

# MagneW™ 3000 Electromagnetic Flowmeter Model MGR13C(Converter)/MGR11U (Detector) Hyper-Fill

## OVERVIEW

The MagneW™3000 Hyper-Fill was developed for high speed batching and filling machine applications. Hyper-fill is a magnetic flowmeter optimized for the sophisticated measurement demands found in these industries. Extremely repeatable measurements are produced using a unique technology.



## FEATURES

- Highly repeatable measurement technology satisfies high speed filling applications.
- Flexible in design, the hyper-fill magnetic flowmeter uses a four-in-one design. This means that up to (4) detectors and converters can share a single power supply. This decreases space requirements and simplifies wiring and installation.
- Detectors use quick-connect waterproof cable connectors to simplify installation and maintenance. The detectors are compact in design; A distinct advantage for customers with multiple head filling machines.

## APPLICATIONS

Hyper-fill is used with filling machines for cans, bottles, barrels, and others. It is anything for similar high speed filling and batching applications.

### **Measurement conditions**

- Conductivity:
  - Fluid conductivity to be greater than 50µs/cm
- Process fluid temp:
  - 0-100°C
- Clean in place :
  - steam sterilization 140°C (284°F),
  - Maximum one hour continuous exposure.
- Filling flow rate:
  - 50 to 800ml/second
- Process fluid:
  - Must be non abrasive homogenous mixture.
  - Examples: water, soft drinks, carbonated drinks, scotch, liquor, wine, beer etc. For fluids with suspended solids, contact Yamatake to determine suitability of application.

## For converter (MGR13) **FUNCTIONAL SPECIFICATIONS**

### Output Signal

- Pulse Output Open (Open Collector)
- ⊕ Contact capacity : DC12 to 24V, 100mA
- ⊕ Pulse frequency : 8000Hz max
- ⊕ Pulse width : 30 $\mu$ s or 200 $\mu$ s (whichever selected)

### Range Setting

100mL/s, 200mL/s, 400mL/s, 800mL/s (whichever selected depending upon filling quantity)

### Damping

0.1s (Default)

### Drop out

0 to 10% (adjustable)

### Power Supply

AC85 to 264V, 47 to 63Hz

### Power Consumption

35W/Simltaneous Operating 4 Sets

### Ambient temperature limits

5 to 50 $\text{^\circ}$ C

### Ambient humidity limits

10 to 90%RH (no condensation)

## **PHYSICAL SPECIFICATION**

### Case Material

Carbon Steel (Plating Treatment)

### Weight

2.6kg (4 main units loaded condition)

## For Detector (MGR11U) **FUNCTIONAL SPECIFICATIONS**

### Size

15mm (0.5 inch)

### Measurable Electrical Conductivity

More than 50 $\mu$ S/cm

### Measuring Fluid Range

Between 50mL/s to 800mL/s

### Process Fluid Temperature limits

0 to 100 $\text{^\circ}$ C

### Process Fluid Pressure limits

-0.1 to 1Mpa

### Process Fluid Corrosiveness

Fluid should be no corrosive against stainless steel and PFA

### Process Fluid Abrasive

Fluid should be no abrasive.

### Rinsing Temperature limits

140 $\text{^\circ}$ C, Not longer than 1 hour

### Ambient temperature limits

5 to 50 $\text{^\circ}$ C

### Ambient humidity limits

5 to 100%RH (no condensation)

## **PHYSICAL SPECIFICATIONS**

### Enclosure rating

JIS 0920 water-proof, NEMA, TYPE 4X, IEC IP67

### Body Material

Measuring Tube SUS304

Case SUS304

### Wetted Parts Material

Lining : PFA

Electrode : SUS316L

Welding Ferrule (Option) : SUS304

Gasket : Silicon rubber

### Electrode Structure

Insertion Type Electrode (fixed)

### Accessories

Welding Ferrule (Option), Silicon Gasket 2 pcs.

### Weight

1.4kg

## **PERFORMANCE SPECIFICATIONS**

### Standard Reproducibility

$\omega$ =0.1% (Filling Time $\geq$ 3s)

$\omega$ =0.2% (1.5s $\leq$ Filling Time $\leq$ 3s)

Reference Condition: Calibration by Water at 20 $\text{^\circ}$ C

It is possible to comply the filling time less than 1.5s, so please consult with us if necessary.

