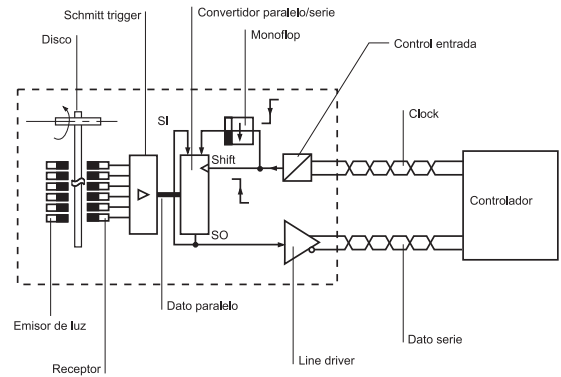


ABSOLUT AND PROGRAMMABLE ABSOLUT SSI ENCODERS

In many cases, the data transmitted from one system to another are subjected to magnetic fields and noise, by using standard interfaces, such as RS485, the effects of such interference can be reduced. The "Synchronous Serial Interface" (SSI) is an industrial output standard that only requires four lines for data transmission. This transmission system for absolute encoders provides several advantages with respect to traditional parallel transmission and asynchronous serial methods:

- Reduced component count.
- Simple code modification.
- Data transmission between the encoder and the receiver are controlled by the receivers clock signal.
- High transmission speeds in function of distance and the data block to be transmitted.



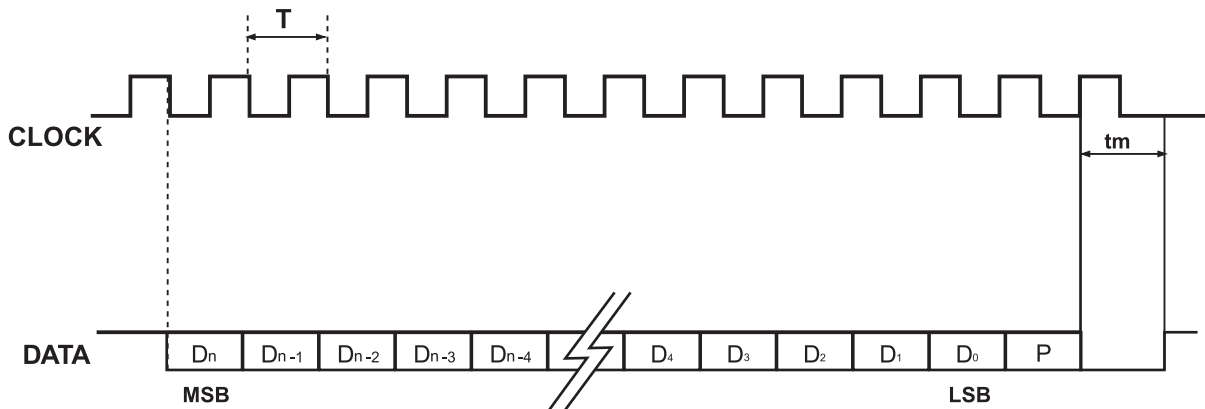
■ Data format

The clock signal produced by the PLC or device connected to the encoder intervenes in the transmission. When no data is being transmitted, the encoder data serial output remains at a "1" level. When the clock rising edge appears, data transmission commences. Each clock rising edge transmits one bit for the current position. The transmission commences with the Most Significant Bit (MSB) and ends with the Least Significant Bit (LSB). When the "n" position bits have been transmitted, the special bit(s) are transmitted (this is optional). When transmission is completed, the clock signal is stopped for t_m (while data transmission remains at "0"). This cause the monostable (Sload) to reset and update the encoder position, so that the encoder is once again ready to transmit the new position.

P: This is the parity bit. It is used to establish whether the transmitted data is correct or not. It is a logic level "1" if the total number of "1s" in the block is even. If this number is odd, then it will be a "0".

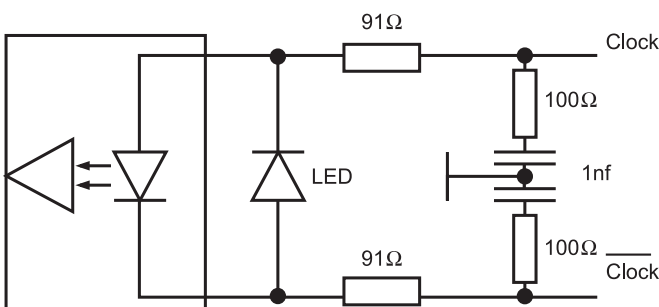
A: This is the alarm bit. When it is a "1" it indicates insufficient power supply levels.

The total number of clock bits will be equal to the total number of resolution bits plus one. If the special bit is transmitted, and additional pulse must be added.



