

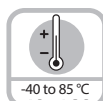
Absolute, Multiturn Type RM-115 Series

Analog


Bearing-Lock



High rotational speed



Temperature range



High IP



High shaft load capacity



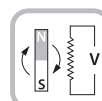
Shock/vibration resistant



Reverse polarity protection



Standard option seawater resistant



Energy Harvesting



Standard option stainless steel

Highest Robustness

- Sturdy bearing construction in Bearing-Lock design for particularly high resistance.
- Extra large bearings.
- Mechanically protected shaft seal.
- Protection level IP66, IP67 and IP69k in one device.
- Wide temperature range -40°C to $+85^{\circ}\text{C}$.
- Without gear and without battery, thanks to the Energy Harvesting technology.



Absolute



Application Oriented

- Current output 4 - 20 mA.
- Voltage output 0 - 10 V or 0 - 5 V.
- Measuring range scalable.
- Limit switch function.

Compact

- Can be used where space is tight: overall diameter is 36 mm.

Mechanical Characteristics:

Max. speed:	4000 RPM 2000 RPM (continuous)	
Starting torque (68 °F 20 °C):	< 1.4 oz · in (0.01 Nm)	
Shaft load capacity:		
Radial:	18 lbs (80 N)	
Axial:	9 lbs (40 N)	
Weight:	approx. 0.44 lbs (0.2 kgs)	
Protection acc. to EN 60529/ DIN 40050-9:	IP66, IP67, IP69k	
Working temperature range:	-40 to $+185^{\circ}\text{F}$ (-40 to $+85^{\circ}\text{C}$)	
Materials:		
Shaft:	Standard	/N72 (stainless steel)
Flange:	stainless steel: V2A(304)	V4A (316)
Housing:	aluminum	V4A (316)
Cable:	zinc die-cast	V4A (316)
	PVC	—
Shock resistance acc. to EN 60068-2-27:	500 g (5000 m/s ²), 4 ms	
Vibration resistance acc. to EN 60068-2-6:	30g (300 m/s ²), 10 - 2000 Hz	

Rotary Position Technology

Absolute Encoders, Multiturn

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Electrical Characteristics Current Interface 4 - 20mA:

Power supply:	10 - 30 VDC
Current consumption (no load):	max. 30 mA
Reverse polarity protection at power supply (+V):	yes
Short-circuit protected outputs:	yes ¹⁾
Measuring range: factory setting: Optionally scalable:	2 ⁴ revolutions up to 2 ¹⁶ revolutions
DA converter resolution:	12 bit
Singleturn accuracy, at 77 °F 25 °C:	±1 °
Temperature coefficient:	< 100 ppm/K
Repeat accuracy at 77 °F 25 °C:	±0.2 °
Output load:	max. 200 0hm at 10 VDC max. 900 0hm at 24 VDC max. 1200 0hm at 30 VDC
Setting time:	< 1 ms, R _{Load} = 900 0hm, 77 °F 25 °C
LEDs (green/red):	• system status • current loop interruption—input load too high • reference point display (only with factory settings) at cw: betw. 0 ° and 1 ° at ccw: betw. 0 ° and -1 ° • status in teach mode
Options:	• output signal scalable via the teach inputs • output signal scalable via the teach inputs + limit switch function
Teach inputs:	level= +V for 1 s minimum
PowerON time:	< 1 s
Update rate:	1 ms
e1 compliant acc. to (pending):	EU guideline 2009/19/EC (acc. to EN 55025, ISO 11452 and ISO 7637)
UL approval:	file E356899
CE compliant acc. to:	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

Measuring Range 'AL' or 'AR':

Connection Type:	Common (0 V)	+V	Output	Set 1	Set 2
Cable:	BU	BN	WH	N/C	N/C
M12 pin:	3	1	2	N/C	N/C

Measuring Range 'S*NS' or 'S*WL':

Connection Type:	Common (0 V)	+V	Output	Set 1	Set 2
Cable:	BU	BN	WH	BK	GY
M12 pin:	3	1	2	4	5

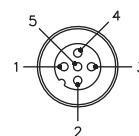
Characteristics Voltage Interface 0 - 10 V / 0 - 5 V:

