

MagneW 3000 *PLUS* Smart Electromagnetic Flowmeter Specification and Application Guide

**36-KI-29-02
1/98**

Copyright, Notices, and Trademarks

© Copyright 1998 by Honeywell Inc.

Revision 1.0 – January 5, 1998

While this information is presented in good faith and believed to be accurate, Honeywell disclaims the implied warranties of merchantability and fitness for a particular purpose and makes no express warranties except as may be stated in its written agreement with and for its customer.

In no event is Honeywell liable to anyone for any indirect, special or consequential damages. The information and specifications in this document are subject to change without notice.

TotalPlant, TDC 3000 and SFC are U.S. registered trademarks of Honeywell Inc.

Other brand or product names are trademarks of their respective owners.

Honeywell
Industrial Automation and Control
Automation College
2820 West Kelton Lane
Phoenix, AZ 85023
(602) 313-5669

Table of Contents

| | |
|---|-----------|
| INTRODUCTION..... | 1 |
| COMPONENTS..... | 1 |
| PRINCIPLE OF OPERATION..... | 2 |
| HARDWARE CONFIGURATION | 2 |
| FEATURES..... | 3 |
| DETECTOR | 3 |
| CONVERTER..... | 3 |
| OPERATOR INTERFACE | 4 |
| DIAGNOSTICS | 5 |
| COMMUNICATIONS SUMMARY..... | 5 |
| SUMMARY OF MAGNEW 3000 <i>PLUS</i> FEATURES..... | 6 |
| WIRING SUMMARY | 7 |
| Electrical Connection Considerations | 8 |
| Cable Types..... | 8 |
| Laying of Cables..... | 8 |
| Cable Lengths..... | 8 |
| Grounding..... | 8 |
| Terminal Connections..... | 9 |
| Cabling for Remote Detector/Converter..... | 10 |
| RANGING FUNCTION..... | 11 |
| SELECTION OF CORROSION RESISTANT MATERIALS | 12 |
| APPLICATION DATA WORKSHEET..... | 13 |
| INSTALLATION PLANNING CONSIDERATIONS | 14 |
| Environmental Conditions | 14 |
| Fluid to be Measured | 15 |
| Measured Liquid Flow Conditions..... | 15 |
| Detector Location in Piping | 16 |
| Clearance for Maintenance..... | 18 |
| SPECIFICATIONS | 19 |
| Performance | 19 |
| Design..... | 19 |
| Environmental and Operating Conditions..... | 23 |
| DIMENSIONS..... | 25 |
| ORDERING DATA AND SPECIAL INSTRUCTIONS..... | 36 |

Table of Contents

MODEL SELECTION GUIDES

| | |
|--|--------------------|
| MagneW 3000 PLUS Integral Converter and MGG18D Wafer Style Detector, Size 2.5-200mm..... | 36-KI-16-24 |
| MagneW 3000 PLUS Integral Converter and MGG18F Flange Style Detector, Size 15-200mm..... | 36-KI-16-25 |
| MagneW 3000 PLUS Remote Converter | 36-KI-16-26 |
| MagneW 3000 PLUS Remote Detector Wafer Type, Size 2.5-200mm | 36-KI-16-27 |
| MagneW 3000 PLUS Remote Detector Flange Type, Size 25-400mm..... | 36-KI-16-28 |
| MagneW 3000 PLUS Remote Detector Wafer Type, Size 2.5-200mm..... | 36-KI-16-29 |
| MagneW 3000 PLUS Remote Detector Flange Type, Size 25-400mm..... | 36-KI-16-30 |
| MagneW 3000 PLUS Remote Detector Wafer Type, Size 2.5-200mm..... | 36-KI-16-31 |
| MagneW 3000 PLUS Remote Detector Flange Type, Size 25-600mm..... | 36-KI-16-32 |
| MagneW 3000 PLUS Submersible Detector Wafer Type, Size 15-200mm..... | 36-KI-16-33 |
| MagneW 3000 PLUS Submersible Remote Detector Flange Type, Size 25-600mm..... | 36-KI-16-34 |
| MagneW 3000 PLUS Cables..... | 36-KI-16-35 |
| MAGNEW 3000 PLUS APPLICATION DATA SHEET | 36-KI-08-01 |

Figures and Tables

| | | |
|-----------|--|----|
| Figure 1 | MagneW 3000 PLUS Components..... | 1 |
| Figure 2 | Principle of Operation. | 2 |
| Figure 3 | Typical SFC Connection to the 4 to 20 mA Loop..... | 4 |
| Figure 4 | Typical SFC Prompts..... | 4 |
| Figure 5 | Digital Operator Panel Display (configured for % flow range)..... | 4 |
| Figure 6 | MagneW 3000 PLUS Communications Hierarchy for TPS..... | 5 |
| Figure 7 | Overview of MagneW 3000 PLUS Wiring Requirements | 7 |
| Figure 8 | Typical Wiring Connections for the MagneW 3000 PLUS Remote and Integral Flowmeters..... | 9 |
| Figure 9 | Cable Length Versus Fluid Conductivity..... | 10 |
| Figure 10 | Direct Direction, Automatic Dual Range Transfer Hysteresis..... | 11 |
| Figure 11 | Direct/Reverse Transfer Hysteresis..... | 11 |
| Figure 12 | Wall Mounting Dimensions | 25 |
| Figure 13 | 2-inch Pipe Mounting Dimensions | 26 |
| Figure 14 | Dimensions for Integral Model—Refer to Table 8..... | 27 |
| Figure 15 | Union Joint Dimensions – 2.5 mm to 15 mm (0.1 in. to 0.6 in.)..... | 28 |
| Figure 16 | Hose Joint Dimensions – 2.5 mm to 15 mm (0.1 in. to 0.6 in.)..... | 29 |
| Figure 17 | IDF/Tri-Clamp Dimensions – 2.5 mm to 15 mm (0.1 in. to 0.6 in.)..... | 30 |
| Figure 18 | Wafer Dimensions – 2.5 mm to 15 mm (0.1 in. to 0.6 in.) and 25 mm to 200 mm (1 in. to 7.9 in.)—Refer to Table 8..... | 31 |
| Figure 19 | Flange Dimensions – 25 mm (1 in.)..... | 33 |
| Figure 20 | Flange Dimensions – 40 mm to 140 mm (1.6 in. to 3.9 in.) and 150 mm to 600 mm (5.9 in. to 23.6 in.)—Refer to Table 9..... | 34 |
| Table 1 | Available Models..... | 3 |
| Table 2 | Summary of Major MagneW 3000 PLUS Features..... | 6 |
| Table 3 | Summary of Range Function Options..... | 11 |
| Table 4 | Characteristics of Wet Contact Materials..... | 12 |
| Table 5 | Summary of Installation Considerations. | 14 |
| Table 6 | Specifications for MagneW 3000 PLUS | 19 |
| Table 7 | Minimum and Maximum Ranges..... | 24 |
| Table 8 | Dimensions for Figures 14 and 18..... | 32 |
| Table 9 | Dimensions for Figure 20. | 35 |

