

## GYcAT4 Probe

# Analogue

Noise  
Cancel



**Analogue output**  
(replacement model for GYLT, GYLS)



Replacement model for GYLS (0~10V) or GYLT (4~20mA).  
The linearity is changed to 0.05%FS from 0.025%FS, so please be careful. GYcAT4 doesn't have alarm output. Please consider GYcAT (page 16~17) in a new inquiry. By the option, it is available with the high speed sampling, and high temperature (rod parts only).

### Specifications

|                    |                 |                                                                     |
|--------------------|-----------------|---------------------------------------------------------------------|
| Accuracy           | Non-linearity   | $\leq \pm 0.05\%FS$ Typ.                                            |
|                    | Resolution      | $\leq 0.01\%FS$                                                     |
|                    | Repeatability   | $\leq \pm 0.01\%FS$                                                 |
|                    | Temp. drift     | $\leq \pm 40ppmFS/^{\circ}C$                                        |
| Output             | Voltage output  | 0~10V or 10~0V<br>(output current: Max.5mA, load: Min.2k $\Omega$ ) |
|                    | Current output  | 4~20mA or 20~4mA<br>(load: Max.500 $\Omega$ )                       |
|                    | Alarm output    | not available                                                       |
| Power supply       |                 | +24( $\pm 2$ )VDC (100mA)                                           |
| Sampling freq. (*) |                 | Std. 1kHz(Total rod length : 1300mm)                                |
| Environment        | Msx. Pressure   | 35MPa(probe rod)                                                    |
|                    | Operating temp. | -20 $^{\circ}C$ ~+80 $^{\circ}C$                                    |
|                    | Storage temp.   | -40 $^{\circ}C$ ~+80 $^{\circ}C$                                    |
|                    | Vibration       | 6G(or 40Hz 2mmPP)                                                   |
|                    | Shock           | 50G(2msec)                                                          |
| IP grade           |                 | IP67                                                                |

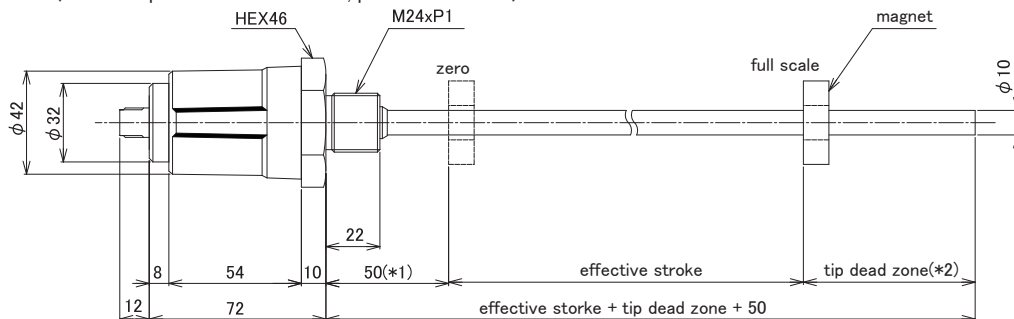
\* The above mentioned accuracy applies to sensors with an effective stroke of 300mm or more.

\* The specification of stroke less than 300mm is equal that of stroke 300mm.

(\*) Sampling freq. is available to Max. 8kHz by option. It depends on the total rod length (shows in Model ⑧), and the consumption current increases.