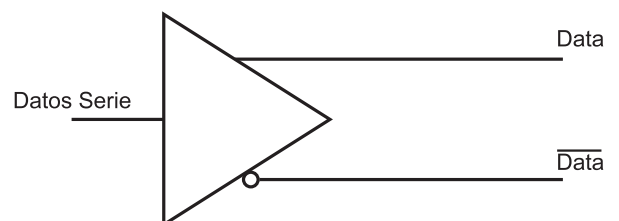
■ CLK input circuit

Since the clock signal is an input to the encoder, it is protected by means of an optical coupler, which electrically isolates the encoder from the PLC or similar. In this way, the encoder is protected against over-voltages and overloads.



■ DATA output circuit

This driver is supplied with a TTL signal at the input, which is converted into a differential signal at the output to cancel any possible noise that could interfere with the transmission.















ABSOLUT ENCODERS SSI

- Resolution up to 25 bits
- Solid (CS) and blind hollow shaft (HS)
- Protection class IP65 or IP67 according to DIN 40050
- Available any number of positions per turn
- Direction, code, and reset selection
- Output codes: Binary or Gray
- Radial or axial connection, cable or connector output



OVERVIEW

	Diameter 58 mm		Diameter 90 mm
	Solid shaft	Blind hollow shaft	Solid shaft
Singleturn	CS10 CS10 IP67 	HS10 	CS30 CS30 IP67 
Singleturn programmable	CSP10 	HSP10 	CSP30 
Multiturn	CM10 CM10 IP67 	HM10 	CM30 CM30 IP67 
Multiturn programmable	CMP10 	HMP10 	CMP30 

