

General Specifications

ADMAG TI Series AXG/AXW Magnetic Flowmeter EtherNet/IP Communication Type



GS 01E21F02-02EN

EtherNet/IP is the digital communication based on Ethernet technology, whose signal is internationally standardized by ODVA Inc..

The Ethernet bi-directional digital communication performance makes possible for the field instruments and the control devices to be a complete on-line system, superseding the existing analog and/or Fieldbus transmission lines.

Thus, based on EtherNet/IP specifications, ADMAG Total Insight Ethernet model offers more flexible instrumentation through a higher level communication capability.



Integral Flowmeter



Remote Transmitter

■ FEATURES

● Interoperability

EtherNet/IP specifications grant the interoperability of the field instruments without preparing designated software for the instrument.

● Improved Operation and Monitoring Function

Operation authority level setting for ensuring safety, process data trend display, display backlight flashing (Squawk) function, and data store / restore function with display unit internal memory or microSD card are available.

● Fluid Adhesion Level Diagnosis

By constantly monitoring the level of insulating substance on the electrodes, it is possible to determine when maintenance is required.

● Stable Measurement

Our own dual frequency excitation method realizes stable flow measurement even under high flow noise in the fluid with highly concentrated slurry.

● Improved Maintainability

Diagnostic functions that contribute to preventive maintenance of the plant are installed. Diagnosis of the device (verification function) that can be executed without demounting from piping, detection of the process condition by monitoring the flow noise and electric conductivity of the fluid, electrode insulation deterioration diagnosis, electrode adhesion diagnosis, and wiring connection diagnosis are available.

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FUNCTIONS

For items other than those described below, refer to GS 01E22A01-01EN or GS 01E24A01-01EN.

Output:

Digital communication signal based on CIP (Common Industrial Protocol), adaptor

Physical layer:

10BASE-T / 100BASE-TX

Transmission speed:

10 / 100 Mbps with auto negotiation

Functional Specifications:

- Device Level Ring (DLR)
- Cyclic data communication for flow, total and diagnostics
- Explicit message communication for flow, total, diagnostics and write protect
- Number of simultaneous connections (Explicit message): Maximum 6
- Number of simultaneous connections (Cyclic): Maximum 4

Displayed Language:

English

Ethernet communication:

- Maximum segment length: 100 m
- Web server: Real time monitoring, configuration change and operation for ADMAG T1 is available from web browser
- DHCP client functionality

MODEL AND SUFFIX CODE

For items other than those described below, refer to GS 01E22A01-01EN or GS 01E24A01-01EN.

AXG series Integral Flowmeter

AXG###-A#####-#P0###

AXG4A Remote Transmitter

AXG4A-#####P0###

AXW series Integral Flowmeter

Size 25 mm to 450 mm (1 in. to 18 in.)

AXW###-A#####-#P0###

AXW4A Remote Transmitter

AXW4A-#####P0###

(Note1) "P0" indicates that the output is digital communication compliant with the EtherNet/IP protocol.

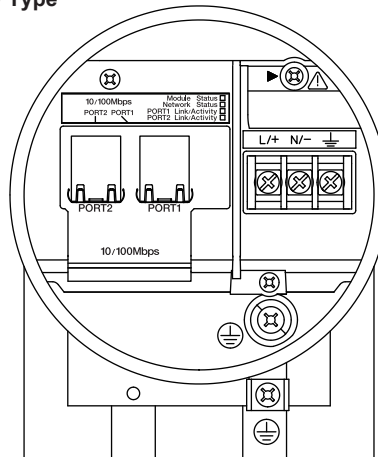
ACCESSORIES

Refer to GS 01E22A01-01EN or GS 01E24A01-01EN

TERMINAL CONFIGURATION

<To be wired to Power Supply and Ports>

M4 Screw Type



Terminal Symbol	Description
	Shorting Screw (Need to be fixed for normal operation)
	Functional Grounding
	Power Supply
	Ethernet port (RJ-45, 2 ports)
	Protective Grounding (Inside and outside of the terminal box)

F01.ai

Recommended Cable for Excitation, Power and Input / Output (except PORT1/PORT2):

JIS C 3401 control cable equivalent
JIS C 3312 power cable equivalent
14 AWG Belden 8720 equivalent

Outer Diameter:

Without gland:
6.5 to 12 mm (0.26 to 0.47 in.)

Nominal Cross Section:

Single wire: 0.5 to 2.5 mm²
Stranded wire: 0.5 to 1.5 mm²

Recommended Cable for PORT1 and PORT2:

STP (Shielded Twist Pair) with CAT5e, CAT6 or more

Note: Ethernet cable with Protective boot is not fit.
Ensure that protective boot is not equipped.

■ ORDERING INFORMATION

Note 1: When ordering, the span flow rate, unit, and totalizer display pulse weight can be specified. These parameters will be set before shipment.
In the case of remote type, specify combination information of sensor and transmitter.
These parameters will be set in the combined transmitter.
When ordering of a remote sensor alone or a remote transmitter alone, these parameters cannot be specified.
Custom configuration request is necessary for setting these parameters out of regular setting range.

Note 2: Some options, if ordered, require the relevant specifications to be input when ordering.

Note 3: Please refer GS 01E22A01-01EN or GS 01E25D11-01EN for following order information.

- Measurable Flow Rate Range
- Specified Span Five-point Calibration (optional code SC)
- Direction of Cable Entry (optional code RH)
- Direction of Display

1. Model, Suffix Code and Optional Code
2. Combination

This is necessary when ordering combination of remote sensor and transmitter. Specify the combination of a sensor and a transmitter one by one by their model name, specification code, or Tag No. etc. On the nameplate of each sensor and transmitter, the serial number of the specified combination partner is described when shipped.

