CARLENsensors

AC150D Series

ABSOLUTE ENCODER

- Standard encoder 58mm with profibus interface
- Robust and compact conception
- High protection level IP65, IP67 option with a sealing flange
- Precision ball bearings with sealing flange
- Mechanical memorisation of the number of turns by gears
- High resolutions available:18Bits ,Turn counting up tp 18Bits.
- High performances in temperature –40°C to 85°C

ELECTRICAL CHARACTERISTICS

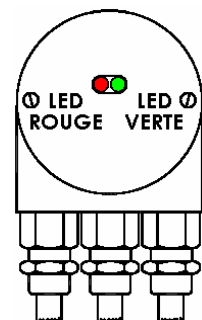|	
Power supply	5 – 30Vdc
Interface	Line-drive according to RS485
Transmission rate	Max. 12 MBaud
Device addresing	Adjustable by rotary switches in connection cap
Current consumption	max. 230 mA with 10 V DC, max. 100 mA with 24 V DC
Power consumption	Max 2.5W
Step frequency LSB	800 kHz
Precision	± 1/2 LSB (up to 12 Bit), ± 2 LSB (at 16 Bit)
EMC	EN61000-6-4,emitted interference ,EN 61000-6-2,nosie immunity

MECHANICAL CHARACTERISTICS

Housing	Aluminium
Shaft	Stainless Steel
Maximum number of revolutions permitted mechanically	12 000 rpm
Shaft inertia	≤ 30 g.cm^2
Starting Torque	≤ 3 N.cm
Maximum load permitted on shaft	Axial 40 N, Radial 110 N
Protection	Cover: IP 65, Shaft: IP 64
Operating Temperature	-40˚...+85˚ C
Storage Temperature	-40˚...+85˚ C
Humidity	98 % (without liquid state)
Shock resistance	≤ 100 g (during 6 ms) (IEC 68-2-27)
Vibration resistance	≤ 10 g (10… 2 000 Hz) (IEC 68-2-6)
Weight	Singleturn: 500 g, Multiturn: 800 g

OUTPUT SIGNALS

Red LED	Green LED	Status / possible cause
Dark	Dark	No power supply
Bright	Bright	Encoder is ready for operation but it has not received any configuration data after power on. Possible causes: address setting incorrect, Bus lines not connected correctly
Bright	Flashing	Parameter or configuration error. The encoder receives configuration or parameter incorrect length or inconsistent data. Possible cause: parameter value "total measuring range" too high
Flashing	Bright	The encoder is ready for operation but not addressed by the master (e.g. incorrect address in configuration).
Bright	Drak	Encoder has not received any data for a longer period (about 40 sec.) Possible cause: bus line has been interrupted
Drak	Bright	Normal operation in data exchange mode
Drak	Flashing	Commissioning mode

Led status at the front of the connection cap

LED ROUGE   LED VERTE

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We reserve the right to modify technical features in the interest of technological advance.
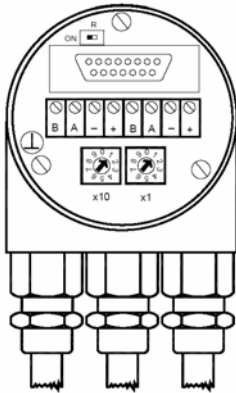
ABSOLUTE ENCODER

Installation

The rotary encoder is connected by two or three cables,depending on whether the power supply is integrated into the bus cable or connected separately . If the power suppply is integrated into the bus cable one of the cable glands can - be fitted with a plug . The cable glands are suitable for cable diameters from 6.5 up to 9 mm.

Termination resistors are integrated in the connection cap. These must be switched on if the encoder is connected at end or the beginning of bus.

device X   last device

Connecting the data line and the power supply

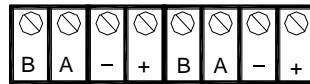| Clamp	Description
B (left)	Bus line B (Bus in)
A (left)	Bus line A (Bus in)
-	0 V
+	10 - 30 V
B (right)	Bus line B (Bus out)
A (right)	Bus line A (Bus out)
-	brown-blue
+	0 V

The Profibus-DP device address is set by userfriendly rotary switches in the connection cap. Alllowed adresses are between 1 and 99, each can only be used only once,The connection cap can easily be opened for installation by removing the two cao screws.