Introduction

The MagneW 3000 **PLUS** electromagnetic flowmeter consists of a detector/converter combination that operates on the principles of Faraday's Law. Based on Honeywell's proven MagneW 3000 flow measurement technologies, the **PLUS** detectors offer expanded flow rate and process measurement capabilities when used with the new range of **PLUS** converters.

The MagneW 3000 **PLUS** offers

- a wide range of wafers and flanges,
- IDF and Tri-Clamp couplings,
- local data setting device,
- batch control with preset counter trip,
- automatic dual-range switchover with reverse flow,
- high and low alarm settings,
- continuous self-diagnostics, and
- remote communication with SFC®.

The MagneW 3000 **PLUS** is part of the TotalPlant® Solution (TPS) system. TPS is the evolution of TDC 3000®X.

Components

As shown in Figure 1, the MagneW 3000 **PLUS** flowmeter includes a detector and converter available in an integral-type or a remote-type configuration.

With an integral-type configuration, the converter mounts directly onto the detector.

With a remote-type configuration, the detector is connected by cables to the converter which can be mounted up to 300 meters (984 feet) away, depending on the application.

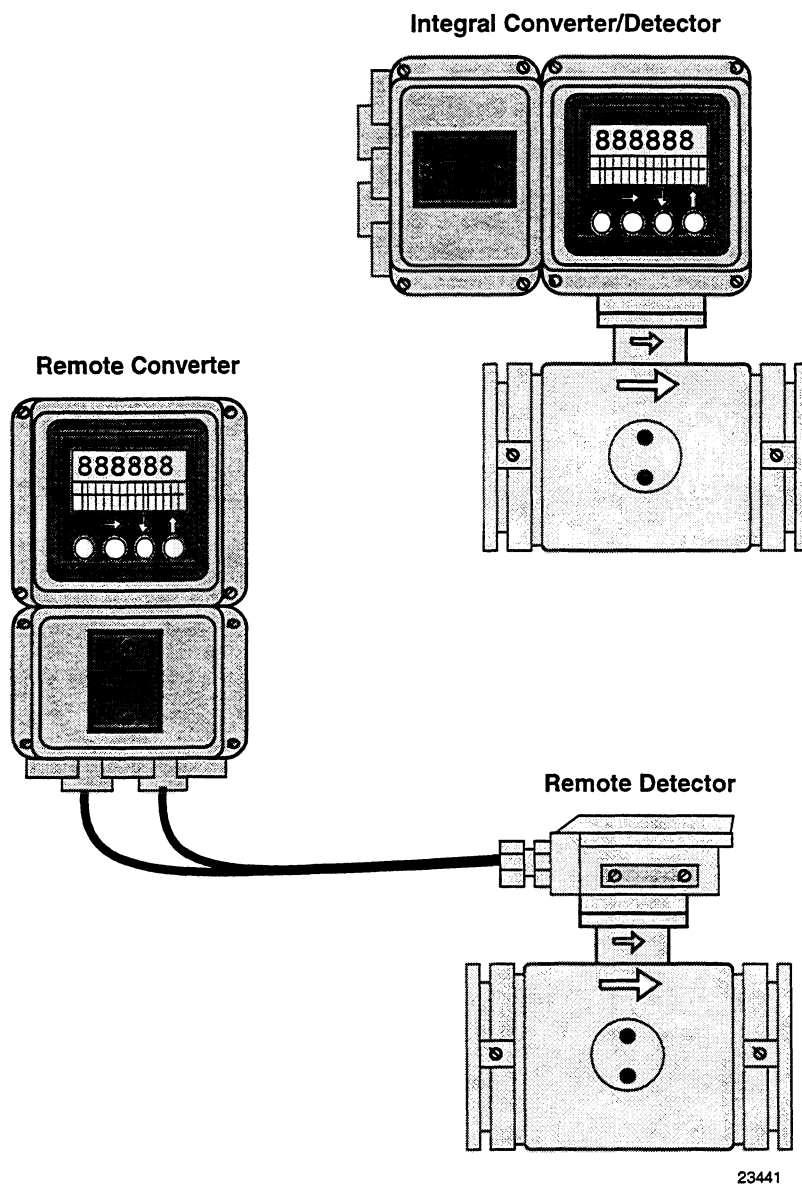


Figure 1—MagneW 3000 **PLUS** Components

Principle of Operation

The MagneW 3000 **PLUS** flowmeter's operating principle is based on Faraday's Law: *The voltage induced across any conductor, as it moves at right angles through a magnetic field, is proportional to the conductor's velocity.*

The detector fits on the pipe and measures the flow. The detector's excitation coils receive power from the converter. These coils create a magnetic field at a right angle to the flow direction.

As the conductive liquid flows through this magnetic field, a voltage which is proportional to the liquid flow velocity is produced across the electrodes. The detector sends these voltage signals to the converter. Refer to Figure 2.

The converter, which holds the circuitry that calculates and displays the flow data, converts the detector signals into outputs for recording and control instrumentation.

The relationship between the liquid flow velocity and the voltage is expressed in Faraday's formula:

E is proportional to $V \times B \times D$

where:

E = Induced Electromagnetic Voltage
Voltage generated by the flow of the conductive liquid through the magnetic field of the flowmeter.

V = Average Flow Velocity (m/s)
The average velocity of the liquid through the cross section of the flowmeter.

B = Magnetic Flux Density
The strength of the magnetic field generated by the field coils.

D = Inside Diameter of the Pipe
The distance between the electrodes which detect the signal voltage (E) that is generated.

This means that the voltage (E) depends on the average flow velocity (V), the magnetic flux density (B), and the inside diameter of the pipe (D).