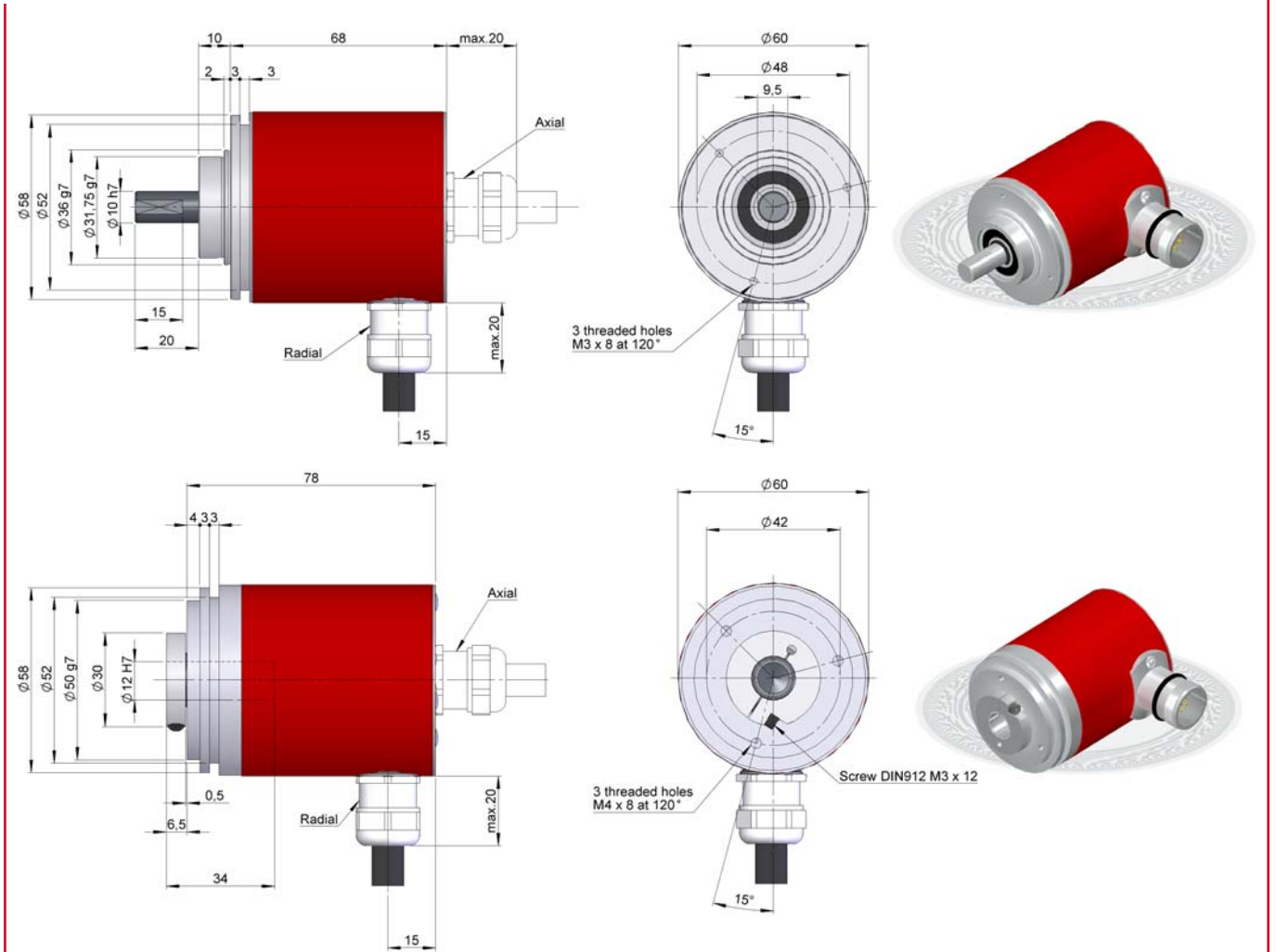
TECHNICAL SPECIFICATIONS

	Diameter 58 mm	Diameter 90 mm
Housing	Aluminium/Stainless steel	
Shaft	Stainless steel	
Bearings	Ballraces	
Bearings lifetime	1x10 ¹⁰ rev.	
Maximum number of revolutions permitted mechanically	6000 rpm.	
Protection against dust and splashes according to DIN 40050	IP65 / IP67.	
Rotor inertia moment	30 gcm ²	270 gcm ²
Starting torque 20°C (68°F)	Máx. 2,0 Ncm	Máx. 5,0 Ncm
Maximum load permitted on axial shaft	40 N	80 N
Maximum load permitted on radial shaft	60 N	100 N
Misalignment permitted axial (blind hollow shaft)	±0.5 mm	-
Misalignment permitted radial (blind hollow shaft)	±0.3 mm	-
Weight aprox.	400 g ST, 500 g MT	1,2 kg ST, 1,3 kg MT
Operating temperature range	-10°C a +70°C	
Vibration	100 m/s ² (10Hz...2000Hz)	
Shock	1000 m/s ² (6ms)	
Consumption max.	100 mA (CS/HS), 150 mA (CM/HM)	
Power supply	10..30Vdc	
Interface	SSI	
Electrical output	RS422	
Configurable parameters (programmable series)	Direction, code, reset, preset1, preset2, resolution	
Configurable parameters	Direction and reset	
Inputs	Opto-coupled	
Available codes	Binary and Gray	
Max. points per turn	8192 positions (13 bits)	
Max. turns	4096 turns (12 bits)	
Linearity	±1/2 LSB	
Radial and axial connection	2 metres cable or industrial connector	

ST: Singleturn MT: Multiturn

SINGLETURN ABSOLUT ENCODER

- Singleturn resolution up to 13 bits
- Protection class IP65 according to DIN 40050
- External diameter 58 mm
- Solid shaft (CS) and blind hollow shaft (HS)



Previous mounting and installation of the encoder is recommended to read the section “TECHNICAL CONSIDERATIONS”.

