Absolute Encoder (A Series) **Profinet IO**

# AAS58… PN single turn
# AAM58… PN multi-turn series

Main Features:

- **PROFINET-IO, Industrial Ethernet Encoder**
- It has intelligent diagnosis function to enhance the safety and reliability of field application.
- Data, temperature, voltage and time diagnosis and alarm
- Programmable resolution, setting function, counting direction and speed feedback
- Multi-circle absolute value adopts the international leading gear set design.
- Six three-color LEDs indicate operating status and Ethernet status

Scope of Application:

- ✓ Displacement, angle, distance, trajectory, tilt
- ✓ Logistics warehousing, automobile production line, automatic assembly line equipment
- ✓ Iron and steel metallurgy, papermaking and printing, textile machinery, hydraulic engineering survey
- ✓ Port hoisting and transportation machinery, factory automation, etc.
- ✓ Use in non-explosion-proof environment

| Mechanical data | | Meet the standard |
|---|---|---|
| Material | Housing: aluminum alloy or stainless steel 304/316L | CE certification Have |
| | Flange: aluminum alloy or stainless steel 304/316 L | Transmit jamming EN61000-6-4 |
| | Shaft: stainless steel 304 or 316L | Anti-interference EN61000-6-2 |
| Axle load | Axial: Max. 80 N | Meet the requirements of ISO9001: 2015 quality management system |
| | Radial: Max. 150N | Comply with GB/T 25105. 1-2014 ~ GB/T 25105. 3-2014 |
| Degree of protection | Shaft end IP67/housing end IP65 | PROFINET IO Specification Type 10: Part 1 to Part 3 |
| Maximum speed | 6000RPM | Complies with IEC 61158 Type 10 PROFINET IO Part 1-3 |
| Impact | ≤ 100g ,3ms | Industrial Communication PROFIBUS & PROFINET Organization Member |
| Vibration | ≤ 10g （10Hz—2000Hz） | Member Number: PI-China 2018231A |
| Weight | ≈ 500 G of aluminum alloy material; ≈ 800 G stainless steel material | Test Report No.: MCDL-2019-2056-M |
| Operating temperature | -40℃—+80℃ | |
| Storage temperature | -40℃—+85℃ | |

| Electrical data | |
|---|---|
| Interface type | PROFINET-IO RT（Conformance Class B，SEC Level 1 Class III） |
| Output Code System | Binary Code |
| Output Circuit | Ethernet |
| Communication frequency | 10 / 100MHz |
| Interface cycle | ≥250 us |
| Operating voltage | 10-30VDC polarity protection |
| No-load current | ≤180mA（10VDC）； ≤90 mA（24VDC） |
| Repeatability | ± 1bit (actual accuracy is related to installation accuracy and shaft concentricity) |
| Resolution | Single-turn resolution ≤ 13-bit 8192 |
| | Multi-turn number ≤ 14-bit 16384 turn |

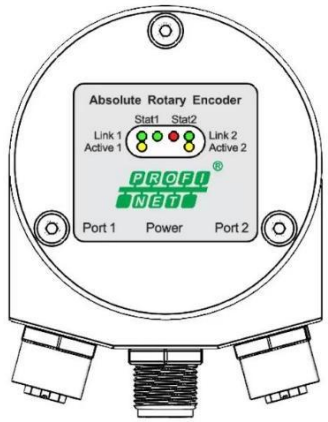
## Communication interface:

Based on PROFIBUS & PROFINET Organization Standard PROFINET Communication Protocol, the Highest Communication Frequency Is 100MHz.

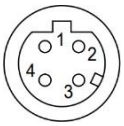
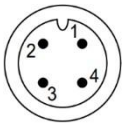
According to the PROFINET protocol specification, AYAN developed this encoder as PROFINET-IO RT, protocol 4.0, Level 1 Class III.
Class III: Position information such as encoder resolution and number of turns are the actual parameters ordered, and the direction can be set to CW or CCW.
Based on Class III, the encoder offers enhanced features such as per-turn scaling and total resolution settings, rotational speed measurement, and a set function. Enhancements can be used at the discretion of the configuration options.
In addition to the Profinet-compliant communication messages 81, 82, 83, 84, a message 860 has been added that can be easily preset using control bits. Configuration options can be programmed by importing a GSDML file from a controller (such as a PLC) on an Ethernet network without the aid of an external add-on device.

