



## Absolute encoders ATM90 PROFIBUS

ATM90-PUF13X13



**Model Name** > ATM90-PUF13X13  
**Part No.** > 1030043



*Illustration may differ*

#### At a glance

- Extremely rugged, tried-and-tested absolute multiturn encoder with a resolution of up to 26 bits
- Mechanical interface: through hollow shaft with shallow installation depth
- Zero-set and preset functions via hardware or software
- No battery required
- Electrical interface: PROFIBUS DP as per IEC61158 / RS -485 , electrically isolated
- Electronically adjustable, configurable resolution
- Magnetic scanning

#### Your benefits

- Fewer variants are required since one freely programmable encoder offers all singleturn and multiturn resolutions
- Easy setup due to various electrical connection adapters (cable, M23)
- Application flexibility due to easily interchangeable collets for the blind hollow shaft
- Quick commissioning using the zero set/preset function either at the press of the button on the device or via software
- Increased productivity due to highly reliable shock and vibration resistance
- Worldwide availability and service ensure quick and reliable customer service



#### Performance

|                                      |                        |
|--------------------------------------|------------------------|
| Max. number of steps per revolution: | 8,192                  |
| Max. number of revolutions:          | 8,192                  |
| Resolution power:                    | 8,192 x 8,192          |
| Resolution:                          | 13 bit x 13 bit        |
| Error limits:                        | ± 0.25 °               |
| Repeatability (Ta not constant):     | 0.1 °                  |
| Measuring step:                      | 0.043 °                |
| Initialization time:                 | 1,250 ms <sup>1)</sup> |

<sup>1)</sup> Valid positional data can be read once this time has elapsed

#### Mechanical data

|                       |                      |
|-----------------------|----------------------|
| Mechanical interface: | Through hollow shaft |
| Shaft diameter:       | 1/2 "                |
| Mass:                 | 0.6 kg               |

|                                 |                                   |
|---------------------------------|-----------------------------------|
| Start up torque:                | 0.5 Ncm                           |
| Operating torque:               | 0.4 Ncm                           |
| Moment of inertia of the rotor: | 153 gcm <sup>2</sup>              |
| Bearing lifetime:               | 3.6 x 10 <sup>9</sup> revolutions |
| Max. angular acceleration:      | 600,000 rad/s <sup>2</sup>        |
| Shaft material:                 | Stainless steel                   |
| Flange material:                | Aluminum                          |
| Housing material:               | Die-cast aluminum                 |

## Electrical data

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|                                        |                                      |
|----------------------------------------|--------------------------------------|
| Operating voltage range:               | 10 V ... 32 V                        |
| Power consumption max.:                | 2 W                                  |
| MTTFd: mean time to dangerous failure: | 150 a (EN ISO 13849-1) <sup>1)</sup> |

<sup>1)</sup> This product is a standard product and does not constitute a safety component as defined in the Machinery Directive.

Calculation based on nominal load of components, average ambient

temperature 40°C, frequency of use 8760 h/a. All

electronic failures are considered hazardous. For more information, see document no. 8015532.

## Interfaces

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|                                     |                                                  |
|-------------------------------------|--------------------------------------------------|
| Electrical interface:               | Bus adaptor with 3 x M14 screw fixings           |
| SET (electronic adjustment):        | Via PRESET push button or protocol               |
| Bus:                                | Profibus DP                                      |
| Bus interface:::                    | RS-485 <sup>1)</sup> <sup>2)</sup> <sup>3)</sup> |
| Data protocol:                      | Profile for encoders (07hex) - Class 2           |
| Address setting:                    | 0 ... 127, DIP-switches or protocol              |
| Data transmission rate (baud rate): | 9.6 kBaud / 12 MBaud / automatic detection       |
| Status information:                 | LED green (operation), LED red ( bus activity)   |
| Bus termination:                    | DIP switch                                       |

