ROTAMAG
Magnetic absolute encoders

Series MS36 • MSC36

- Magnetic sensing
- Absolute single-turn encoder
- Resolution 8192 counts/rev, SSI interface
- Protection up to IP67 with sealed circuit
- MS36: solid shaft version
- MSC36: blind hollow shaft version, Ø 6mm

MS36 • MSC36

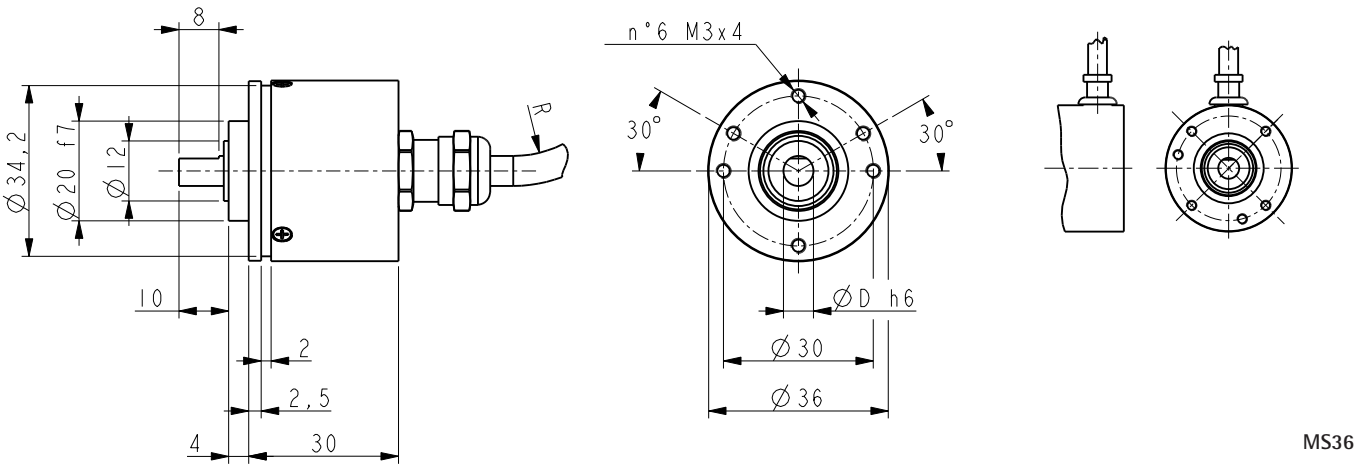
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibration:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-20°C +85°C (-4°F +185°F)
Storage temperature range:	-20°C +85°C (-4°F +185°F) (98% R.H. without condensation)
Option:	• Protection IP67

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6 mm
Shaft loading (axial, radial):	20 N max.
Shaft rotational speed:	12000 rpm max.
Starting torque (at 20°C):	0,1 Ncm
Bearings life:	10^9 rev. min.
Electrical connections:	M12 8 pin inline plug or cable output 1 m (3.3 ft)
Weight:	~ 100 g (3,5 oz)
Option:	• additional cable

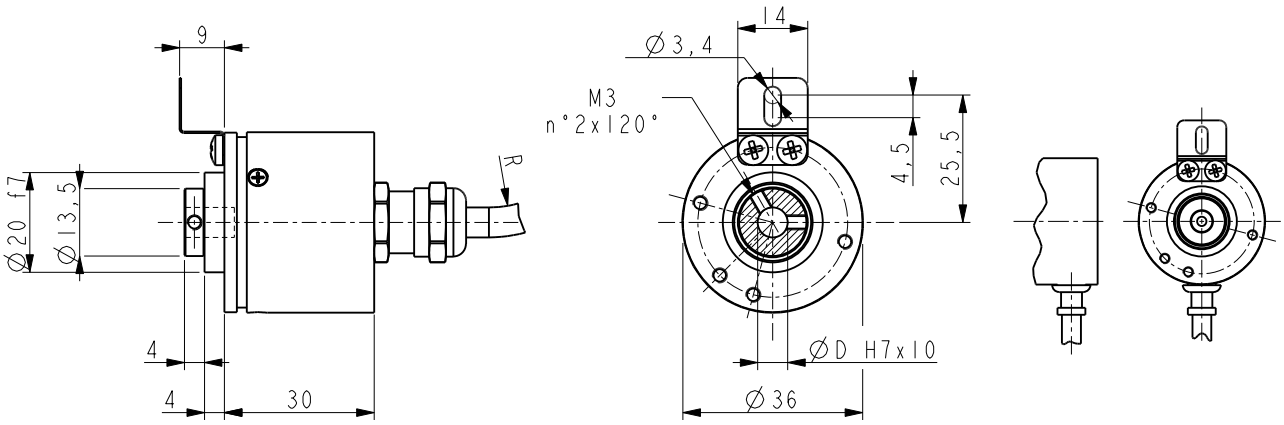
ELECTRICAL SPECIFICATIONS	
Resolution:	8192 counts/rev.
Accuracy:	± 0,9°
Output circuit:	SSI, 13 bit
Output code:	Binary
Power supply:	+10Vdc +30Vdc
Power consumption:	65 mA max.
Protection:	protected against inversion of polarity
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

ACCESSORIES	
PAN/PGF:	Flexible couplings



MS36



MSC36

Order code

MS36 MSC36	XX ⓐ	/	XX ⓑ	-	X ⓒ	-	X ⓓ	X ⓔ	XXX ⓕ	/Sxxx ⓖ

ⓐ **RESOLUTIONS**
13 = 8192 counts/rev.

ⓑ **OUTPUT**
BR = Binary, SSI (tree format)

ⓒ **SHAFT DIAMETER**
6 = 6 mm

ⓓ **CONNECTION POSITION**
- = axial
R = radial

ⓒ **PROTECTION**
- = IP65 (standard)
J = IP67 (with sealed circuit)

ⓕ **CONNECTIONS**
L1 = cable output 1 m cable (standard)
L2 = cable output 2 m
Lx = cable output x m
M0,5 = 0,5 m cable + M12 8 pin inline plug
M2 = 2 m cable + M12 8 pin inline plug

ⓖ **CUSTOM VERSION**

ROTAMAG
Magnetic absolute encoder

Series MM36 • MMC36

- Absolute multi-turn magnetic encoder
- Very compact and robust housing
- Outer diameter 36mm
- Resolution up to 4096 counts/rev and up to 32768 rev, SSI interface
- Zero setting and counting direction function
- Axial cable output
- MM36: solid shaft version
- MMC36: blind hollow shaft version, Ø 6mm

MMC36 • MM36

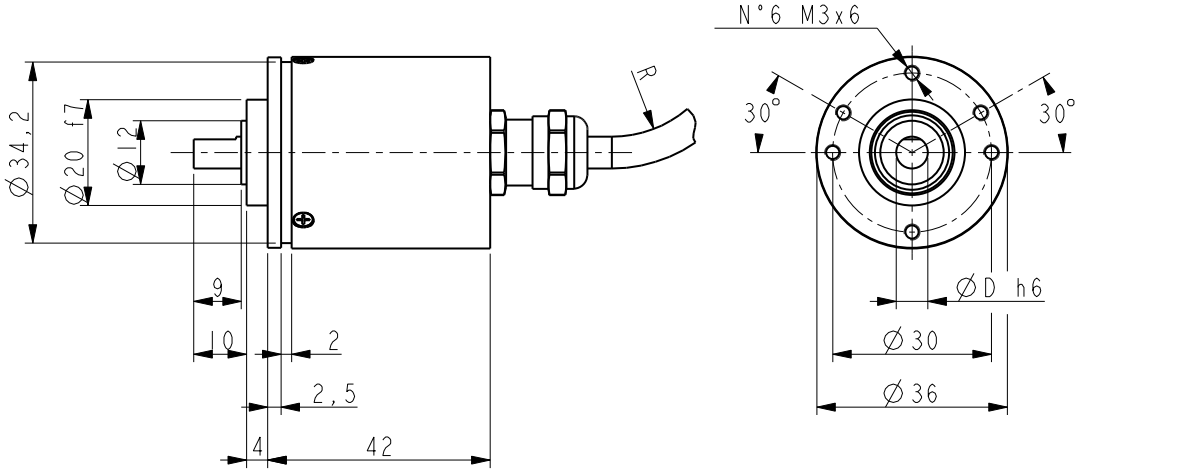
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-20°C +85°C (-4°F +185°F)
Storage temperature range:	-20°C +85°C (-4°F +185°F) (98% R.H. without condensation)
Option:	• protection IP67

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6 mm
Shaft loading (axial, radial):	20 N max.
Shaft rotational speed:	12000 rpm max.
Starting torque (at 20°C):	0,1 Ncm
Bearing life:	10^9 rev.min
Electrical connections:	M12 8 pin inline plug or cable output 1 m (3.3 ft)
Weight:	~ 100 g (3,5 oz)
Option:	• additional cable

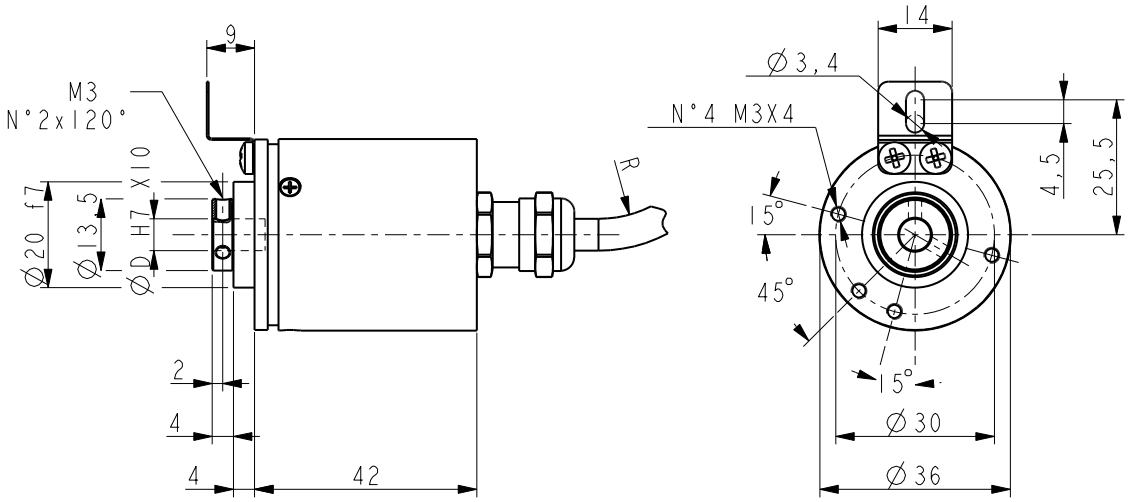
ELECTRICAL SPECIFICATIONS	
Resolution:	1024 counts/rev. x 32768 rev. 2048 cpr x 16384 rev. 4096 cpr x 8192 rev.
Accuracy:	± 1°
Output circuit:	SSI (25 bit, LSB aligned, clock 300 kHz max., Tp=64 µsec.)
Output codes:	Gray, Binary
Counting frequency:	10 kHz max.
Start-up time:	~ 200 msec.
Power supply:	+10Vdc +30Vdc
Power consumption:	25 mA max.
Protection:	protected against inversion of polarity
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Battery life:	10 years min.
Functions:	• Counting direction (input) • Electronic zero setting (input)

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

ACCESSORIES	
PAN/PGF:	Flexible couplings



MM36



MMC36

Order code

MM36 MMC36	XX/XXXXX ⓐ	XX ⓑ	-	X ⓒ	-	X ⓓ	X ⓔ	/Sxxx ⓕ

ⓐ **RESOLUTIONS**
10/32768 = 1024 CPR x 32768 rev.
11/16384 = 2048 CPR x 16384 rev.
12/8192 = 4096 CPR x 8192 rev.

ⓑ **OUTPUT**
BB = Binary, SSI (LSB aligned)
GB = Gray, SSI (LSB aligned)

ⓒ **SHAFT DIAMETER**
6 = 6 mm

ⓓ **PROTECTION**
- = IP65 (standard)
J = IP67 (with sealed circuit)

ⓒ **CONNECTIONS**
L1 = cable output 1 m cable (standard)
L2 = cable output 2 m
Lx = cable output x m
M0,5 = 0,5 m cable + M12 8 pin inline plug
M2 = 2 m cable + M12 8 pin inline plug

ⓕ **CUSTOM VERSION**

ROTACOD

Absolute single turn encoders

Series AS36 • ASC36

- Miniature optical single turn encoder for industrial applications
- Resolution up to 524288 cpr (19 bit)
- High degree of protection, IP67
- Cable output or M12 inline plug

ASC36 • AS36

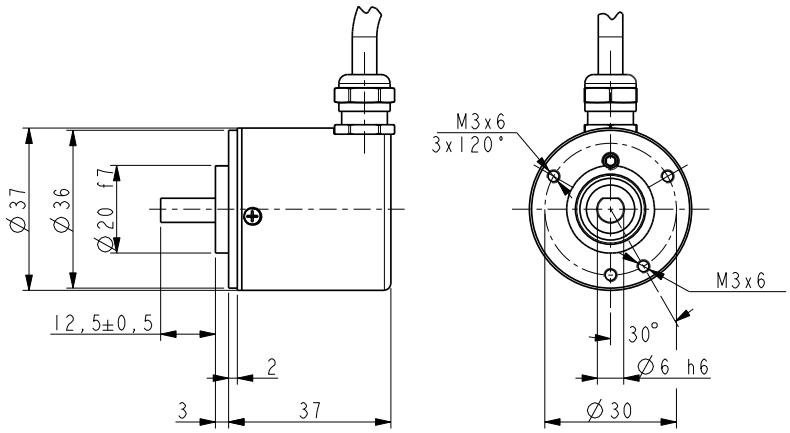
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H.without condensation)
Option:	• Operating temperature range: -40°C + 100°C (-40°F +212°F)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft:	Ø 6 mm
Hollow shaft:	Ø 6 mm
Shaft loading (axial and radial):	20 N max.
Shaft rotational speed:	6000 rpm
Starting torque (at 20°C):	0,1 Ncm
Bearing life:	10^9 rev. min.
Electrical connections:	M12 8 pin inline plug or cable 1 m (3.3 ft)
Weight:	~ 100 g (3,5 oz)
Option:	• additional cable

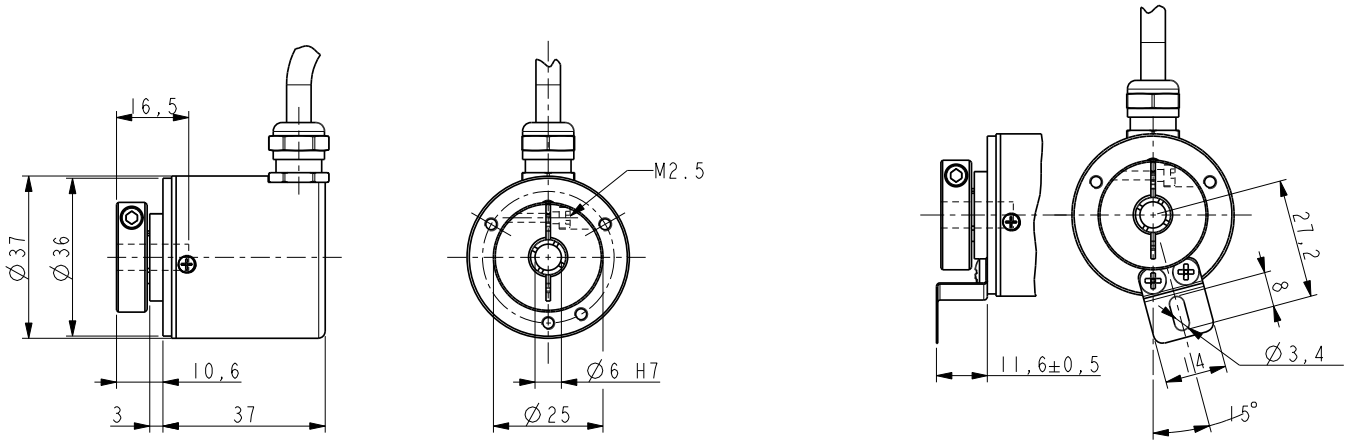
ELECTRICAL SPECIFICATIONS	
Resolution:	65536, 131072, 524288 cpr
Accuracy:	± 0,01° @ 16 bit resolution
Output circuits:	SSI (RS422), clock rate < 4 MHz BiSS-C, clock rate < 10 MHz
Output code:	Gray, Binary
Counting frequency:	> 100 kHz
Power supply:	+10V +30V
Power consumption:	0,5 W
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	> 100.000 h min.
Functions:	• Counting direction (input) • Zero setting/Preset (input)

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

ACCESSORIES	
PAN:	flexible couplings
EM12F8:	M12 8 pin mating connector



AS36



ASC36

Order code

AS36 ASC36	XX ⓐ	/	XX ⓑ	-	X ⓒ	-	X ⓓ	XXX ⓔ	/Sxxx ⓕ

ⓐ **RESOLUTIONS**
16 = 65536 cpr
17 = 131072 cpr
19 = 524288 cpr

ⓑ **OUTPUT**
BG = Binary, SSI MSB aligned
GG = Gray, SSI MSB aligned
I7 = BiSS C-mode

ⓒ **SHAFT DIAMETER**
6 = 6 mm

ⓓ **OPERATING TEMPERATURE RANGE**
- = -25°C +85°C (-13°F +185°F) standard
K = -40°C +100°C (-40°F +212°F)

ⓔ **CONNECTIONS**
L1 = cable output 1 m
L2 = cable output 2 m
Lx = cable output x m
M0,5 = 0,5 m cable + M12 8 pin inline plug
M2 = 2 m cable + M12 8 pin inline plug

ⓕ **CUSTOM VERSION**

ROTACOD

Absolute multi turn encoders

Series AM36 • AMC36

- Miniature optical multi turn encoder
- Resolution up to 524288 cpr (19 bit) x 4096 turns (12 bit)
- High degree of protection, IP67
- Cable output or M12 inline plug

AMC36 • AM36

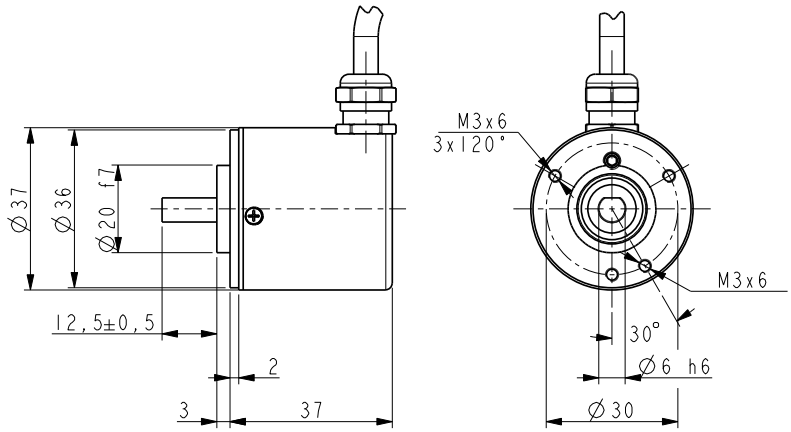
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H.without condensation)
Option:	• Operating temperature range: -40°C + 100°C (-40°F +212°F)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6 mm
Hollow shaft diameter:	Ø 6 mm
Shaft loading (axial, radial):	20 N max.
Shaft rotational speed:	6000 rpm
Starting torque (at 20°C):	0,1 Ncm
Bearings life:	10^9 rev. min.
Electrical connections:	M12 inline plug or cable output 1 m (3.3 ft)
Weight:	~ 100 g (3,5 oz)
Option:	• additional cable

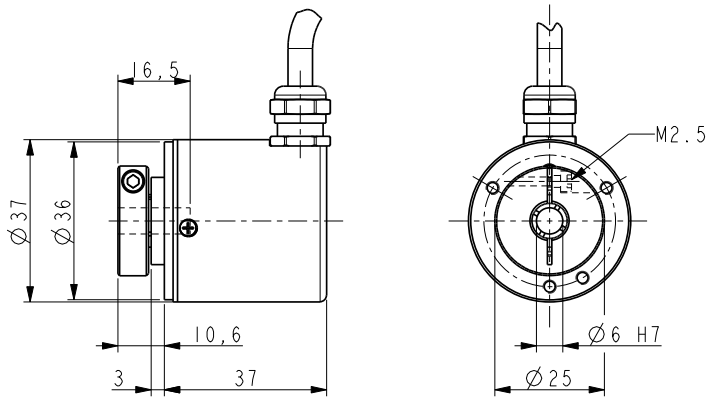
ELECTRICAL SPECIFICATIONS	
Resolution:	65536 cpr x 4096 turns, 524288 cpr x 4096 turns
Accuracy:	± 0,01° @ 16 bit resolution
Output circuits:	SSI (RS422), clock rate < 4 MHz BiSS-C, clock rate < 10 MHz
Output code:	Gray, Binary
Counting frequency:	> 100 kHz
Power supply:	+10V +30V
Power consumption:	0,5 W
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	> 100.000 h min.
Functions:	• Counting direction (input) • Zero setting/Preset (input)

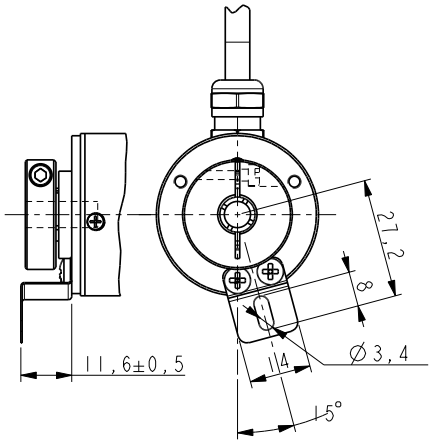
MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

ACCESSORIES	
PAN:	flexible couplings
EM12F8:	M12 8 pin mating connector



AM36





AMC36

Order code

AM36 AMC36	XX/XXXX ⓐ	XX ⓑ	-	X ⓒ	-	X ⓓ	XXX ⓔ	/Sxxx ⓕ

ⓐ **RESOLUTIONS**
16/4096 = 65536 cpr x 4096 turns
19/4096 = 524288 cpr x 4096 turns

ⓑ **OUTPUT**
BG = Binary, SSI MSB aligned
GG = Gray, SSI MSB aligned
I7 = BiSS C-mode

ⓒ **SHAFT DIAMETER**
6 = 6 mm

ⓓ **OPERATING TEMPERATURE RANGE**
- = -25°C +85°C (-13°F +185°F) standard
K = -40°C +100°C (-40°F +212°F)

ⓔ **CONNECTIONS**
L1 = cable output 1 m
L2 = cable output 2 m
Lx = cable output x m
M0,5 = 0,5 m cable + M12 8 pin inline plug
M2 = 2 m cable + M12 8 pin inline plug

ⓕ **CUSTOM VERSION**

ROTACOD

Absolute single turn encoders

Series **ES58 • ES58S • ESC58**

- Compact single turn encoder
- Precise and fast optical sensing
- Resolution up to 8192 cpr
- Additional incremental track with 1024 PPR
- High degree of protection, IP67

ES58 • ES58S • ESC58

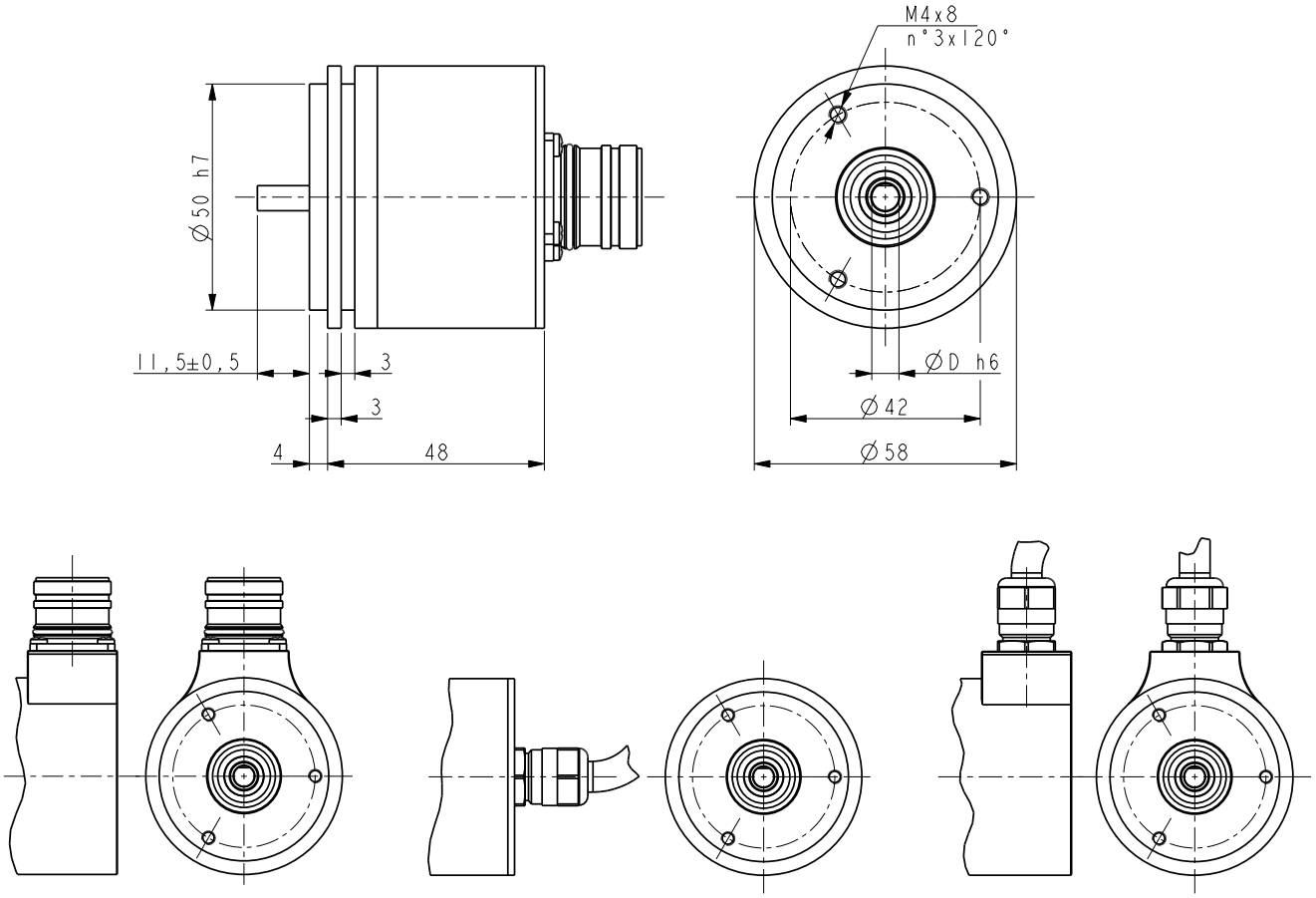
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)
Option:	• Operating temperature range: -40°C +100°C (-40°F +212°F)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	100 N max.
Shaft rotational speed:	12000 rpm, 9000 rpm continuous operation
Starting torque (at 20°C):	ES58: 0,15 Ncm (typ.) ES58S, ESCxx: 0,4 Ncm (typ.)
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	M12, M23 plug or cable output 2 m (6.56 ft)
Weight:	~ 200 g (7 oz)
Option:	• additional cable