The power supply has to be connected once (no matter clamps). If the terminating resistor is switched on the outgoing bus lines are disconnected.

A GSD-file is necessary for installing the encoder. The GSD-File and the detailed user manual can be downloaded from our homepage.

The connection cap is provided with two LEDs on the backside , which optically represent the device stauts . This can be very useful installing and setting-up the encoder.

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ABSOLUTE ENCODER

PROGRAMMABLE PARAMETERS

The Profibus-DP interface supports CLASS 1 and CLASS 2 functionality according to the encoder proflie *. In addition to these functions the GSD-file supports further features, for e-ample sofware limit switches. Further more,the following encoder parameters can be programmed directly via the Profibus-DP network without any extra device:

Counting Direction	This parameter counting direction defines whether the output code increases or decreases when the shaft roates clockwise.
Resolution per Revolution	The parameter ´resolution per revolution´ is used to program the desired number of steps per revolution. Each value between 1 and the physical resolution per revolution can be programmed.
Total Resolution	This parameter is used to program the desired number of measuring units over the total measuring This value may not exceed the total physical resolution of the absolute rotary encoder.
Preset Value	The preset value is the desired positon value, which should be reached at certain physical position of the axis. The postion value is set to the desired process value by the parameter preset.
Velocity	The implemented software can additionally deliver the current velocity. This value is transmitted in binary code, 16 Bit, in addition to the process value.It is possilble to choose between four different units:steps per 10 ms, per 100ms, per1000 ms and revolutions per minute.
Software limit switches function	software limit switches can be set. If the position value falls below the lower or exceeds the higher limit switch, a status bit in the process value is set.
Teach-in (Online parameterization)	A special mode is available for commissioning phase of the the device.This makes it possible to change parameters while the encoder is in data exchange mode. For continuous operation another mode is available in which the parameters are protected against against unintentional changes.

* The Profibus-DP profile for encoder can be ordered from
Profibus Nutzerorganisation e.V.
Haid Neu-Str.7,
76131 Karlsruhe, Germany
with order-No . 3.062

ORDERING CODE

AC150D	-			-			-		-		-	SXX
a		b	c		d	e		f		g		Option
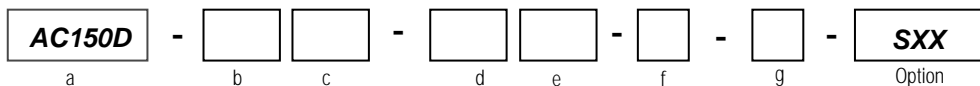
a **Series**
Absolute Encoder

b **Shaft Type/ Flange**
2C=Solid shaft, Clamp
2S=Solid shaft, Synchro
5B=Blind Hollow shaft