※ Additional diagnostic alarm (data reliability, working temperature, working voltage and working time) and other functions to enhance the safety and reliability of field applications.

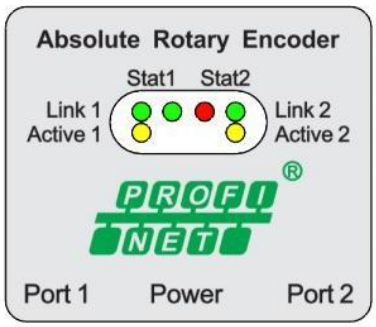
## Wiring definition:




Port 1 Power Port 2

| | M12, 4-pin socket | | | |
|---|---|---|---|---|
| Pin definition | Port 1 and 2 | Cable color | Power | Cable color |
| 1 | Tx + | Yellow | Vcc | Brown |
| 2 | Rx + | White | — | White |
| 3 | Tx - | Tangerine | 0V | Blue |
| 4 | Rx - | Blue | — | Black |
| Stitch diagram | 4 holes, D code  | | 4-pin, size A  | |

## Status indicator (LED) and status description:




| **LED** | Color | Explain |
|---|---|---|
| Link 1 | Green | Ethernet indicator for Port1 connection |
| Active 1 | Yellow | Port 1 data transmission indicator |
| Link 2 | Green | Ethernet indicator for Port2 connection |
| Active 2 | Yellow | Port2 data transmission indicator |
| Stat 1 | Green | See the table below for details of the status light |
| Stat 2 | Red | |

| **Stat 1 green** | **Stat 2 red** | Status information |
|---|---|---|
| Dark | Dark | No power supply |
| Bright | Bright | Ethernet is not connected |
| Bright | Flash | Parameter failure |
| Bright | Dark | Data exchange is normal |
| Note: The flicker frequency is 0.5 Hz | | Please refer to the user manual for more details. |

# Absolute Encoder (A Series) **Profinet IO**

Model selection description:

| A | A | | 58 | | — | | — | | | — | C | D | PN | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

Function
type S = single turn
M = multiple turn

Material
Null = Al
SR = 304
SV = 316 L

Supply voltage
D=10-30V DC

Installation Method *
A10 = shaft diameter 10 mm
T06 = shaft diameter 06 mm
B08 = blind hole 08 mm
B10 = blind hole 10 mm
B12 = blind hole 12 mm

ircle
B15 = blind hole 15 mm
BS08 = blind hole 08 mm
BS10 = blind hole 10 mm
BS12 = blind hole 12 mm
BS15 = blind hole 15 mm

Maximum Number of Turns
00 = 1 turn
12 = 4096 turns
14 = 16384 turns

Resolution/c
12=4096
13=8192

Signal type
PN = Profinet-IO

Outgoing Line Mode
R3C = Radial, 3 * M12 Socket
A3C = axial, 3 * M12 socket

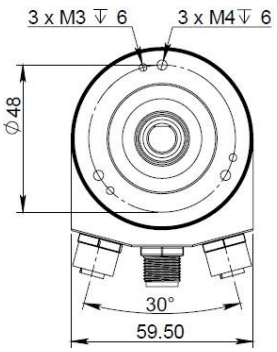
* A = clamping synchronizing flange, T = synchronizing flange,
B = blind hole (hole depth 30 mm),
BS = blind hole (hole depth 20mm, super short, suitable for installation in narrow space)

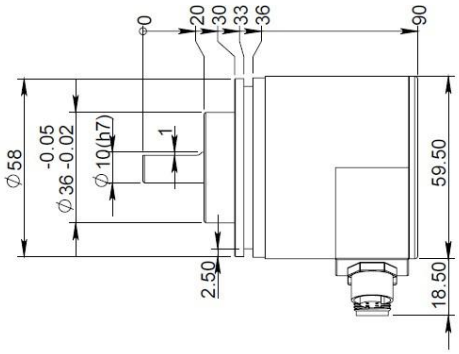
Caution:

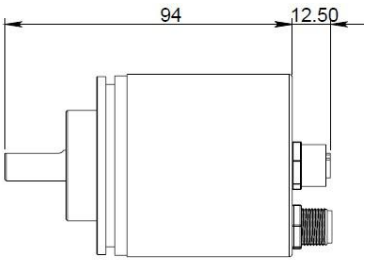
1) The encoder is a precision instrument, please do not knock, hit or drop the encoder, especially at the end of the shaft, please handle with care.
2) Ensure that the encoder power supply is within the selected power supply voltage range, and do a good job of quarantine to prevent the impact of large starting electricity on the encoder in the power grid.
3) It is recommended to use the standard PN communication line for the communication cable, otherwise the signal transmission may be interfered or distorted.

Mechanical dimensions: Unit: mm

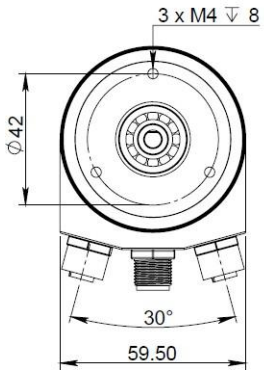
| Clamping synchronizing flange (58A10) ↓ | R3C | A3C |
|---|---|---|

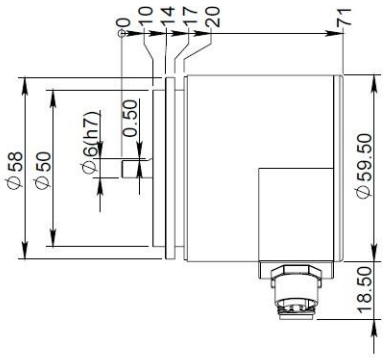


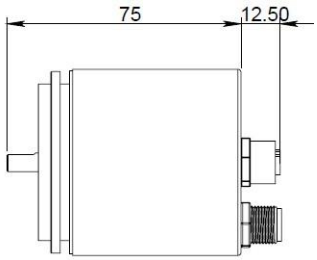



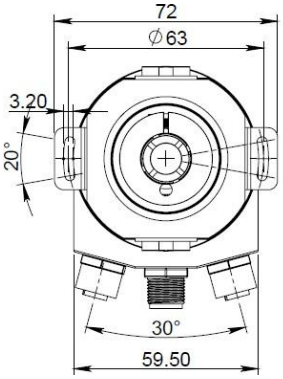

| Synchronizing flange (58T06) ↓ | R3C | A3C |
|---|---|---|

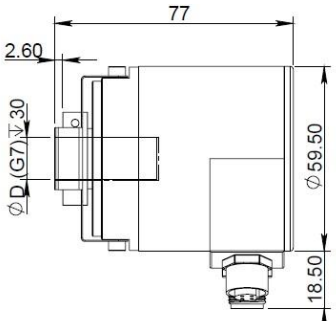


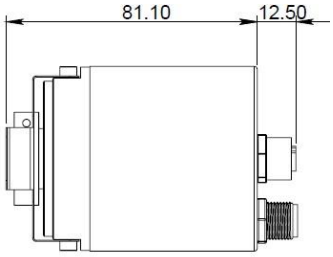




| Blind hole (58B) ↓ . | R3C | A3C |
|---|---|---|

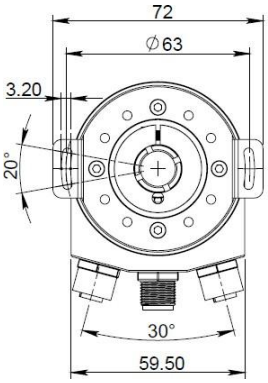


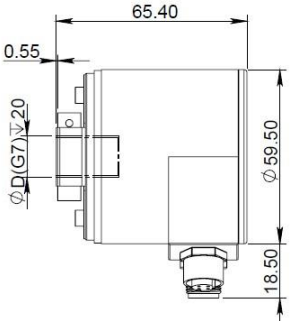



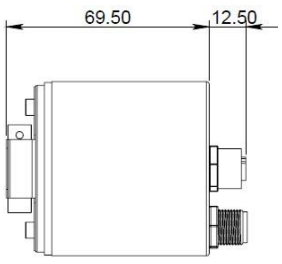




The blind hole has a depth of 30 mm, which is one of the deepest holes in the domestic and foreign markets. It can maximize the concentricity and reduce the installation space