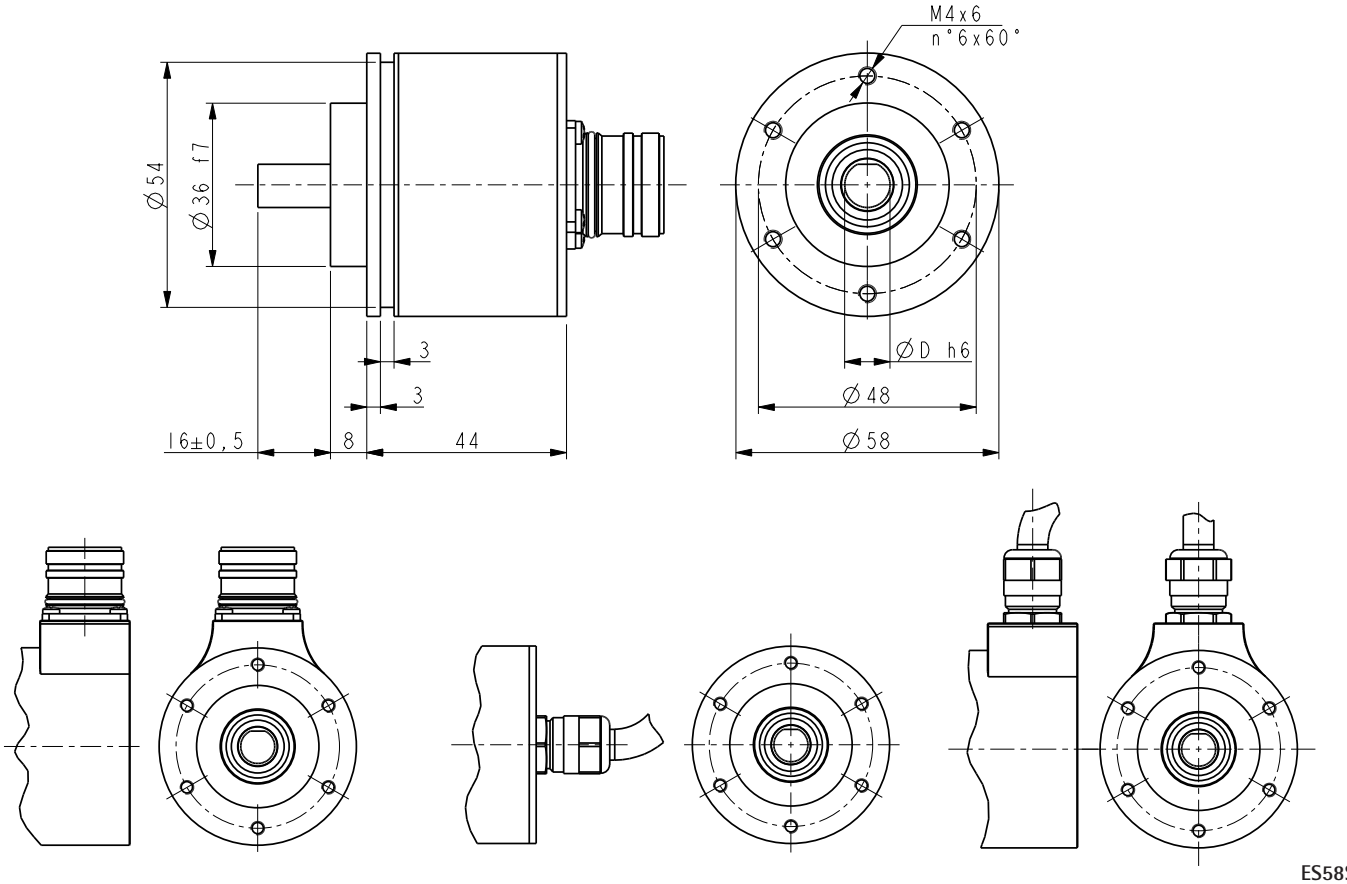
ELECTRICAL SPECIFICATIONS	
Resolution:	360, 720, 1024, 4096, 8192 cpr
Accuracy:	± 0,02°
Output circuits:	SSI (RS422), Bit parallel Push-Pull, NPN
Output code:	Gray, Binary
Counting frequency:	SSI: 150 kHz, Bit parallel: 50 kHz
Power supply:	+7,5Vdc ÷ 34Vdc
Power consumption:	SSI: 0,9 W Bit parallel: 1,6 W
Protection:	against inversion of polarity, short-circuit
EMC:	electro-magnetic immunity, according to EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	> 100.000 h
Functions:	• counting direction (input) • Zero setting/Preset (input)

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

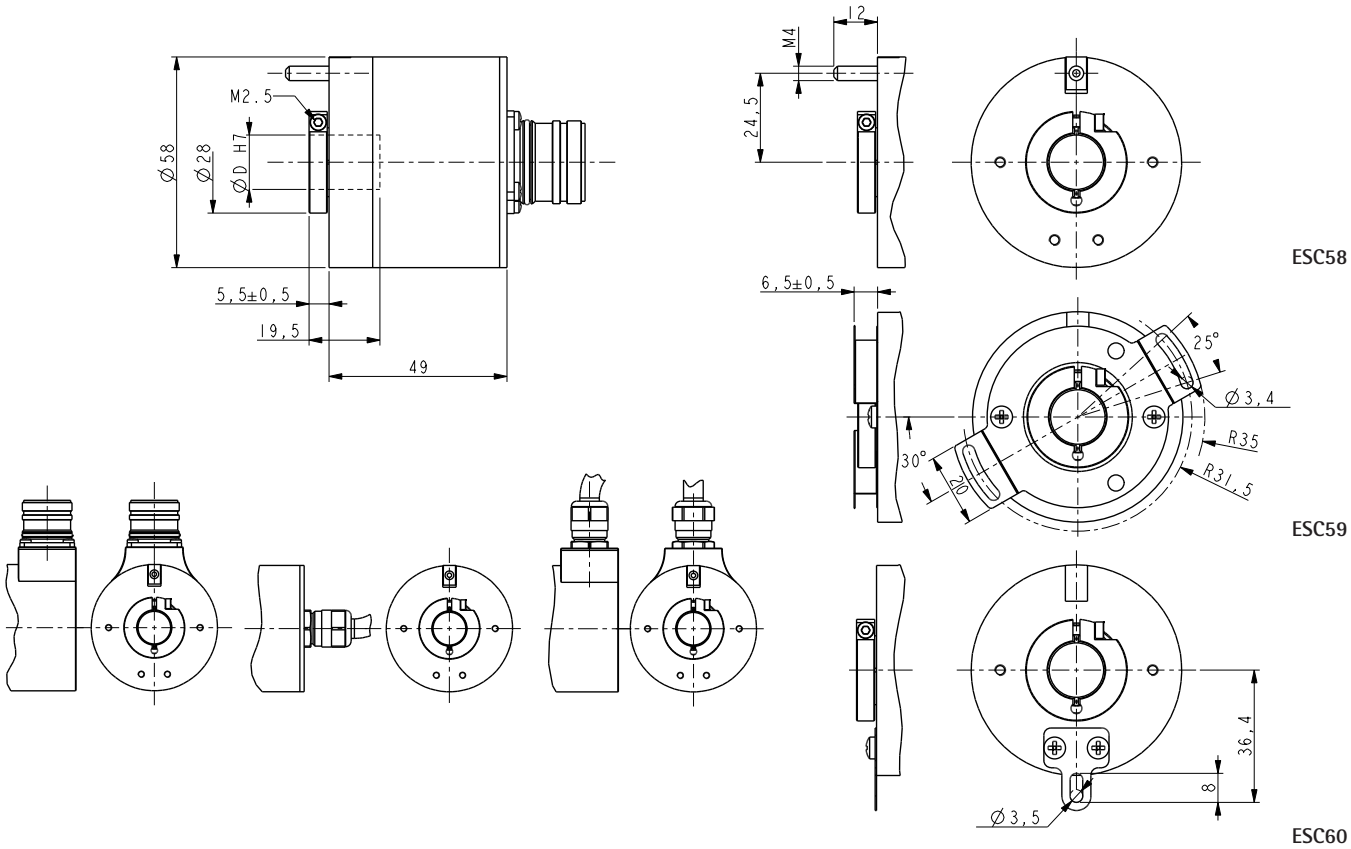
ACCESSORIES	
EPFL121H:	M23 12 pin mating connector
EM12F8:	M12 8 pin mating connector
EM12F12:	M12 12 pin mating connector
EPFL171H:	M23 17 pin mating connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
EC-CR12F-S28-T12-xx:	cordset xx m, M23 connector
EC-M12F8-LK-M8-xx:	cordset xx m, M12 8 pin connector
EC-M12F12-LK-T12-xx:	cordset xx m, M12 12 pin conn.
LKM-386:	fixing clamps


M4x8
n°3x120°
Ø50 h7
11,5±0,5
3
3
4
48
ØD h6
Ø42
Ø58

ES58


M4x6
n°6x60°
Ø54
Ø36 f7
3
3
16±0,5
8
44
ØD h6
Ø48
Ø58

ES58S



Order code - Bit parallel output

ES58 ES58S ESC58 ESC59 ESC60	XX ⓐ	/	XX ⓑ	-	XX ⓒ	-	X ⓓ	X ⓔ	XXX ⓕ	/Sxxx ⓖ

ⓐ **RESOLUTION**
36 = 360 cpr
72 = 720 cpr
10 = 1024 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **OUTPUT**
BY = Binary, Push-Pull
GY = Gray, Push-Pull
BN = Binary, NPN
GN = Gray, NPN

ⓒ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (ESCxx)
15 = 15 mm (ESCxx)

ⓓ **OPERATING TEMPERATURE RANGE**
- = -25°C +85°C (-13°F +185°F)
K = -40°C +100°C (-40°F +212°F)

ⓔ **CONNECTION POSITION**
- = axial
R = radial

ⓕ **CONNECTIONS**
L2 = cable output 2 m (standard)
L5 = cable output 5 m
L10 = cable output 10 m
M2 = M23 17 pin plug

ⓖ **CUSTOM VERSION**

Order code - SSI output

ES58 ES58S ESC58 ESC59 ESC60	XX ⓐ	/	XX ⓑ	-	XX ⓒ	-	X ⓓ	X ⓔ	XXX ⓕ	/Sxxx ⓖ

ⓐ **RESOLUTION**
36 = 360 cpr
72 = 720 cpr
10 = 1024 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **OUTPUT**
BS = Binary, SSI tree format
BA = Binary, SSI LSB aligned
GS = Gray, SSI tree format
GA = Gray, SSI LSB aligned
G5 = Gray, SSI tree format + 1024 PPR AB /AB Push-Pull

ⓒ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (ESCxx)
15 = 15 mm (ESCxx)

ⓓ **OPERATING TEMPERATURE RANGE**
- = -25°C +85°C (-13°F +185°F)
K = -40°C +100°C (-40°F +212°F)

ⓔ **CONNECTION POSITION**
- = axial
R = radial

ⓕ **CONNECTIONS**
L2 = cable output 2 m (standard)
L5 = cable output 5 m
L10 = cable output 10 m
M2 = M23 12 pin plug
M = M12 8 pin plug
M1 = M12 12 pin plug (only with output G5)

ⓖ **CUSTOM VERSION**

ROTACOD

Absolute multi turn encoders

Series EM58 • EM58S • EMC58

- Compact multi turn encoder
- Precise and fast optical sensing
- Resolution up to 8192 cpr and 16384 turns
- Additional incremental track with 1024 PPR
- High degree of protection, IP67

EM58 • EM58S • EMC59

ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)
Option:	• Operating temperature range: -40°C +100°C (-40°F +212°F)

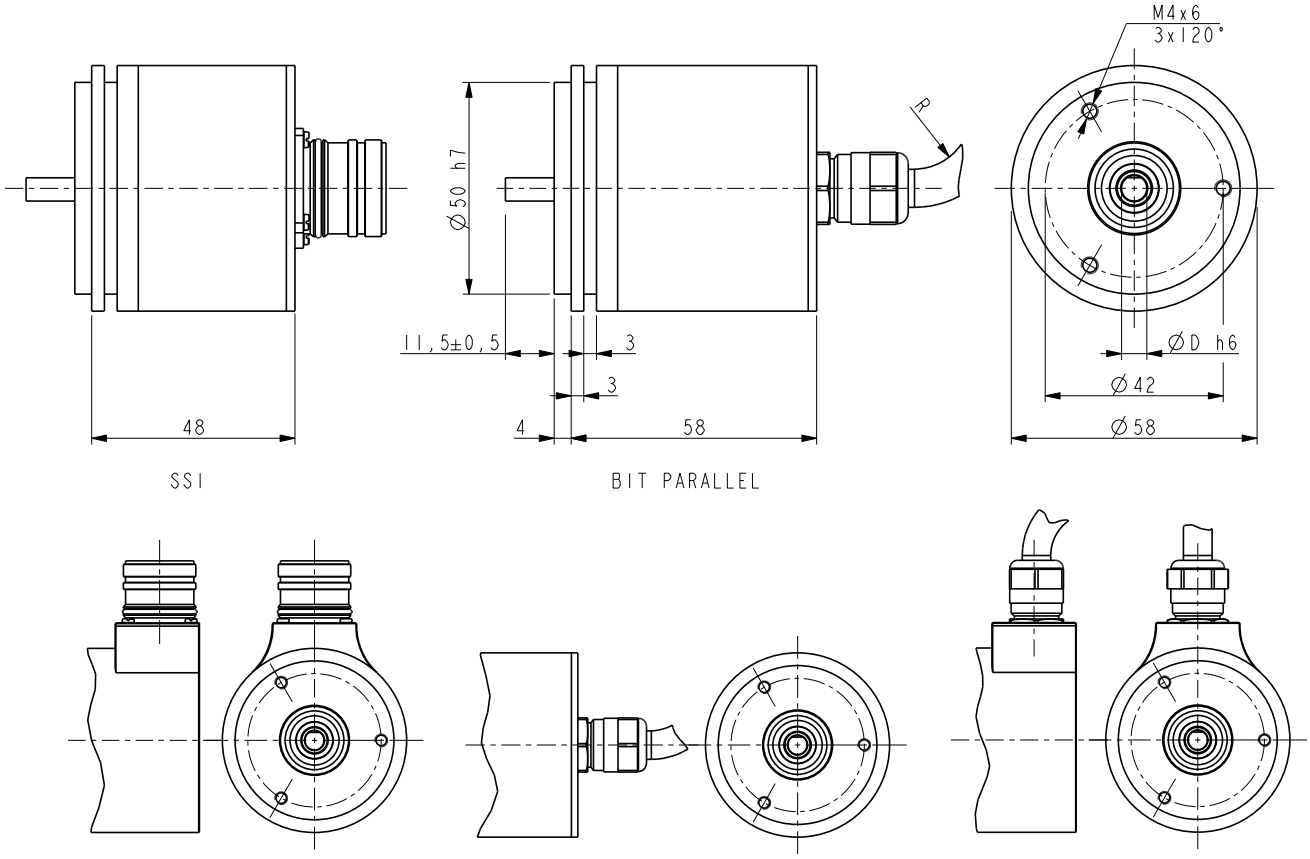
MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	100 N max.
Shaft rotational speed:	12000 rpm, 9000 rpm continuous operation
Starting torque (at 20°C):	EM58: 0,15 Ncm (typ.) EM58S, EMCxx: 0,4 Ncm (typ.)
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	M12, M23 plug or cable 2 m (6.56 ft), MIL 32 pin inline plug
Weight:	~ 250 g (8,8 oz)
Option:	• additional cable

ELECTRICAL SPECIFICATIONS	
Resolution:	single turn = 1024, 4096, 8192 cpr multi turn = 4096, 16384 turns
Accuracy:	± 0,02°
Output circuits:	SSI (RS422), Bit parallel Push-Pull, NPN
Output code:	Gray, Binary
Counting frequency:	SSI: 150 kHz, Bit Parallel: 30 kHz
Power supply:	+7,5Vdc ÷ 34Vdc
Power consumption:	SSI: 1 W Bit parallel: 1,7 W
Protection:	against inversion of polarity, short-circuit
EMC:	electro-magnetic immunity, according to EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	> 100.000 h
Functions:	• counting direction (input) • Zero setting/Preset (input)

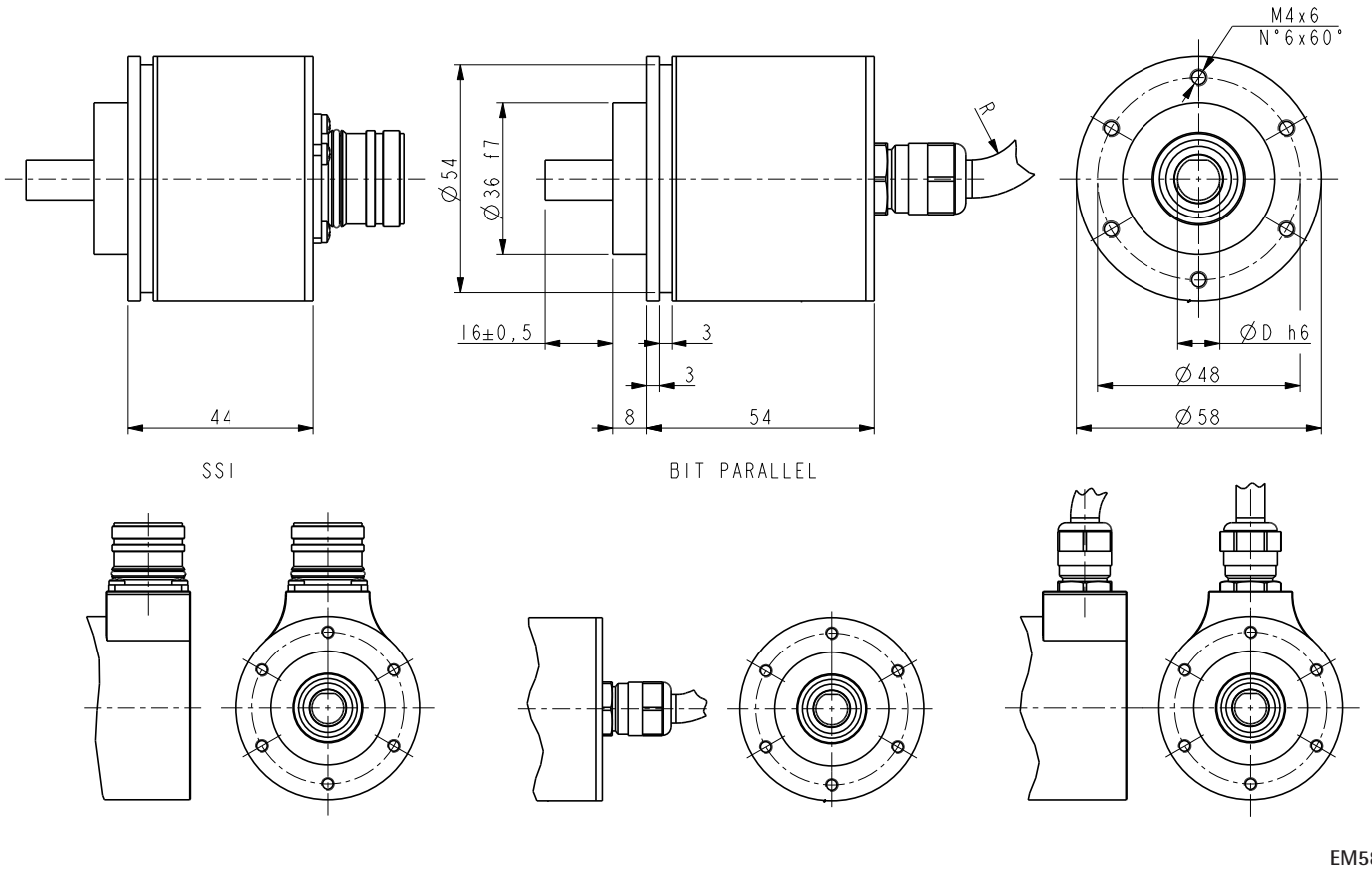
MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

PREFERENTIAL MODELS	
EM5812/4096GS-6-RM2	SSI, 24 Bit
EM58S12/4096GS-10-RM2	SSI, 24 Bit

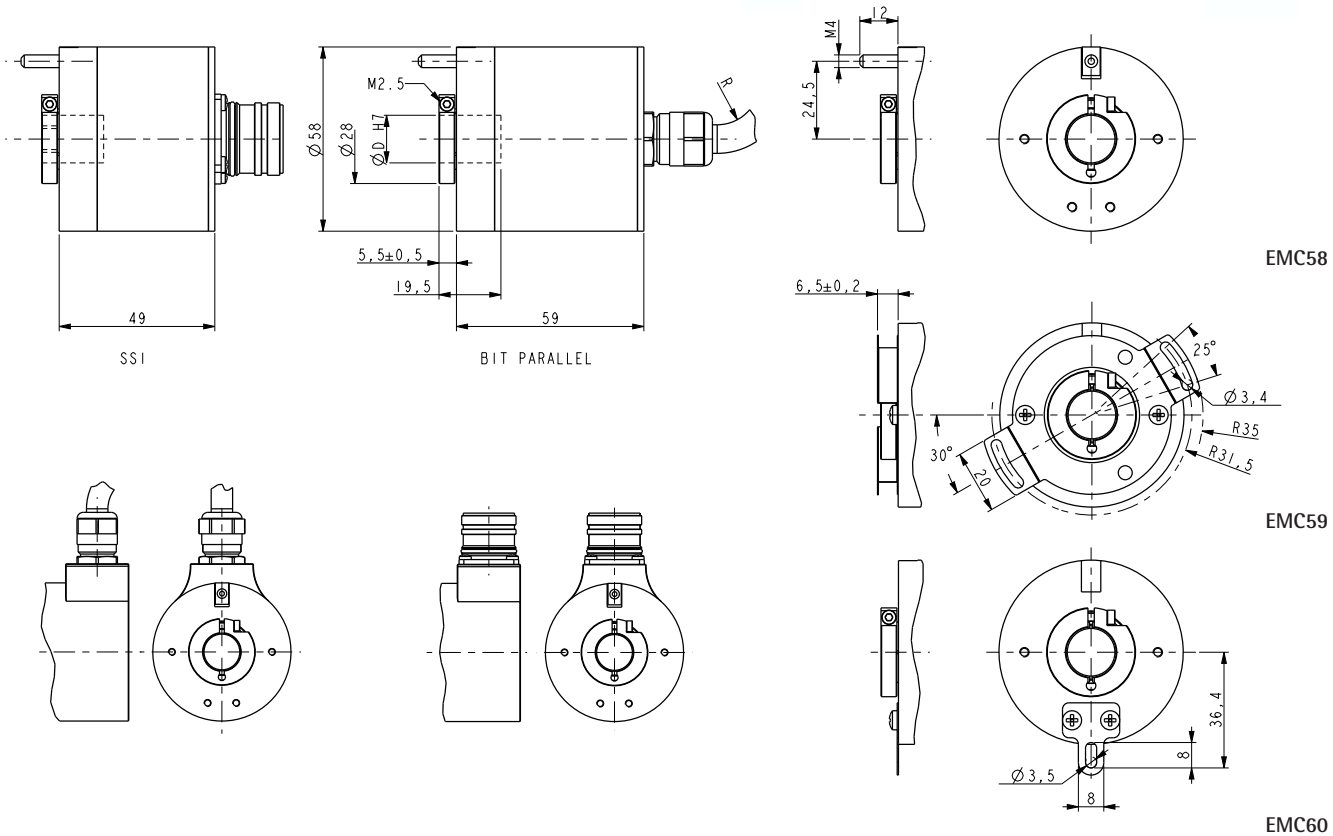
ACCESSORIES	
EPFL121H:	M23 12 pin connector
EM12F8:	M12 8 pin mating connector
EM12F12:	M12 12 pin mating connector
E32MLS:	32 pin MIL mating connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
EC-CR12F-S28-T12-xx:	cordset xx m, M23 connector
EC-M12F8-LK-M8-xx:	cordset xx m, M12 8 pin connector
EC-M12F12-LK-T12-xx:	cordset xx m, M12 12 pin conn.
LKM-386:	fixing clamps


M4x6
3x120°
R
Ø50 h7
11,5±0,5
3
3
4
58
48
ØD h6
Ø42
Ø58
SSI
BIT PARALLEL

EM58


M4x6
N°6x60°
R
Ø54
Ø36 f7
16±0,5
3
3
8
54
44
ØD h6
Ø48
Ø58
SSI
BIT PARALLEL

EM58S



Order code - Bit parallel output

EM58 EM58S EMC58 EMC59 EMC60	XX ⓐ	/	XXXX ⓑ	XX ⓒ	-	XX ⓓ	-	X ⓔ	X ⓕ	XXX ⓖ	/Sxxx ⓗ

ⓐ **RESOLUTION**
10 = 1024 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **REVOLUTIONS**
4096 = 4096 turns
16384 = 16384 turns

ⓒ **OUTPUT**
BY = Binary, Push-Pull
GY = Gray, Push-Pull
BN = Binary, NPN
GN = Gray, NPN

ⓓ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (EMCxx)
15 = 15 mm (EMCxx)

ⓔ **OPERATING TEMPERATURE RANGE**
- = -25°C +85°C (-13°F +185°F)
K = -40°C +100°C (-40°F +212°F)

ⓕ **CONNECTION POSITION**
- = axial
R = radial

ⓖ **CONNECTIONS**
L2 = cable output 2 m (standard)
L5 = cable output 5 m
L10 = cable output 10 m
V1 = 1 m cable + MIL inline plug

ⓗ **CUSTOM VERSION**

Order code - SSI output

EM58 EM58S EMC58 EMC59 EMC60	XX ⓐ	/	XXXX ⓑ	XX ⓒ	-	XX ⓓ	-	X ⓔ	X ⓕ	XXX ⓖ	/Sxxx ⓗ

ⓐ **RESOLUTION**
10 = 1024 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **REVOLUTIONS**
4096 = 4096 turns
16384 = 16384 turns
(16384 only with SSI LSB aligned)

ⓒ **OUTPUT**
BS = Binary, SSI tree format
BA = Binary, SSI LSB aligned
GS = Gray, SSI tree format
GA = Gray, SSI LSB aligned
G5 = Gray, SSI tree format + 1024 PPR AB /AB Push-Pull

ⓓ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (EMCxx)
15 = 15 mm (EMCxx)

ⓔ **OPERATING TEMP. RANGE**
- = -25°C +85°C (-13°F +185°F)
K = -40°C +100°C (-40°F +212°F)

ⓕ **CONNECTION POSITION**
- = axial
R = radial

ⓖ **CONNECTIONS**
L2 = cable output 2 m (standard)
L5 = cable output 5 m
L10 = cable output 10 m
M2 = M23 plug
M = M12 8 pin plug
M1 = M12 12 pin plug
(only with output G5)

ⓗ **CUSTOM VERSION**

ROTACOD

Absolute multi turn encoders with RS485 Modbus interface

Series EM58 • EM58S • EMC58

- Compact optical multi turn encoder
- Modbus RTU RS485 protocol
- Resolution 4096 cpr x 16384 turns
- Freely programmable via RS485
- Diagnostic LEDs
- High degree of protection, IP67

EM58 • EM58S • EMC59

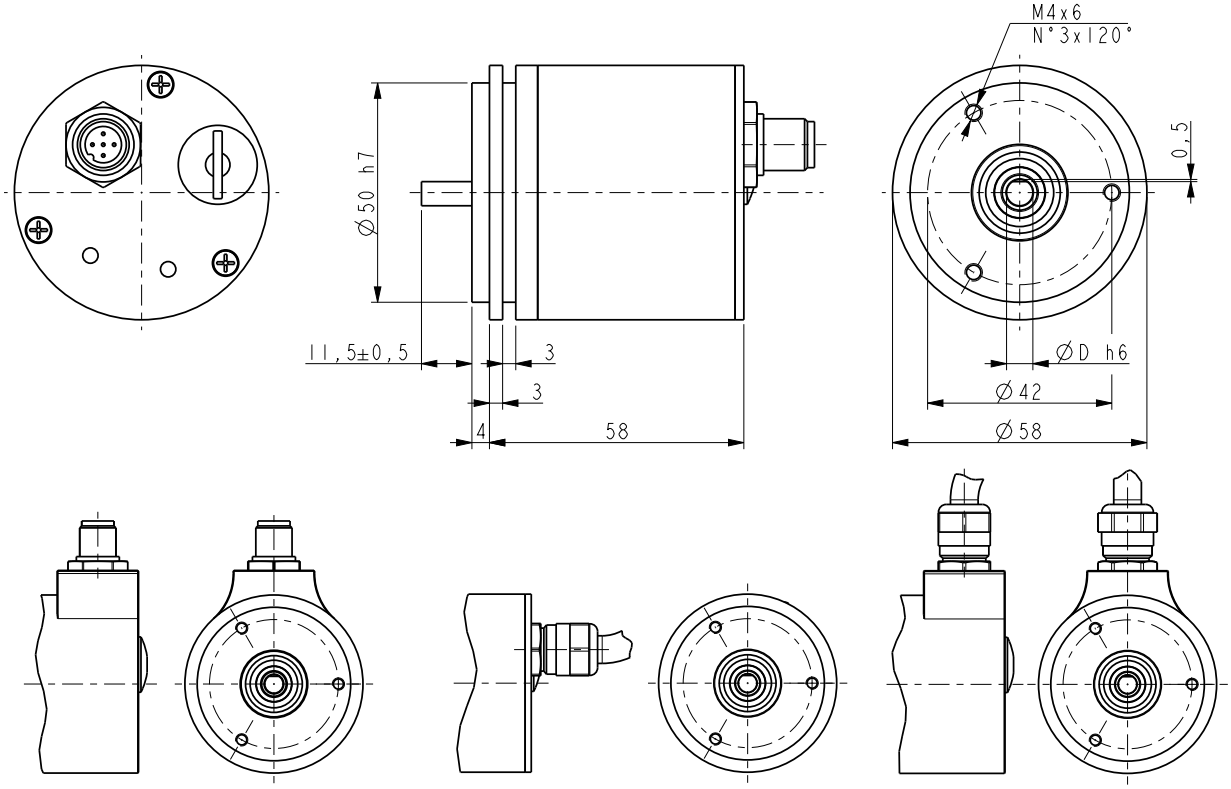
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	100 N max.
Shaft rotational speed:	12000 rpm, 9000 rpm continuous operation
Starting torque (at 20°C):	EM58: 0,15 Ncm (typ.) EM58S, EMCxx: 0,4 Ncm (typ.)
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	M12 plug or cable output 2 m (6.56 ft)
Weight:	~ 300 g (10,6 oz)
Option:	• additional cable