" $\omega$ " means a standard deviation and

$\omega = \frac{\sqrt{\sum (\text{measured figure "n"} - \text{Average of "n"})^2}}{(n-1)}$

## **INSTALLATION**

### Mounting

Converter : Panel Mounting (by M4 screw)

Detector : Process connection

(by IDF clamp for 1 inch - ferrule connection)

### Grounding

Resistance less than 100 T

**MODEL SELECTIONS****MagneWTM 3000 Electromagnetic Flowmeter Hyper-Fill (Converter)**

MGR13 I - II III IV V - Options

Basic model	<b>MGR13</b>		
I	Power supply	AC85 to 264V 47 to 63Hz	C
		None(Only converter unit for replacement)	R
			-

II	Customer specification	WW	WW
III	Converter	Master converter (Available when "Power supply" of Selection I is "C" )	M
		Slave converter (Available when "Power supply" of Selection I is "C" )	S
		*1 Converter for replacement (Available only when "Power supply" of Selection I is "R" )	R
IV	Main Unit	None / Power supply only (Available when "Power supply" of Selection I is "C" )	0
		*2 One unit (Available only when "Power supply" of Selection I is "R" )	1
		Two units (Available when "Power supply" of Selection I is "C" )	2
		Three units (Available when "Power supply" of Selection I is "C" )	3
		Four units (Available when "Power supply" of Selection I is "C" )	4
V	Combined Detector	15mm	15
		25mm(For the specification in the future)	25

Options	
X	None
B	Traceability certificate
C	Tag numbers on each converters

\*1: The only one converter can be a master converter. Others are slave converters.

\*2: Main unit does not have a power supply for operating.

Main unit without power supply can be ordered only for the replacement or spare part.

\*3: When ordering converters without detectors, the traceability certificate does not include test reports.

\*4: Please order MGA22W cables for the connection between master converter and slave converter

\*6: For Customer specifications in selection II, refer to Yamatake sales.

\*7: When ordering, the following information is required.

\* TAG No

\* Pulse width 30 $\mu$ s or 200 $\mu$ s)

\* Setting range (100mL/s, 200mL/s, 400L/s, 800L/s)

\*Pulse weight (0.05ml/P or 0.1ml/P)

**MagneWTM 3000 Electromagnetic Flowmeter Hyper-Fill (Detector)**

MGR11U- I II III - Options

Basic models	<b>MGR11U</b>		
I	Detector size	15mm 0.5S	015

II	Electrode	SUS316L	L
III	Calibration	Standard calibration	A

Options	
X	None
A	Test report
B	Traceability certificate
C	Tag number for each devices
D	0.5S Welding Ferrule 2pcs.
E	Extra 2 gaskets *1
Q	Gasket material : Silicon

\*1 : 2 pcs of gasket are attached as a standard accessory.

\*2: The lining of this detector is PFA.

\*3: Please order MGA22W cables for the connection between master converter and slave converter