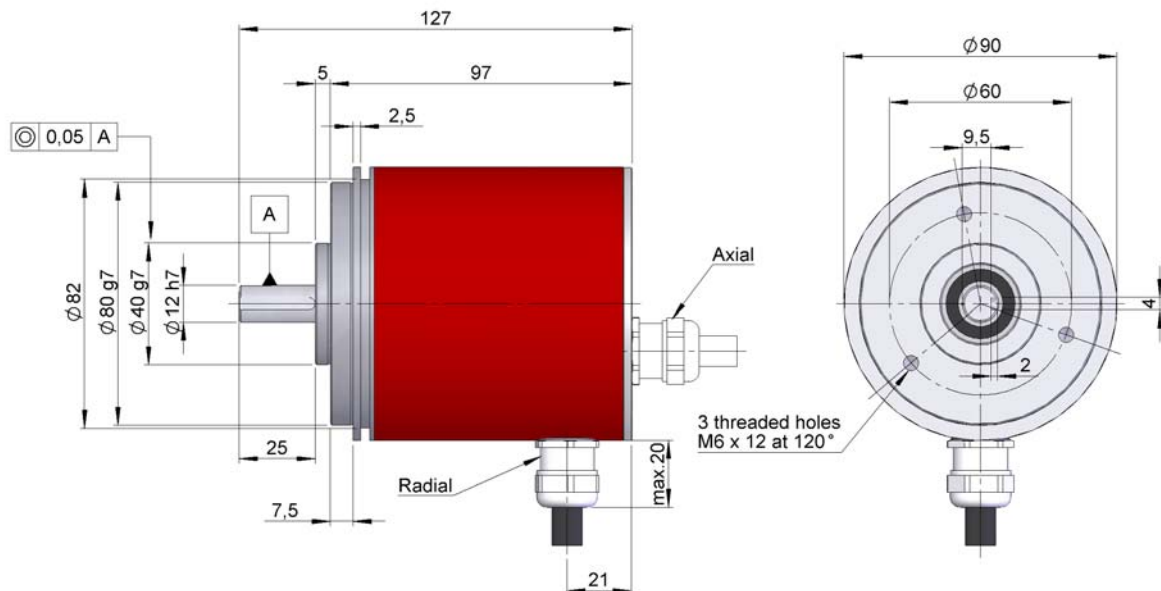
ORDERING CODE

TYPE	SERIE	SHAFT	FLANGE	CONNEX-TION	AXIAL RADIAL	INTERFACE	CODE	IP	POWER SUPPLY OUTPUT	CONFIG. PARAMETERS	RESOLUTION	SPECIAL CUSTOMER
● ●	10	●	●	●	●	●	●	●	●	● ● ● ● ● ● ● ●		● ● ● ●
CS- Singleturn Solid shaft		1- Solid Ø6 mm 2- Solid Ø10 mm 3- Blind hollow Ø12 mm 4- Blind hollow Ø10 mm	1- None 2- 90.1002 3- 90.1003 4- 90.1004 5- 90.1005 6- 90.1006	1- Cable 3- 90.9512	1- Axial 2- Radial	1- SSI	1- Binary CW 2- Binary CCW 3- Gray CW 4- Gray CCW	1- IP65	0- 10...30 Vdc RS485	S- Direction* W- Code, direction, LED passing through zero		

(*) Only available with resolution 2ⁿ.

ABSOLUT ENCODER FOR HEAVY DUTY INDUSTRIAL APPLICATIONS

- Singleturn resolution (CS) up to 13 bits or multiturn (CM) up to 25 bits
- Protection class IP65 according to DIN 40050
- External diameter 90 mm
- Solid shaft



Previous mounting and installation of the encoder is recommended to read the section “TECHNICAL CONSIDERATIONS”.