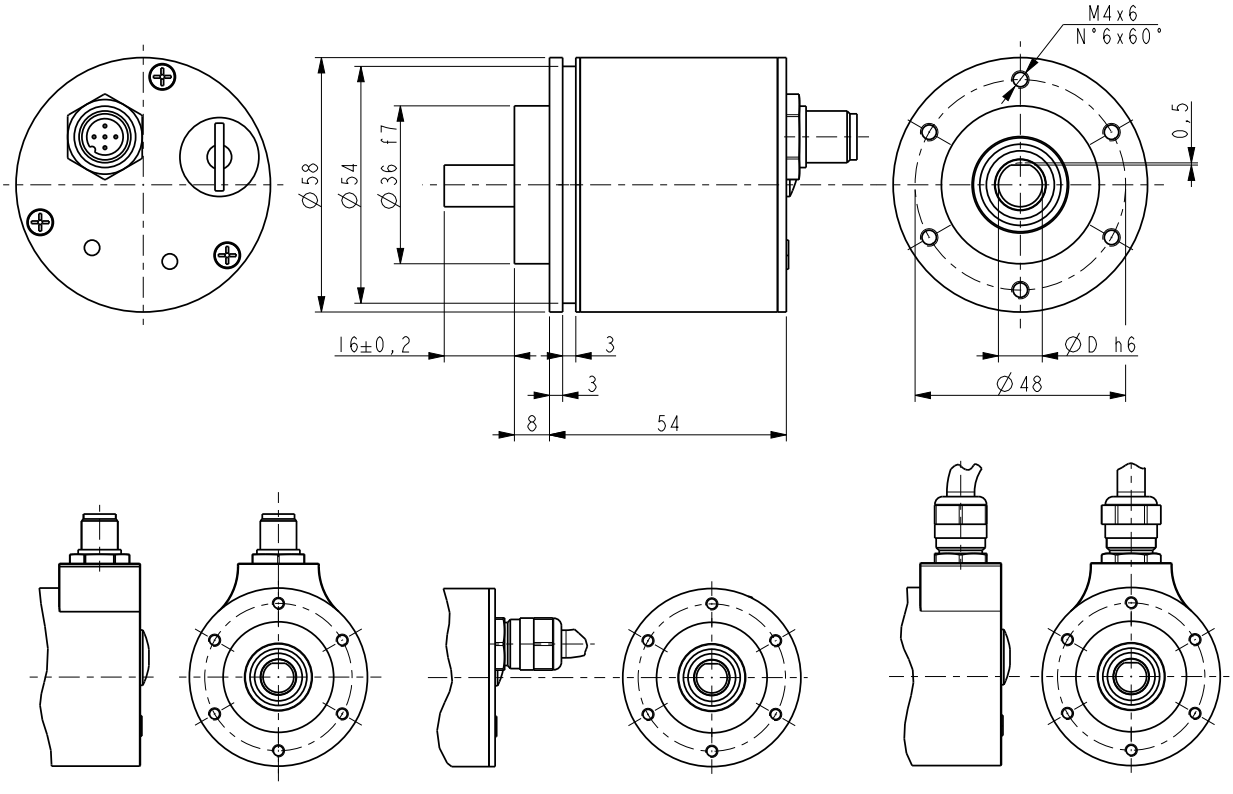
ELECTRICAL SPECIFICATIONS	
Resolution:	4096 cpr x 16384 turns
Accuracy:	± 0,02°
Output circuits:	Modbus RTU RS485
Output code:	according to: Modbus RTU specifications
Counting frequency:	> 150 kHz
Power supply:	+7,5Vdc ÷ 34Vdc
Power consumption:	1,7 W
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to: EN-61000-4-2 EN-61000-4-4
Optoelectronic life:	> 100.000 h
Functions:	• Counting direction • Zero setting/Preset • Resolution • Reset to default parameters • Firmware update • Saving parameters

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

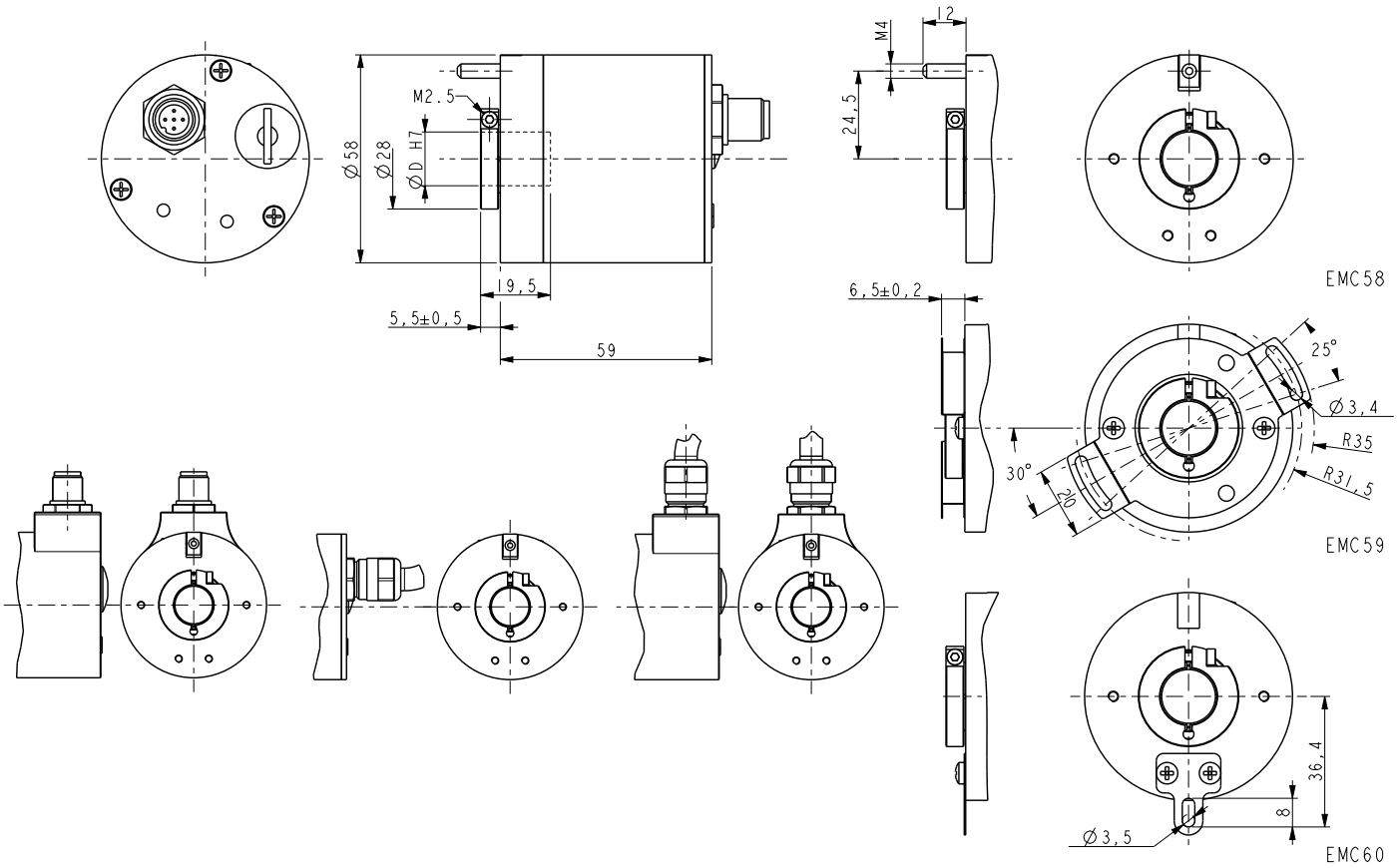
ACCESSORIES	
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
E-M12FC:	5 pin M12 mating connector
EC-M12FC-LK-CB-xx:	pre-assembled cable xx m
LKM-386:	fixing clamps
KIT EM58 MB:	M12 to USB programming cable


M4x6
N°3x120°
0,5
Ø50 h7
11,5±0,5
3
3
4
58
ØD h6
Ø42
Ø58

EM58


M4x6
N°6x60°
0,5
Ø58
Ø54
Ø36 f7
16±0,2
3
3
8
54
ØD h6
Ø48

EM58S



Order code

EM58 EM58S EMC58 EMC59 EMC60	XX ⓐ	/	XXXXX ⓑ	XX ⓒ	-	XX ⓓ	-	X ⓔ	XX ⓕ	/Sxxx ⓖ

ⓐ **RESOLUTION**
12 = 4096 cpr

ⓑ **REVOLUTIONS**
16384 = 16384 turns

ⓒ **OUTPUT**
MB = Modbus RTU

ⓓ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (EMCxx)
15 = 15 mm (EMCxx)

ⓔ **CONNECTION POSITION**
- = axial
R = radial

ⓕ **CONNECTIONS**
L2 = cable output 2 m (standard)
L5 = cable output 5 m
Lx = cable output x m
M = M12, 5 pin plug

ⓖ **CUSTOM VERSION**

ROTACOD

Absolute single turn encoders

Series HS58 • HS58S • HSC58

- Compact single turn encoders for feedback applications
- High resolution up to 262144 cpr
- Additional incremental track, 2048 PPR sin/cos
- Precise and fast optical sensing

HS58 • HS58S • HSC58

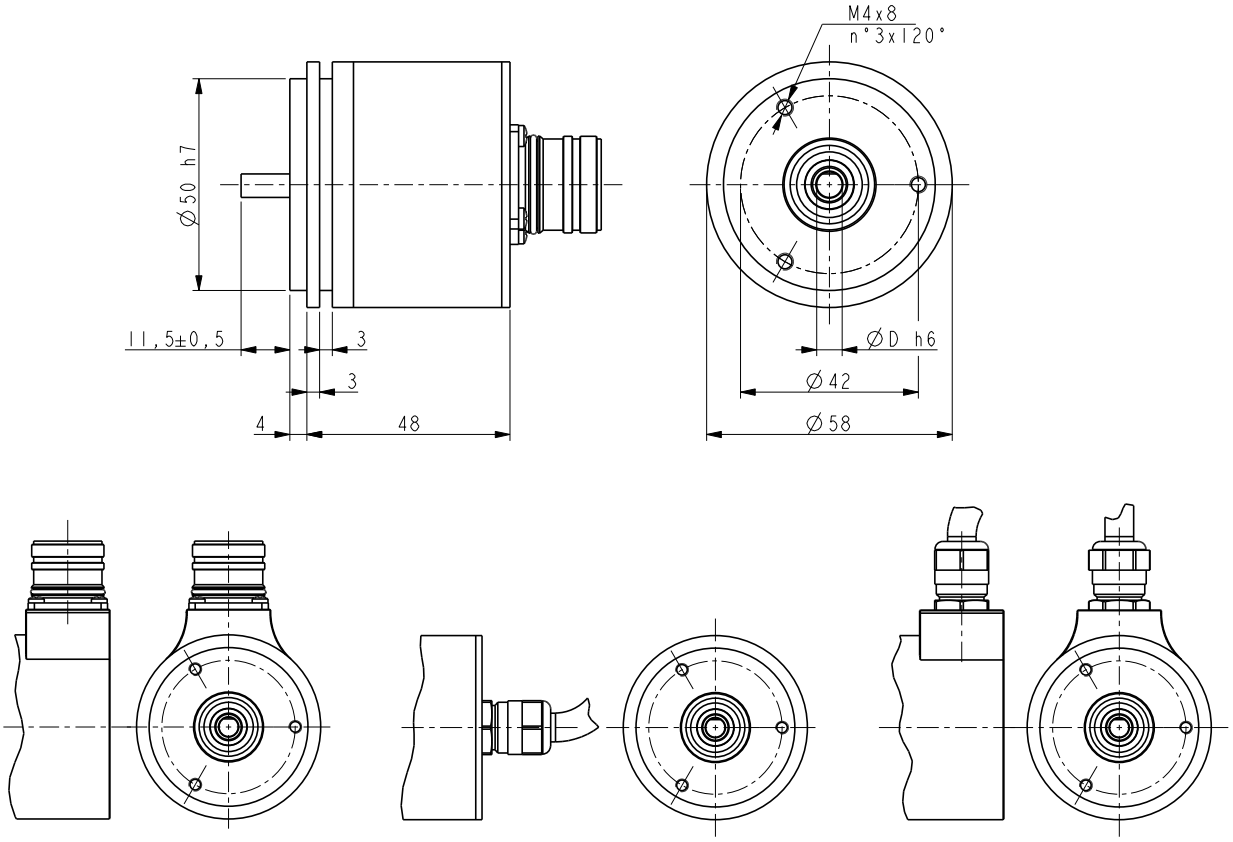
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12
Shaft loading (axial, radial):	40 N max.
Shaft rotational speed:	12000 rpm, 9000 rpm continuous operation
Starting torque (at 20°C):	HS58: 0,15 Ncm (typ.) HS58S, HSCxx: 0,4 Ncm (typ.)
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	M12, M23 plug or cable output 2 m (6.56 ft)
Weight:	~ 300 g (10,6 oz)
Option:	• additional cable

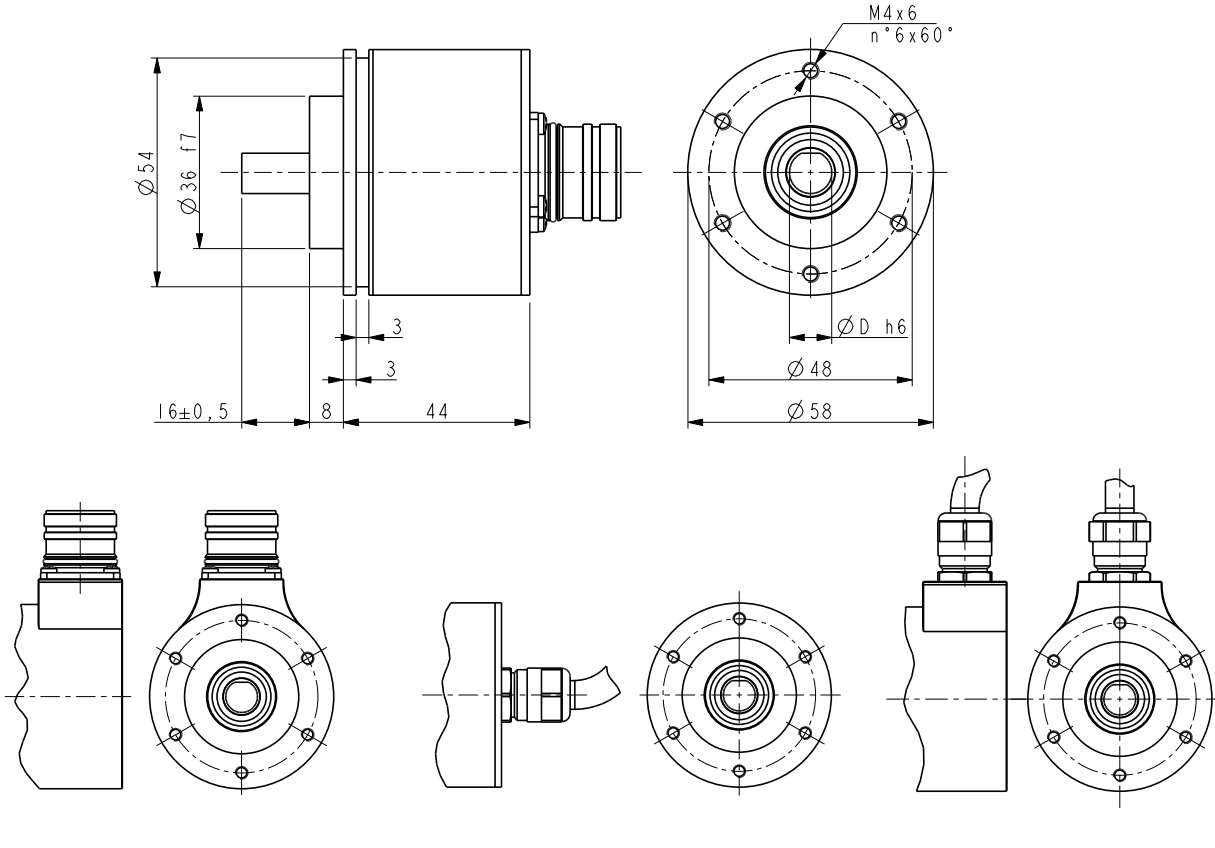
ELECTRICAL SPECIFICATIONS	
Resolution:	SSI, BiSS: 18 bit max. sin/cos: 2048 PPR AB, /AB: 2048, 4096, 8192
Accuracy:	± 0,007°
Output circuits:	SSI, SSI + 1Vpp, SSI + Line Driver 5V, BiSS (B-mode, C-mode) + 1Vpp
Output code:	Gray, Binary
Counting frequency:	220 kHz max.
Power supply:	+10V +30V
Power consumption:	0,9 W
Protection:	against inversion of polarity, short-circuit
EMC:	electro-magnetic immunity, according to: EN-61000-4-2 EN-61000-4-4
Optoelectronic life:	100.000 h min.
Functions:	• Counting direction (input) • Zero setting/Preset (input)

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305
Light source:	GaAl diodes

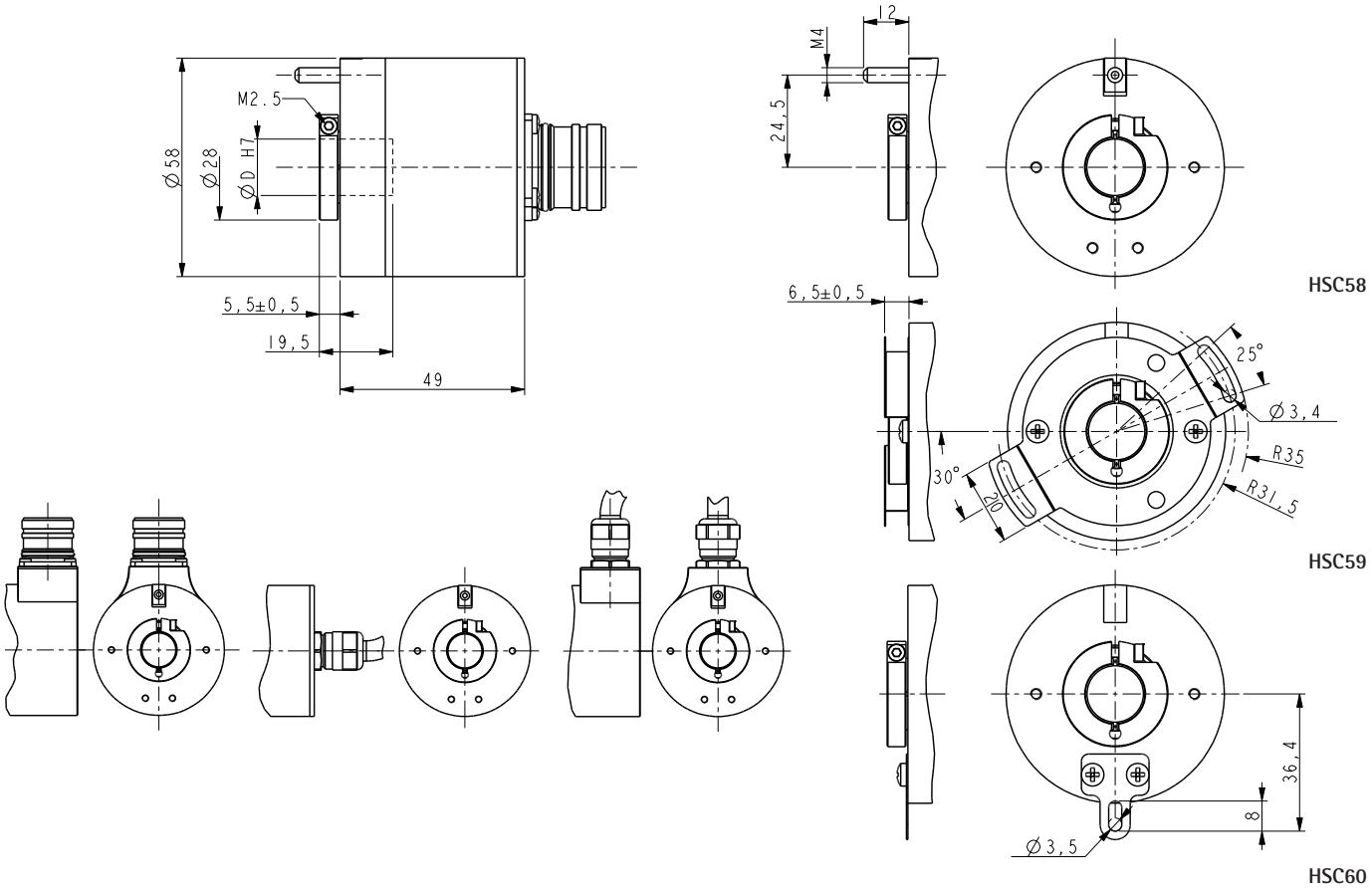
ACCESSORIES	
EPFL121H:	M23 12 pin connector
EM12F8:	M12 8 pin mating connector
EM12F12:	M12 12 pin mating connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
EC-CR12F-S28-T12-xx:	cordset xx m, M23 connector
EC-M12F8-LK-M8-xx:	cordset xx m, M12 8 pin connector
EC-M12F12-LK-T12-xx:	cordset xx m, M12 12 pin conn.
LKM-386:	fixing clamps


M4x8
n°3x120°
Ø50 h7
11,5±0,5
3
3
4
48
ØD h6
Ø42
Ø58

HS58


M4x6
n°6x60°
Ø54
Ø36 f7
3
3
16±0,5
8
44
ØD h6
Ø48
Ø58

HS58S



Order code

HS58 HS58S HSC58 HSC59 HSC60	XX ⓐ	/	XX ⓑ	-	XX ⓒ	-	X ⓓ	XX ⓔ	/Sxxx ⓕ

ⓐ RESOLUTION
13 = 8192 cpr
16 = 65536 cpr
18 = 262144 cpr

ⓑ OUTPUT CIRCUITS
GV = SSI, LSB aligned, Gray code + 2048 PPR sin/cos
BV = SSI, LSB aligned, Binary code + 2048 PPR sin/cos
GA = SSI, LSB aligned, Gray code
BA = SSI, LSB aligned, Binary code
I7 = BiSS C-mode + 2048 PPR sin/cos
I8 = BiSS B-mode + 2048 PPR sin/cos
G1 = SSI, Gray code + 2048 PPR AB, /AB
G2 = SSI, Gray code + 4096 PPR AB, /AB
G3 = SSI, Gray code + 8192 PPR AB, /AB
B1 = SSI, Binary code + 2048 PPR AB, /AB
B2 = SSI, Binary code + 4096 PPR AB, /AB
B3 = SSI, Binary code + 8192 PPR AB, /AB

ⓒ SHAFT DIAMETER
6 = 10 mm
8 = 8 mm
P9 = 9.52 mm, 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (HSCxx)
15 = 15 mm (HSCxx)

ⓓ CONNECTION POSITION
- = axial
R = radial

ⓔ CONNECTIONS
L2 = cable output 2 m
L5 = cable output 5 m
L10 = cable output 10 m
M2 = M23 12 pin plug
M = M12 8 pin plug
(only for GV, BV, GA, BA)
M1 = M12 12 pin plug
(except with GV, BV, GA, BA)

ⓕ CUSTOM VERSION

ROTACOD

Absolute multi-turn encoders

Series HM58 • HM58S • HMC58

- Compact single turn encoders for feedback applications
- High resolution up to 65536 cpr and 16384 turns
- Additional incremental track, 2048 PPR sin/cos
- Precise and fast optical sensing

HM58 • HM58S • HMC58

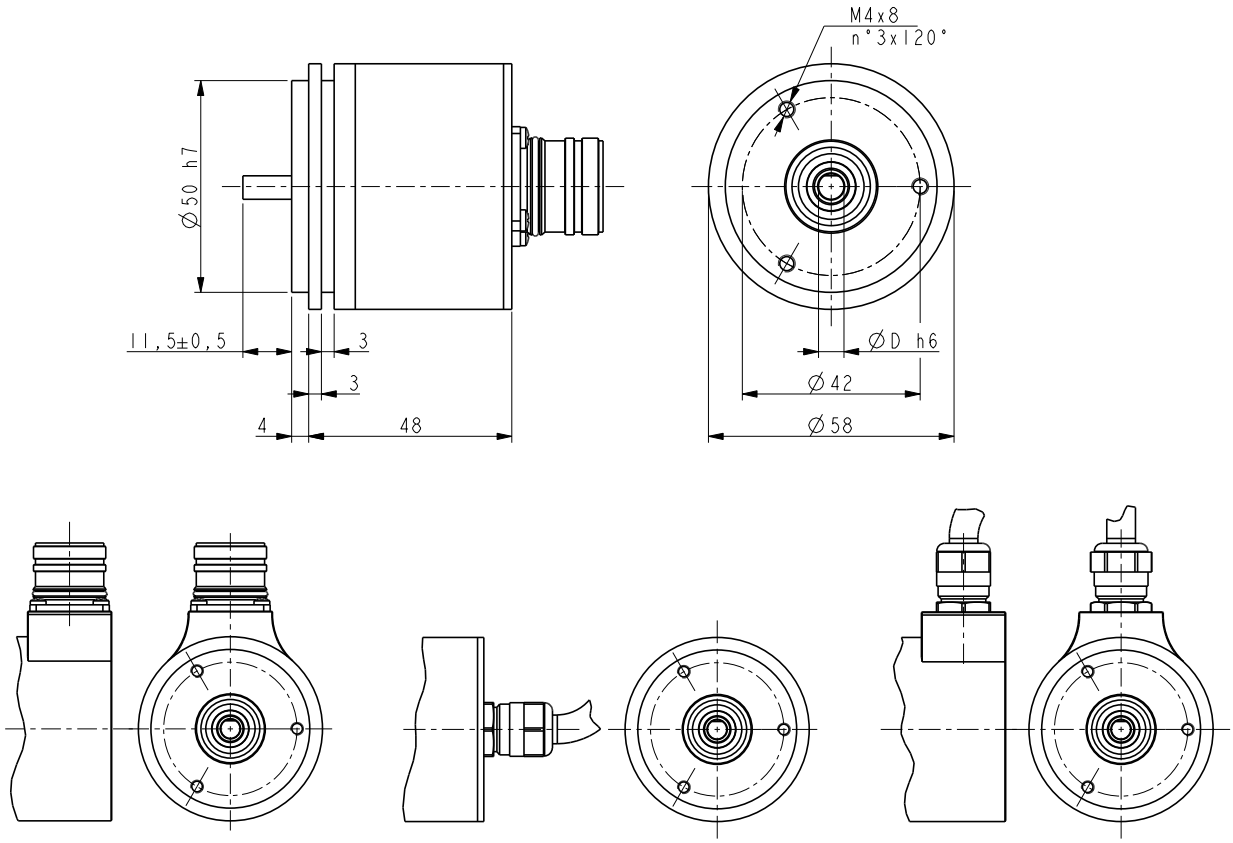
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12
Shaft loading (axial, radial):	40 N max.
Shaft rotational speed:	12000 rpm, 9000 rpm continuous operation
Starting torque (at 20°C):	HM58: 0,15 Ncm (typ.) HM58S, HMCxx: 0,4 Ncm (typ.)
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	M12, M23 plug or cable output 2 m (6.56 ft)
Weight:	~ 300 g (10,6 oz)
Option:	• additional cable