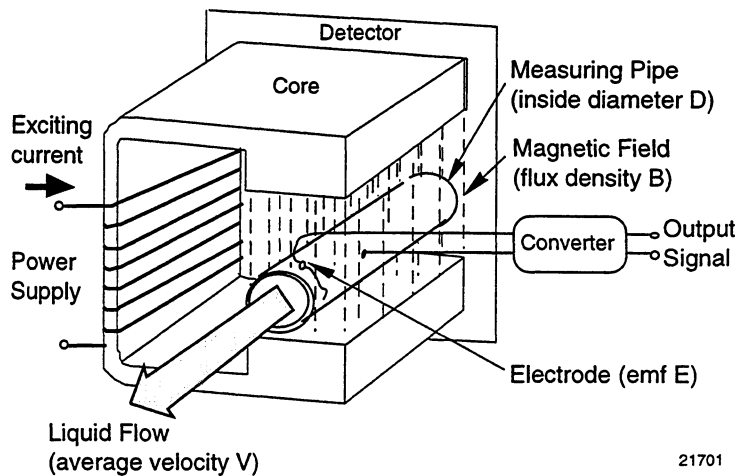


Figure 2—Principle of Operation

Hardware Configuration

The MagneW 3000 **PLUS** flowmeter is available as either:

- an integral unit—converter mounted on detector, or
- a remote converter/remote detector.

The detector is mounted to the process piping, using one of the following types of connections:

- wafer,
- flange,
- union,
- hose, or
- IDF or Tri-clamp.

The type of connection used is dependent upon diameter size and the application. Where applicable, gaskets are supplied unless the grounding rings are made of SUS material.

If using the remote converter/remote detector combination, either a wall- or pipe-mounting kit for the converter and cables to connect the converter and detector are needed.

Features

Liquid crystal display with backlighting (optional)

- In direct sunlight or in a dark room, the backlit liquid crystal display (LCD) can be read easily.
- Simultaneous display of instantaneous flow volume in %, actual flow volume in a variety of engineering units, and indication of total flow volume.
- When an integral model is installed on vertical or horizontal pipes, its display can be rotated through 90 degrees for better visibility.

Setting parameters by infrared touch sensor (optional)

- Parameters can be set without opening the cover of the converter.
- A special security feature has been incorporated to prevent inadvertent operation of the infrared touch sensor.

Field-replaceable electrodes

Electrodes are field-replaceable.

High performance lining

- High-quality PFA lining has excellent electrical and heat resistant characteristics, low surface friction, and high anti-adhesive properties.
- The PFA lining is particularly applicable for measurement of sticky pulps and gypsum slurries.

- PFA linings with diameter ranges from 2.5 to 600 mm (0.1 to 23.6 in.) available, making selection of the best lining easy for a wide variety of applications.
- The successful, embedded punch plate offers proven performance under conditions of rapid thermal change and/or negative pressure.

Rugged detector structure

- A stainless steel case is used for diameters of 2.5 to 200 mm (0.1 to 7.9 in.).

A wide variety of piping connections

- A hose, union joint, or clamp can be selected for very small diameter models [diameters of 2.5 to 15 mm (0.1 to 0.6 in.).]
- A flange structure is available for diameters of 25 to 600 mm (1 to 23.6 in.).
- A wafer construction can also be selected for diameters of 2.5 to 200 mm (0.1 to 7.9 in.).
- Diameters of 65, 125, and 450 mm (2.6, 5, and 17.7 in.) have been added to the existing product line.

Interchangeability

Can be used in combination with previous model detectors and converters.

Please consult your Honeywell representative for details.

Detector

Because the detector does the actual measuring of the flow rate, it serves as the primary element for MagneW 3000 **PLUS** flowmeters.

The detector measures the current generated by the conductive fluid as it moves through a magnetic field and sends this signal to the converter.

Available models are listed in Table 1.

Converter

The converter takes the electromotive-force signal from the detector and converts it to the instantaneous flow rate. That flow rate is output to the control equipment as either an analog or digital signal.

The converter also provides optional pulse outputs to drive counters and totalizers.

The converter has an optional Digital Operator Panel (DOP) which indicates the instantaneous flow rate or the integrated flow rate.

Because the converter is a current output-based device, the flowmeter can be configured and operated using the SFC. Or, the flowmeter can be configured and operated locally using the DOP.

The converter also supports the digital enhanced (DE) mode for direct digital communications with Honeywell's TPS system.

Available models are listed in Table 1.

Table 1—Available Models

| DETECTORS | | | |
|---------------------|--|------------------|--|
| Model | Lining | Pipe Connection | Diameter—mm (inches) |
| General/watertight | PFA | Union/hose/clamp | 2.5 to 15 (0.1 to 0.6) |
| General/watertight | PFA Polyurethane rubber | Wafer | 2.5 to 200 (0.1 to 7.9) 25 to 200 (1 to 7.9) |
| General/watertight | PFA Polyurethane rubber Chloroprene rubber | Flange | 25 to 600 (1 to 23.6) 25 to 200 (1 to 7.9) 250 to 600 (10 to 23.6) |
| General/submersible | PFA | Union/hose/clamp | 15 (0.6) |
| General/submersible | PFA Polyurethane rubber | Wafer | 15 to 200 (0.6 to 7.9) 25 to 200 (1 to 7.9) |
| General/submersible | PFA Polyurethane rubber Chloroprene rubber | Flange | 250 to 600 (10 to 23.6) 25 to 200 (1 to 7.9) 250 to 600 (10 to 23.6) |
| CONVERTERS | | | |
| General | Integral or remote type | | |

Operator Interface

The MagneW 3000 **PLUS** flowmeter can be configured, communicated with, and operated using

- a hand-held Smart Field Communicator (SFC),
- the flowmeter's optional Digital Operator Panel (DOP), and/or
- Honeywell's TPS system.

Communications can be quickly established with the MagneW 3000 **PLUS** through the SFC. It connects to the output terminals on the converter or anywhere along the 4 to 20 milliampere current line. Refer to Figure 3.

Operating parameters can be configured or operating data can be read by initiating simple keystroke sequences on the SFC. As shown in Figure 4, English language prompts in a two-line display guide the entry of configuration data such as:

- Pulse Parameters
- Detector Parameters
- Low Flow Cutoff
- Damping Time
- Range Parameters
- Input and Output Options
- Failsafe Mode

Pertinent operating data values are displayed in percent or user-selected engineering units for volume flow, mass flow, or time.