3. Tag No.

The Tag No. can be specified by a combination of the characters shown in the following table.

Symbol	-	Hyphen-minus	.	Period		Space (*)
	_	Underscore	=	Equal sign	+	Plus sign
	/	Slash	(	Left round bracket	)	Right round bracket
	:	Colon	#	Hash mark	!	Exclamation mark
Number	0, 1, 2, 3, 4, 5, 6, 7, 8, 9					
Uppercase letter	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z					
Lowercase letter	a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z					

*: Leading and trailing space characters are deleted and left-justified, then printed on the name plate/ tag plate and written to the amplifier memory.

Tag No. can be "described on the nameplate and stainless steel tag plate (optional code SCT)" and "set to the amplifier memory in the transmitter".
Read the table below for the item to be specified.

Described / Setting Destination	Items to be Specified	Maximum Number of Characters
• Name plate • Stainless steel tag plate (Optional code SCT)	TAG NO	30
• Amplifier memory (Integral flowmeter and remote transmitter)		30 There are restrictions on write destination parameters. See the next table.
	SOFTWARE TAG (Overrides TAG NO designation)	See the next table

For integral flowmeter and remote transmitter, the characters specified by "TAG NO" are also written to the memory (parameter) in the amplifier. If it is necessary to specify a different tag number only for the amplifier memory, specify "SOFTWARE TAG". It is also possible to specify only SOFTWARE TAG. Names of the parameter to be written and the maximum number of characters are as shown in the table below. If the number of specified characters exceed the maximum number, the characters from the beginning up to the maximum number is written.

Tag No. in Amplifier Memory		
Items to be Specified	Parameter Name	Maximum Number of Characters
TAG NO or SOFTWARE TAG	Long Tag	32
	Tag	16

4. Span Flow Rate and Unit

Specify the range of span flow rate in the range of 0.0001 to 999999000000.0000 (the number of significant digits in operation is the upper six digits). Up to four digits below the decimal point that can be specified (by 0.0001 unit). Specify units in the unit described in "Flow Calculation Function". This span flow rate is set to the positive first range. Be sure to specify the span flow rate and unit when selecting the Mass Unit Setting (optional code MU), or Specified Span Fivepoint Calibration (optional code SC).

Unless specified, it is set as the following when shipped.

- Integral Flowmeter, or combined with AXG4A or AXW4A span flow rate (unit m³/h) equivalent to flow velocity 1 m/s

5. Output Pulse Weight (Pulse Status Output 1)

Not applicable.

6. Totalizer Display Pulse Weight (Totalizer 1)

Specify the volume flow per pulse, after specifying the span flow rate. This totalizer display pulse weight is set to the Totalizer 1. The set value can be output only in communication as the integrated count of the integral flowmeter and the remote transmitter. Specify it in the same unit as the span flow rate. (Example: When "m³" is selected as "Span Flow Rate", specify "10 m³/p" as totalizer display pulse weight unit.) The specifiable numerical digit and range is the same as that for "4. Span Flow Rate and Unit". Unless specified, it is set as the following when shipped.

- Integral Flowmeter, or combined with AXG4A or AXW4A [span unit/p]

7. Mass Unit (optional code MU)

The flow rate calculation is performed in mass unit. In addition to fluid density, specify span flow rate, output pulse weight, and totalizer display pulse weight in mass unit.

The specifiable numerical digit and range is the same as that for "4. Span Flow Rate and Unit".

(1) Density

Numerical Value:

Specify within six digits (up to three digits below the decimal point) in the range of 500 to 2000 kg/m³ (4.2 to 16.7 lb/gal, 31.2 to 124.8 lb/cf).

Unit:

kg/m³, lb/gal, lb/cf

The density of water is about 1000 kg/m³.

Then specify "1000 kg/m³" in this case.

However, as the density varies with temperature, specify the density at the time of flow measurement.

(2) Span Flow Rate

Numerical Value:

When setting the mass span flow rate, calculate the volume span flow rate from the "density" and it must be within the measurable flow rate range. The settable numerical range for the mass span flow rate is the same as that for the volume span flow rate.

Unit:

Mass Unit: t, kg, g, klb, lb

Time Unit: /d, /h, /min, /s

8. Fluid Name

9. EtherNet/IP communication parameters

The following parameters can be set at factory.

Parameter to be specified	Value
DHCP enable	Disable*, Enable
IP address	192.168.1.210*
Subnet mask	255.255.255.0*
Default gateway	(empty)*

*: Factory default setting. If the parameter is not specified at ordering, these settings are applied to the parameter for EtherNet/IP communication.

■ RELATED INSTRUMENTS

Product	Document Number
AM012 Calibrator for Magnetic Flowmeter	GS 1E6K2-E
ADMAG TI Series AXG Magnetic Flowmeter	GS 01E22A01-01EN
ADMAG TI Series AXW Magnetic Flowmeter [Size: 25 to 450 mm (1 to 18 in.)]	GS 01E24A01-01EN

■ SECURITY

The device can be supported as a range of warranty only when the device is installed and used in Control and Field network.

Operator must have the responsible for IT security of equipment that is connected with the device, and this device must not connect with IT network.

In addition, parameter configuration can be locked by hardware switch.

■ TRADEMARKS

"EtherNet/IP", "CIP" and "ODVA" are trademarks or registered trademarks of ODVA Inc.

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Note: The terms "transmitter" and "sensor" in this document are used in the same manner as "converter" and "flowtube" respectively which are used for our previous magnetic flowmeter models.