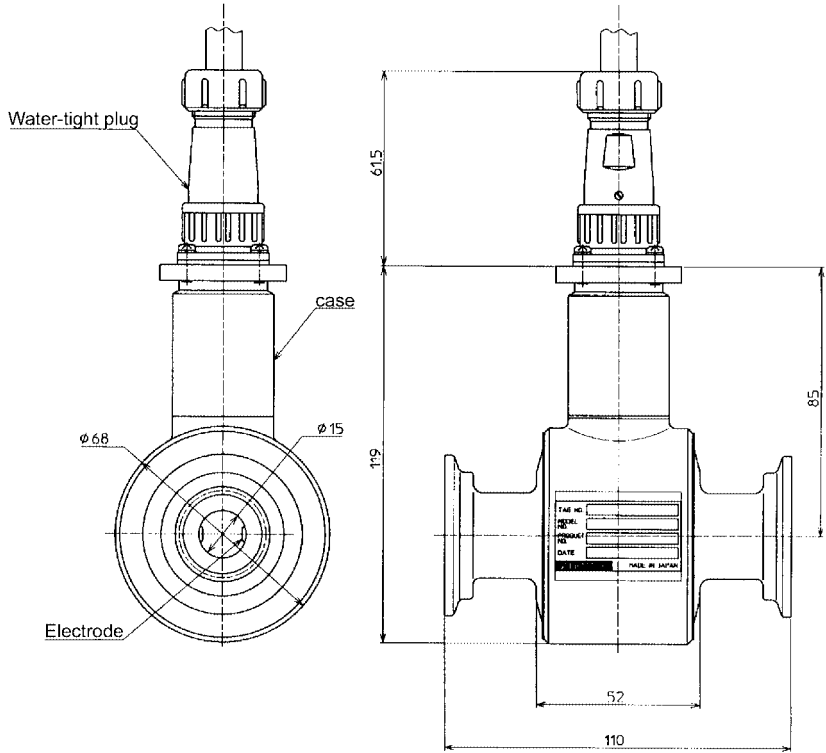
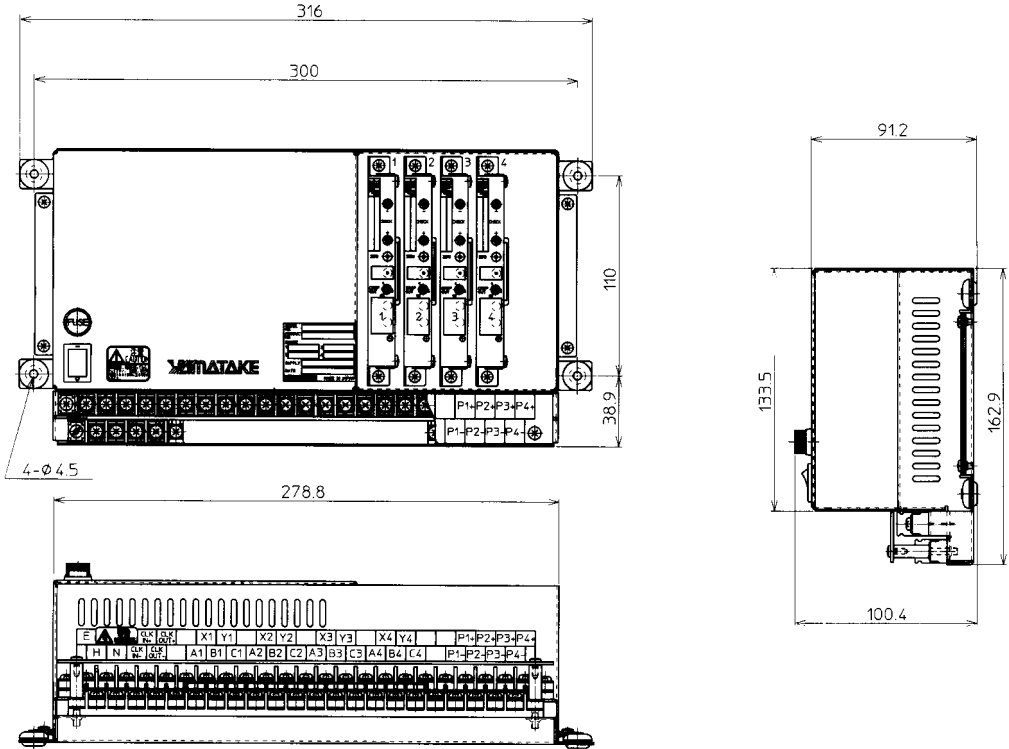
\*4 The connection of detector and piping is 1.5S IDF clamp and Yamatake does not provide it.

\*5 : When ordering, the following information is required.