The optional DOP, allowing local configuration and operation of the flowmeter, contains

- a 7-segment, 6-digit main display, and
- a 16-digit, 2-line auxiliary display.

The main display indicates the instantaneous flow rate in percent of span, the instantaneous actual flow volume in selected engineering units, and the totaled flow volume (when pulse output is selected).

The auxiliary display allows the operator to monitor actions for entering/ changing configuration, operation, and calibration data, as well as checking diagnostic functions. These actions are performed using the DOP's four infrared touch sensor keys. Refer to Figure 5.

In the DE (Digital Enhanced) mode, the flowmeter can communicate digitally with Honeywell's TPS, and through a custom field termination assembly (FTA) to Allen-Bradley controllers.

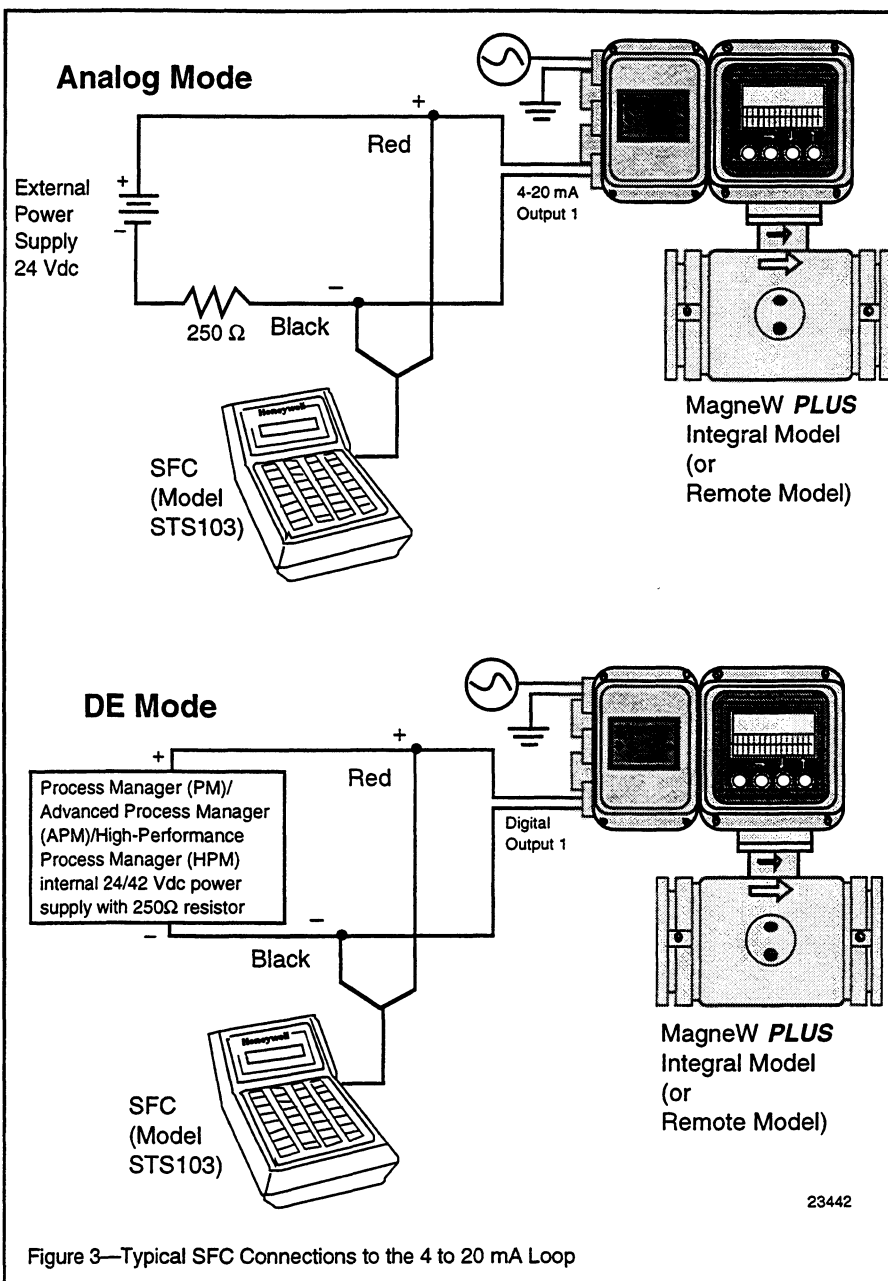


Figure 3—Typical SFC Connections to the 4 to 20 mA Loop

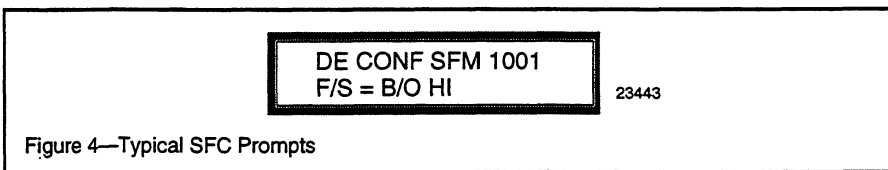


Figure 4—Typical SFC Prompts

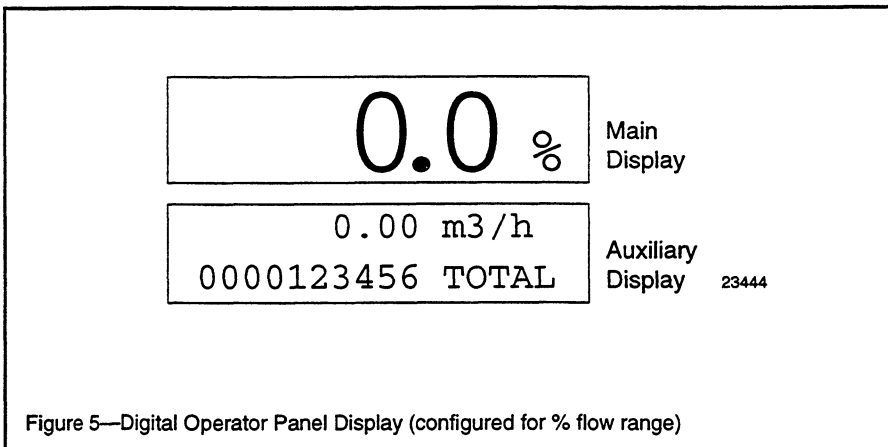


Figure 5—Digital Operator Panel Display (configured for % flow range)

Diagnostics

In the event of a malfunction, diagnostic messages speed up the troubleshooting process. Messages are available locally when using the optional DOP and via the SFC.