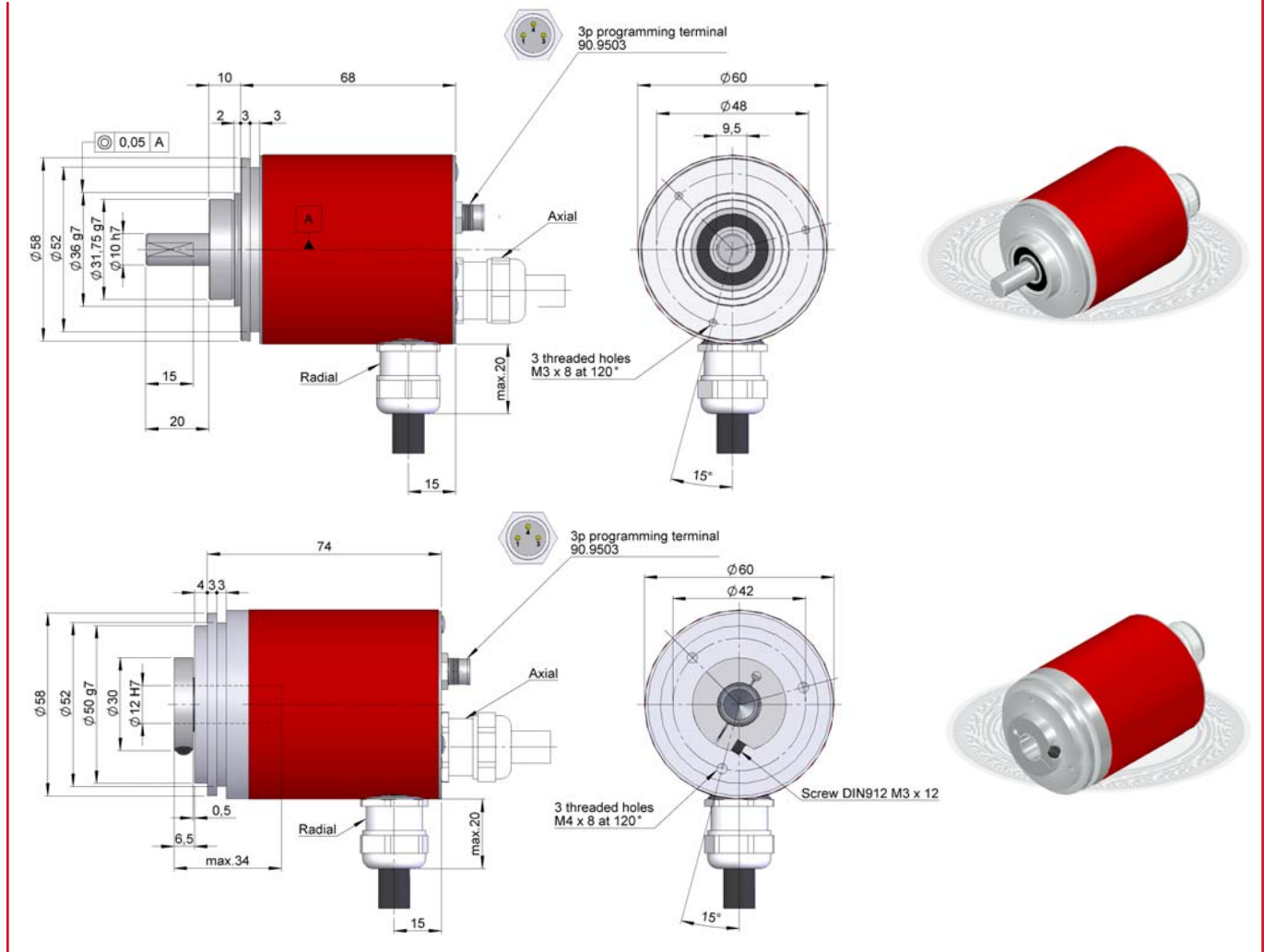
ORDERING CODE

TYPE	SERIE	SHAFT	FLANGE	CONNEC-TION	AXIAL RADIAL	INTERFACE	CODE	IP	POWER SUPPLY OUTPUT	CONFIG PARAMETERS	SINGLETURN RESOLUTION	MULTITURN RESOLUTION	SPECIAL CUSTOMER
CS- Singleturn CM- Multiturn	30	2- Ø12 x 25 mm	1- None 3- 90.1008	1- Cable 3- 90.9512	1- Axial 2- Radial	1- SSI	1- Binary CW 2- Binary CCW 3- Gray CW 4- Gray CCW	1- IP65	0- 10...30 Vdc RS485	S- Direction* W- Code, direction, LED passing through zero	●	●●●●●	●●●●●

(*) Only available with resolution 2ⁿ.

SINGLETURN ABSOLUT ENCODERS

- Programming by PC up to 13 bits
- Protection class IP65 according to DIN 40050
- External diameter 58 mm
- Solid shaft (CSP) and blind hollow shaft (HSP)



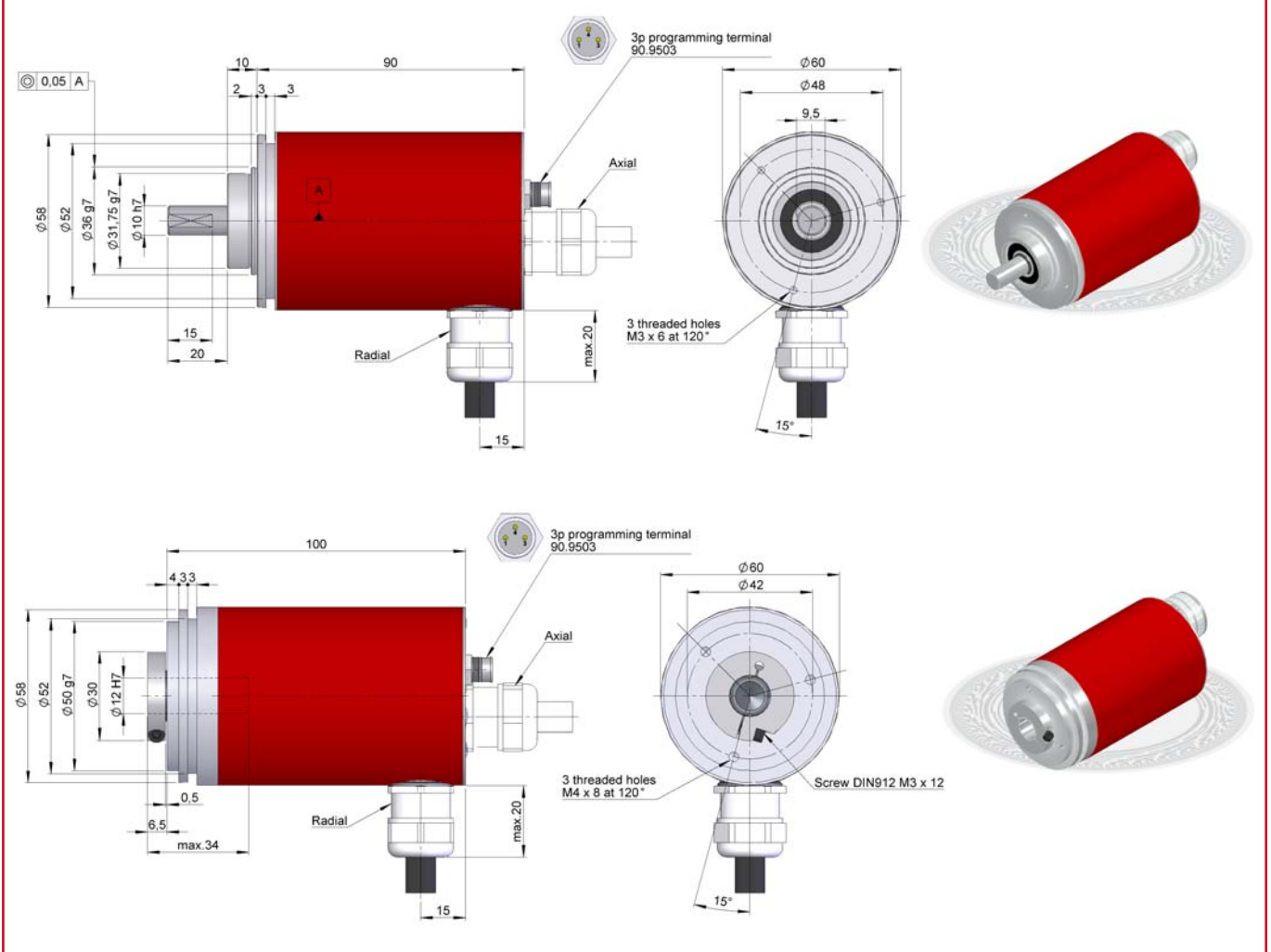
Previous mounting and installation of the encoder is recommended to read the section "TECHNICAL CONSIDERATIONS".