c **Shaft size**
Solid Shaft: 6,8,10 mm
Blind Hollow shaft: 15 mm

d **Power Supply**
5 = 5-30 V

e **Interface**
F=Profibus-DP, Binary

f **Nb of Turns / Resolution**
0010   1212   1312
0012   1213   1416
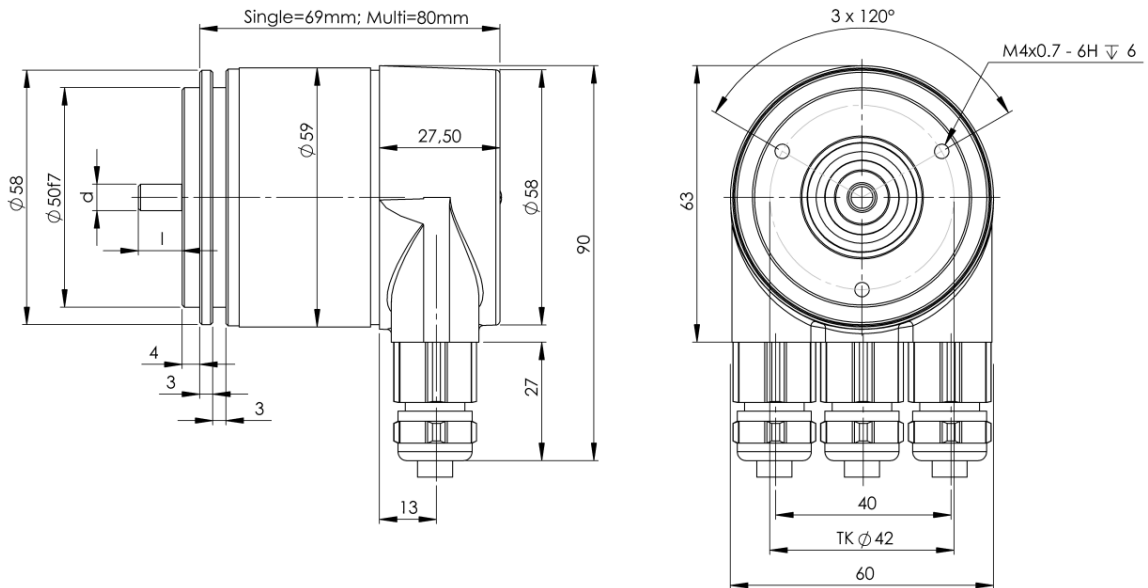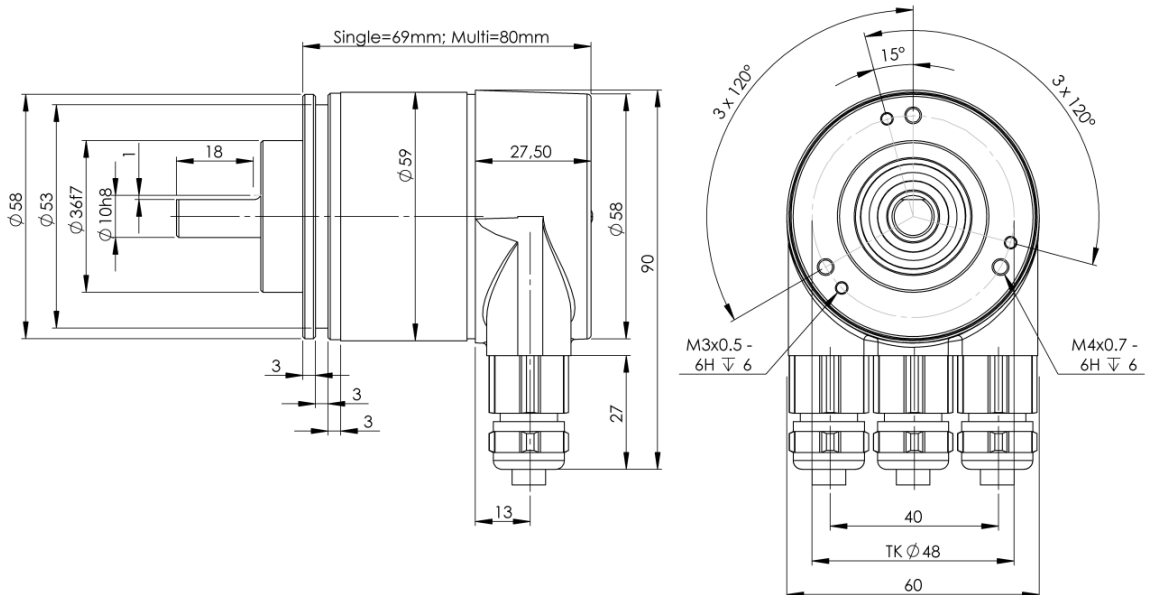0013   1214   Option

g **Connection**
8= with connection cap

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ABSOLUTE ENCODER

Synchro flange, with connection cap

Synchro flange	d / mm	l / mm
Version S06	6_{f6}	10
Version S10	10_{h8}	20

Clamp flange, with connection cap

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ABSOLUTE ENCODER

Blind Hollow shaft 15mm, with connection cap

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