When operating in the DE mode, similar interface operations are possible through displays at the Universal Station^X (U^XS) or the Global User Station (GUS) in the TPS system.

Digital Communications Summary

The SFC (model STS103) can be used to “talk” to a flowmeter operating in either the analog or the DE (Digital Enhanced) mode. The SFC is connected across the current line at the flowmeter or any convenient point in the line. See Specification 34-ST-03-55 for more details about the SFC.

To “talk” to a flowmeter through displays at the Universal Station or GUS, the transmitter is connected to a Smart MV Transmitter Interface Input/Output Processor (STI IOP) in the Process Manager (PM), Advanced Process Manager (APM), or High-Performance Process Manager (HPM) through an FTA as shown in Figure 6. The flowmeter must be in the DE mode to communicate with the STI IOP.

Also, through a custom FTA the flowmeter, in the DE mode, can communicate with Allen-Bradley controllers.

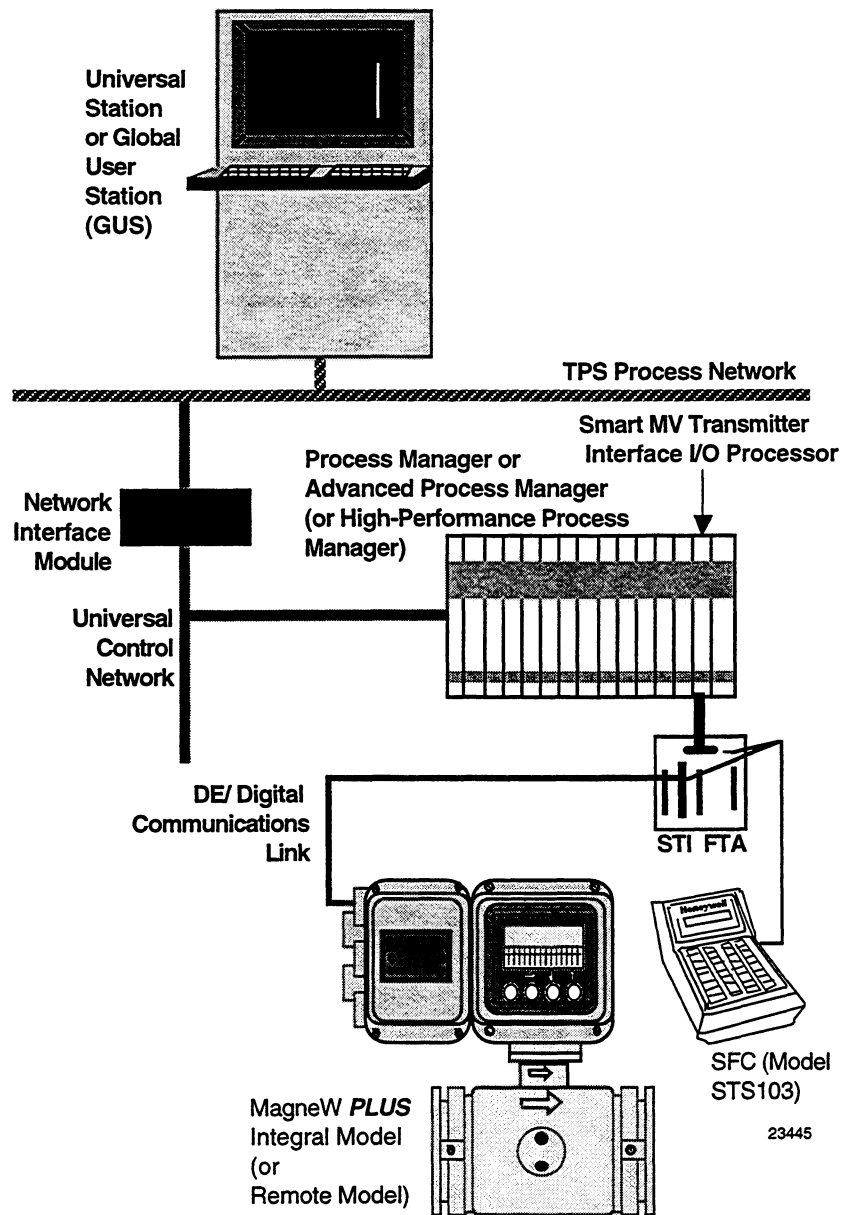


Figure 6—Typical MagneW 3000 PLUS Communications Hierarchy for TPS

Summary of MagneW 3000 *PLUS* Features

Table 2 provides a summary of major MagneW 3000 *PLUS* features and functions.