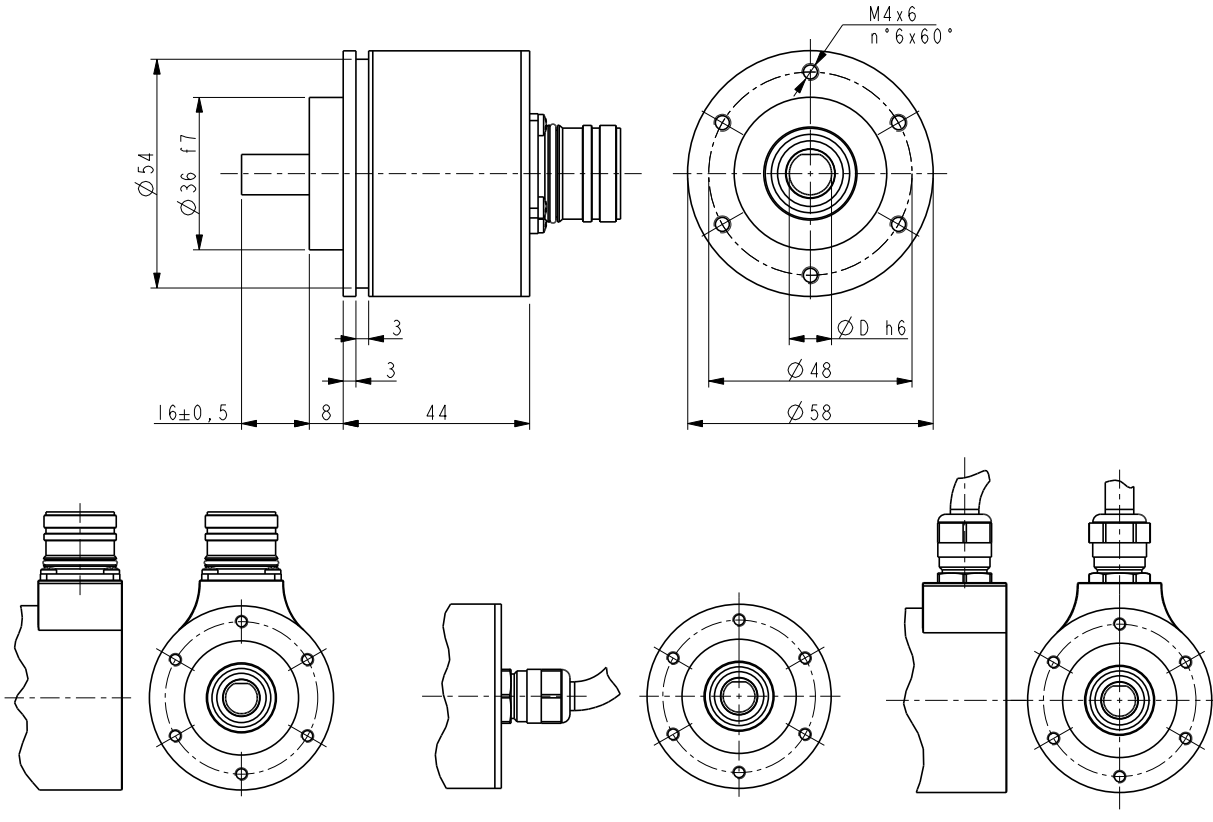
ELECTRICAL SPECIFICATIONS	
Resolution:	SSI, BiSS, 16x14 bit max. sin/cos: 2048 PPR AB, /AB: 2048, 4096, 8192
Accuracy:	± 0,007°
Output circuits:	SSI, SSI + 1Vpp, SSI + Push-Pull, SSI + Line Driver 5V, BiSS + 1Vpp
Output code:	Gray, Binary
Counting frequency:	220 kHz max.
Power supply:	+10V +30V
Power consumption:	1 W
Protection:	against inversion of polarity, short-circuit
EMC:	electro-magnetic immunity, according to: EN-61000-4-2 EN-61000-4-4
Optoelectronic life:	100.000 h min.
Functions:	• Counting direction (input) • Zero setting/Preset (input)

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305
Light source:	GaAl diodes

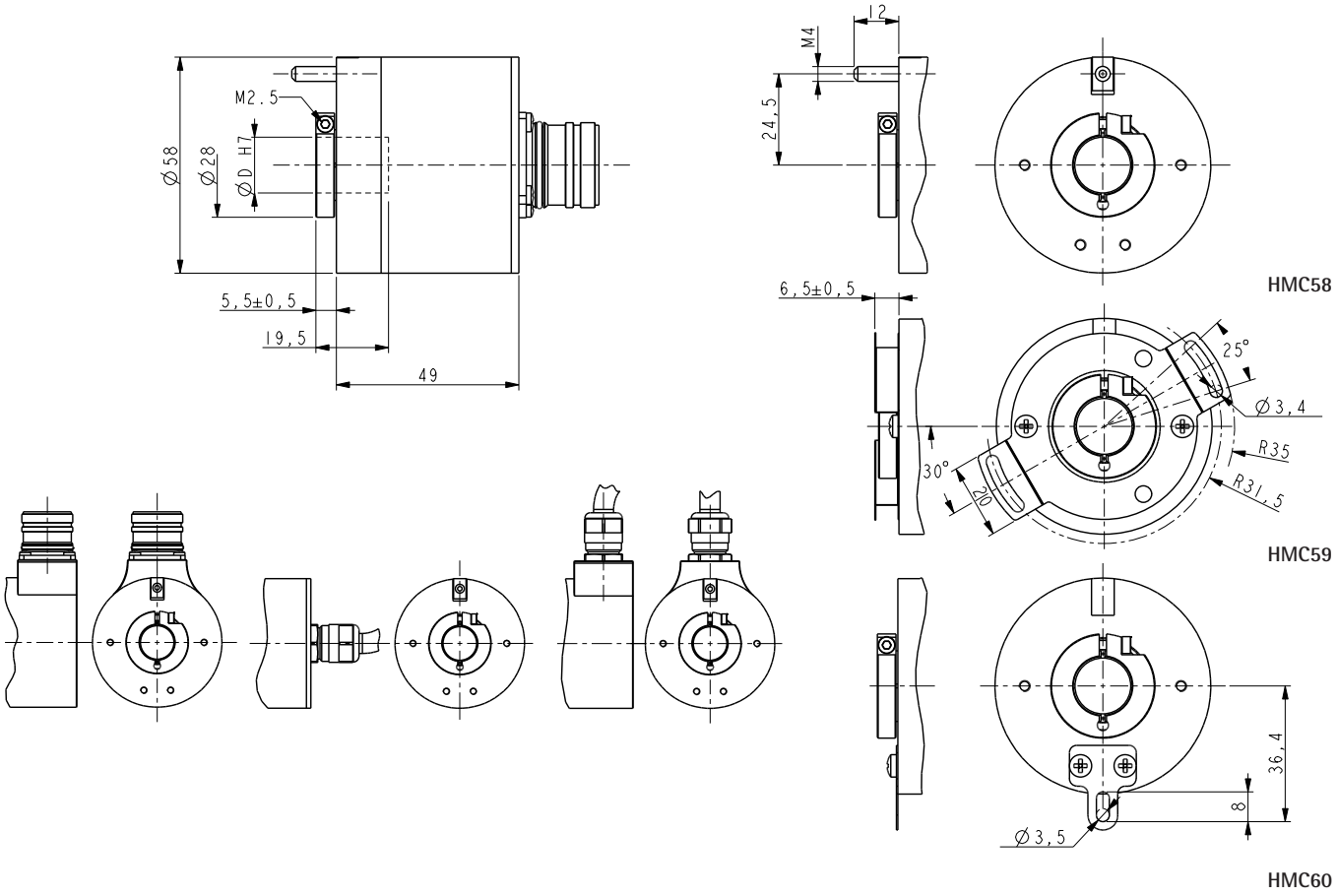
ACCESSORIES	
EPFL121H:	M23 12 pin connector
EM12F8:	M12 8 pin mating connector
EM12F12:	M12 12 pin mating connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
EC-CR12F-S28-T12-xx:	cordset xx m, M23 connector
EC-M12F8-LK-M8-xx:	cordset xx m, M12 8 pin connector
EC-M12F12-LK-T12-xx:	cordset xx m, M12 12 pin conn.
LKM-386:	fixing clamps


M4x8
n°3x120°
Ø50 h7
11,5±0,5
3
3
4
48
ØD h6
Ø42
Ø58

HM58


M4x6
n°6x60°
Ø54
Ø36 f7
3
3
16±0,5
8
44
ØD h6
Ø48
Ø58

HM58S



Order code

HM58 HM58S HMC58 HMC59 HMC60	XX / XXXXX ⓐ	XX ⓑ	-	XX ⓒ	-	X ⓓ	XX ⓔ	/Sxxx ⓕ

ⓐ **RESOLUTION**
13/4096 = 8192 cpr x 4096 turns
16/16384 = 65536 cpr x 16384 turns

ⓑ **OUTPUT CIRCUITS**
GV = SSI, LSB aligned, Gray code + 2048 PPR sin/cos
BV = SSI, LSB aligned, Binary code + 2048 PPR sin/cos
GA = SSI, LSB aligned, Gray code
BA = SSI, LSB aligned, Binary code
I7 = BiSS C-mode + 2048 PPR sin/cos
I8 = BiSS B-mode + 2048 PPR sin/cos
G1 = SSI, Gray code + 2048 PPR AB, /AB Line Driver
G2 = SSI, Gray code + 4096 PPR AB, /AB Line Driver
G3 = SSI, Gray code + 8192 PPR AB, /AB Line Driver
G6 = SSI, Gray code + 2048 PPR AB, /AB Push-Pull
G7 = SSI, Gray code + 4096 PPR AB, /AB Push-Pull
G8 = SSI, Gray code + 8192 PPR AB, /AB Push-Pull

ⓒ **SHAFT DIAMETER**
6 = 10 mm
8 = 8 mm
P9 = 9.52 mm, 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (HMCxx)
15 = 15 mm (HMCxx)

ⓓ **CONNECTION POSITION**
- = axial
R = radial

ⓔ **CONNECTIONS**
L2 = cable output 2 m
L5 = cable output 5 m
L10 = cable output 10 m
M2 = M23 12 pin plug
M = M12 8 pin plug
(only for GV, BV, GA, BA)
M1 = M12 12 pin plug
(except with GV, BV, GA, BA)

ⓕ **CUSTOM VERSION**

ROTACOD

Absolute single turn and multi turn encoder

Series HSCT • HMCT

- Compact design, through hollow shaft
- Industrial & feedback applications
- Single turn version up to 18 bits
- Multi turn version, 16 x 12 bits
- Incremental resolution up to 8192 PPR or 2048 sin/cos

HSCT • HMCT

ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

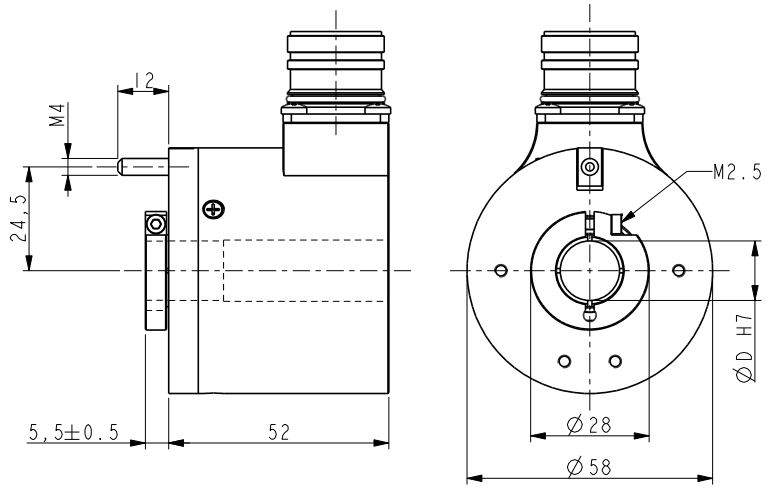
MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx: from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	40 N max.
Shaft rotational speed:	6000 rpm max.
Starting torque (at 20°C):	1 Ncm (typ.)
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	M12, M23 plug or cable output 1 m (3.3 ft)
Weight:	~ 200 g (7 oz)
Option:	• additional cable

ELECTRICAL SPECIFICATIONS	
Resolution:	SSI, BiSS: HSCT 18 bit max., HMCT 16 x 12 bit sin/cos: 2048 PPR AB /AB: 2048, 4096, 8192 PPR
Accuracy:	± 0,007°
Output circuits:	SSI, SSI + 1Vpp sin/cos, SSI + Line Driver 5Vdc, SSI + Push-Pull 10-30Vdc, BiSS + 1Vpp sin/cos
Output code:	Gray, Binary
Counting frequency:	220 kHz max.
Power supply:	+10V +30V
Power consumption:	1 W
Protection:	against inversion of polarity
EMC:	electro-magnetic immunity, according to: EN-61000-4-2 EN-61000-4-4
Optoelectronic life:	100.000 h min.
Functions:	• Counting direction (input) • Electronic zero setting (input)

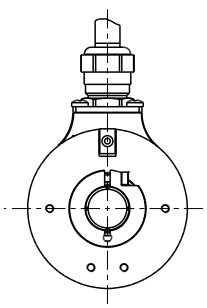
MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305
Light source:	GaAl diodes

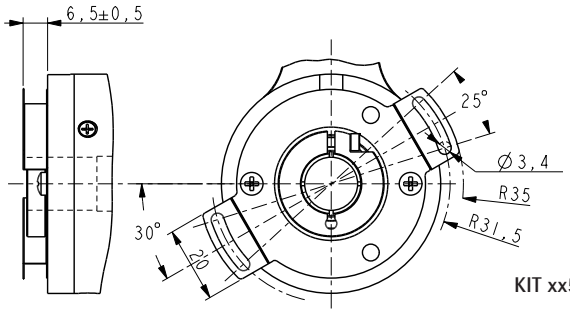
ACCESSORIES	
EPFL121H:	M23 12 pin connector
EM12F8:	M12 8 pin mating connector
EM12F12:	M12 12 pin mating connector
BR1:	reducing sleeves
EC-CR12F-S28-T12-xx:	cordset xx m, M23 connector
EC-M12F8-LK-M8-xx:	cordset xx m, M12 8 pin connector
EC-M12F12-LK-T12-xx:	cordset xx m, M12 12 pin conn.
KIT xx59:	fixing plate

Specifications subject to changes without prior notice

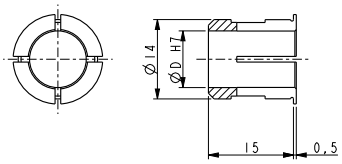


HSCT • HMCT





KIT xx59



BR1-xx

Order code - Single turn

HSCT	XX ⓐ	/	XX ⓑ	-	XX ⓒ	-	X ⓓ	XX ⓔ	/Sxxx ⓕ

ⓐ **RESOLUTION**
Counts x rev.
16 = 65536 cpr
18 = 262144 cpr

ⓑ **OUTPUT CIRCUITS**
GV = SSI, Gray code + 2048 PPR sin/cos
BV = SSI, Binary code + 2048 PPR sin/cos
GA = SSI, Gray code
BA = SSI, Binary code
I7 = BiSS C-mode + 2048 PPR sin/cos
I8 = BiSS B-mode + 2048 PPR sin/cos
G1 = SSI, Gray code + 2048 PPR AB, /AB Line Driver
G2 = SSI, Gray code + 4096 PPR AB, /AB Line Driver
G3 = SSI, Gray code + 8192 PPR AB, /AB Line Driver
G6 = SSI, Gray code + 2048 PPR AB, /AB Push-Pull
G7 = SSI, Gray code + 4096 PPR AB, /AB Push-Pull
G8 = SSI, Gray code + 8192 PPR AB, /AB Push-Pull

ⓒ **SHAFT DIAMETER**
14 = 14 mm
15 = 15 mm

ⓓ **CONNECTOR POSITION**
R = radial

ⓔ **CONNECTIONS**
L1 = cable output 1 m (standard)
L2 = cable output 2 m
Lx = cable output x m
M2 = M23 connector
M = M12 8 pin plug
(only for GV, BV, GA, BA)
M1 = M12 12 pin plug
(except with GV, BV, GA, BA)

ⓕ **CUSTOM VERSION**

Order code - Multi turn

HMCT	XX/XXXX ⓐ	XX ⓑ	-	XX ⓒ	-	X ⓓ	XX ⓔ	/Sxxx ⓕ

ⓐ **RESOLUTION**
Counts x rev./rev.
13/4096 = 8192 x 4096
16/4096 = 65536 x 4096

ⓑ **OUTPUT CIRCUITS**
GV = SSI, Gray code + 2048 PPR sin/cos
BV = SSI, Binary code + 2048 PPR sin/cos
GA = SSI, Gray code
BA = SSI, Binary code
I7 = BiSS C-mode + 2048 PPR sin/cos
I8 = BiSS B-mode + 2048 PPR sin/cos
G1 = SSI, Gray code + 2048 PPR AB, /AB Line Driver
G2 = SSI, Gray code + 4096 PPR AB, /AB Line Driver
G3 = SSI, Gray code + 8192 PPR AB, /AB Line Driver
G6 = SSI, Gray code + 2048 PPR AB, /AB Push-Pull
G7 = SSI, Gray code + 4096 PPR AB, /AB Push-Pull
G8 = SSI, Gray code + 8192 PPR AB, /AB Push-Pull

ⓒ **SHAFT DIAMETER**
14 = 14 mm
15 = 15 mm

ⓓ **CONNECTOR POSITION**
R = radial

ⓔ **CONNECTIONS**
L1 = cable output 1 m (standard)
L2 = cable output 2 m
Lx = cable output x m
M2 = M23 connector
M = M12 8 pin plug
(only for GV, BV, GA, BA)
M1 = M12 12 pin plug
(except with GV, BV, GA, BA)

ⓕ **CUSTOM VERSION**

ROTACOD
Absolute encoders

Series AS58 • AS58S • ASC58

- Standard absolute single turn encoder
- Resolution up to 8192 counts/rev.
- Cable and connector output

AS58S • AS58 • ASC59

ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-25°C +85°C (-13°F +185°F) (98% R.H. without condensation)
Option:	• Operating temperature range: -40°C +100°C (-40°F +212°F)

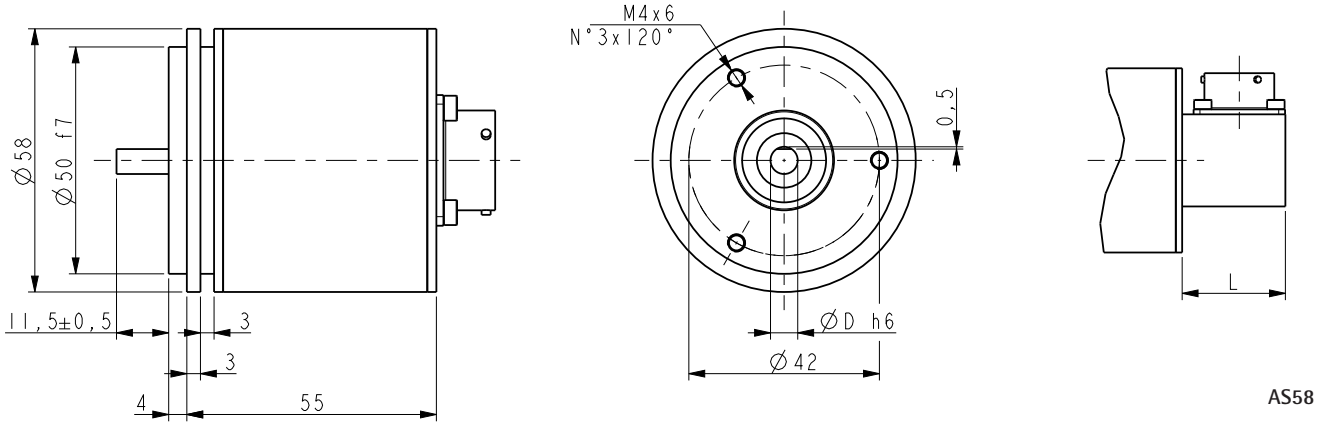
MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	40 N max.
Shaft rotational speed:	6000 rpm max.
Starting torque (at 20°C):	AS58: 0,15 Ncm (typ.) AS58S, ASCxx: 0,4 Ncm (typ.)
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	SSI: MIL 7 pin plug (10 pin plug with zero setting) Bit parallel: MIL 19 pin plug
Weight:	~ 250 g (8,8 oz)
Options:	• DSub 15 pin plug • DSub 25 pin plug • MIL 19 pin plug • cable output 1 m (3.3 ft)

ELECTRICAL SPECIFICATIONS	
Resolution:	256, 360, 512, 720, 1024, 2048, 4096, 8192 cpr
Output circuits:	SSI (RS422), Bit parallel, NPN, PNP, Push-Pull
Output code:	Gray, Binary
Counting frequency:	50 kHz max.
Power supply:	+10V +30V
Power consumption:	SSI: 1 W Bit parallel: 1,2 W
Protection:	against inversion of polarity, short-circuit
EMC:	electro-magnetic immunity, according to: EN-61000-4-2 EN-61000-4-4
Optoelectronic life:	100.000 h min.
Functions:	• Counting direction (input)
Options:	• Zero setting / Preset (input) • LATCH output • TRI-STATE output • Electronic parity bit (on request)

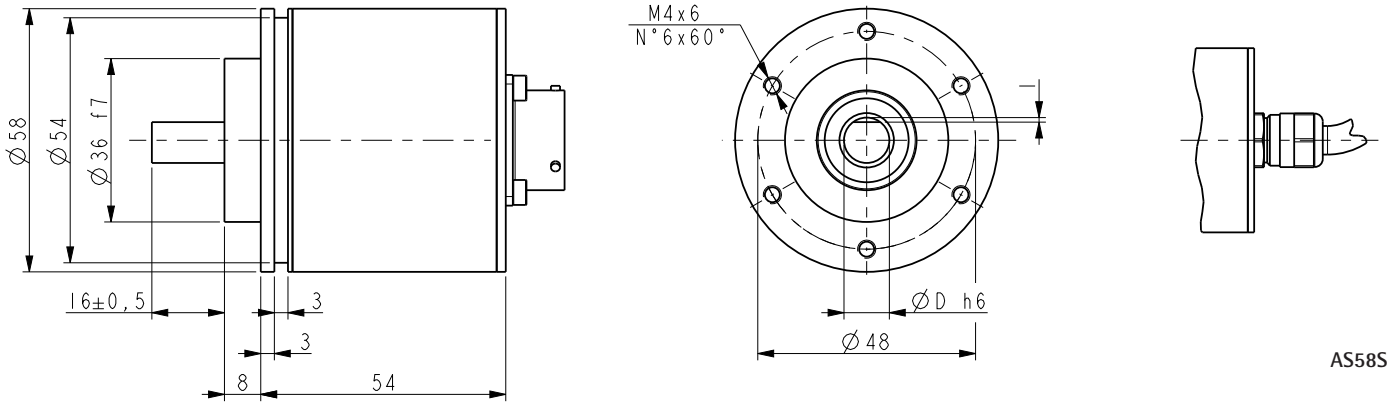
MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305
Light source:	GaAl diodes

ACCESSORIES	
E19MLS:	19 pin MIL mating connector
E7MLS:	7 pin MIL mating connector
E10MLS:	10 pin MIL mating connector
EDB 25S:	25 pin DSub mating connector
EDA 15S:	15 pin DSub mating connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
LKM-386:	fixing clamps

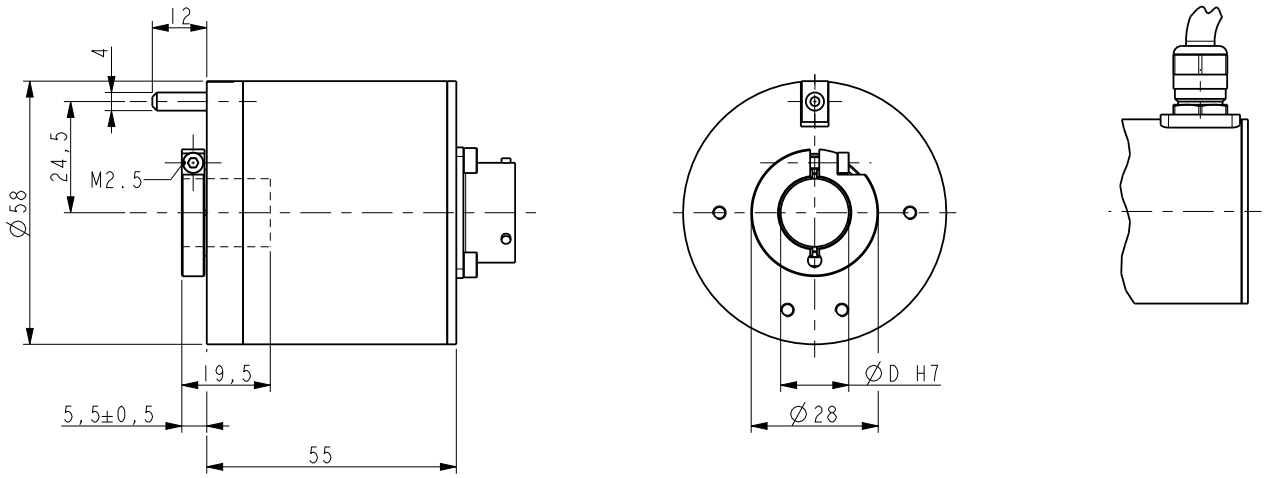
Specifications subject to changes without prior notice



AS58



AS58S



ASC58

Order code - Bit parallel output

Additional code (optional)

AS58 AS58S ASC58 ASC59 ASC60	X ⓐ	/	X ⓑ	X ⓒ	-	XX ⓓ	-	X ⓔ	X ⓕ	X ⓖ	X ⓗ	X ⓘ	/Sxxx ⓙ

ⓐ **RESOLUTION**
08 = 256 cpr
36 = 360 cpr
09 = 512 cpr
72 = 720 cpr
10 = 1024 cpr
11 = 2048 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **OUTPUT CODE**
B = Binary
G = Gray

ⓒ **OUTPUT CIRCUITS**
N = NPN o.c.
P = PNP o.c.
Y = Push-Pull

on request:
L = LATCH (NPN)
M = LATCH (PNP)
H = LATCH (Push-Pull)
T = TRI-STATE (NPN)
U = TRI-STATE (PNP)
E = LATCH+TRI-STATE (PNP)
F = LATCH+TRI-STATE (NPN)

ⓓ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52 mm - 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (ASCxx)
15 = 15 mm (ASCxx)

ⓔ **E** = Zero setting (option)

ⓕ **B** = Parity bit (option)

ⓖ **OPERATING TEMPERATURE RANGE**
K = -40°C +100°C (-40°F +212°F)

ⓗ **R** = radial connection

ⓘ **CONNECTIONS**
L1 = cable output 1 m
Lx = cable output x m
Z = DSub 15 pin plug
W = DSub 25 pin plug

ⓙ **CUSTOM VERSION**

Order code - SSI output

Additional code (optional)

AS58 AS58S ASC58 ASC59 ASC60	X ⓐ	/	X ⓑ	X ⓒ	-	XX ⓓ	-	X ⓔ	X ⓕ	X ⓖ	X ⓗ	X ⓘ	/Sxxx ⓙ

ⓐ **RESOLUTION**
08 = 256 cpr
36 = 360 cpr
09 = 512 cpr
72 = 720 cpr
10 = 1024 cpr
11 = 2048 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **OUTPUT CODE**
B = Binary
G = Gray

ⓒ **OUTPUT CIRCUITS**
S = SSI, tree format (connector)
R = SSI, tree format (cable)
A = SSI, LSB aligned (connector)
B = SSI, LSB aligned (cable)

ⓓ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52 mm - 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (ASCxx)
15 = 15 mm (ASCxx)

ⓔ **E** = Zero setting (option)

ⓕ **B** = Parity bit (option)

ⓖ **OPERATING TEMPERATURE RANGE**
K = -40°C +100°C (-40°F +212°F)

ⓗ **R** = radial connection

ⓘ **CONNECTIONS**
L1 = cable output 1 m
Lx = cable output x m

ⓙ **CUSTOM VERSION**

ROTACOD
Absolute multi turn encoders

Series AM58 • AM58S • AMC58

- Standard absolute multi-turn encoder
- Resolution up to 8192 cpr x 4096 turns
- Cable and connector output