ORDERING CODE

TYPE	SERIE	SHAFT	FLANGE	CONNECTION	AXIAL RADIAL	INTERFACE	CODE	IP	POWER SUPPLY OUTPUT	RESOLUTION	SPECIAL CUSTOMER
● ●	10	●	●	●	●	●	●	●	●	8192	● ●
CSP-Solid shaft HSP-Blind hollow shaft			1- None 2- 90.1002 3- 90.1003 4- 90.1004 5- 90.1005 6- 90.1006		1- Axial 2- Radial	1- SSI		1- IP65			
							9- Prog by PC		0- 10...30 Vdc RS485		
		1- Solid Ø6x10 mm 2- Solid Ø10x20 mm 3- Blind hollow Ø12 mm 4- Blind hollow Ø10 mm		1- Cable 3- 90.9512							

MULTITURN ABSOLUT ENCODER

- Programming by PC up to 25 bits
- Protection class IP65 according to DIN 40050
- External diameter 58 mm
- Solid shaft (CMP) and blind hollow shaft (HMP)



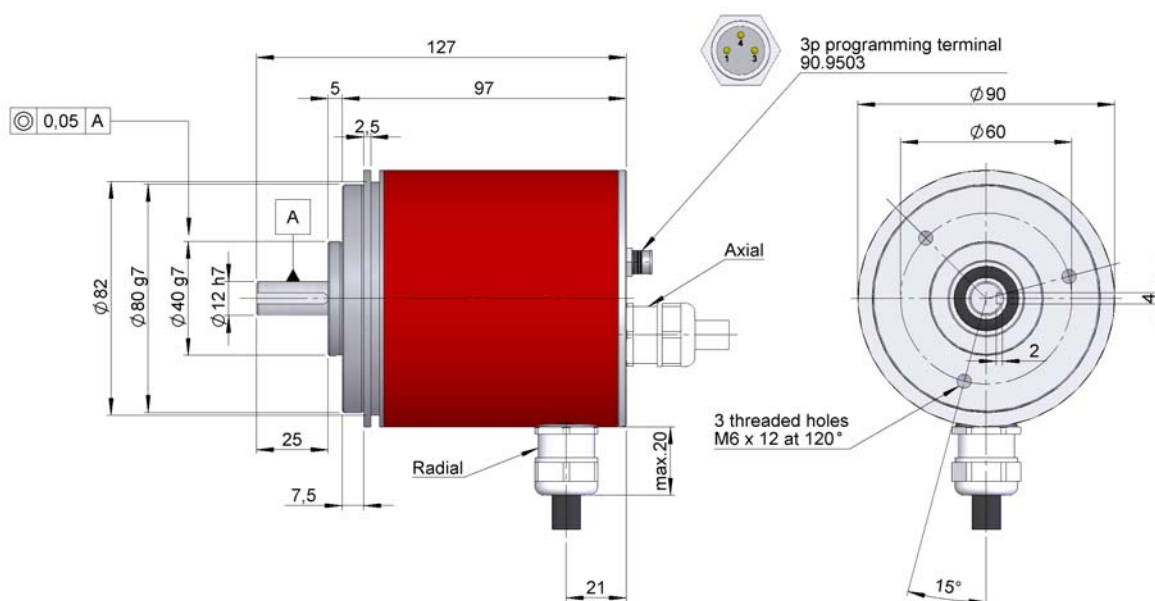
Previous mounting and installation of the encoder is recommended to read the section "TECHNICAL CONSIDERATIONS".