### Dimensions

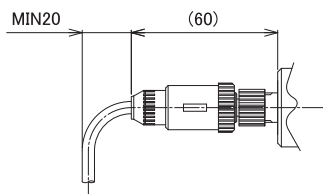
■ Probe (Materials probe head: Al diecast, probe rod: SS304)



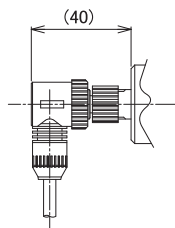
\*1) In case of an effective stroke 2001mm or more, head dead zone is 100mm. (Model code ② : 100)

\*2) In case of an effective stroke 3001mm or more, tip dead zone is "standard length + 30mm". (Model code ③ : 100/120/130)

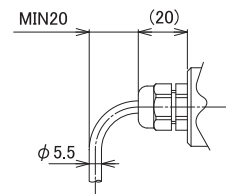
■ Connector type(straight)



■ Connector type(L-shaped)



■ Pigtail type



- Connector (M12-4pin) : Omron XS2C-D4S1 (straight type) or D4S2 (L type) (Material: PBT plastic)
- Suitable cable diameter:  $\phi 5 \sim \phi 6$ , Wire size: 0.18~0.75mm<sup>2</sup>

■ Cable

| Wire color | Pin number | Function |
|------------|------------|----------|
| red        | 1          | +24VDC   |
| white      | 2          | 0V       |
| black      | 3          | Output   |
| green      | 4          | COM      |

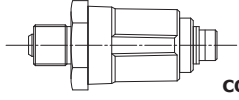
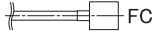
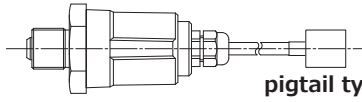
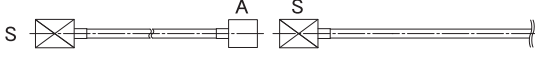
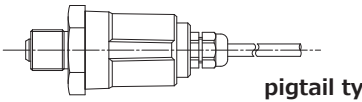
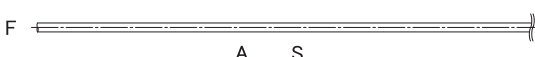
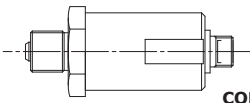
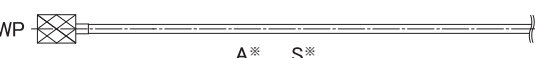
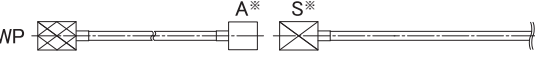
\* Shield should be connected to 0V at user side.



# Cable Extend 1

Group1 : GYcAT, GYAF1, GYcRS, GYcRP, GYFRS  
 Group2 : GYGS, GYPM, GYPE2K, GYPMR, GYMR6,  
 GYMR5, GYHR, GYHTR, EX-GYdT-A,  
 EX-GYdT-R, GYKMR, GYRHP-MR6

• Waterproof option (WPCN) is available on GYcAT, GYAF1,  
 GYcRS, GYcRP, and GYFRS.  
 • IP grade of relay connectors (type A, S) is IP67.

|             |                                                                                   |                           |                                                                                       |                                                                                     |
|-------------|-----------------------------------------------------------------------------------|---------------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Group1      |  | connector type            | S   |  |
|             |  | pigtail type              | S   |                                                                                     |
|             |  | pigtail type              | F   |                                                                                     |
| WPCN option |  | waterproof connector type | WP  |  |
|             |                                                                                   |                           | WP  |                                                                                     |

Probe

- Cable with connectors on both ends
- Cable with a connector on one end
- Cable with free on both ends
- For other requests, please consult our factory.
- IP grade of connectors with ☒ is IP67.
- A : SNW-1607-ACM
- S : SNW-1607-PCF

Model

## ■ Cable

CL-       -    -            

①      ②      ③      ④    ⑤

### ① Probe

|             |                    |
|-------------|--------------------|
| AT : GYcAT  | R5 : GYMR5         |
| AF : GYAF1  | FS : GYFRS         |
| GS : GYGS   | HR : GYHR          |
| PM : GYPM   | HTR : GYHTR        |
| P2 : GYPE2K | ETA : EX-GYdT-A(*) |
| PR : GYPMR  | ETS : EX-GYdT-R(*) |
| MR6 : GYMR6 | KRS : GYKM-RS      |
| RS : GYcRS  | PMR6 : GYRHP-MR6   |
| RP : GYcRP  |                    |

(\*) Cable and connector are non-flameproof.