AM58 • AM58S • AMC59

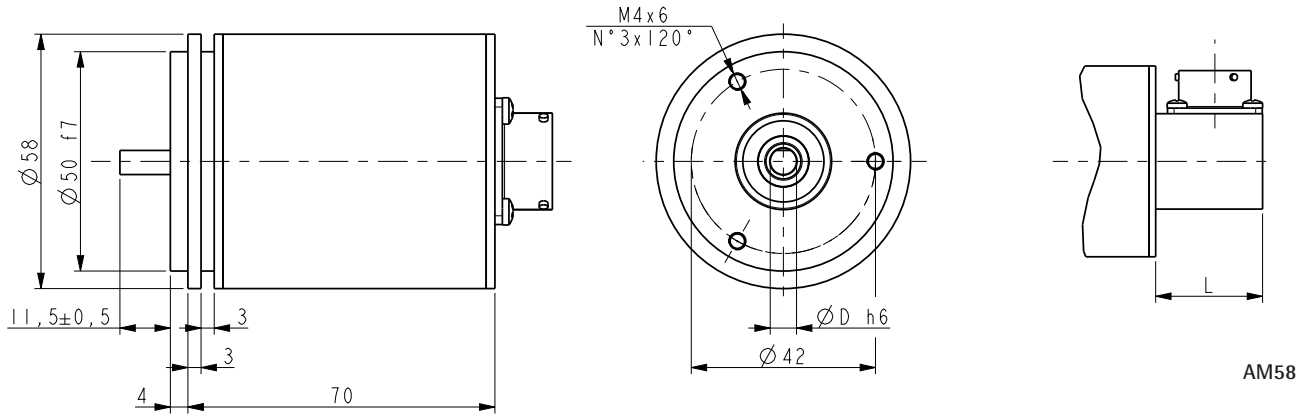
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-25°C +85°C (-13°F +185°F) (98% R.H. without condensation)
Option:	• Operating temperature range: -40°C +100°C (-40°F +212°F)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	40 N max.
Shaft rotational speed:	6000 rpm max.
Starting torque (at 20°C):	AM58: 0,15 Ncm (typ.) AM58S, AMCxx: 0,4 Ncm (typ.)
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	SSI: MIL 7 pin plug (10 pin plug with zero setting) Bit parallel: MIL 32 pin plug
Weight:	~ 250 g (8,8 oz)
Options:	• DSub 25 pin plug • cable output 1 m (3.3 ft)

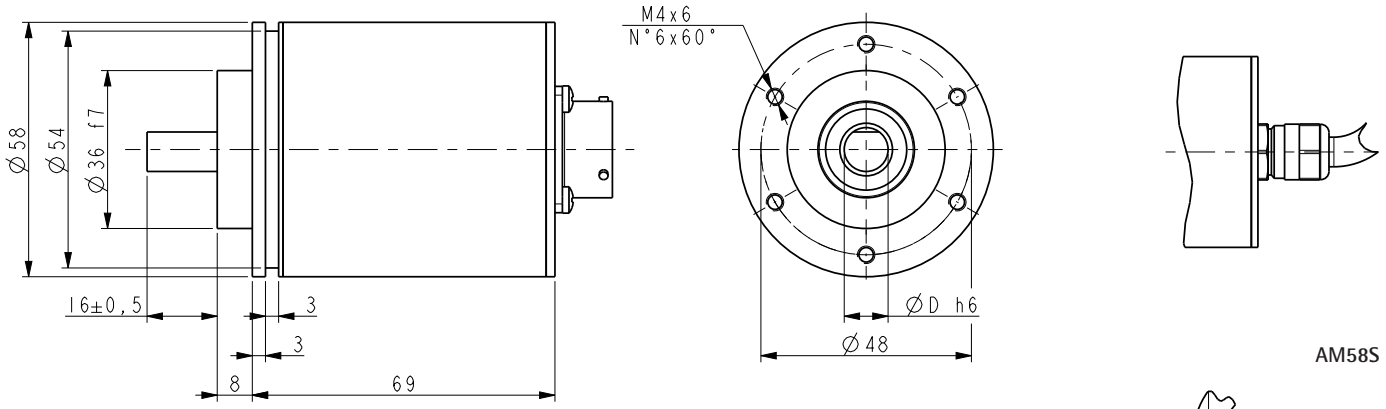
ELECTRICAL SPECIFICATIONS	
Resolution:	256, 512, 1024, 2048, 4096, 8192 cpr 16, 256, 4096 turns
Output circuits:	SSI (RS422), Bit parallel, NPN, PNP, Push-Pull
Output code:	Gray, Binary
Counting frequency:	50 kHz max.
Power supply:	+10V +30V
Power consumption:	SSI: 1 W Bit parallel: 2 W
Protection:	against inversion of polarity, short-circuit
EMC:	electro-magnetic immunity, according to: EN-61000-4-2 EN-61000-4-4
Optoelectronic life:	100.000 h min.
Functions:	• counting direction (input)
Options:	• Zero setting / Preset (input) • LATCH output • TRI-STATE output • Electronic parity bit (on request)

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305
Light source:	GaAl diodes

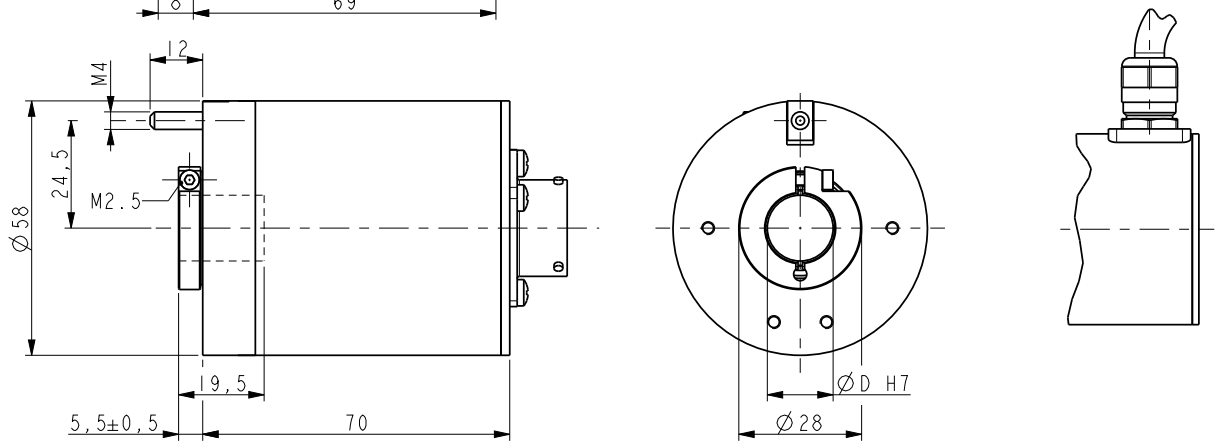
ACCESSORIES	
E32MLS:	32 pin MIL mating connector
E7MLS:	7 pin MIL mating connector
E10MLS:	10 pin MIL mating connector
EDB 25S:	25 pin DSub mating connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
LKM-386:	fixing clamps



AM58



AM58S



AMC58

Order code - Bit parallel output

Additional code (optional)

AM58 AM58S AMC58 AMC59 AMC60	XX ⓐ	/	XXXX ⓑ	X ⓒ	X ⓓ	-	XX ⓔ	-	X ⓕ	X ⓖ	X ⓗ	X ⓘ	X ⓙ	/Sxxx ⓚ

ⓐ **RESOLUTION**
08 = 256 cpr
09 = 512 cpr
10 = 1024 cpr
11 = 2048 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **REVOLUTIONS**
16 = 16 turns
256 = 256 turns
4096 = 4096 turns

ⓒ **OUTPUT CODE**
B = Binary
G = Gray

ⓓ **OUTPUT CIRCUITS**
N = NPN o.c.
P = PNP o.c.
Y = Push-Pull

on request:
L = LATCH (NPN)
M = LATCH (PNP)
H = LATCH (Push-Pull)
T = TRI-STATE (NPN)
U = TRI-STATE (PNP)
E = LATCH+TRI-STATE (PNP)
F = LATCH+TRI-STATE (NPN)

ⓔ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52 mm - 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (AMCxx)
15 = 15 mm (AMCxx)

ⓕ **E** = Zero setting (option)

ⓖ **B** = Parity bit (option)

ⓗ **OPERATING TEMPERATURE RANGE**
K = -40°C +100°C (-40°F +212°F)

ⓘ **R** = radial connection

ⓙ **CONNECTIONS**
L1 = cable output 1 m
Lx = cable output x m
W = DSub 25 pin plug

ⓚ **CUSTOM VERSION**

Order code - SSI output

Additional code (optional)

AM58 AM58S AMC58 AMC59 AMC60	XX ⓐ	/	XXXX ⓑ	X ⓒ	X ⓓ	-	XX ⓔ	-	X ⓕ	X ⓖ	X ⓗ	X ⓘ	X ⓙ	/Sxxx ⓚ

ⓐ **RESOLUTION**
08 = 256 cpr
09 = 512 cpr
10 = 1024 cpr
11 = 2048 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **REVOLUTIONS**
16 = 16 turns
256 = 256 turns
4096 = 4096 turns

ⓒ **OUTPUT CODE**
B = Binary
G = Gray

ⓓ **OUTPUT CIRCUITS**
S = SSI, tree format (connector)
R = SSI, tree format (cable)
A = SSI, LSB aligned (connector)
B = SSI, LSB aligned (cable)

ⓔ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52 mm - 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (AMCxx)
15 = 15 mm (AMCxx)

ⓕ **E** = Zero setting (option)

ⓖ **B** = Parity bit (option)

ⓗ **OPERATING TEMPERATURE RANGE**
K = -40°C +100°C (-40°F +212°F)

ⓘ **R** = radial connection

ⓙ **CONNECTIONS**
L1 = cable output 1 m
Lx = cable output x m

ⓚ **CUSTOM VERSION**

ROTAMAG
Magnetic absolute encoder

Series **MH58S**

- Compact heavy-duty encoder
- IP67 protection & extended temperature range
- High shaft load
- Confortable presetting by push-button
- Suitable for outdoor and offshore installations
- SSI or analogue output
- IP69K protection on request

MH58S

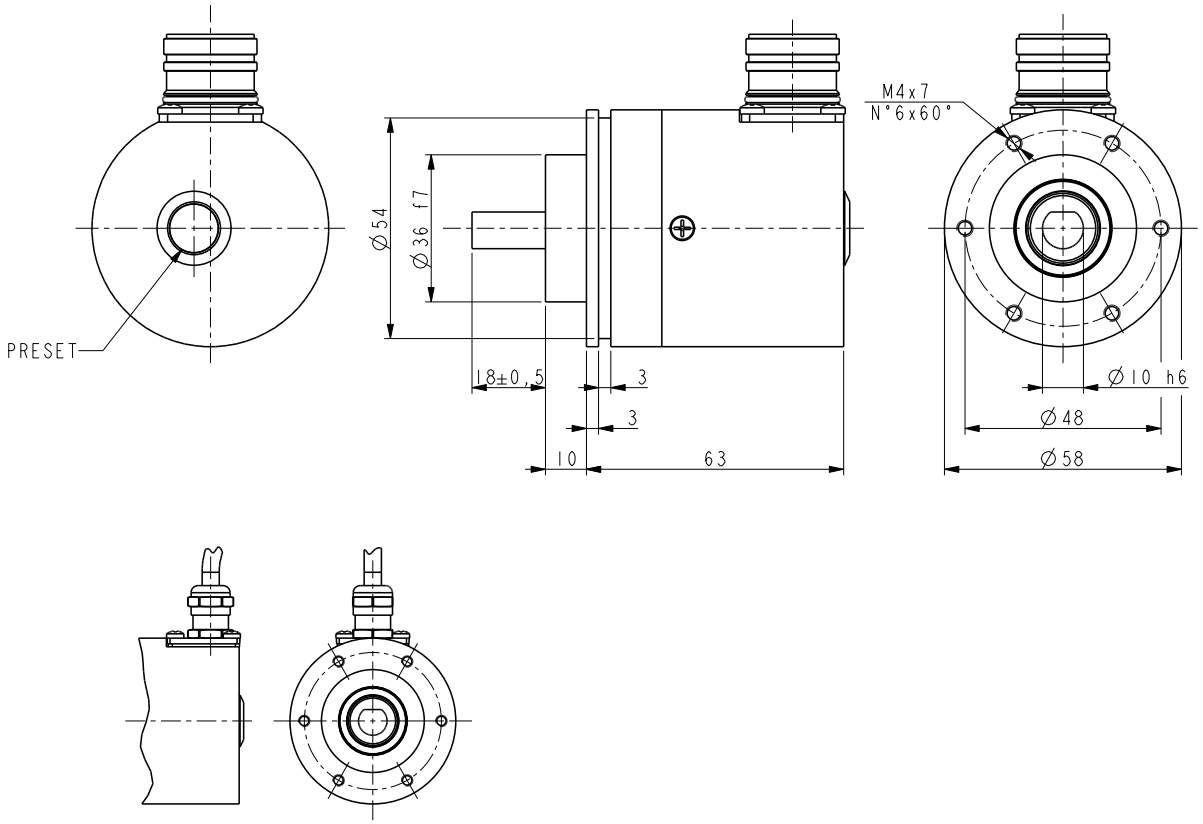
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67
Operating temperature range:	-40°C +85°C (-40°F +185°F)
Storage temperature range:	-40°C +85°C (-40°F +185°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 10 mm
Shaft loading:	axial: 270 N max. radial: 150 N max.
Shaft rotational speed:	6000 rpm max.
Starting torque (at 20°C):	1 Ncm (typical)
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	M23 12 pin plug, cable output 1 m (3.3 ft)
Weight:	~ 350 g (12,3 oz)
Option:	• additional cable

ELECTRICAL SPECIFICATIONS	
Resolution:	single turn: 4096 cpr multi turn: 4096 x 4096 bit
Start-up time:	200 msec
Accuracy:	± 0,9°
Output circuits:	SSI: SSI, Gray, Clock 1 MHz max. Analogue: 0-5V, 0-10V, -5/+5V, -10/+10V, 0-20mA, 0-24mA
Counting frequency:	100 kHz max.
Power supply:	SSI: +10Vdc +30Vdc Analogue: +13Vdc +30Vdc
Protection:	protected against inversion of polarity, short-circuit
EMC:	electro-magnetic immunity, according to: EN-61000-4-2 EN-61000-4-4
Battery life:	10 years min.
Functions:	• Counting direction (input) • Zero setting button (input)

MATERIALS	
Flange:	anticorodal, EN AW-6082 (UNI EN 573)
Housing:	anticorodal, EN AW-6082 (UNI EN 573)
Bearings:	ABEC 5
Shaft:	stainless steel, non-magnetic - UNI EN 4305

ACCESSORIES	
PAN/PGF:	flexible couplings
EPFL121H:	M23 12 pin mating connector



MH58S

Order code - Analogue output

MH58S	XX/X	XXX	-	XX	-	X	X	/Sxxx
	ⓐ	ⓑ		ⓒ		ⓓ	ⓔ	ⓕ

ⓐ **RESOLUTION**
12/1 = 4096 cpr

ⓑ **OUTPUT**
AI1 = 4-20mA
AI2 = 0-20mA
AI3 = 0-24mA
AV1 = 0-5V
AV2 = 0-10V
AV3 = -5/+5V
AV4 = -10/+10V

ⓒ **SHAFT DIAMETER**
10 = 10 mm

ⓓ **CONNECTOR POSITION**
R = radial

ⓔ **CONNECTIONS**
L1 = cable output 1 m (standard)
L2 = cable output 2 m
Lx = cable output x m
M2 = M23 12 pin plug

ⓕ **CUSTOM VERSION**

Order code - SSI output

MH58S	XX/XXXX	XX	-	XX	-	XX	X	/Sxxx
	ⓐ	ⓑ		ⓒ		ⓓ	ⓔ	ⓕ

ⓐ **RESOLUTION**
12/1 = 4096 cpr
12/4096 = 4096 cpr x 4096 rev

ⓑ **OUTPUT CODE**
GS = Gray, SSI tree format

ⓒ **SHAFT DIAMETER**
10 = 10 mm

ⓓ **CONNECTOR POSITION**
R = radial

ⓔ **CONNECTIONS**
L1 = cable output 1 m (standard)
L2 = cable output 2 m
Lx = cable output x m
M2 = M23 12 pin plug

ⓕ **CUSTOM VERSION**

ROTAMAG
Magnetic absolute encoders

Series MM58 • MM58S • MMC58

- Rugged & compact multi turn encoder
- Stainless steel housing
- Magnetic sensing
- Through hollow shaft version available
- Up to 32768 turns (65536 on request)

MM58S • MM58 • MMC58

ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-20°C +85°C (-4°F +185°F)
Storage temperature range:	-20°C +85°C (-4°F +185°F) (98% R.H. without condensation)
Option:	• protection IP67

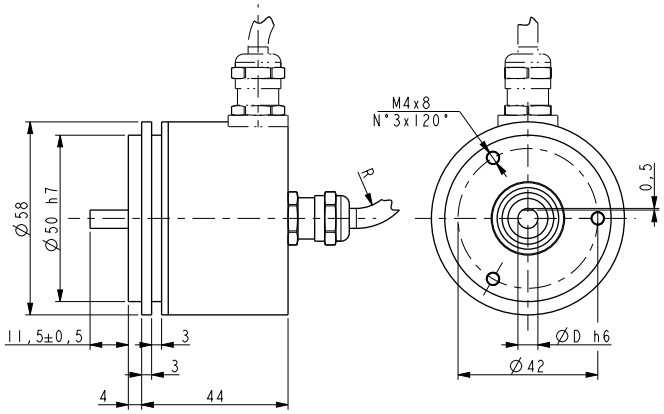
MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	100 N max.
Shaft rotational speed:	12000 rpm max.
Starting torque (at 20°C):	MM58: 0,15 Ncm (typical) MM58S: 0,40 Ncm (typical) MMCxx: 1 Ncm (typical)
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	cable output 1 m (3.3 ft)
Weight:	~ 450 g (15,8 oz)
Option:	• additional cable

ELECTRICAL SPECIFICATIONS	
Resolution:	1024 cpr x 32768 turns 2048 cpr x 16384 turns 4096 cpr x 8192 turns
Accuracy:	± 1°
Output circuits:	SSI (clock 500 kHz, Tp=64 µsec.)
Output code:	Gray, Binary
Counting frequency:	20 kHz max.
Start-up time:	200 msec.
Power supply:	+10Vdc +30Vdc
Output current:	20 mA max.
Protection:	against inversion of polarity, short-circuit
EMC:	electro-magnetic immunity, according to: EN-61000-4-2 EN-61000-4-4
Battery life:	10 years min.
Functions:	• Counting direction (input) • Electronic zero setting (input)

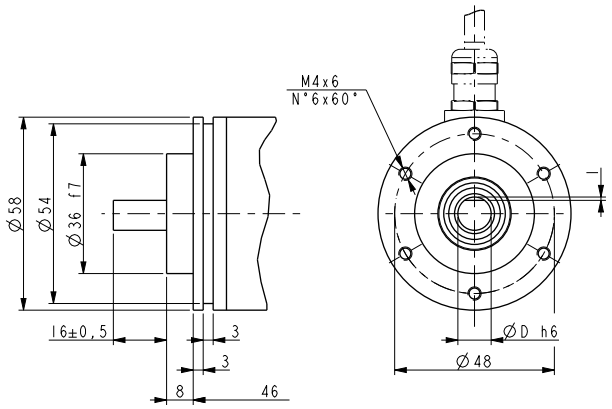
PREFERENTIAL MODEL	
MMC5812/8192GB-15-L1	SSI, 24 bit

MATERIALS	
Flange:	AISI 420, UNI EN 4021
Housing:	AISI 420, UNI EN 4021
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

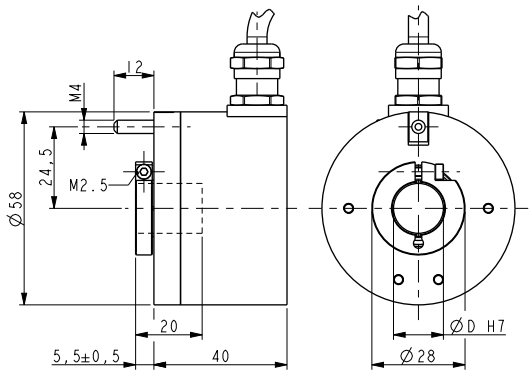
ACCESSORIES	
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
LKM-386:	fixing clamps



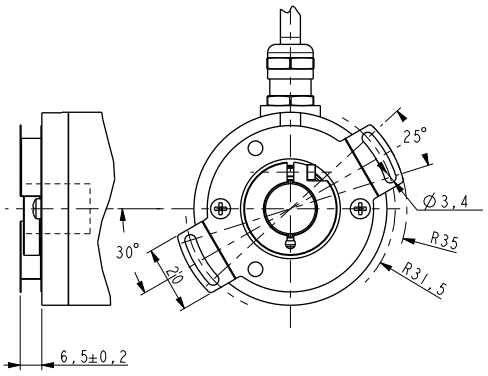
MM58



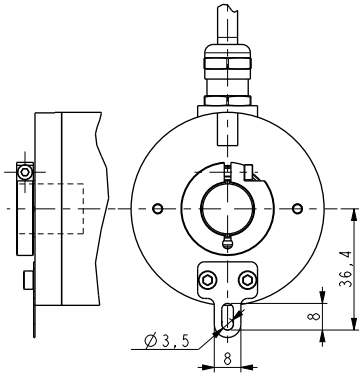
MM58S



MMC58



MMC59



MMC60

Order code

MM58 MM58S MMC58 MMC59 MMC60	XX/XXXXX ⓐ	XX ⓑ	-	XX ⓒ	-	X ⓓ	X ⓔ	XX ⓕ	/Sxxx ⓖ

ⓐ **RESOLUTION**
10/32768 = 1024 cpr x 32768 turns
11/16384 = 2048 cpr x 16384 turns
12/8192 = 4096 cpr x 8192 turns

ⓑ **OUTPUT**
BB = Binary, SSI LSB aligned
GB = Gray, SSI LSB aligned

ⓒ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52 mm, 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (only for MMCxx)
15 = 15 mm (only for MMCxx)

ⓓ **CONNECTOR POSITION**
- = axial (standard)
R = radial
(mandatory on MMCxx series)

ⓔ **PROTECTION**
- = IP65 (standard)
J = IP67 with sealed circuit

ⓕ **CABLE LENGTH**
L1 = cable output 1 m (standard)
L2 = cable output 2 m
Lx = cable output x m

ⓖ **CUSTOM VERSION**

ROTACOD
Absolute encoders

Series HM58 P • HM58S P • HMC58 P

- Programmable absolute encoder (via USB cable)
- Compact housing
- Max. resolution 262144 cpr x 16384 turns
- Programmable scaling factor & Teach-in function
- Free SSI parameters setting
- Roundloop function
- Bit parallel output available

HM58 P • HM58S P • HMC59 P

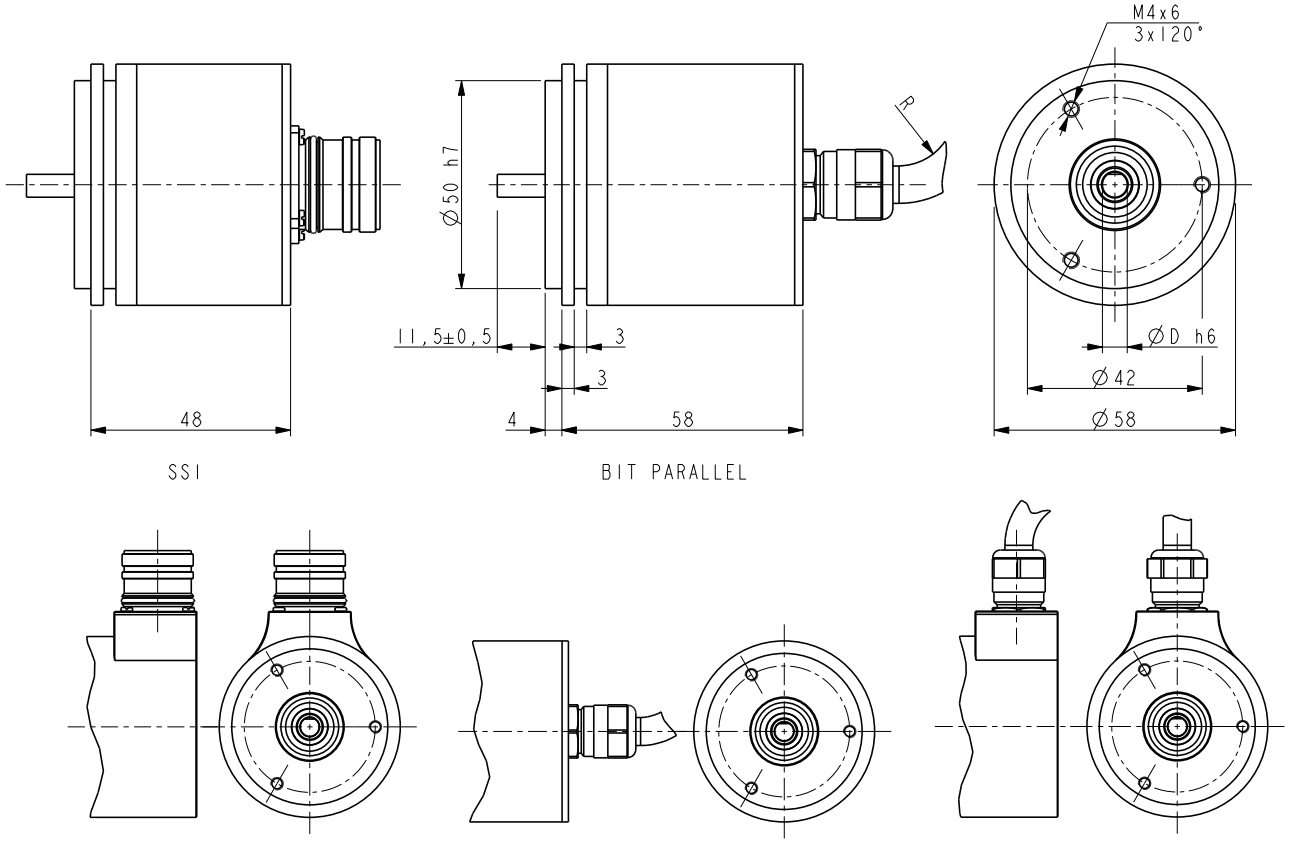
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Operating temperature range:	-40°C +85°C (-40°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)
Protection:	IP67, IP65 shaft side

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Solid shaft:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial and radial):	100 N max.
Shaft rotational speed:	12000 rpm, 9000 rpm continuous operation
Starting torque (at 20°C):	HM58: 0,15 Ncm (typical) HM58S, HMCxx: 0,40 Ncm (typical)
Bearing life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Weight:	~ 300 g (10,6 oz)
Electrical connections:	SSI: M12, M23 plug, MIL inline plug or cable output 1 m (3.3 ft) Bit parallel: MIL, DSub inline plug or cable output 1 m (3.3 ft)
Option:	• additional cable

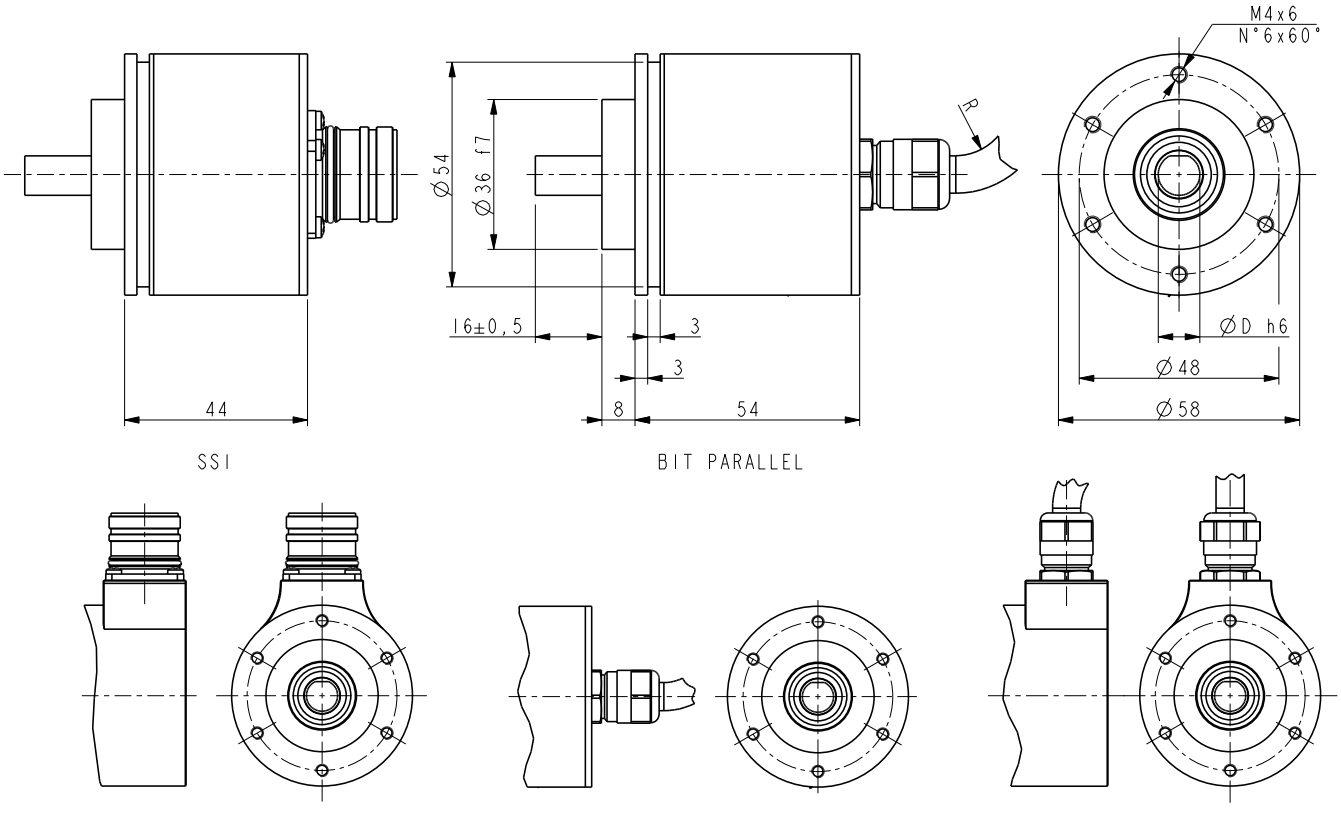
ELECTRICAL SPECIFICATIONS	
Resolution:	262144 cpr x 16384 turns programmable
Accuracy:	± 0,007°
Output code:	Gray, Binary, BCD
Power supply:	+10Vdc ÷ 30Vdc
Power consumption:	SSI: 1 W Bit parallel: 2,2 W
Output circuits:	SSI (RS422), Bit parallel Push-Pull, NPN
Counting frequency:	SSI: 150 kHz, Bit parallel: 30 kHz
Protection:	against inversion of polarity, short-circuit
EMC:	electro-magnetic immunity, according to: EN-61000-4-2 EN-61000-4-4
Optoelectronic life:	> 100.000 h
Functions:	• Programmable resolution • Teach-in of resolution • Counting direction (programmable + input) • Zero setting / Preset (programmable + input) • Parity bit (even/odd) • SSI protocol (alignment, clock, timing) • Latch, Tristate inputs