ORDERING CODE

TYPE	SERIE	SHAFT	FLANGE	CONNECTION	AXIAL RADIAL	INTERFACE	CODE	IP	POWER SUPPLY OUTPUT	SINGLETURN RESOLUTION	MULTITURN RESOLUTION	SPECIAL CUSTOMER
● ● ●	10	●	●	●	●	●	●	●	●	8192 / 4096	● ●	
CMP- Solid shaft HMP- Blind hollow shaft		1- Solid Ø10 mm 2- Solid Ø6 mm 3- Blind hollow Ø12 mm 4- Blind hollow Ø10 mm	1- None 2- 90.1002 3- 90.1003 4- 90.1004 5- 90.1005 6- 90.1006	1- Cable 3- 90.9512	1- Axial 2- Radial	1- SSI	9- Prog by PC	1- IP65	0- 10...30 Vdc RS485			

PROGRAMMABLE ABSOLUT ENCODER FOR HEAVY DUTY INDUSTRIAL APPLICATIONS

- Programming by PC singleturn (CSP) up to 13 bits or multiturn (CMP) programming by PC up to 25 bits
- Protection class IP65 according to DIN 40050
- External diameter 90 mm
- Solid shaft



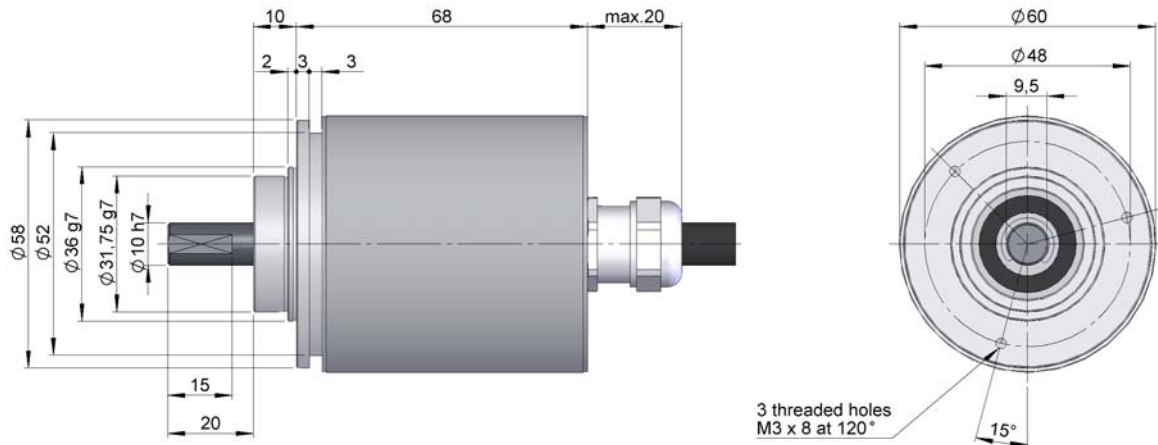
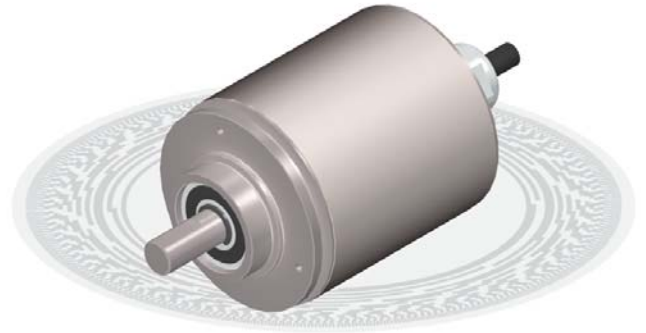
Previous mounting and installation of the encoder is recommended to read the section "TECHNICAL CONSIDERATIONS".

ORDERING CODE

TYPE	SERIE	SHAFT	FLANGE	CONNECTION	AXIAL RADIAL	INTERFACE	CODE	IP	POWER SUPPLY OUTPUT	SINGLETURN RESOLUTION	MULTITURN RESOLUTION	SPECIAL CUSTOMER
● ● ●	30	●	●	●	●	●	●	●	●	8192 / 4096	● ●	
CSP- Singleturn CMP- Multiturn		2- $\varnothing 12$ x 25 mm	1- None 3- 90.1008	1- Cable 3- 90.9512	1- Axial 2- Radial	1- SSI	9- Prog by PC	1- IP65	0- 10...30 Vdc RS485			

SINGLETURN ABSOLUT ENCODER FOR SEVERE APPLICATIONS

- Singleturn resolution up to 13 bits
- Protection class IP67 according to DIN 40050
- External diameter 58 mm
- Solid shaft



Previous mounting and installation of the encoder is recommended to read the section "TECHNICAL CONSIDERATIONS".