### ② Cable type

S : Standard cable  
 W : Submersible cable(\*)  
 H : high temp. cable(\*)  
 R : Robot cable(\*)

(\*)Not available for all models.

### ③ Cable length (m)

### ④ Cable end (sensor side)

F : free  
 S : with straight connector  
 WP : with submersible connector(\*)

(\*)GYcAT, GYAF1, GYcRS, GYcRP and GYFRS are available

### ⑤ Cable end (controller side)

F : free  
 A : with relay connector  
 FC : with connector for GYFC2/3

• Crimping terminal is also possible.  
 Please consult our factory.

# Cable Extend 2

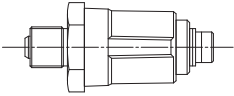
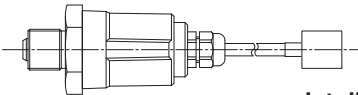
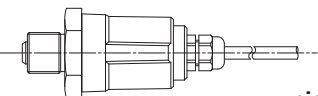
Group4 : GYMA, GYcAT4, GYMS

Group5 : GYKS2

Group6 : GYMRA, GYRHP-MRA, GYMRS

•The relay connector on cable (C) and (D) is not connected to probe directly.

The relay connector is only straight type.

|                                                       |                                                                                   |                |                                                                                                                                                                        |
|-------------------------------------------------------|-----------------------------------------------------------------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>Group5</div> <div>Group4</div> <div>Group6</div> |  | connector type |                                                                                      |
|                                                       |  | pigtail type   |   |
|                                                       |  | pigtail type   |   |
|                                                       |                                                                                   |                |   |

Probe

- Cable with connectors on both ends
- Cable with a connector on one end
- Cable with free on both ends
- For other requests, please consult our factory.

## Model

### ■ Cable

CL-  -  -    -      

①      ②      ③      ④ ⑤ ⑥

#### ① Probe

MRA : GYMRA      MS : GYMS  
 MA : GYMA      KS : GYKS2  
 A4 : GYcAT4      PMRA : GYRHP-MRA  
 MRS : GYMRS

#### ② Cable type

S: Standard cable  
 H: high temp. cable(\*)  
 R: Robot cable  
 (\*) Not available for all models.

#### ③ Cable length (m)

#### ④ Cable end (sensor side)

F: free  
 S: with straight connector  
 L: with L-shaped connector

#### ⑤ Cable end (controller side)

F: free  
 A: with relay connector

• Crimping terminal is also possible.  
 Please consult our factory.

#### ⑥ Connector Code

Group4    A: blank  
           B: (OM/SN)  
           C: (SN/F)  
           D: (SN/SN)  
           E: (F/SN)

Group5    A: blank  
           B: (OM/SN)  
           C: (SN/F)

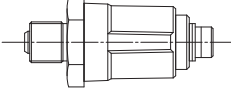
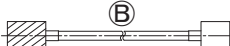
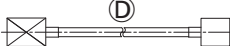
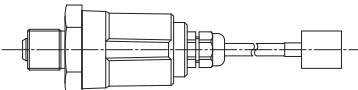
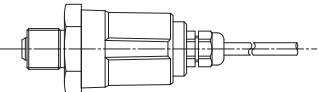
Group6    C: (NH/F)  
           D: (NH/NH)  
           E: (F/NH)

• NH: Nanaboshi  
 • SN: Sanwa  
 • OM: Omron

# Cable Extend 3

Group 7 GYSE-CN, -G※  
 Group 8 GYSE-8P, GYKMR-8P  
 Group 9 GYMRS, GYKMR

•The relay connector on cable (C) and (D) is not connected to probe directly.  
 The relay connector is only straight type.

|         |                                                                                    |                |                                                                                     |
|---------|------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|
| Group 8 |   | connector type |   |
|         |  |                |  |
|         |  |                |   |
| Group 7 |   | pigtail type   |  |
|         |   | pigtail type   |   |
|         |                                                                                    |                |  |

Probe

- Cable with connectors on both ends
- Cable with a connector on one end
- Cable with free on both ends
- For other requests, please consult our factory.

