circuit Protection	100 %

Signals Parallel



Parallel Gray Code shown - Parallel Binary code also available

Connections

Function Current Output

GND	white
V_{cc}	brown
I_{out}	green

Cable Color Code

Pin (12 Pin M23, 16 Pin M23, 5 Pin M12, 8 Pin M12)

- 1
- 2
- 3

Function Voltage Output

GND	white
V_{cc}	brown
V_{out}	green

Cable Color Code

Pin (12 Pin M23, 16 Pin M23, 5 Pin M12, 8 Pin M12)

- 1
- 2
- 3

Function Incremental Output

GND	white
V_{cc}	brown
A	green
B	yellow
Z	grey
A\	pink
B\	blue
Z\	red

Cable Color Code

Pin (12 Pin M23, 16 Pin M23, 5 Pin M12, 8 Pin M12)

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8



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Connections

Function SSI Output	Cable Color Code	Pin (12 Pin M23, 16 Pin M23, 8 Pin M12)
GND	white	1
V _{cc}	brown	2
SSI Clock +	green	3
SSI Clock -	yellow	4
SSI Data +	grey	5
SSI Data -	pink	6
Preset/ Reset	blue	7
Direction Setting/DIR	red	8

Function Parallel Output	Cable Color Code	Pin (16 Pin M23)
GND	white	1
V _{cc}	brown	2
2 ⁰	green	3
2 ¹	yellow	4
2 ²	grey	5
2 ³	pink	6
2 ⁴	blue	7
2 ⁵	red	8
2 ⁶	black	9
2 ⁷	violet	10
2 ⁸	grey/pink	11
2 ⁹	red/blue	12
2 ¹⁰	white/green	13
2 ¹¹	brown/green	14
DIR <->	yellow/brown	16

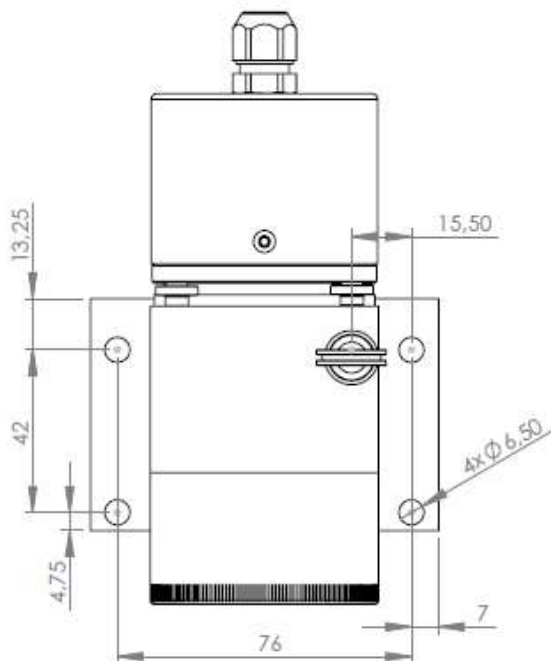
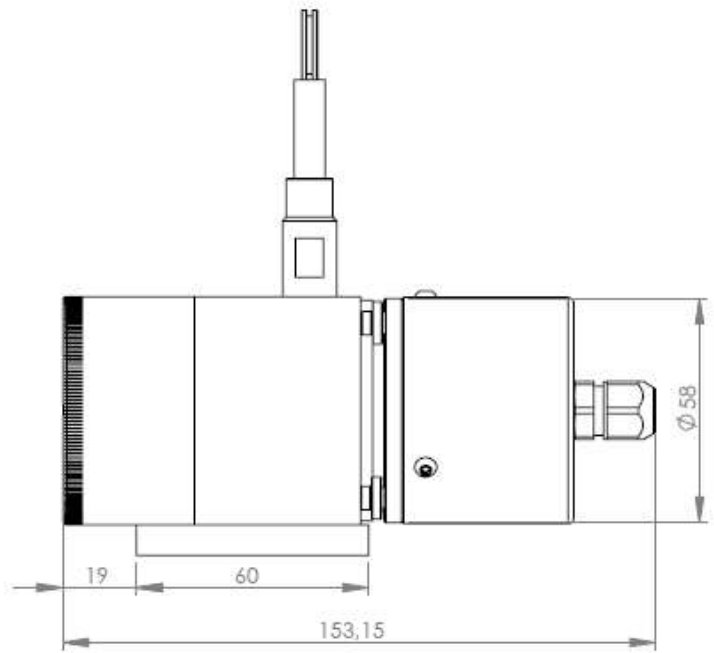
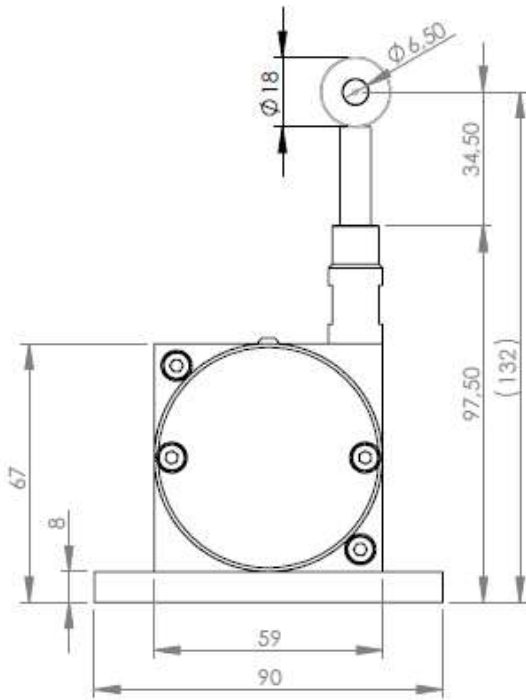
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Geometry