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

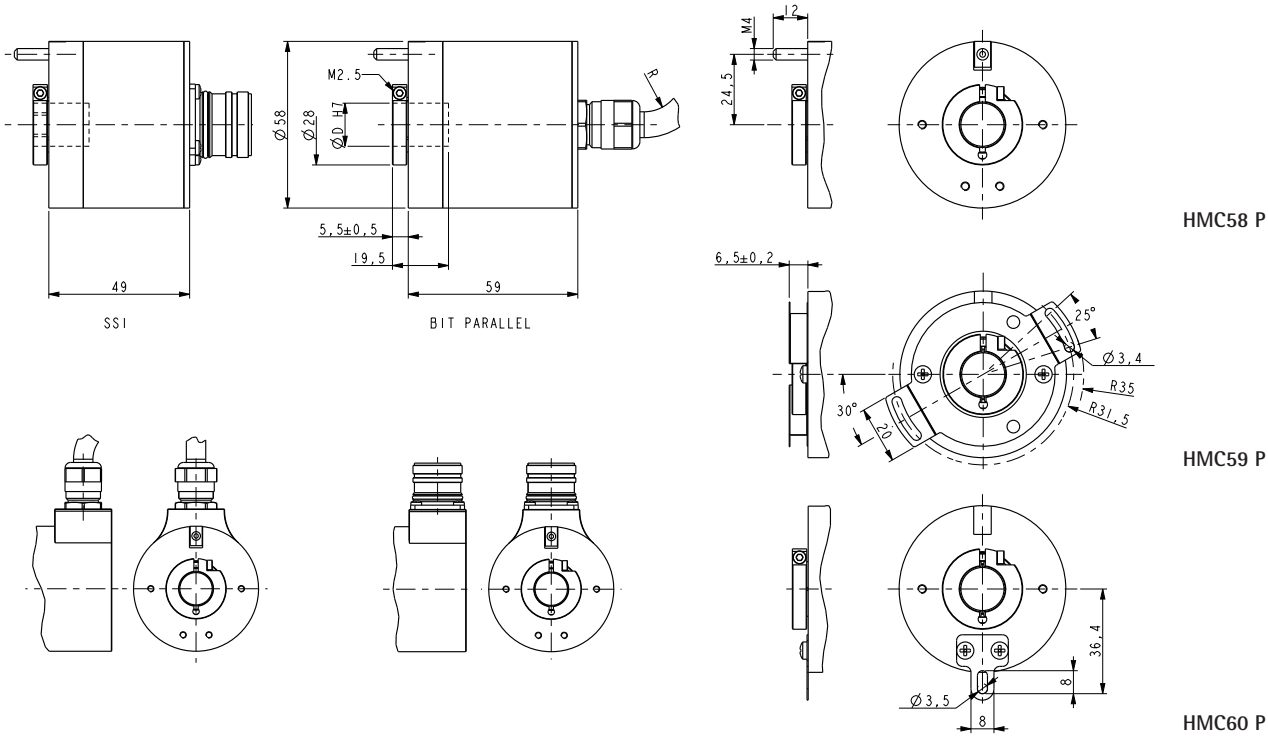
ACCESSORIES	
EPFL121H:	M23 12 pin mating connector
EM12F12:	M12 12 pin mating connector
E41MLS:	MIL 41 pin mating connector
E32MLS:	MIL 32 pin mating connector
E19MLS:	MIL 19 pin mating connector
E10MLS:	MIL 10 pin mating connector
E7MLS:	MIL 7pin mating connector
EDA 15S:	DSub 15 pin mating connector
EDB 25S:	DSub 25 pin mating connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
LKM-386:	fixing clamps



HM58 P



HM58S P



Order code - Bit parallel output

HM58 HM58S HMC58 HMC59 HMC60	XX/XXXXX ⓐ	XX ⓑ	-	XX ⓒ	-	X ⓓ	XX ⓔ	/Sxxx - /Pxxx ⓕ

ⓐ **RESOLUTION**
18/16384 = 262144 cpr x 16384 turns

ⓑ **OUTPUT**
PY = programmable, Push-Pull
PN = programmable, NPN

ⓒ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (HMCxx)
15 = 15 mm (HMCxx)

ⓓ **CONNECTION POSITION**
- = axial
R = radial

ⓔ **CONNECTIONS**
Lx = cable output x m
Y1 = 1 m cable + MIL 41 pin inline plug

with ⓕ = **/Pxxx**
Z1 = 1 m cable + DSub 15 pin inline plug
W1 = 1 m cable + DSub 25 pin inline plug
X1 = 1 m cable + MIL 19 pin inline plug
V1 = 1 m cable + MIL 32 pin inline plug
Ax = A19 cable x m
Bx = A32 cable x m

ⓕ
/Sxxx: Custom version
/Pxxx: Factory programmed encoder on customer request

Order code - SSI output

HM58 HM58S HMC58 HMC59 HMC60	XX/XXXXX ⓐ	XX ⓑ	-	XX ⓒ	-	X ⓓ	XX ⓔ	/Sxxx - /Pxxx ⓕ

ⓐ **RESOLUTION**
18/16384 = 262144 cpr x 16384 turns

ⓑ **OUTPUT**
PS = programmable, SSI

ⓒ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (HMCxx)
15 = 15 mm (HMCxx)

ⓓ **CONNECTION POSITION**
- = axial
R = radial

ⓔ **CONNECTIONS**
Lx = cable output x m
M2 = M23 12 pin plug
M = M12 12 pin plug

with ⓕ = **/Pxxx**
D1 = 1 m cable + MIL 7 pin inline plug
P1 = 1 m cable + MIL 10 pin inline plug
Cx = A8 cable x m

ⓕ
/Sxxx: Custom version
/Pxxx: Factory programmed encoder on customer request

ROTACOD
Absolute multi turn encoders

Series EM58 TA • EM58S TA • EMC58 TA

- Accurate analogue conversion
- Multiple voltage and current outputs
- Teach-in of travel length by push buttons
- Overrun function
- M12 or cable connection

EM58 TA • EM58S TA • EMC58 TA

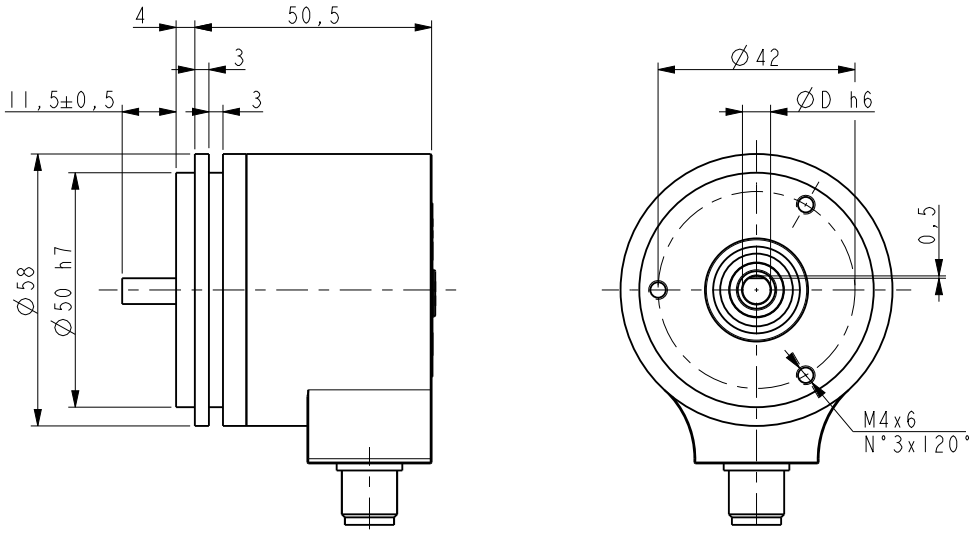
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	100 N max.
Shaft rotational speed:	12000 rpm, 9000 rpm continuous operation
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	M12 plug or cable output 2 m (6.56 ft)
Weight:	~ 250 g (8,8 oz)
Option:	• additional cable

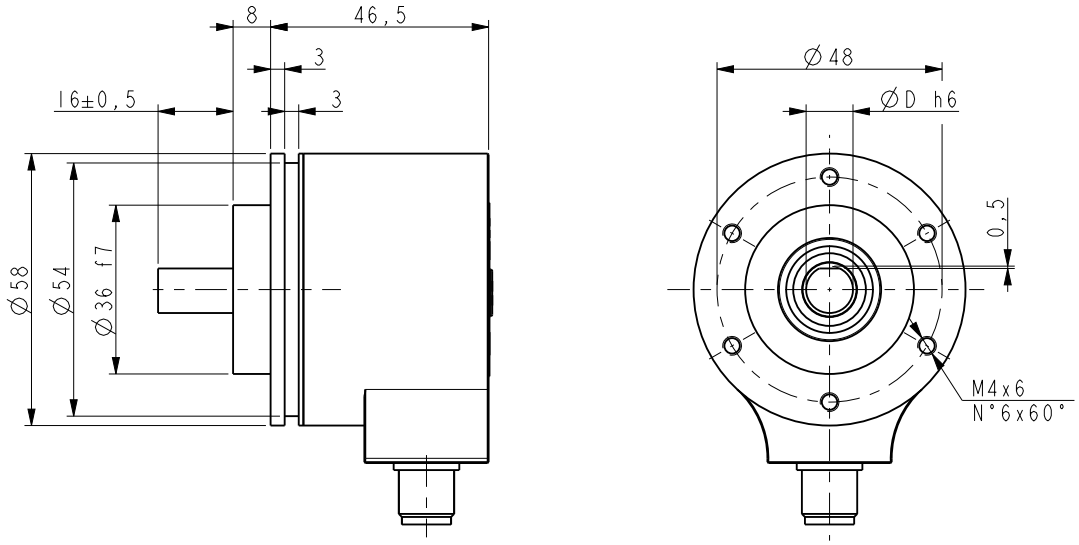
ELECTRICAL SPECIFICATIONS	
Resolution:	4096 cpr x 16384 turns max. (programmable with Teach-in)
Accuracy:	± 0,04° - D/A 16 bit conversion
Output:	0-5V, 0-10V, +/-5V, +/-10V, 4-20mA, 0-20mA, 0-24mA
Counting frequency:	> 150 kHz
Power supply:	+13Vdc ÷ 30Vdc
Power consumption:	1.3 W max.
Start-up time:	~ 40 ms
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	> 100.000 h
Functions:	• Teach-in of travel length • Overrun

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

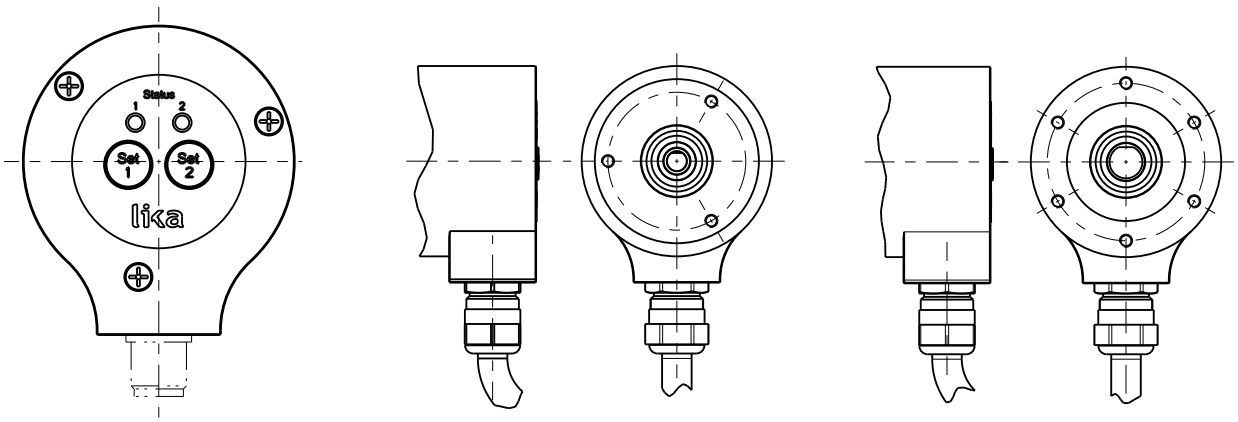
ACCESSORIES	
E-M12FC:	M12 5 pin connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
LKM-386:	fixing clamps

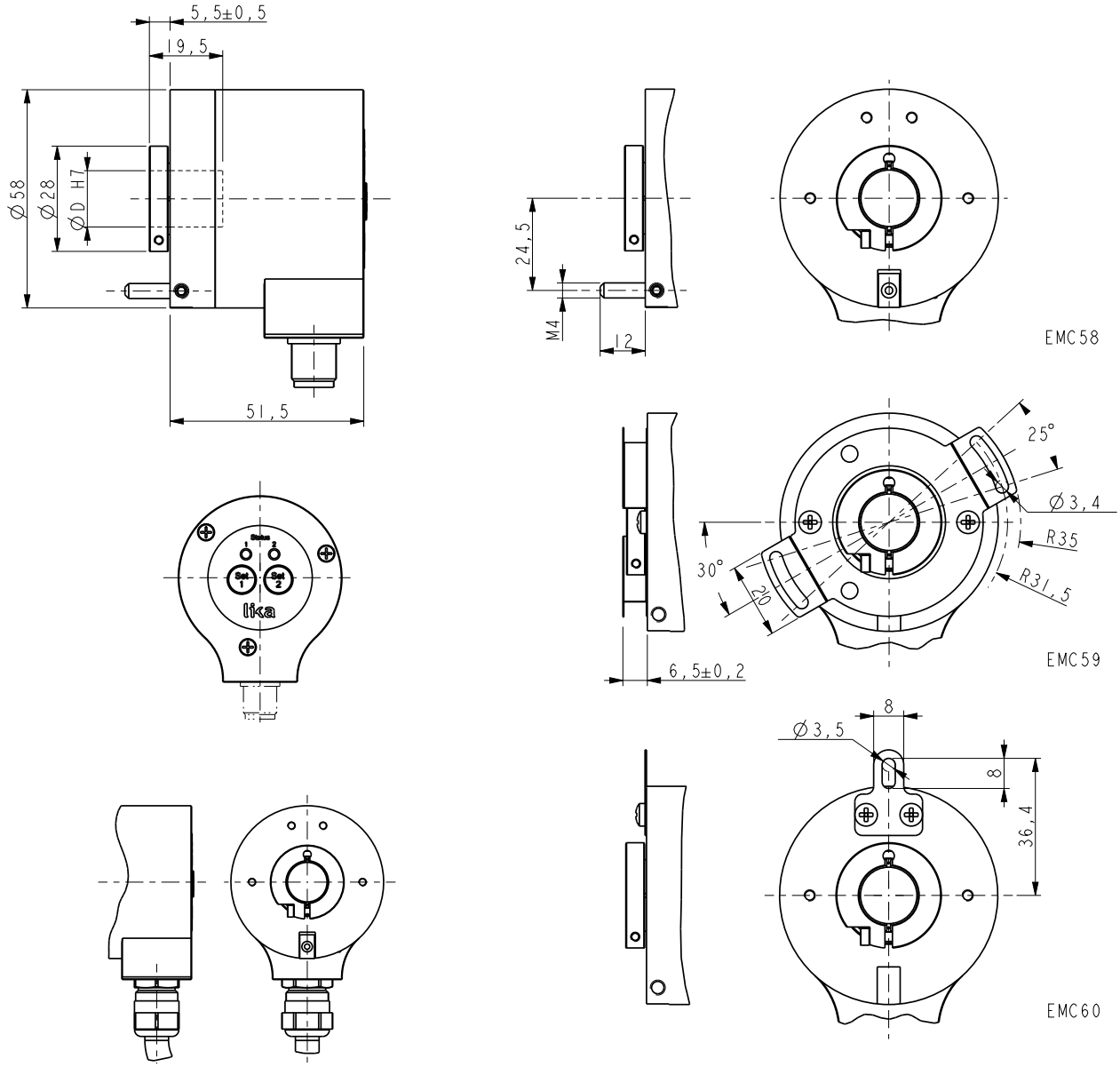


EM58 TA



EM58S TA





Order code

EM58 EM58S EMC58 EMC59 EMC60	XX ⓐ	/	XXXXX ⓑ	XXX ⓒ	-	XX ⓓ	-	X ⓔ	XX ⓕ	/Sxxx ⓖ

ⓐ **RESOLUTION**
12 = 4096 cpr

ⓑ **REVOLUTIONS**
16384 = 16384 turns

ⓒ **OUTPUT**
TI1 = 4-20 mA
TI2 = 0-20 mA
TI3 = 0-24 mA
TV1 = 0-5V
TV2 = 0-10V
TV3 = +/- 5V
TV4 = +/- 10V

ⓓ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (only EMCxx)
15 = 15 mm (only EMCxx)

ⓔ **CONNECTION POSITION**
R = radial

ⓕ **CONNECTIONS**
L2 = cable output 2 m (standard)
L5 = cable output 5 m
L10 = cable output 10 m
M = M12 5 pin plug

ⓖ **CUSTOM VERSION**

ROTACOD

Absolute encoder with analogue output

Series AS58 A • AM58 A

- Optical encoder with analogue output
- Accurate sensing and D/A conversion
- 0-5/10V, ±5/10V, 0-20mA, 4-20mA, 0-24mA
- Compact dimensions
- Cable, M12 or M23 connections

AS58 A • AM58S A

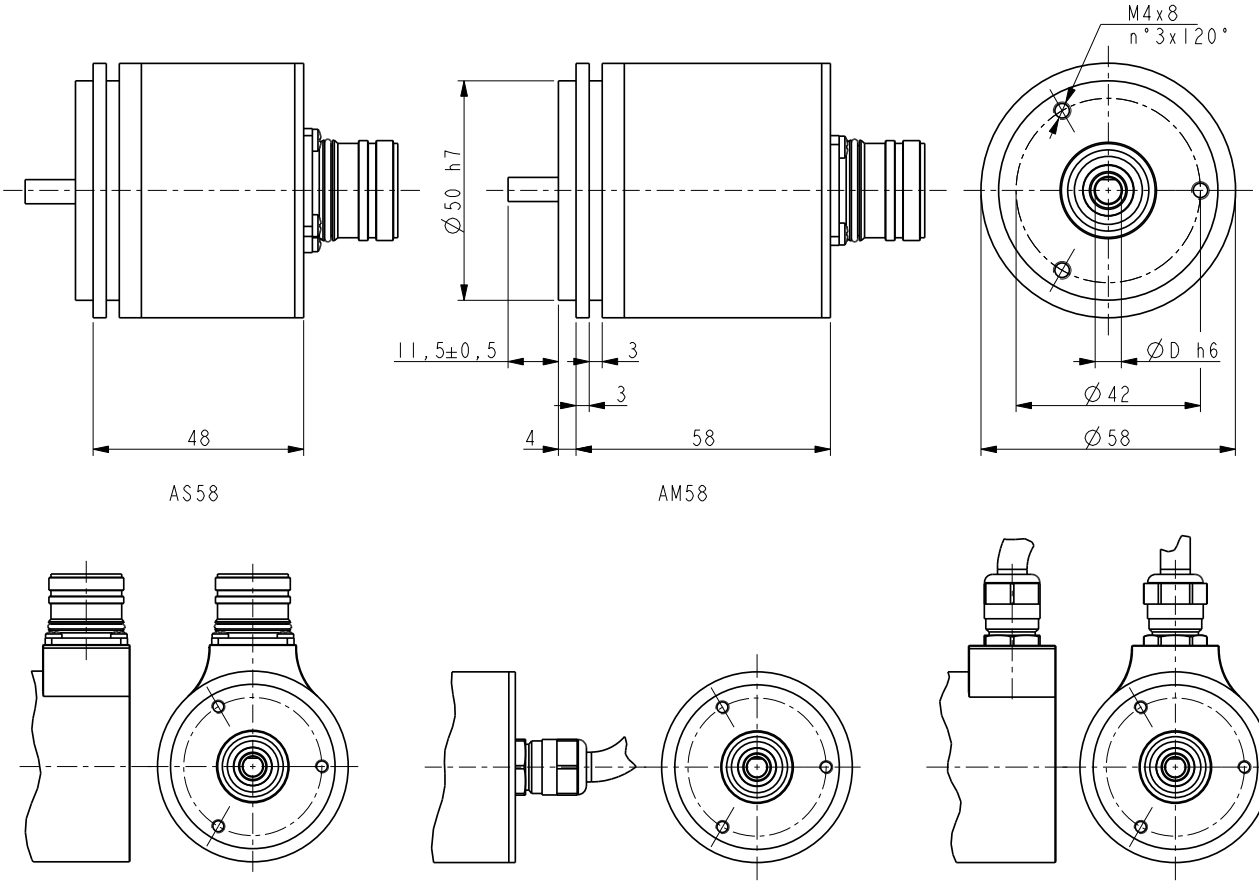
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	100 N max.
Shaft rotational speed:	12000 rpm, 9000 rpm continuous operation
Bearing life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	M12, M23 plug or cable output 2 m (6.56 ft)
Weight:	~ 250 g (8,8 oz)
Option:	• additional cable

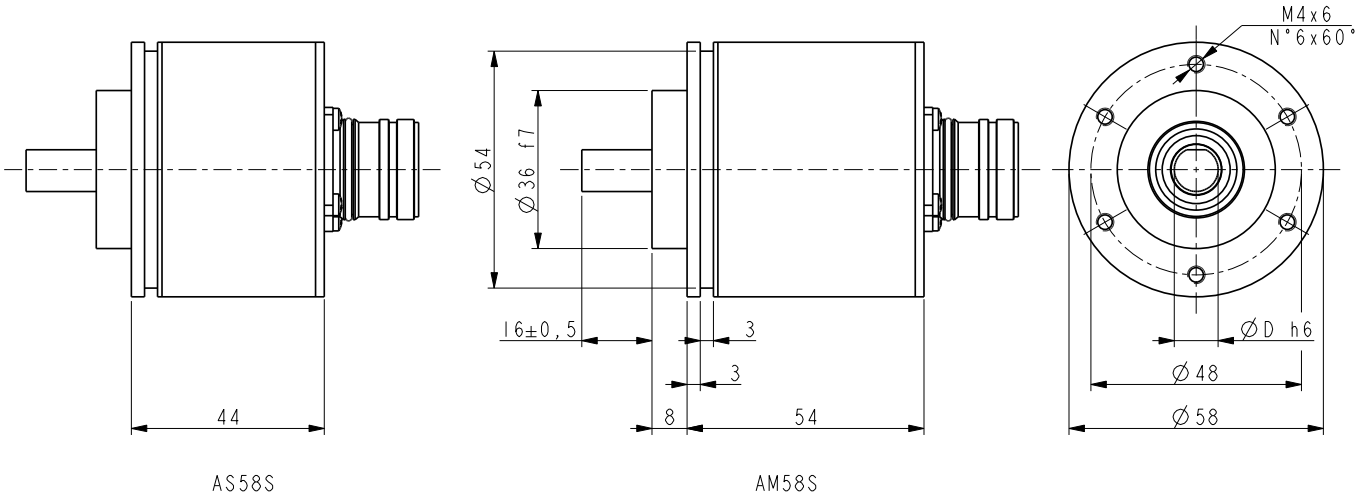
ELECTRICAL SPECIFICATIONS	
Resolution:	AS: 12 bit AM: 16 bit
Accuracy:	± 0,04°
Output circuits:	0-5V, 0-10V, -5/+5V, -10/+10V, 0-20mA, 4-20mA, 0-24mA
Counting frequency:	> 150 kHz
Power supply:	+13Vdc ÷ 30Vdc
Power consumption:	1, 3 W max.
Start-up time:	~ 40 ms
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	> 100.000 h
Functions:	• Counting direction (input) • Zero setting (input)

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

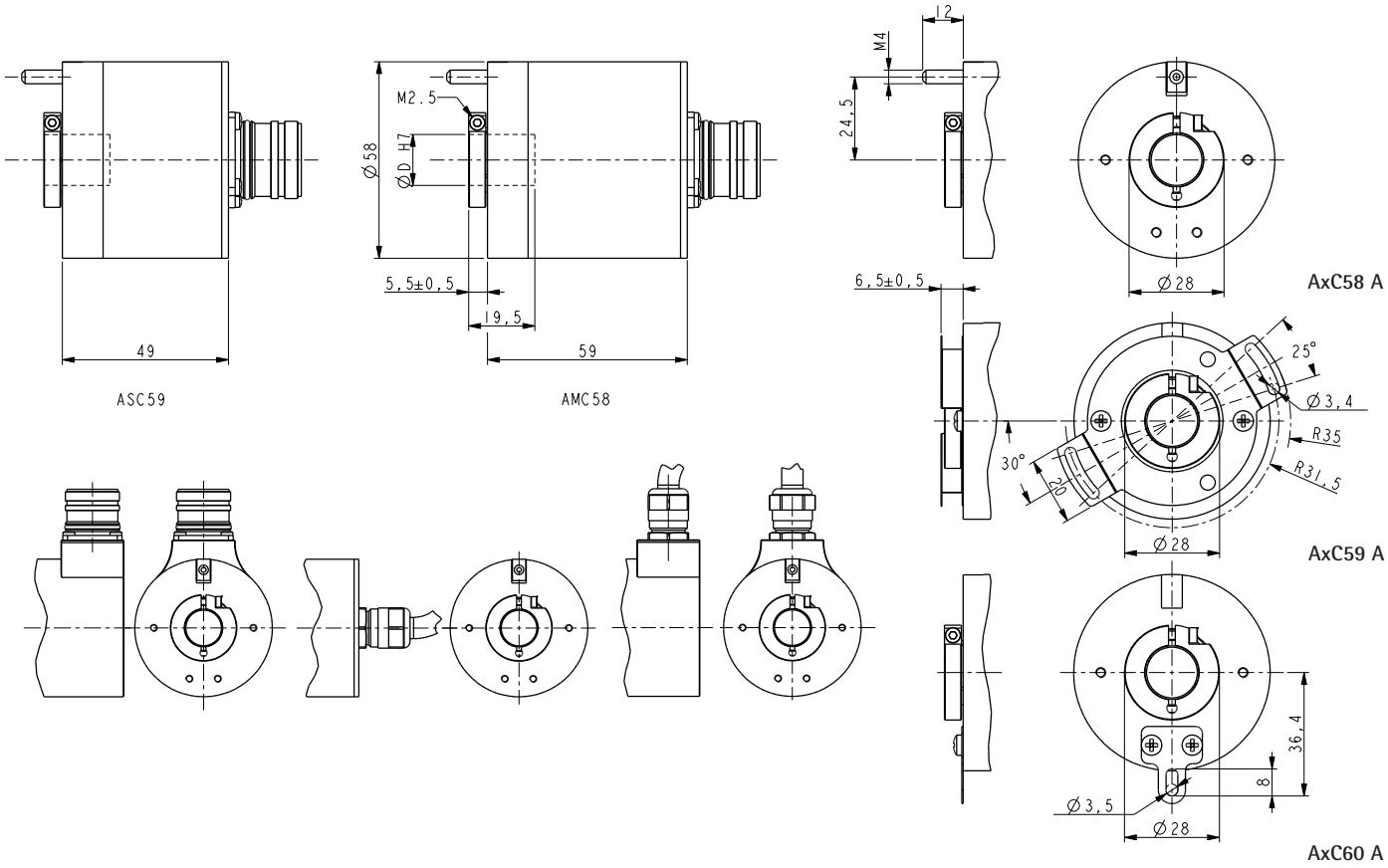
ACCESSORIES	
EPFL121H:	12 pin M23 mating connector
EM12F8:	8 pin M12 mating connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
EC-M12F8-LK-M8-xx:	M12 cordset with xx m cable
EC-CR12F-S28-T12-xx:	M23 cordset with xx m cable
LKM-386:	fixing clamps