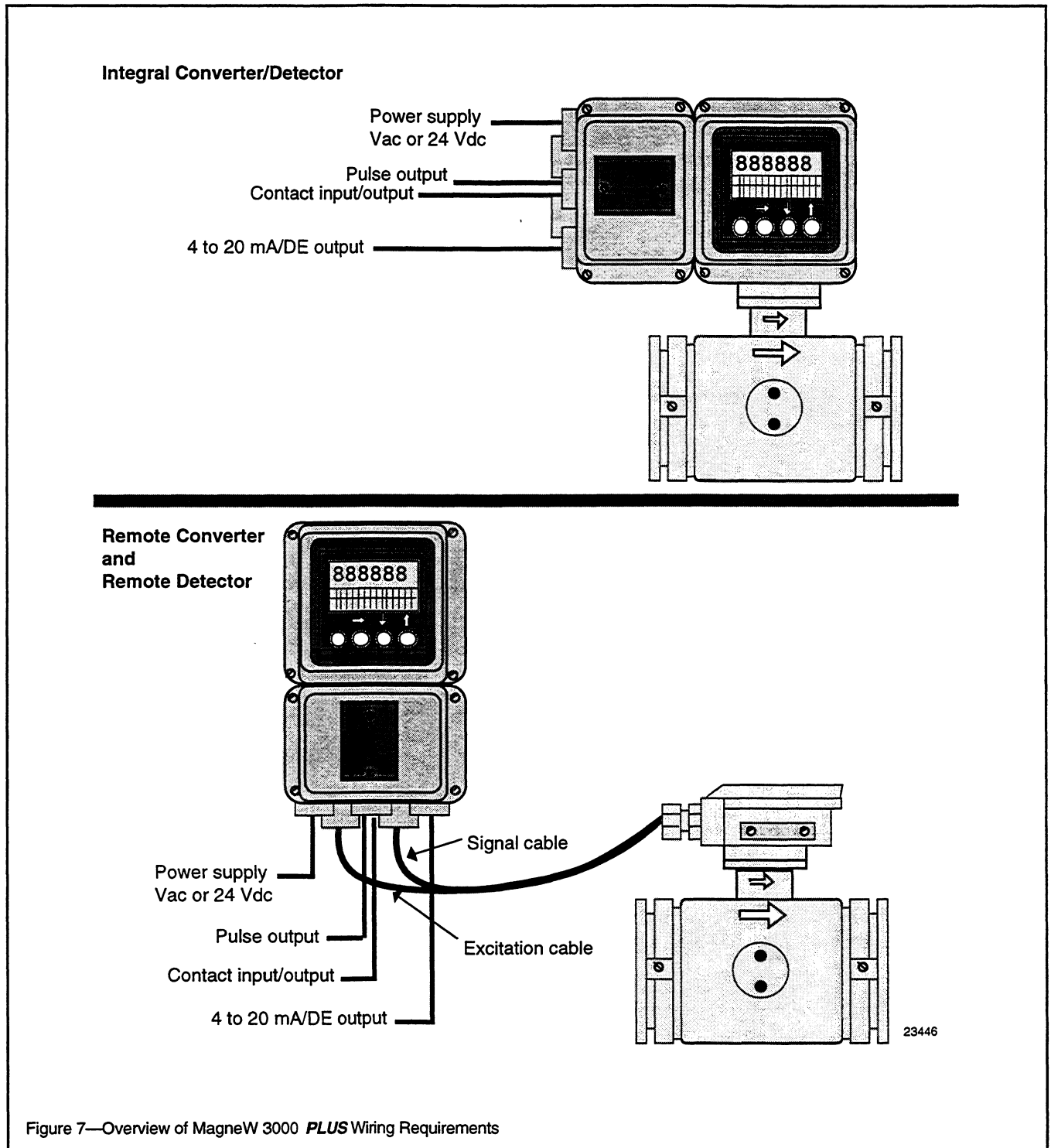
Table 2—Summary of Major MagneW 3000 *PLUS* Features

| Feature | Function |
|---|--|
| Operating principle based on Faraday's Law | Provides accurate and reliable measurement of process fluid flow rate. The unit of flow indication can be in percentage, volume flow, mass flow, or time. |
| Flange-mounted detector | Provides a variety of process connections to match installation requirements. |
| 4 to 20 milliampere signal or digital-enhanced output | Provides signal proportional to flow measurement in analog or digital form depending upon configuration. |
| SFC and TPS communications | Provide means to configure, operate, and troubleshoot MagneW through SFC and Universal Station or GUS in TPS system. |
| Optional built-in counter for pulse output models | <ul style="list-style-type: none"> • Totalizer: Depending on pulse direction setting, it totals one count at a time, for forward and reverse flows. • Totalizer with preset function: A preset value (target total) can be set between 000000 and 999999. Each forward and reverse flow signal is counted. • Forward/reverse flow difference totalizer: The difference in flow volumes in the forward and reverse directions is calculated and counted. |
| Optional 1- or 2-contact input | <ul style="list-style-type: none"> • External 0% lock input: Locks the flow rate signal (display, analog output, and pulse output) at 0%. • External zero adjustment input: Allows a zero point adjustment from a remote location. • External range switching input: Factory setting is <ul style="list-style-type: none"> – Range No. 1 or forward direction when opened – Range No. 2 or reverse direction when closed. • Built-in counter reset input (optional for pulse output model): Reset occurs when contact is ON for 0.2 seconds or more. Counting starts from counter reset value when contact turns OFF. |
| Optional 1- or 2-contact output | <ul style="list-style-type: none"> • Alarm contact output: An alarm is output when one of the following abnormal states occurs. <ul style="list-style-type: none"> – flow value alarm – self-diagnosis—coil disconnection, ROM error, RAM error, NVM error, ADC error, or – empty pipe detection. • Range switching output: Factory setting is <ul style="list-style-type: none"> – Range No. 1 or forward direction—when open – Range No. 2 or reverse direction—when closed • Counter preset status output (for pulse output model): Activates when the built-in counter reaches the preset value. • Self-diagnosis alarm output: Activates when the self-diagnosis function detects an abnormality. • Empty pipe detection alarm output (with empty-status detection): Activates when the fluid level in the detector goes below the electrode level. Alarm is available only when the electrical conductivity of the liquid is greater than 150μS/cm. • High/Low limit alarm: Activates when the flow volume exceeds the set upper and lower limit values. • Two-stage flow value alarm output (with two contact outputs): An alarm-actuating contact is output when the simultaneous flow value exceeds the set two upper limits (H and HH) or the two lower limits (L and LL). |

Wiring Summary

External excitation and signal cables are required when connecting the remote detector/converter model.

Figure 7 provides an overview of possible wiring requirements for either model.



Electrical Connection Considerations

For electrical connections of the converter/detector the following should be checked:

- Cable types
- Laying of cables
- Cable lengths
- Grounding

Cable Types

The standard cables for the instrument are as follows:

- *Signal cable*: 2-core individually double-shielded cable
- *Excitation cable*: 2-core chloroprene cabtyre cable

If standard cables are unavailable, contact Honeywell for recommendations.

Laying of Cables

- Do not lay the cables near a motor, a transformer, or a large-current cable which may cause induction noise. Lay the cables 1 meter (3.3 feet) or more away from heavy-duty power cables.
- Lay the signal cable in a metallic conduit, a flexible tube, or a duct, separately from the excitation current cable or any other power cables.
- Wire with electrical tube and duct to keep out water and protect the wire from external damage. Lay the tube so that no water gets into the unit.
- Use a waterproof gland at the conduit connection.
- Do not employ any junction point for connection of the signal cable or the exciting cable between the detector and the converter. When it is unavoidable to employ a junction point, use Cable Junction Box (Part No. 80720002-000) which has been designed specifically for this purpose.
- Do not short the excitation current terminals X and Y of the converter.

Cable Lengths

- The length of the cable between the detector and the converter depends on the electrical conductivity ($\mu\text{S/m}$) of the fluid to be measured. (Refer to Figure 9 on page 10.)