Dimension in mm (drawing available as: dxf-,iges-,step-,sld-file)



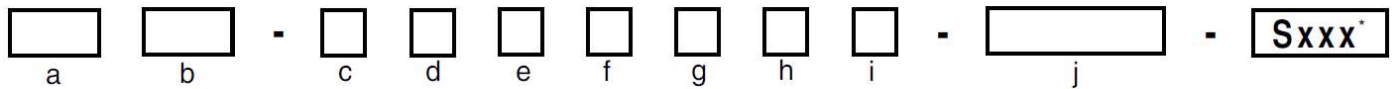


Draw Wire Encoder System

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Ordering Code



a. = Group Function

DWS = Draw Wire System

b. = Basic Series Number

60

c. = Measuring Length

150 = 0 ... 1500mm

d. = Linearity

0 = $\pm 0.01\%$ full scale (*standard*)

1 = $\pm 0.05\%$ full scale

e. = Measurement Type

I = Incremental

C = Analog Current Output

V = Analog Voltage Output

A = Absolut

f. = Connection Type

0 = 2 m Cable (6')

7 = 12 Pin M23 Plug

8 = 16 Pin M23 Plug

P = 5 Pin M12 Plug (A-code)

Q = 8 Pin M12 Plug (A-code)

g. = Connector Location

A = Axial

R = Radial

h. = Output Signals

3 = A + B + Z

6 = A + B + Z + A' + B' + Z'

E = Parallel Grey Code

F = Parallel Binary Code

H = 4 – 20 mA Analog Current Output

I = 0 – 10 V Analog Voltage Output

J = Binary Code SSI

Y = Gray Code SSI

i. = Output Circuit Type

1 = TTL 5 VDC

3 = Push-Pull 4.75 to 30 VDC

5 = Push-Pull 8 to 30 VDC

P = Analog Output 20 to 30 VDC

j. = Resolution

Incremental: 1 to 5000 ppr available

00001 = 1 ppr, 5000 = 5000 ppr

Absolut: 1 to 12 Bit available

Current Output & Voltage Output:

1024 positions per revolution

* Any special functions and design will be designated by a code (Sxxx) at the end of the part number. Consult our Office for your region for further details. If this encoder does not fit your need please also consult us for help.