AS58 A - AM58 A



AS58S A - AM58S A



Order code - Single turn

AS58 AS58S ASC58 ASC59 ASC60	12 ⓐ	/	XXX ⓑ	-	XX ⓒ	-	X ⓓ	XX ⓔ	/Sxxx ⓕ

ⓐ RESOLUTION
12 = 12 bit

ⓑ OUTPUT
AI1 = 4-20mA
AI2 = 0-20mA
AI3 = 0-24mA
AV1 = 0-5V
AV2 = 0-10V
AV3 = -5/+5V
AV4 = -10/+10V

ⓒ SHAFT DIAMETER
6 = 6 mm
8 = 8 mm
P9 = 9.52 mm, 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (only ASCxx)
15 = 15 mm (only ASCxx)

ⓓ CONNECTION POSITION
- = axial
R = radial

ⓔ CONNECTIONS
L2 = cable output 2 m (standard)
Lx = cable output x m
M = M12, 8 pin plug
M2 = M23, 12 pin plug

ⓕ CUSTOM VERSION

Order code - Multi turn

AM58 AM58S AMC58 AMC59 AMC60	XX/XXXX ⓐ	XXX ⓑ	-	XX ⓒ	-	X ⓓ	XX ⓔ	/Sxxx ⓕ

ⓐ RESOLUTION
12/2 = 2 turns
12/4 = 4 turns
12/16 = 16 turns
10/64 = 64 turns
8/256 = 256 turns
6/1024 = 1024 turns
4/4096 = 4096 turns

ⓑ OUTPUT
AI1 = 4-20mA
AI2 = 0-20mA
AI3 = 0-24mA
AV1 = 0-5V
AV2 = 0-10V
AV3 = -5/+5V
AV4 = -10/+10V

ⓒ SHAFT DIAMETER
6 = 6 mm
8 = 8 mm
P9 = 9.52 mm, 3/8"
10 = 10 mm
12 = 12 mm
14* = 14 mm (only AMCxx)
15* = 15 mm (only ACxx)

ⓓ CONNECTION POSITION
- = axial
R = radial

ⓔ CONNECTIONS
L2 = cable output 2 m
Lx = cable output x m
M = M12, 8 pin plug
M2 = M23, 12 pin plug

ⓕ CUSTOM VERSION

ROTACOD

Absolute multi turn encoders

Series EM58 PA • EM58S PA • EMC58 PA

- Programmable analogue output
- 0-5V, 0-10V, -5/+5V, -10/+10V, 4-20mA, 0-20mA, 0-24mA
- Multi turn up to 16384 rev.
- Programmable overrun mode
- RS232 service interface
- Programmable via USB cable

EM58 PA • EM58S PA • EMC59 PA

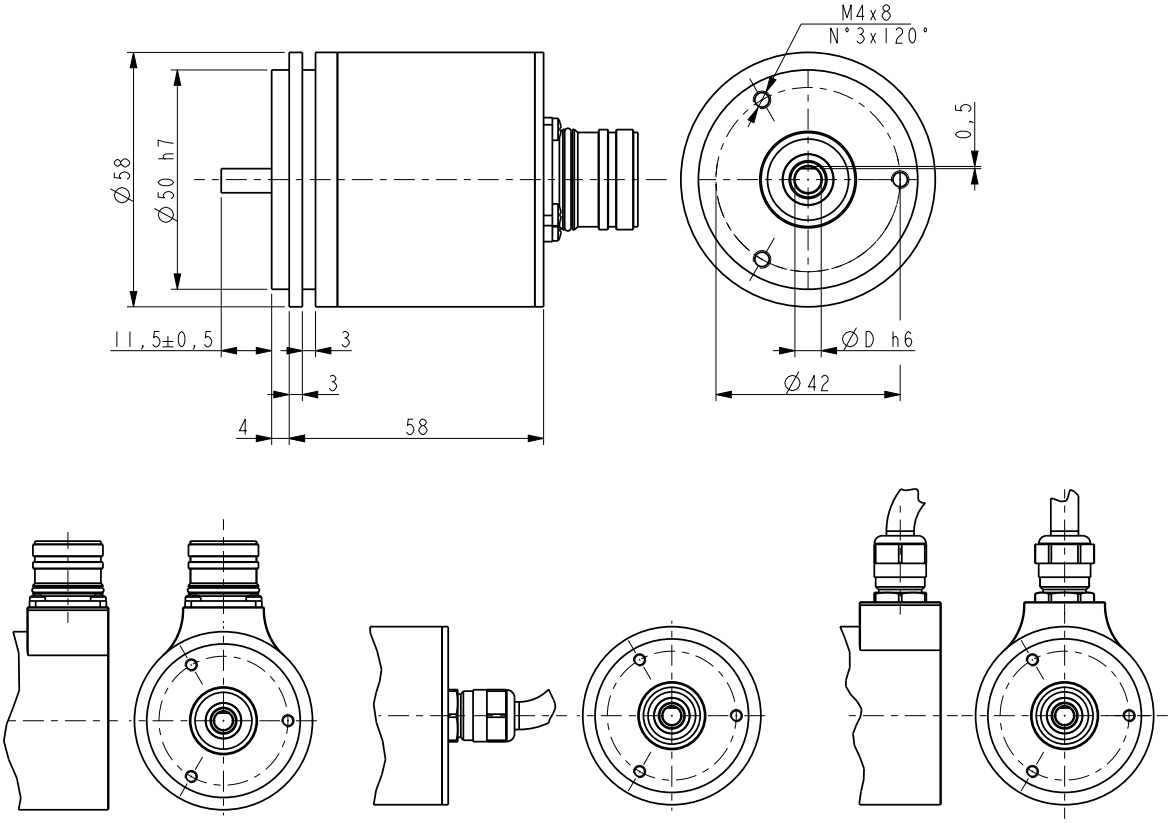
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	100 N max.
Shaft rotational speed:	12000 rpm, 9000 rpm continuous operation
Bearing life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	M12, M23 plug or cable output 2 m (6.56 ft)
Weight:	~ 300 g (10,6 oz)
Option:	• additional cable

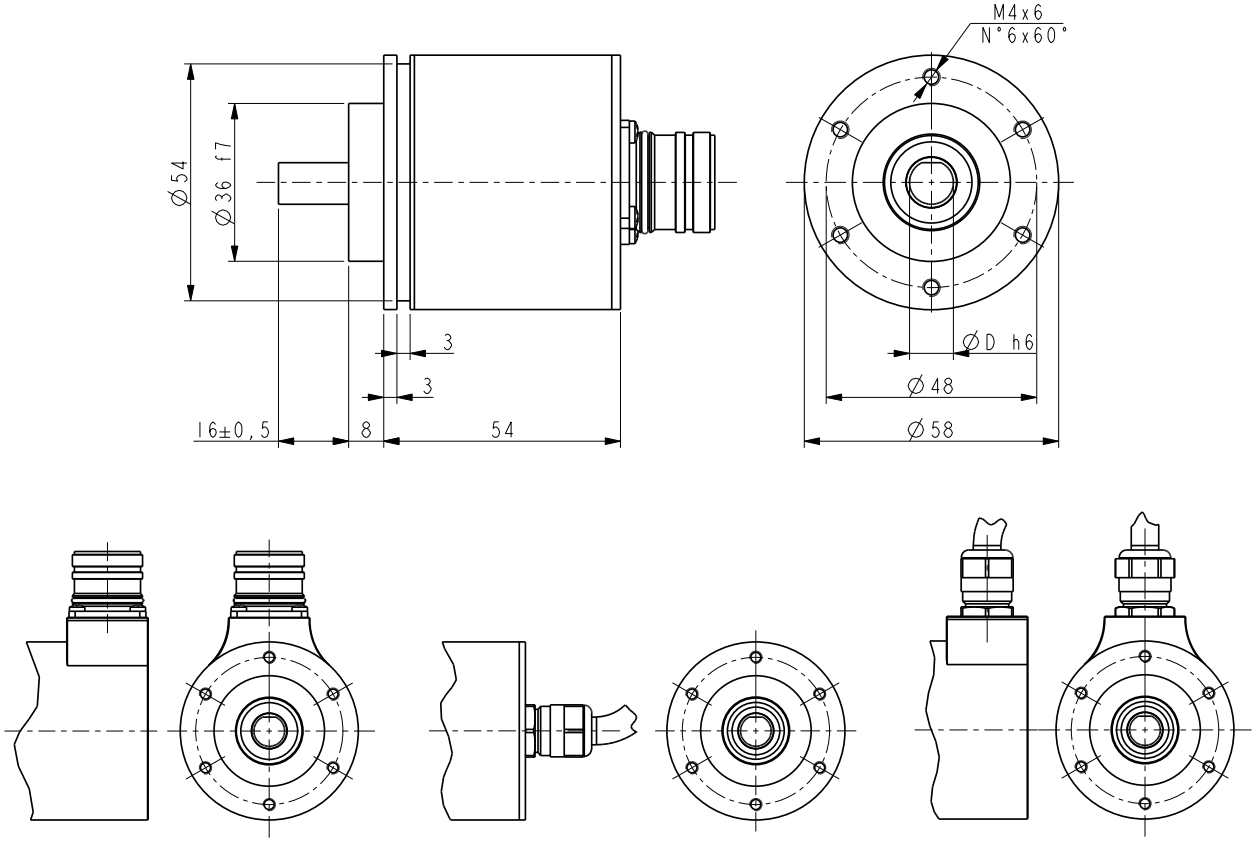
ELECTRICAL SPECIFICATIONS	
Resolution:	4096 cpr x 16384 turns
Accuracy:	± 0,04°
Output circuits:	programmable 0-5V, 0-10V, -5/+5V, -10/+10V, 4-20mA, 0-20mA, 0-24mA
Counting frequency:	> 150 kHz
Power supply:	+13Vdc ÷ 30Vdc
Power consumption:	1,3 W max.
Start-up time:	~ 40 ms
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	> 100.000 h
Functions:	• Programmable resolution • Teach-in of resolution • Counting direction (programmable + input) • Zero setting (programmable + input) • Programmable overrun

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

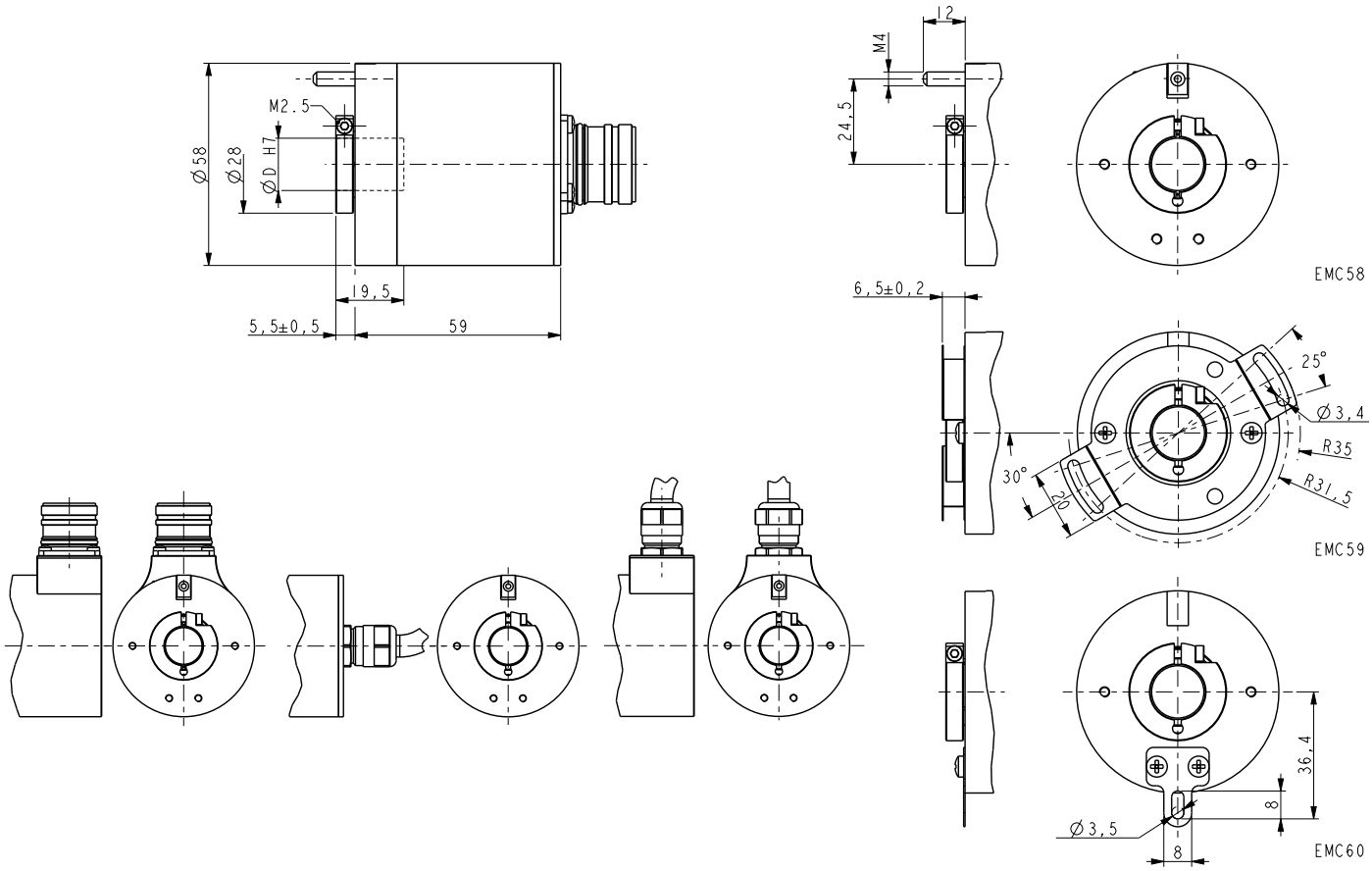
ACCESSORIES	
EPFL121H:	M23 12 pin connector
E-M12F12:	M12 12 pin connector
PAN/PGF:	flexible couplings
BR1:	reducing sleeves
EC-M12F12-LK-T12-xx:	M12 cordset with xx m cable
EC-CR12F-S28-T12-xx:	M23 cordset with xx m cable
LKM-386:	fixing clamps



EM58 PA



EM58S PA



Order code

EM58 EM58S EMC58 EMC59 EMC60	XX ⓐ	/	XXXXX ⓑ	XX ⓒ	-	XX ⓓ	-	X ⓔ	XX ⓕ	/Sxxx - /Pxxx ⓖ

ⓐ **RESOLUTION**
12 = 4096 cpr

ⓑ **REVOLUTIONS**
16384 = 16384 turns

ⓒ **OUTPUT**
PA = Programmable analogue

ⓓ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (EMCxx)
15 = 15 mm (EMCxx)

ⓔ **CONNECTION POSITION**
- = axial
R = radial

ⓕ **CONNECTIONS**
L2 = cable output 2 m (standard)
L5 = cable output 5 m
L10 = cable output 10 m
M = M12, 12 pin plug
M2 = M23, 12 pin plug

ⓖ
/Sxxx: Custom version
/Pxxx: Factory programmed encoder on customer request

ROTACAM

Encoder with integrated cam programmer

Series ASR58 • AMR58

- Absolute encoder with integrated cam switch programmer
- Single- and multiturn version
- Up to 16 digital real-time outputs
- Allows to store up to 16 programs/recipes
- SSI position output, Profibus on request
- Optional programmable analogue output

ASR58 • AMR58

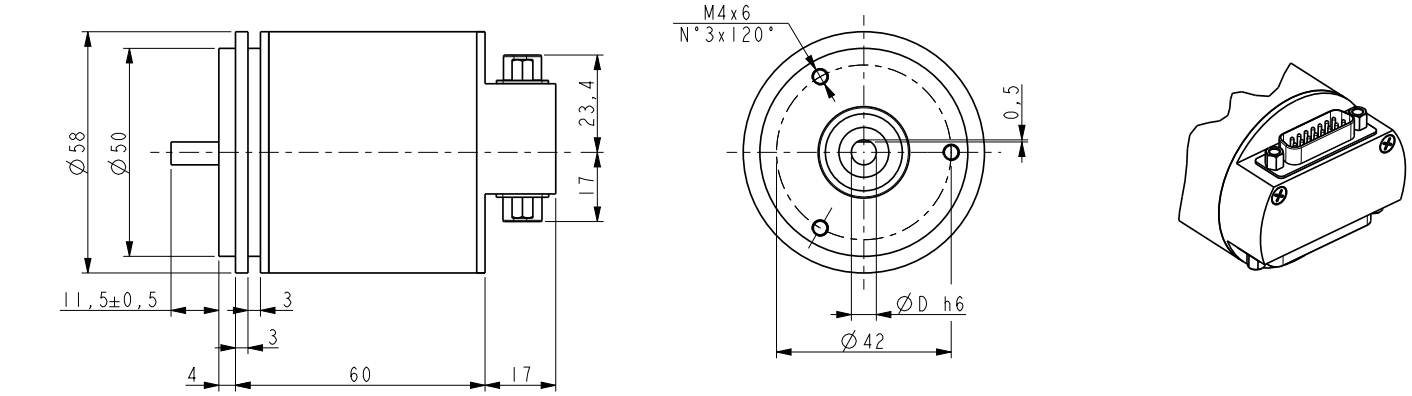
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-25°C +85°C (-13°F +185°F) (98% R.H.without condensation)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Hollow shaft diameter:	Ø 14, 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	100 N max.
Shaft rotational speed:	6000 rpm max.
Bearings life:	400 x10^6 rev. min. (10^9 rev. min. with 20 N shaft loading max.)
Electrical connections:	ASR58: DSub 15 + 25 pin plug or cable 1 m (3.3 ft) AMR58: MIL 32 pin plug or cable 1 m (3.3 ft)
Weight:	~ 250 g (8,8 oz)
Option:	• additional cable

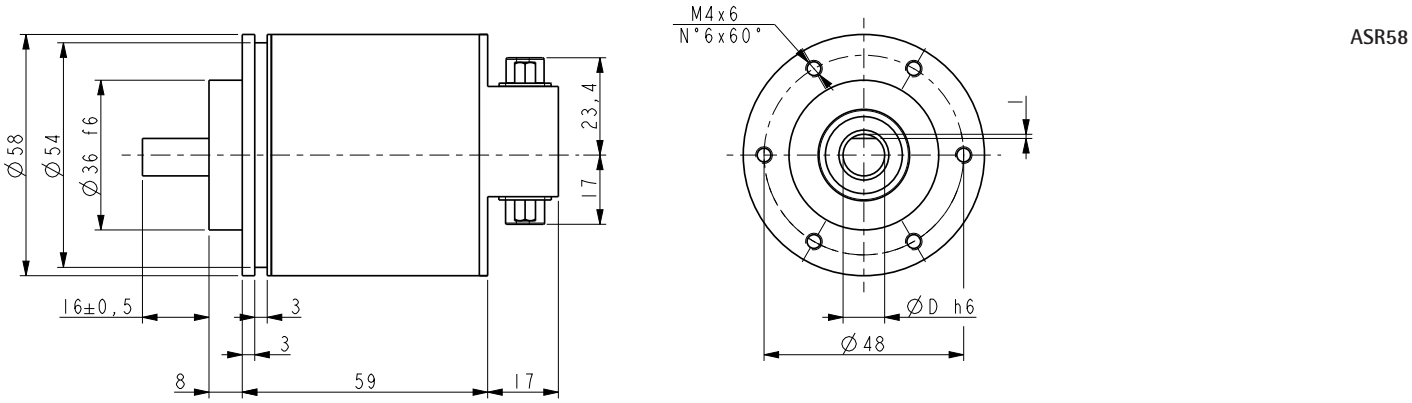
ELECTRICAL SPECIFICATIONS	
Resolution:	ASR58: 3600 cpr / 0.1° AMR58: 4096 cpr x 256 turns / 0,09°
Nr. of cams per program:	120
Nr. of selectable programs/recipes:	16
Outputs:	ASR: 16 x Push-Pull outputs (100 mA), analogue (see option) AMR: 8 x Push-Pull outputs (80 mA), SSI MSB aligned
Diagnostics:	Error signal indicating output status
Cam switching time:	ASR ~1 µs, AMR ~10 µs
Power supply:	+10V +30V
Power consumption:	ASR: 2 W, AMR: 2,5 W
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	100.000 h min.
Option:	ASR58: analogue output (freely programmable on OUT1)

MATERIALS	
Flange:	anticorodal, EN AW-6082
Housing:	anticorodal, EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non-magnetic - UNI EN 4305
Light source:	GaAl diodes

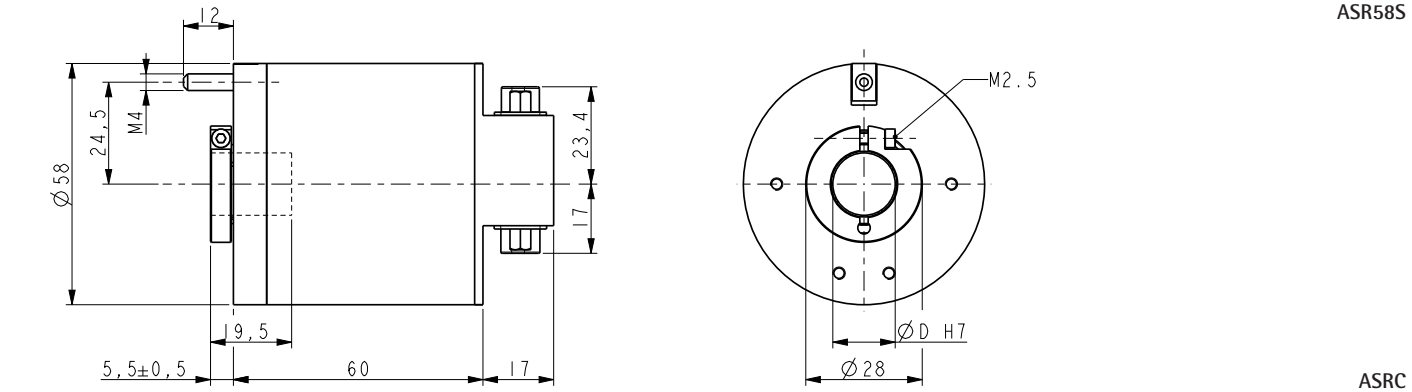
ACCESSORIES	
EDB 25S:	25 pin DSub mating connector
EDA 15S:	15 pin DSub mating connector
E32MLS:	32 pin MIL mating connecor
KIT xx59:	fixing plate for ASRC, AMRC
KIT xx60:	fixing plate for ASRC, AMRC
KIT-ASR58:	connection Kit ASR > PC
KIT-AMR58:	connection Kit AMR > PC
PAN/PGF:	flexible couplings
LKM-386:	fixing clamps



ASR58



ASR58S



ASRC

Order code - Single turn

ASR58 ASR58S ASRC	XX ⓐ	-	XX ⓑ	XX ⓒ	XX ⓓ	/Sxxx ⓔ

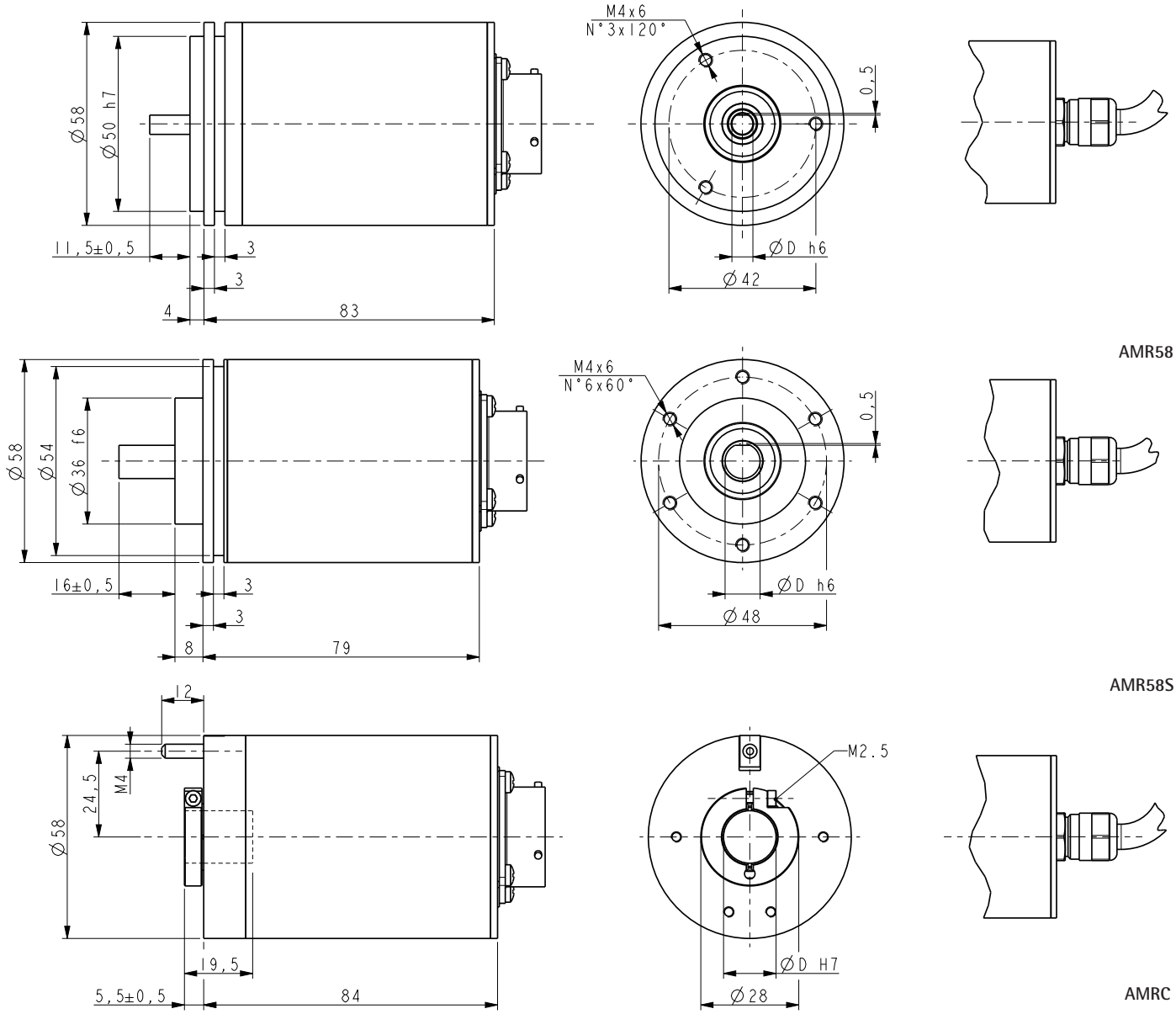
ⓐ RESOLUTION
81 = 3600 cpr

ⓑ SHAFT DIAMETER
6 = 6 mm
8 = 8 mm
P9 = 9.52 mm, 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (only ASRC)
15 = 15 mm (only ASRC)

ⓒ CONNECTIONS
- = DSub plugs
L1 = cable output 1 m
Lx = cable output x m

ⓓ ANALOGUE OUTPUT
- = no analogue output (standard)
A1 = analogue output 0-10V
A2 = analogue output 0-5V
A3 = analogue output -5V +5V

ⓔ CUSTOM VERSION



Order code - Multi turn

AMR58 AMR58S AMRC	XX/XXX ⓐ	XX ⓑ	-	XX ⓒ	XX ⓓ	/Sxxx ⓔ

ⓐ **TOTAL RESOLUTION**
12/256 = 4096 cpr x 256 turns

ⓑ **OUTPUT**
CS = Cam switch + SSI

ⓒ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52 mm, 3/8"
10 = 10 mm
12 = 12 mm
14 = 14 mm (only AMRC)
15 = 15 mm (only AMRC)

ⓓ **CONNECTIONS**
V = MIL 32 pin plug
L1 = cable output 1 m
Lx = cable output x m