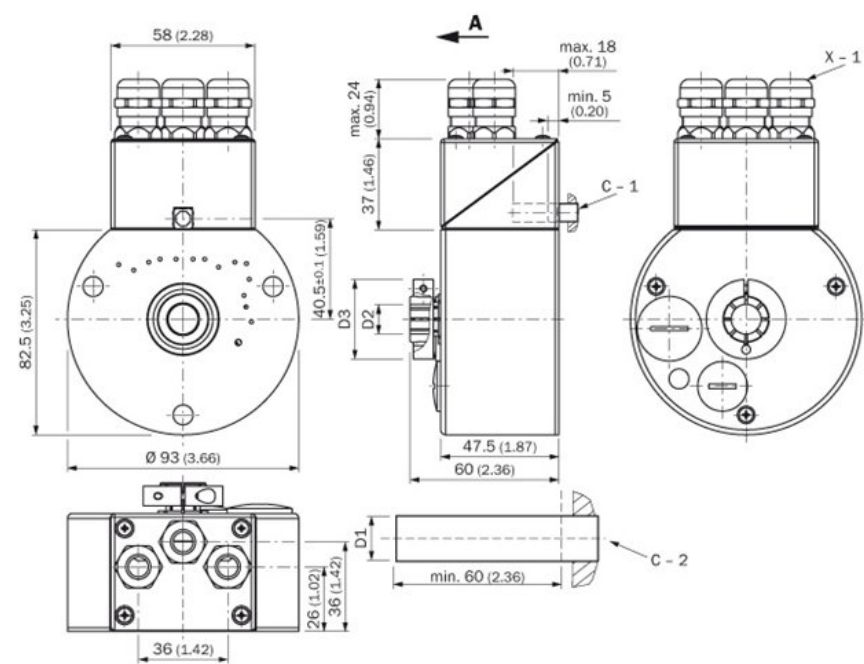
<sup>1)</sup> EN 50 170-2 <sup>2)</sup> DIN 19245 part 1-3 <sup>3)</sup> DC isolated via opto-couplers

## Ambient data

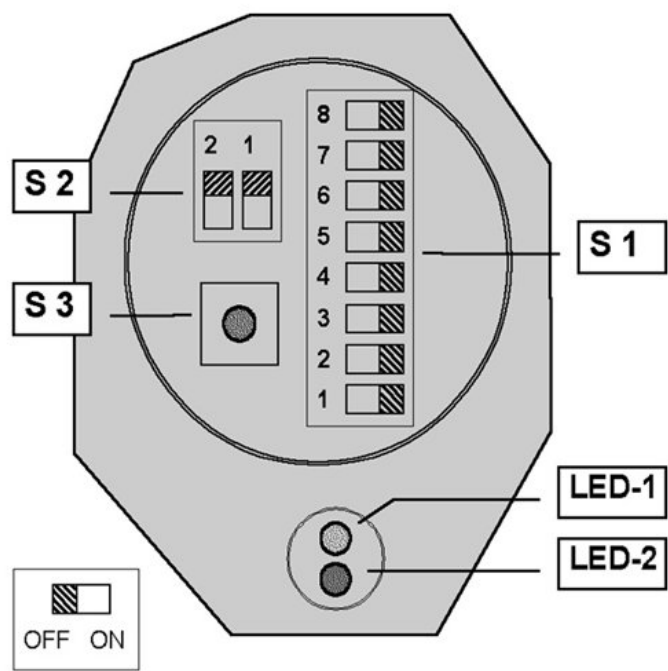
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|                                |                                                 |
|--------------------------------|-------------------------------------------------|
| EMC:                           | (according to EN 61000-6-2 and EN 61000-6-3)    |
| Enclosure rating:              | IP 65 (according to IEC 60529), with shaft seal |
| Permissible relative humidity: | 98 %                                            |
| Working temperature range:     | -20 °C ... 80 °C                                |
| Storage temperature range:     | -40 °C ... 125 °C, without package              |
| Resistance to shocks:          | 6 g (according to EN 60068-2-27)                |
| Resistance to vibration:       | 20 g, 10 Hz ... 2,000 Hz                        |

Dimensional drawing



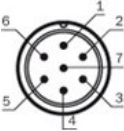
Adjustments



PIN assignment

| PIN | Signal                | Description                   |
|-----|-----------------------|-------------------------------|
| 1   | U <sub>s</sub> (24 V) | Supply voltage                |
| 2   | N. C.                 | Not connected                 |
| 3   | GND (0 V)             | 0 V (Gnd)                     |
| 4   | N. C.                 | Not connected                 |
| 5   | RTS                   | Request To Send <sup>1)</sup> |
| 6   | N. C.                 | Not connected                 |
| 7   | N. C.                 | Not connected                 |

<sup>1)</sup> Signal is optional, is used to detect the direction of an optical fibre connection.  
N. C. = Not connected



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