\* TAG No

\* Fluid name

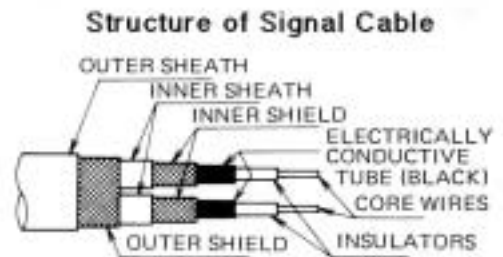
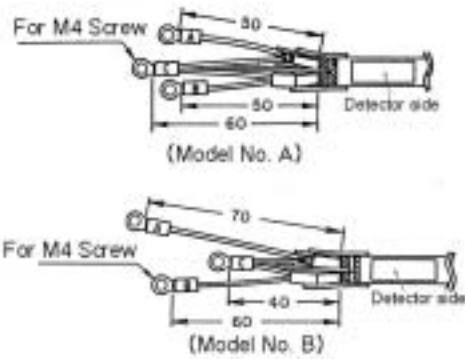
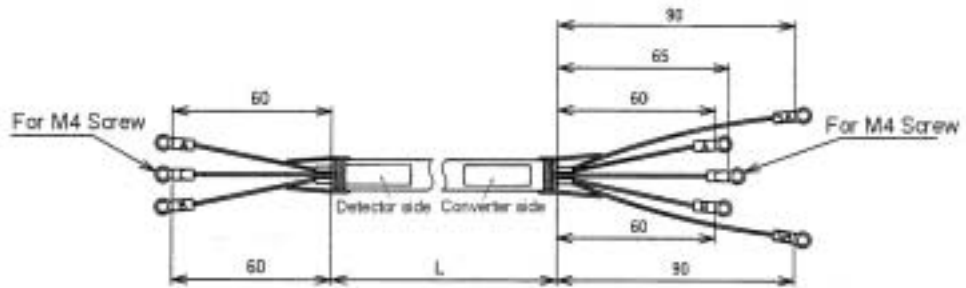
**DIMENSIONS**



**Signal Cable**

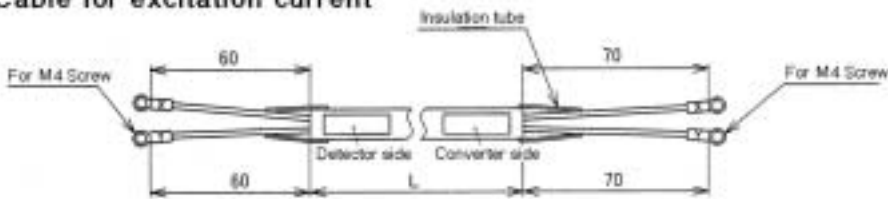
**End terminal processing at Detector side**

**End terminal processing at Converter side**

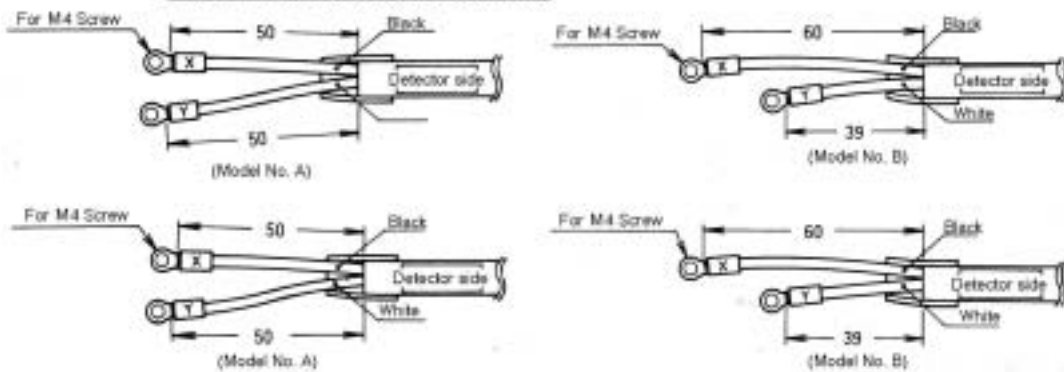


Note: Remove the electrically conductive tubes (black) of cores for terminals A and B up to the ends of the inner shields.

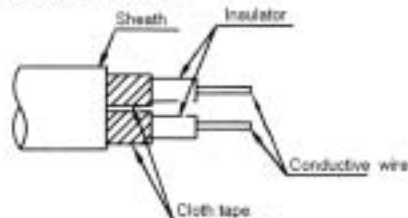
**Cable for excitation current**



**End terminal processing at detector side**



**Structure of Excitation Cable**





**azbil**

**Yamatake Corporation**  
**Advanced Automation Company**

1-12-2 Kawana, Fujisawa  
Kanagawa 251-8522 Japan

**URL:**<http://www.azbil.com>