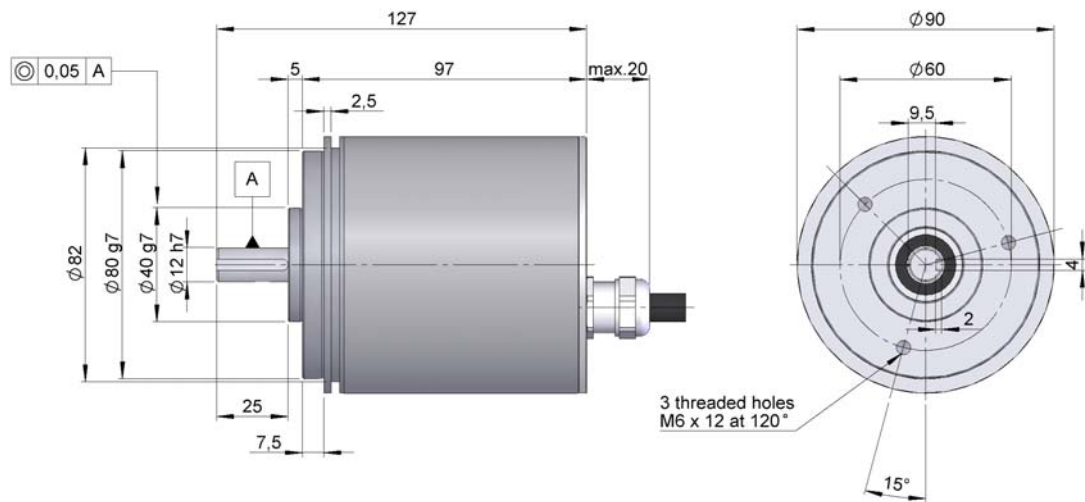
ORDERING CODE

TYPE	SERIE	SHAFT	FLANGE	CONNECTION	AXIAL RADIAL	INTERFACE	CODE	IP	POWER SUPPLY OUTPUT	CONFIG. PARAMETERS	RESOLUTION	SPECIAL CUSTOMER
● ● ● CS- Singleturn	10	●	●	●	●	●	●	●	●	● ● ● ● ●	● ● ● ● ●	● ● ● ● ●
		1- Ø6 x 10 mm 2- Ø10 x 20 mm	1- None 2- 90.1002 3- 90.1003 4- 90.1004 5- 90.1005 6- 90.1006	1- Cable	1- Axial	1- SSI	1- Binary CW 2- Binary CCW 3- Gray CW 4- Gray CCW	2- Stainless steel IP67 3- IP67	0- 10...30 Vdc RS485	S- Direction*		

(*) Only available with resolution 2ⁿ.

ABSOLUT ENCODER FOR SEVERE AND HEAVY DUTY INDUSTRIAL APPLICATIONS

- Singleturn resolution (CS) up to 13 bits or multiturn (CM) up to 24 bits
- Protection class IP67 according to DIN 40050
- External diameter 90 mm
- Solid shaft



Previous mounting and installation of the encoder is recommended to read the section "TECHNICAL CONSIDERATIONS".

ORDERING CODE

TYPE	SERIE	SHAFT	FLANGE	CONNEC-TION	AXIAL RADIAL	INTERFACE	CODE	IP	POWER SUPPLY OUTPUT	CONFIG. PARAMETERS	SINGLETURN RESOLUTION	MULTITURN RESOLUTION	SPECIAL CUSTOMER
• • CS- Singleturn • • CM- Multiturn	• • 30	• 2- Ø12 x 25 mm	• 1- Nonet • 3- 90.1008	• 1- Cable	• 1- Axial	• 1- SSI	• 1- Binary CW • 2- Binary CCW • 3- Gray CW • 4- Gray CCW	• 2- Stainless steel IP67 • 3- IP67	• 0- 10...30 Vdc RS485	• S- Direction*	• • • • • • • • • • • • • •	• • • • • • • • • • • • • •	• •

(* Only available with resolution 2ⁿ.

CONNECTION AND CONNECTORS

■ SSI OUTPUT CONNECTION



Cable 3x2x0.14+2x0.34		90.9512 M23 12p
GND	Black	1
Vcc	Red	2
Data +	Yellow	3
Data -	Green	4
Clock +	Brown	5
Clock -	Blue	6
DIR	Grey	11