Power supply:	output 0 - 5 V 10 - 30 VDC output 0 - 10 V 15 - 30 VDC
Current consumption (no load):	max. 30 mA
Reverse polarity protection at power supply (+V):	yes
Short-circuit protected outputs:	yes ¹⁾
Measuring range: factory setting: Optionally scalable:	2 ⁴ revolutions up to 2 ¹⁶ revolutions
DA converter resolution:	0 - 10 V 12 bit 0 - 5 V 11 bit
Singleturn accuracy, at 25 °C 77 °F:	±1 °
Temperature coefficient:	< 100 ppm/K
Repeat accuracy at 25 °C 77 °F:	±0.2 °
Current output:	max. 10 mA
Setting time:	< 1 ms, R _{Load} = 1000 0hm, 77 °F 25 °C
LEDs (green/red):	• system status • reference point display (only with factory settings) at cw: betw. 0 ° and 1 ° at ccw: betw. 0 ° and -1 ° • status in teach mode
Options:	• output signal scalable via the teach inputs • output signal scalable via the teach inputs + limit switch function
Teach inputs:	level= +V for 1 s minimum
PowerON time:	< 1 s
Update rate:	1 ms
e1 compliant acc. to (pending):	EU guideline 2009/19/EC (acc. to EN 55025, ISO 11452 and ISO 7637)
UL approval:	file E356899
CE compliant acc. to:	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

¹⁾ = when the power supply is correctly applied.

Wiring Diagram:

5-pin M12 Eurofast Connection



Mating Cordset: **RKC 4.5T-*/S618**
Teaching Adapter: **VB2-SP6**

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Note: Encoders must be ordered with a clockwise or counterclockwise profile. This determines whether the analog output increases or decreases in the given direction.

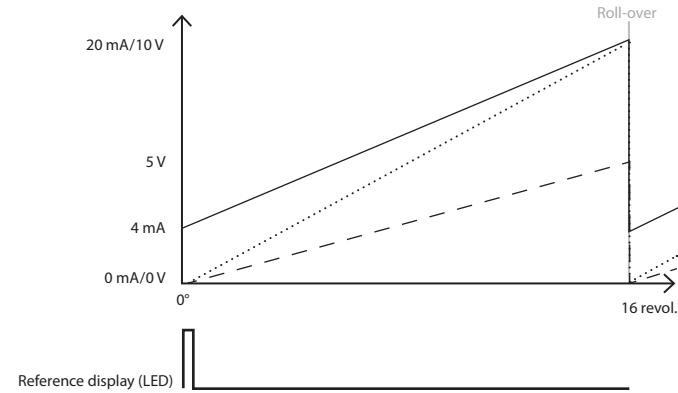
Example (output signal profile):

— version 4 - 20 mA

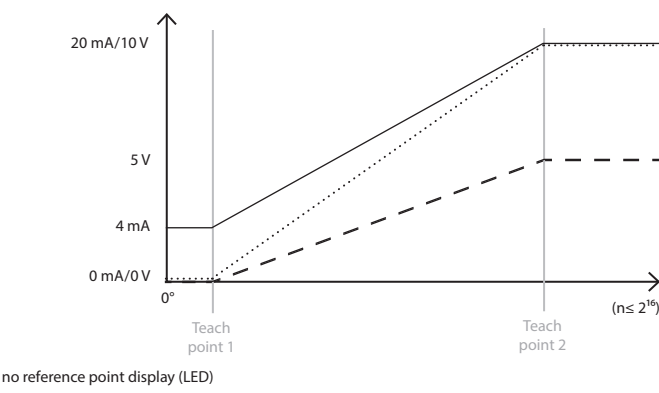
····· version 0 - 10 V

- - - version 0 - 5 V

Clockwise (CW) version



Scalable version without limit switch function



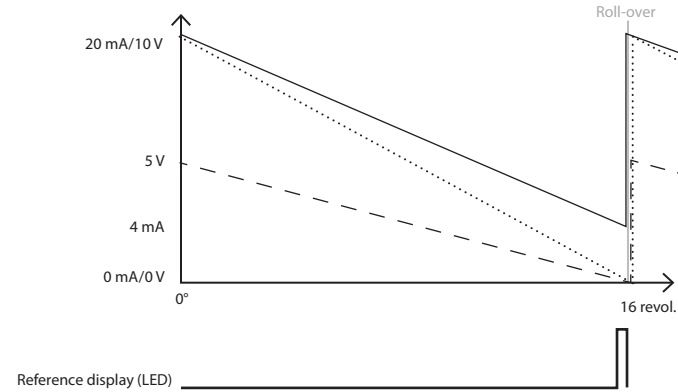
Example (output signal profile):