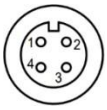
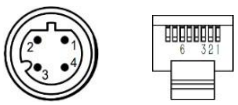
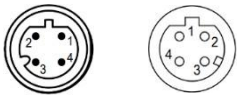
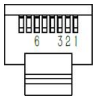
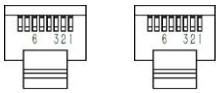
| Blind (58BS) ↓ . | R3C | A3C |
|---|---|---|



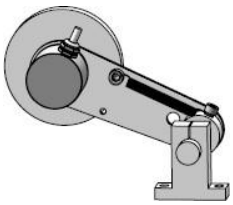




The overall design is only 65.4mm short, which is one of the shortest models in the domestic and foreign markets. It is suitable for installation in a narrow space. The installation shrapnel

| Accessories (sold separately) | | | |
|---|---|---|---|
| Fitting end: plug | Pin arrangement | Product model | Adaptive encoder series |
| 4-hole IP65 A-code plastic housing  |  | C6T | Power plug |
| 4-pin IP65 D-code metal housing  |  | C7T | Signal plug |
| 4-pin IP65 D-code metal housing  | M12 to M12  | C7T-Exx (XX is the length of the cable, e.g. 05 = 5m) | Communication between encoders |
| 4-pin IP65 D-code metal housing  | M12 to RJ45  | C7T-Pxx (XX is the length of the cable, e.g. 05 = 5m) | Communication between encoder and PLC |
| 4-pin IP65 D-code metal housing<br>4-hole IP65 D-code metal housing  | M12 to M12  | C7T-Fxx (XX is the length of the cable, e.g. 05 = 5m) | The signal end extension cord can be used with the C7T-P |
| RJ45 metal enclosure 360 ° shield  |  | RJ45 | Use of PLC, switch and other network port signal terminals |
| RJ45 metal enclosure 360 ° shield  | RJ45 to RJ45  | RJ45-2Axx (XX is the length of the cable, e.g. 05 = 5m) | PLC, switch and other network ports are connected for use |

| Coupling | Explain | Product model | Adaptive encoder series |
|---|---|---|---|
|  | Stainless steel coupling | AL4A-Bxx-xx | Aperture XX 6-12 optional |
|  | Spring steel coupling | AL3B-xx-xx | Aperture XX 6-12 optional |
|  | Double diaphragm coupling | AL10W-xx-xx | Aperture XX 10-12 optional<br>Suffix plus K indicates with keyway |

| Accessories (sold separately) | | | |
|---|---|---|---|
| Install the bracket | Explain | Product model | Adaptive encoder series |
|  | Mounting bracket material: aluminum alloy Process: oxidation treatment | AZJ80 | Series 58 Clamp flange 5810 Clamp synchronizing flange 58A10 |
|  | Mounting bracket material: aluminum alloy Process: oxidation treatment | AZJ110 | Series 58 Clamp flange 5810 Clamp synchronizing flange 58A10 |
| Spring Mounting Bracket | Explain | Product model | Adaptive encoder series |
|  | The bracket is an elastic mechanism, the roller is pressed on the moving object, the pressure of the elastic mechanism can avoid the slipping phenomenon between the roller and the measuring object, and the elastic force can be automatically adjusted. | AZJ140-58 | Series 58 Clamp flange 5810 Clamp synchronizing flange 58A10 The circumference depends on the roller |
|  | Aluminum alloy + polyurethane, highly wear-resistant | WJ200-10 | Circumference 200mm |
| | | WJ300-10 | Perimeter 300mm |
|  | Aluminum alloy + knurling process | WL300-10 | Perimeter 300mm |
|  | Aluminum alloy + wear-resistant rubber, highly wear-resistant | WX500-10 | Circumference 500 mm |