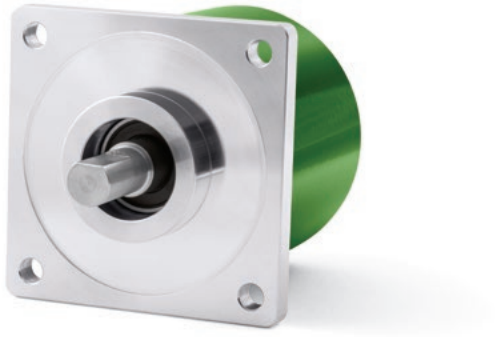
ⓔ **CUSTOM VERSION**

ROTACOD

Absolute multi turn encoders

Series AST6 • AMT6

- US standard optical encoders
- Single turn up to 13 bit (8192 cpr) and multi turn up to 13x14 bit (8192 x 16384)
- Additional incremental track
- High degree of protection, IP67
- BCD output code on request



AST6 • AMT6

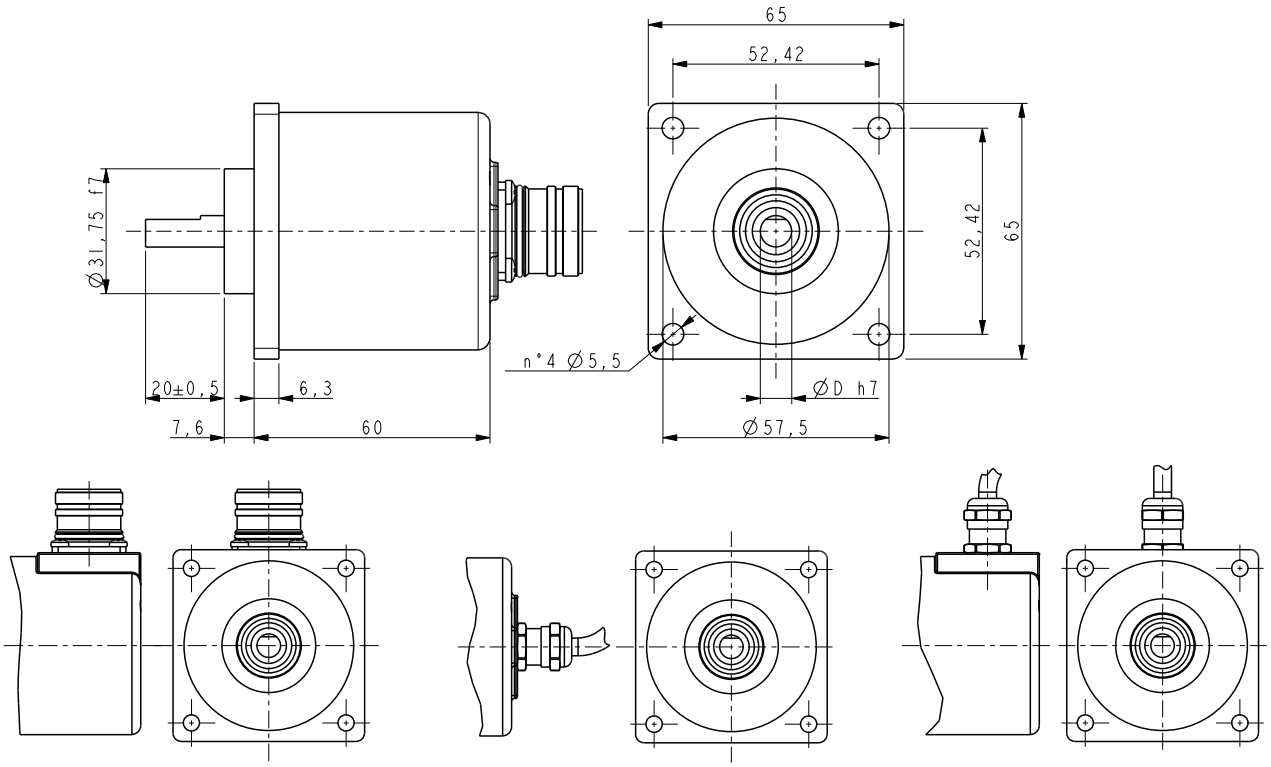
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP67, IP65 shaft side
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F) (98% R.H. without condensation)
Options:	• Operating temperature range: -40°C +100°C (-40°F +212°F) • IP66 protection shaft side

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 6, 8, 9.52, 10, 12 mm
Shaft loading (axial, radial):	100 N max.
Shaft rotational speed:	6000 rpm max.
Starting torque (at 20°C):	≤ 1,5 Ncm (typical)
Bearings life:	400x10^{6}rev. min. (10^{9}rev. min. with shaft loading of 20 N max.)
Electrical connections:	M23 or MIL plug, MIL 32 pin inline plug or cable output 1 m (3.3 ft)
Weight:	~ 400 g (14,1 oz)
Option:	• additional cable

ELECTRICAL SPECIFICATIONS	
Resolution:	single turn = 1024, 4096, 8192 cpr multi turn = 4096, 16384 turns
Accuracy:	± 0,04°
Output circuits:	SSI (RS422), Bit parallel Push-Pull, NPN
Output code:	Gray, Binary
Counting frequency:	> 150 kHz
Power supply:	+7,5Vdc ÷ 34Vdc
Power consumption:	SSI: 1 W max., Bit parallel: 1,7 W max.
Protection:	against inversion of polarity and short-circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	> 100.000 h
Functions:	• counting direction (input) • Zero setting/Preset (input)

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	zamac die cast
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305

ACCESSORIES	
EPFL121H:	M23 12 pin connector
EPFL171H:	M23 17 pin connector
E10MLS:	MIL 10 pin connector
E19MLS:	MIL 19 pin connector
E32MLS:	MIL 32 pin connector
PAN/PGF:	flexible couplings
EC-CR12F-S28-T12-xx:	M23 cordset with xx m cable



AST6

Order code - Bit parallel output

AST6	XX ⓐ	/	XX ⓑ	-	XX ⓒ	-	X ⓓ	X ⓔ	X ⓕ	XXX ⓖ	/Sxxx ⓗ

ⓐ **RESOLUTION**
10 = 1024 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **OUTPUT**
BY = Binary, Push-Pull
GY = Gray, Push-Pull
BN = Binary, NPN
GN = Gray, NPN
(BCD on request)

ⓒ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm

ⓓ **OPERATING TEMPERATURE RANGE**
- = -25°C +85°C (-13°F +185°F)
K = -40°C +100°C (-40°F +212°F)

ⓔ **CONNECTION POSITION**
- = axial
R = radial

ⓕ **PROTECTION**
- = IP65 shaft side
Q = IP66 shaft side

ⓖ **CONNECTIONS**
L1 = cable output 1 m (standard)
L5 = cable output 5 m
Lx = cable output x m
M2 = M23 17 pin plug
X = MIL 19 pin plug
Z1 = 1 m cable + DSub 15 pin plug

ⓗ **CUSTOM VERSION**

Order code - SSI output

AST6	XX ⓐ	/	XX ⓑ	-	XX ⓒ	-	X ⓓ	X ⓔ	X ⓕ	XX ⓖ	/Sxxx ⓗ

ⓐ **RESOLUTION**
10 = 1024 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **OUTPUT**
BS = Binary, SSI tree format
BA = Binary, SSI LSB aligned
GS = Gray, SSI tree format
GA = Gray, SSI LSB aligned
G5 = Gray, SSI tree format + 1024 PPR AB /AB Push-Pull

ⓒ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm

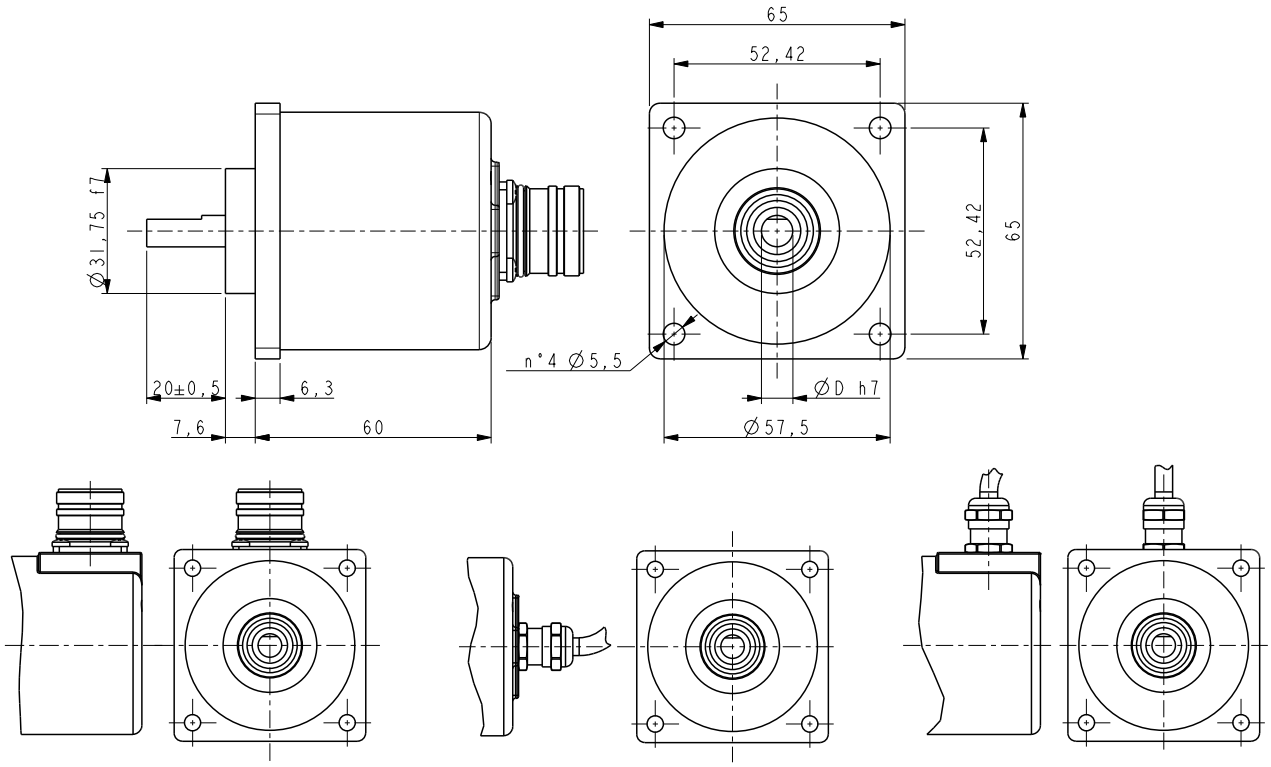
ⓓ **OPERATING TEMPERATURE RANGE**
- = -25°C +85°C (-13°F +185°F)
K = -40°C +100°C (-40°F +212°F)

ⓔ **CONNECTION POSITION**
- = axial
R = radial

ⓕ **PROTECTION**
- = IP65 shaft side
Q = IP66 shaft side

ⓖ **CONNECTIONS**
L1 = cable output 1 m (standard)
L5 = cable output 5 m
Lx = cable output x m
CP = MIL 10 pin plug
M2 = M23 12 pin plug

ⓗ **CUSTOM VERSION**



AMT6

Order code - Bit parallel output

AMT6	XX ⓐ	/	XXXX ⓑ	XX ⓒ	-	XX ⓓ	-	X ⓔ	X ⓕ	X ⓖ	XXX ⓗ	/Sxxx ⓘ

ⓐ **RESOLUTION**
10 = 1024 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **REVOLUTIONS**
4096 = 4096 turns
16384 = 16384 turns

ⓒ **OUTPUT**
BY = Binary, Push-Pull
GY = Gray, Push-Pull
BN = Binary, NPN
GN = Gray, NPN
BCD on request

ⓓ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm

ⓔ **OPERATING TEMP. RANGE**
- = -25°C +85°C (-13°F +185°F)
K = -40°C +100°C (-40°F +212°F)

ⓕ **CONNECTION POSITION**
- = axial
R = radial

ⓖ **PROTECTION**
- = IP65 shaft side
Q = IP66 shaft side

ⓗ **CONNECTIONS**
L1 = cable output 1 m
L5 = cable output 5 m
L10 = cable output 10 m
Lx = cable output x m
V = MIL 32 pin plug

ⓘ **CUSTOM VERSION**

Order code - SSI output

AMT6	XX ⓐ	/	XXXX ⓑ	XX ⓒ	-	XX ⓓ	-	X ⓔ	X ⓕ	X ⓖ	XX ⓗ	/Sxxx ⓘ

ⓐ **RESOLUTION**
10 = 1024 cpr
12 = 4096 cpr
13 = 8192 cpr

ⓑ **REVOLUTIONS**
4096 = 4096 turns
16384 = 16384 turns
(16384 only with SSI LSB aligned)

ⓒ **OUTPUT**
BS = Binary, SSI tree format
BA = Binary, SSI LSB aligned
GS = Gray, SSI tree format
GA = Gray, SSI LSB aligned
G5 = Gray, SSI tree format + 1024 PPR AB /AB Push-Pull

ⓓ **SHAFT DIAMETER**
6 = 6 mm
8 = 8 mm
P9 = 9.52mm / 3/8"
10 = 10 mm
12 = 12 mm

ⓔ **OPERATING TEMPERATURE**
- = -25°C +85°C (-13°F +185°F)
K = -40°C +100°C (-40°F +212°F)

ⓕ **CONNECTION POSITION**
- = axial
R = radial

ⓖ **PROTECTION**
- = IP65 shaft side
Q = IP66 shaft side

ⓗ **CONNECTIONS**
L1 = cable output 1 m
L5 = cable output 5 m
Lx = cable output x m
CP = MIL 10 pin plug
M2 = M23 12 pin plug

ⓘ **CUSTOM VERSION**

ROTACOD
ATEX absolute encoder

Series **XAC77**

- Encoder with ATEX II 2GD Ex d IIC T6 certification
- For use in zones 1, 2, 21 and 22
- Resolution up to 30 bit
- SSI, Profibus, CANopen and parallel output

XAC77

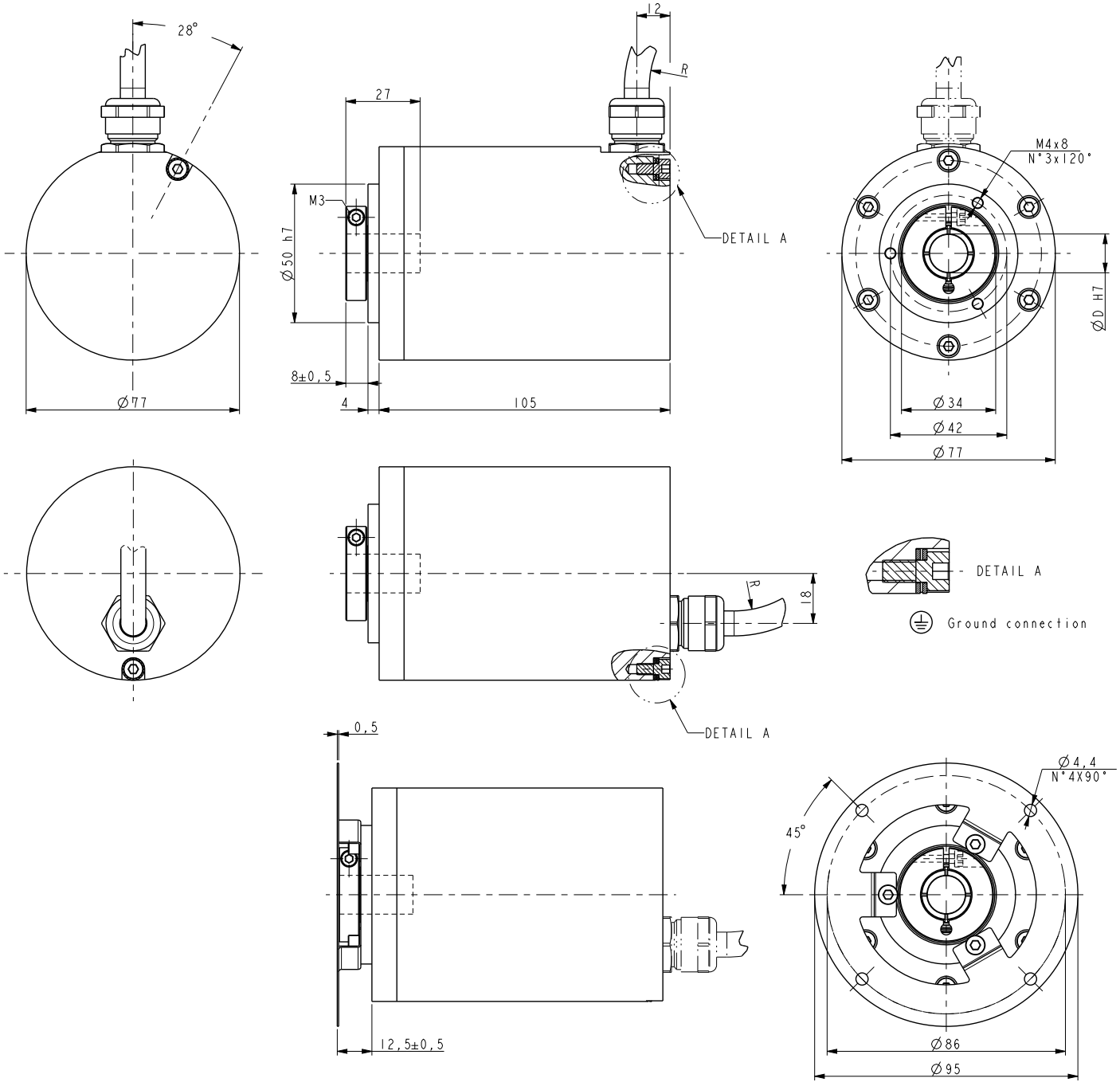
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 10-2000 Hz
Protection:	IP65
Environmental temperature at max. speed:	40°C max.
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-25°C +85°C (-13°F +185°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS	
Protection mode:	EEx d IIC T6
Dimensions:	see drawing
Shaft diameter:	Ø 14 mm
Shaft loading (axial, radial):	60 N max.
Shaft rotational speed:	6000 rpm max.
Starting torque (at 20°C):	< 5 Ncm
Bearings life:	$400x10^6$ rev. min. (10^9 rev. min. with shaft loading of 20 N max.)
Electrical connections:	cable output 1 m (3.3 ft)
Weight:	~ 1 kg (35,2 oz)
Option:	• additional cable

ELECTRICAL SPECIFICATIONS	
Resolution:	SSI, Bit Parallel: 8192 cpr max. or 8192 cpr x 4096 turns max. Analogue output: 12 bit or 13 x 14 bit Profibus, CANopen: 262144 cpr or 65536 cpr x 16384 turns
Accuracy:	± 0,04°
Output circuits:	SSI (RS422), Bit Parallel NPN, Push Pull Profibus-DP, CANopen 0-5V, 0-10V, -5/+5V, -10/+10V 4-20mA, 0-20mA, 0-24mA
Output code:	Gray, Binary
Counting frequency:	> 150 kHz
Power supply:	+10Vdc +30Vdc
Power consumption:	2,2 W max.
Protection:	against inversion of polarity and short circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Functions:	• Counting direction (input) • Zero setting / Preset (input) *Profibus, CANopen functions refer to HM58 FB series on page 186* *Analogue functions refer to EM58 PA series on page 168*
Optoelectronic life:	100.000 hrs min.

MATERIALS	
Flange:	anticorodal, EN AW-6082 (UNI EN 573)
Housing:	anticorodal, EN AW-6082 (UNI EN 573)
Bearings:	ABEC 5
Shaft:	1.4305 (UNI EN 10088-1)

ACCESSORIES	
LKM-1758:	Ø 10 mm solid shaft extension


28°
Ø77
12
R
27
M3
Ø50 h7
8±0,5
4
105
DETAIL A
M4x8
N°3x120°
ØD H7
Ø34
Ø42
Ø77
DETAIL A
Ground connection
18
DETAIL A
0,5
12,5±0,5
45°
Ø4,4
N°4X90°
Ø86
Ø95

XAC77

Order code - Profibus and CANopen

XAC77	XX/XXXXX ⓐ	XX ⓑ	-	XX ⓒ	-	X ⓓ	XX ⓔ	/Sxxx ⓕ

ⓐ **RESOLUTION**
18/1 = 262144 cpr single turn
16/16384 = 65536 cpr x 16384 turns

ⓑ **OUTPUT**
PB = Profibus-DP V1
CB = CANopen DS301, DS406

ⓒ **SHAFT DIAMETER**
14 = 14 mm

ⓓ **CONNECTION POSITION**
- = axial
R = radial

ⓔ **CABLE LENGTH**
L1 = cable output 1 m (standard)
L2 = cable output 2 m
Lx = cable output x m

ⓕ **CUSTOM VERSION**

Order code - SSI and Bit Parallel

XAC77	XX ⓐ	/	XXXXX ⓑ	X ⓒ	XX ⓓ	-	XX ⓔ	-	X ⓕ	XX ⓖ	/Sxxx ⓗ

ⓐ **RESOLUTION**
12 = 4096 cpr
13 = 8192 cpr

ⓑ **REVOLUTIONS**
1 = single turn
4096 = 4096 turns
16384 = 16384 turns

ⓒ **OUTPUT CODE**
B = Binary
G = Gray

ⓓ **OUTPUT CIRCUITS**
N = NPN o.c.
Y = Push-Pull
R = SSI, tree format
B = SSI, LSB aligned

ⓔ **SHAFT DIAMETER**
14 = 14 mm

ⓕ **CONNECTION POSITION**
- = axial
R = radial

ⓖ **CABLE LENGTH**
L1 = cable output 1 m (standard)
L2 = cable output 2 m
Lx = cable output x m

ⓗ **CUSTOM VERSION**

Order code - Analogue output

XAC77	XX/XXXXX ⓐ	XX ⓑ	-	XX ⓒ	-	X ⓓ	XX ⓔ	/Sxxx ⓕ

ⓐ **RESOLUTION**
12/1 = 12 bit single turn
12/16384 = 12 x 14 bit

ⓑ **OUTPUT**
PA = Programmable analogue

ⓒ **SHAFT DIAMETER**
14 = 14 mm

ⓓ **CONNECTION POSITION**
- = axial
R = radial

ⓔ **CABLE LENGTH**
L1 = cable output 1 m (standard)
L2 = cable output 2 m
Lx = cable output x m

ⓕ **CUSTOM VERSION**

ROTACOD

Absolute multi turn encoders

Series AM9 • AMC9

- Compact & flat multi turn encoder
- Resolution up to 8192 cpr x 4096 turns
- Radial M23 connector output
- AM9 with Ø 10 mm solid shaft
- AMC9 with Ø 15 mm through hollow shaft

AMC9 • AM9

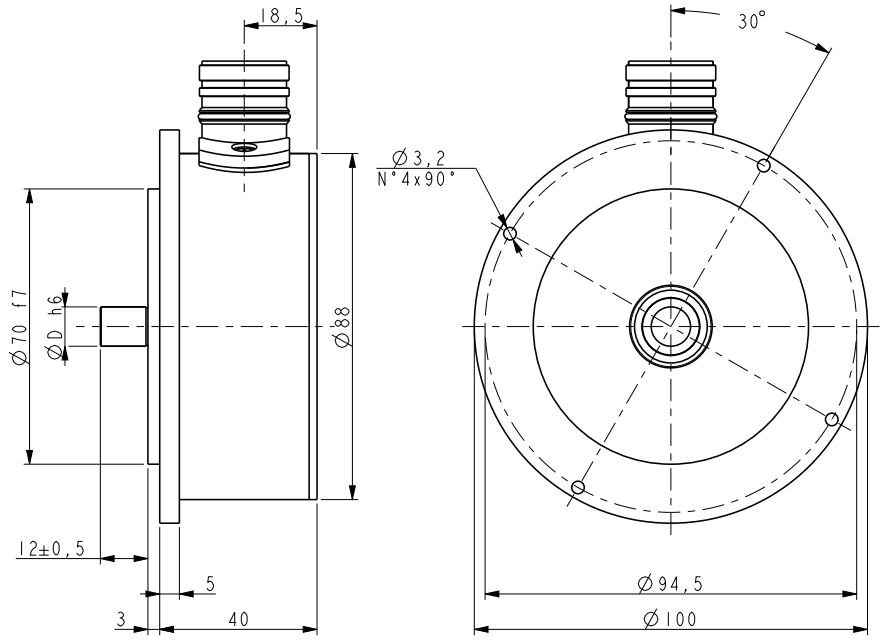
ENVIRONMENTAL SPECIFICATIONS	
Shock:	100 g, 6 ms
Vibrations:	10 g, 5-2000 Hz
Protection:	IP65
Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-25°C +85°C (-13°F +185°F) (98% R.H. without condensation)

MECHANICAL SPECIFICATIONS	
Dimensions:	see drawing
Shaft diameter:	Ø 10 mm
Hollow shaft diameter:	Ø 15 mm
Reducing sleeves BR1-xx from Ø 15 mm to:	Ø 6, 8, 9.52, 10, 11, 12 mm
Shaft loading (axial, radial):	100 N max.
Shaft rotational speed:	6000 rpm max.
Bearings life:	$400x10^6$ rev. min. (10^9 rev. min. with shaft loading of 20 N max.)
Electrical connections:	M23, 12 pin plug
Weight:	~ 400 g (14,1 oz)

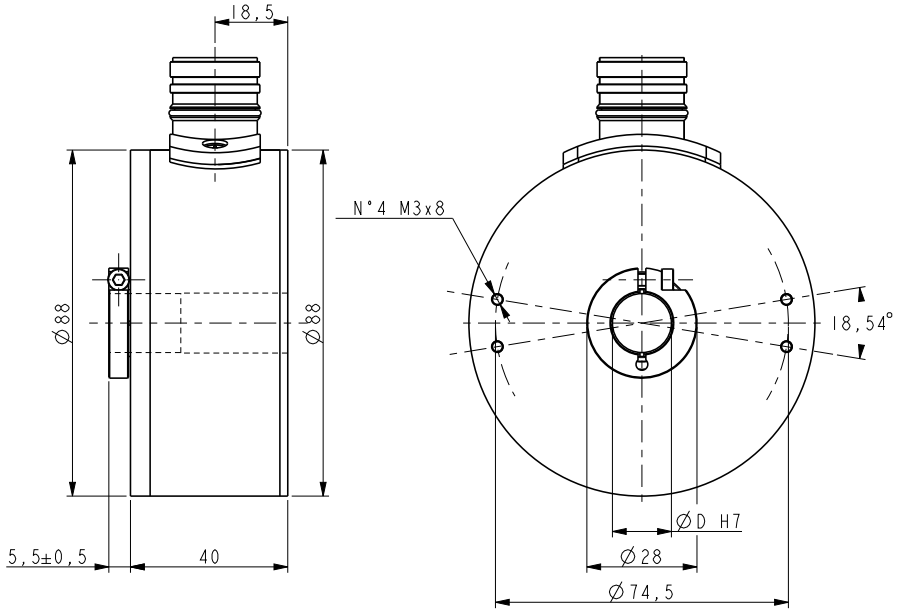
ELECTRICAL SPECIFICATIONS	
Resolution:	8192 cpr x 4096 turns max.
Accuracy:	± 0,04°
Output circuit:	SSI
Counting frequency:	100 kHz max.
Power supply:	+10V +30V
Power consumption:	1,5 W
Protection:	against inversion of polarity and short circuit
EMC:	electro-magnetic immunity, according to: EN 61000-4-2 EN 61000-4-4
Optoelectronic life:	100.000 h min.
Functions:	• Counting direction (input)
Option:	• Zero setting (input)

MATERIALS	
Flange:	anticorodal, UNI EN AW-6082
Housing:	anticorodal, UNI EN AW-6082
Bearings:	ABEC 5
Shaft:	stainless steel, non magnetic, UNI EN 4305
Light source:	GaAl diodes

ACCESSORIES	
EPFL121H:	12 pin M23 mating connector
EC-CR12F-S27-A8-xx:	M23 cordset with xx m cable
PAN/PGF:	flexible couplings
BR1:	reducing sleeves



AM9



AMC9

Order code

Additional code (optional)

AM9 AMC9	XX/XXXX ⓐ	XX ⓑ	-	XX ⓒ	-	X ⓓ	/Sxxx ⓔ

ⓐ **RESOLUTION**	ⓑ **OUTPUT**	ⓒ **SHAFT DIAMETER**	ⓓ **E** = Zero setting
12/4096 = 4096 cpr x 4096 turns 13/4096 = 8192 cpr x 4096 turns	**BS** = SSI tree format, Binary code **GS** = SSI tree format, Gray code **BA** = SSI LSB aligned, Binary code **GA** = SSI LSB aligned, Gray code	**10** = 10 mm (only AM9) **15** = 15 mm (only AMC9)	ⓔ **CUSTOM VERSION**