In general, the electrical conductivity of potable water or sewage water is of a level of $10000 \mu\text{S/m}$ ($100 \mu\Omega/\text{cm}$). Therefore, for a detector of 15 mm (0.6 in.) diameter or over, the maximum allowable cable length is 300 meters (984 feet).

- Signal Cable

If a signal cable is required to be laid more than 500 meters (1640 feet), select a cable cross section so that the voltage drop in the cable does not exceed 5V.

To calculate the excitation cable cross section area, use the following formula:

$$A \text{ (cross section area: mm}^2\text{)} = \frac{35.6 \times L \text{ (cable distance: m)} \times 0.4 \text{ (A)}}{1000 \times 5 \text{ (V)}}$$

- Current output cable (4-20 mA)

The allowable current output load of the converter is 0 to 600Ω . The sum of the cable resistance plus load resistance must be within this range. With a 2 mm^2 (0.003 in^2) cable, the cable resistance for both-ways between 1 km (3,281 ft.) distance is approximately 20Ω . When the receiver load is 400Ω , the current output cable can be extended up to 10 km (6.2 miles).

- Pulse output cable

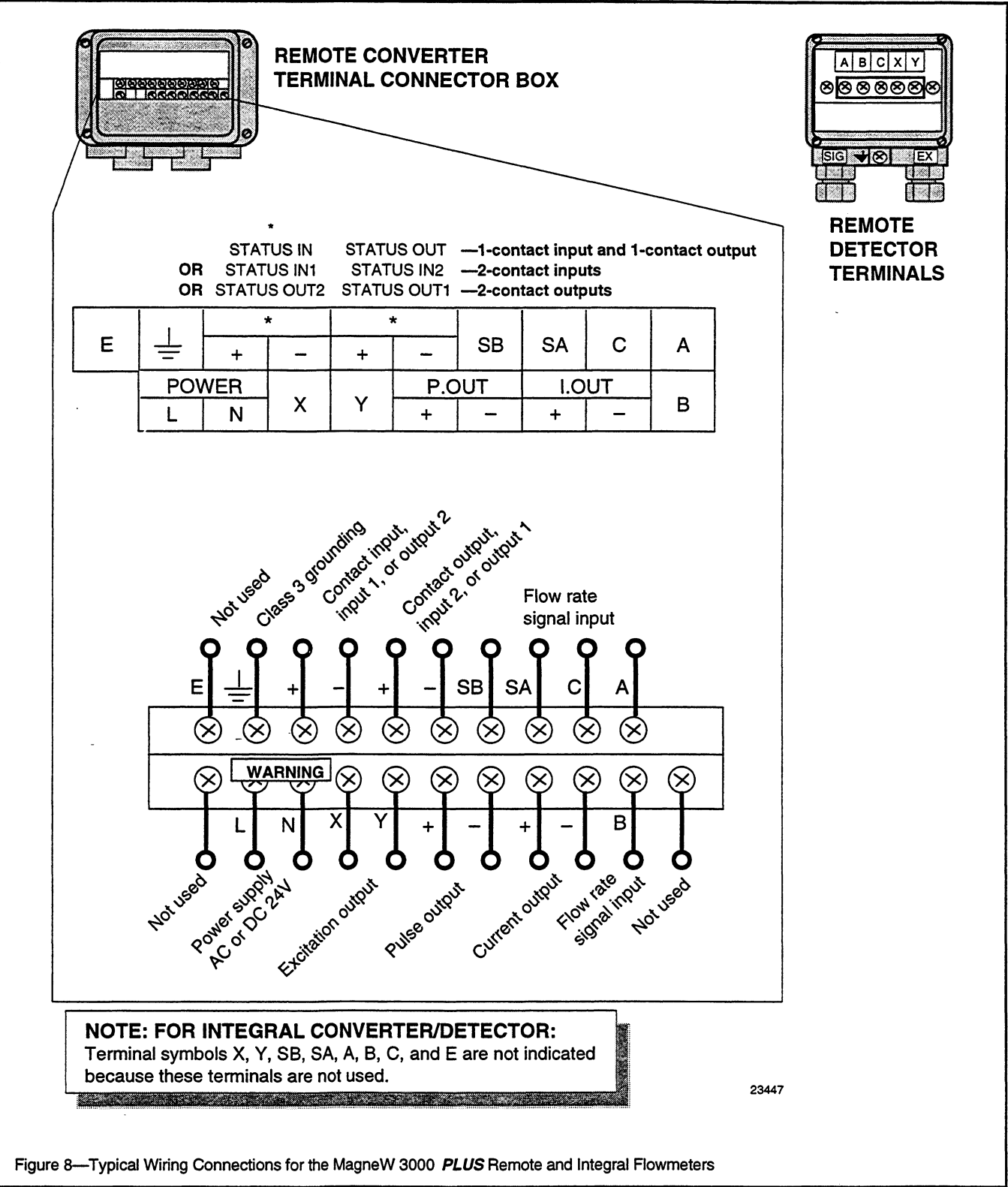
Can be extended up to 1 km (3,281 ft.).

Grounding

- The grounding circuit should be less than 100Ω .
- At the converter side, ground the meter at the E terminal of the terminal block or the ground terminal of the case. The E terminal and the ground terminal are mutually connected in the unit.

Terminal Connections

Figure 8 shows typical wiring connections for both the integral and remote types.



Cabling for Remote Detector/Converter

Honeywell offers the excitation and signal cables as a set under a separate model number (Model Number KIW-XXX-XXX). Commercially available cables can be used. The selection of the signal cables depends on certain conditions:

- fluid conductivity,
- length of cable, and
- diameter of the detector.

Figure 9 shows the relation between fluid conductivity and cable length.