## Model

### ■ Cable

CL-   -  -

① ② ③ ④ ⑤ ⑥

#### ① Probe

SE8 : GYSE-8P  
 SE : GYSE-CN, G※  
 KMR8 : GYKMR-8P  
 KMR : GYKMR

#### ② Cable type

S : Standard cable  
 H : High temp. cable  
 R : Robot cable  
 UL : cUL cable

#### ③ Cable length(m)

#### ④ Cable end (sensor side)

[For GYSE, GYSE-8P]  
 F: Free  
 S: with straight connector  
 L: with L-shape connector

[For GYKMR-8P]

F: Free  
 S: with straight connector

#### ⑤ Cable end (controller side)

F: free  
 A: with relay connector

Crimping terminal is also possible.

Please consult our factory.

#### ⑥ Connector Code

【 GYSE 】

(A): blank  
 (B): (LM/NH)  
 (C): (NH/F)  
 (D): (NH/NH)  
 (E): (F/NH)

【 GYSE-8P 】

(A): blank  
 (B): (AP/NH)  
 (C): (NH/F)

【 GYKMR-8P 】

(A): blank  
 (B): (AP/SN)  
 (C): (SN/F)

【 GYKMR 】

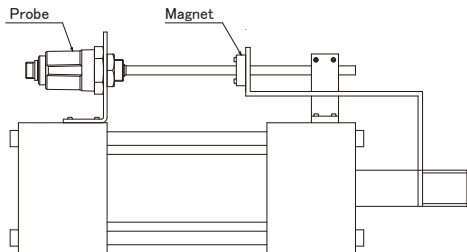
(C): (SN/F)  
 (D): (SN/SN)  
 (E): (F/SN)

AP: Amphenol  
 LM: Lemo  
 NH: Nanaboshi  
 SN: Sanwa

## Applications

1. Replace all absolute transducers.
2. As position feedback sensor for automatic control instrument.
3. As position feedback sensor for robot arm.
4. Replace multiple proximity sensors.
5. As position feedback sensor for woodworking-tool, cut-machine, press machine and so on.
6. As sensor built-in hydraulic or air cylinder.
7. As liquid level detection of various liquids.

(GY sensor outside hydraulic cylinder)



examples

<Displacement transducer>

- Press machine
- Tire vulcanizer
- Shield machine
- Crushing machine
- Forge rolling machine
- Various testing machine
- Die-cast machine
- Injection machine
- Winding machine
- Cylinder for water gate

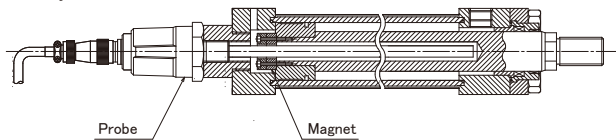
etc

<Liquid level detection>

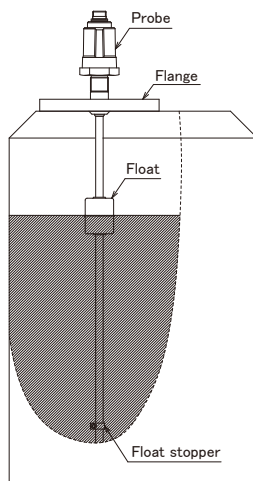
- Drink-filling machinery
- LP-gas tank lorry
- Leak detection for dam
- Plant

etc

(Hydraulic cylinder with built-in GY sensor)



(Liquid level detection)



(Feedback of servo motor position)