— version 4 - 20 mA

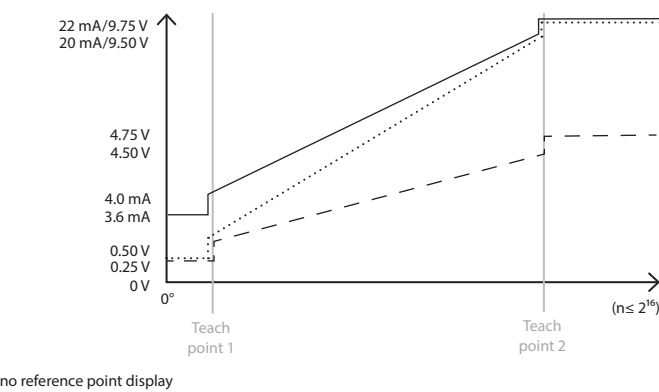
····· version 0 - 10 V

- - - version 0 - 5 V

Counter clockwise (CCW) version



Scalable version with limit switch function



Note: Factory-set measuring range: 2⁴ revolutions with roll-over

Note: Limit switch function:

version:	0 - 10 V	0 - 5 V	4 - 20 mA
limit switch low:	0.25 V	0.25 V	3.60 mA
limit switch high:	9.75 V	4.75 V	22.00 mA

Rotary Position Technology

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Part Number Key: RM-115 Shaft Version

A	B	C		D	E		F		G
RM-115S	6	C	-	7A	AL	-	H1151	/	

A	Type
RM-115S	Ø 39 mm, Shaft w/Flat, IP69K Shaft Seal

B	Shaft (Ø × L)
6	Ø 6 mm × 12.5 mm
8	Ø 8 mm × 15 mm
10	Ø 10 mm × 20 mm
A0	Ø 1/4" × 1/2"

C	Flange
C	Ø 42 mm Clamping Flange

D	Voltage Supply and Output Type
7A	10 - 30 VDC, 4 - 20 mA
8B	15 - 30 VDC, 0 - 10 V
BA	10 - 30 VDC, 0 - 5 V

E	Measuring Range
AL	16 Turns, Count Direction CCW*
AR	16 Turns, Count Direction CW*
SALNS	Scalable to 65,536 Turns, CCW*, w/o Limit Switch
SALWL	Scalable to 65,536 Turns, CCW*, w/ Limit Switch
SARNS	Scalable to 65,536 Turns, CW*, w/o Limit Switch
SARWL	Scalable to 65,536 Turns, CW*, w/ Limit Switch

* = increasing code values when shaft turning in direction listed. Top view on shaft.

F	Type of Connection
H1151	Radial 5-pin M12 Eurofast Connector
C1M	Radial Cable (1m PVC)

G	Options
(Blank)	No Options
N72	All Exposed Materials 316SST ¹

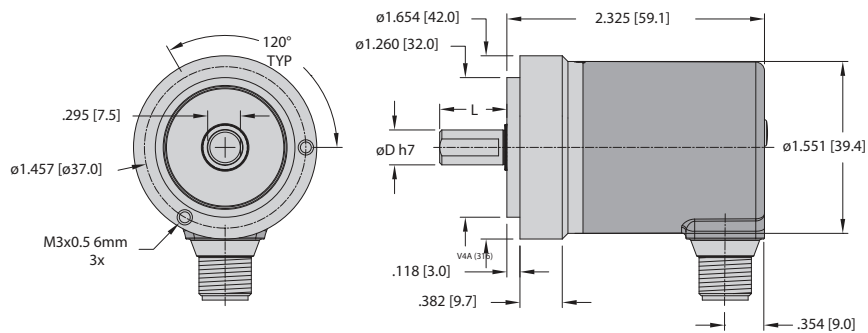
¹ = only available with shaft '10' and connection 'H1151'

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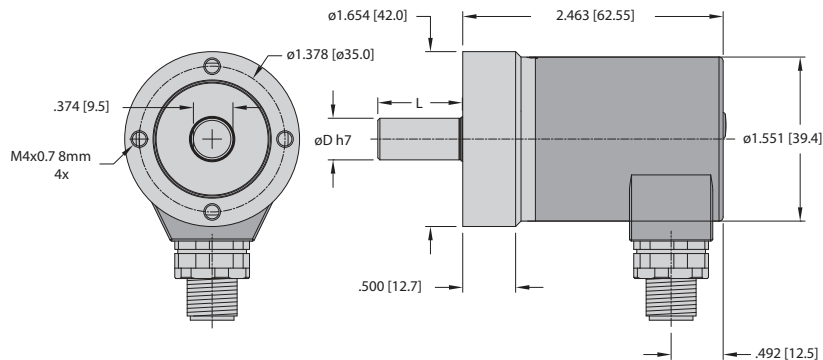
Analog

Dimensions: RM-115 Shaft Version

RM-115 Flange C Connection H1151



RM-115 /N72 Flange C Connection H1151



Mounting advice:

The flanges and shafts of the encoder and drive should not be rigidly coupled together at the same time. We recommend the use of suitable couplings (see page G1, Accessories).