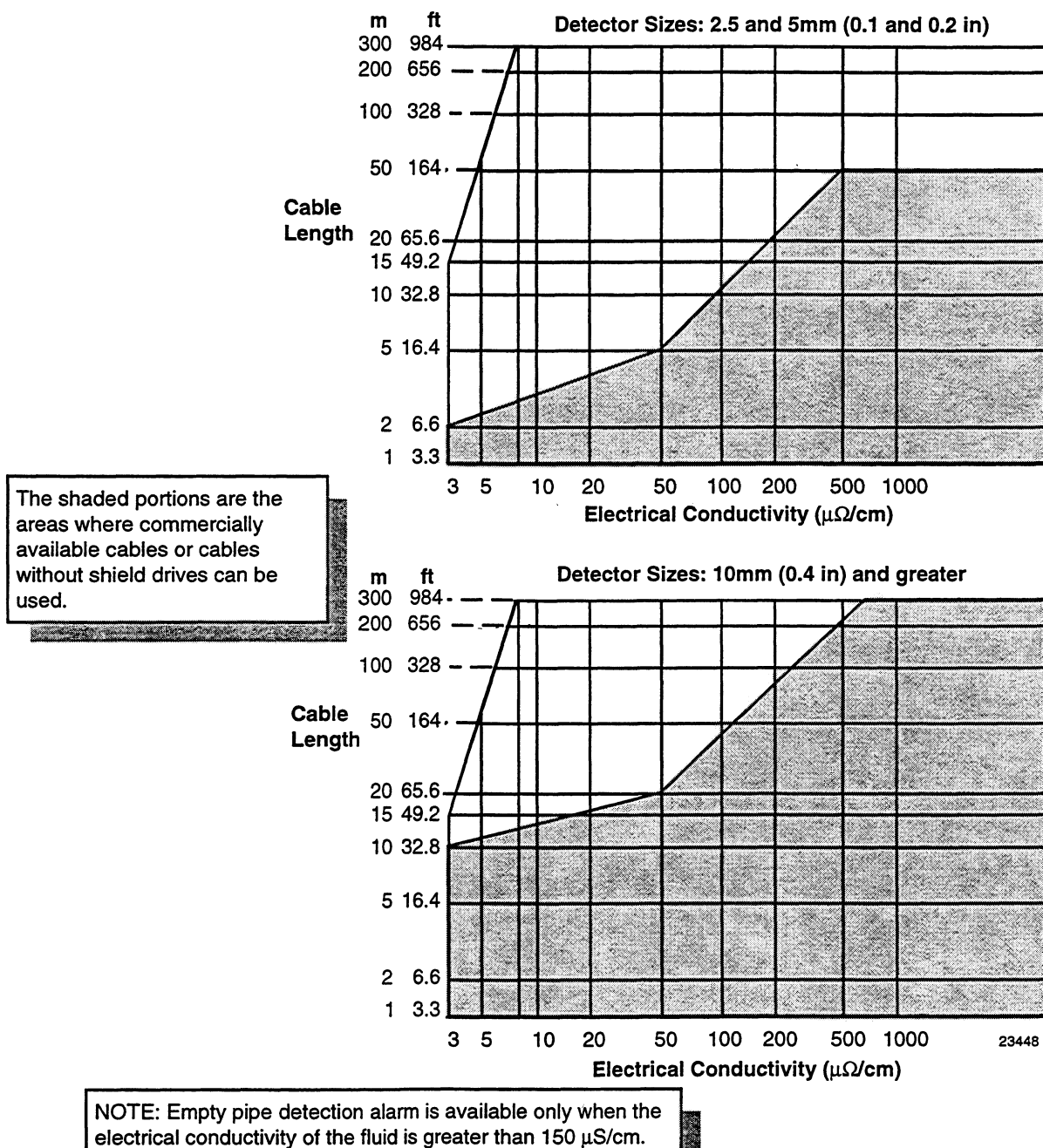


Figure 9—Cable Length Versus Fluid Conductivity

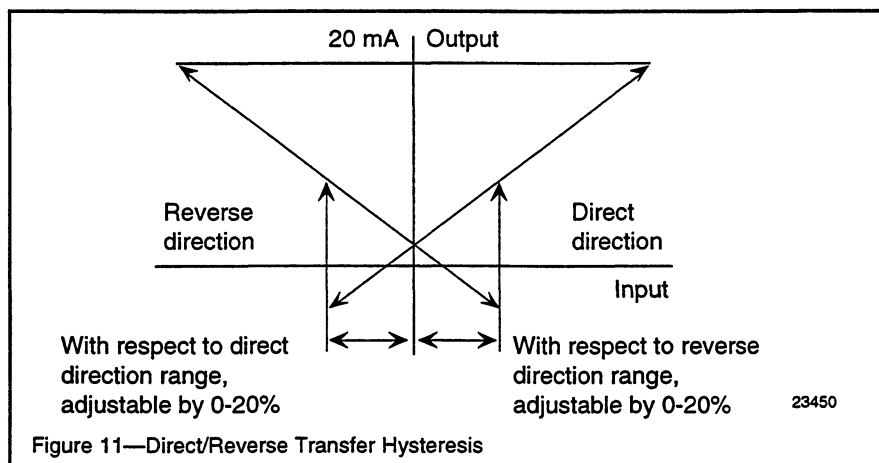
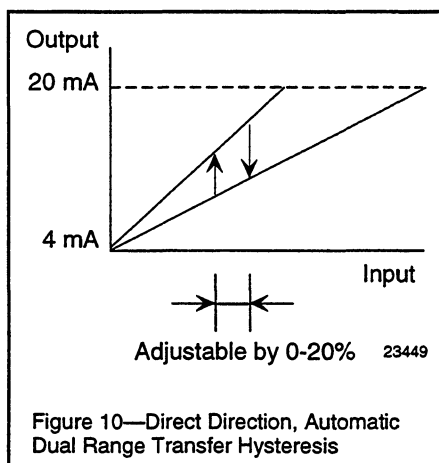
Ranging Function

The range function allows the operator to define the basic operating characteristics of the flowmeter. Table 3 explains the various function options that are available.

Table 3—Summary of Range Function Options

| Type | Description | Analog Output | Pulse | Display | Contact | |
|--|--|------------------------|---|--|--|--|
| | | | | | Input | Output |
| Single Range | <ul style="list-style-type: none"> Direct flow only with one 4 to 20 range | Forward: 4-20 mA dc | Proportional | Positive | No effect | |
| | | Reverse: -20% (0.8 mA) | Not delivered | Minus | | |
| Direct, Dual Range, Auto Selection | <ul style="list-style-type: none"> Direct flow only with two ranges Switching between measuring ranges is automatic (Hysteresis is illustrated in Figure 10.) | Both 4 to 20 mA dc | Pulse weight for both ranges is the same | | No effect | Factory setting 1st range: open* 2nd range: closed* |
| Direct, Dual Range, External Selection | <ul style="list-style-type: none"> Direct flow only with two ranges Switching between ranges is done externally | Both 4 to 20 mA dc | Pulse weight for both ranges is the same | | Range select 1st range: open 2nd range: closed | Factory setting 1st range: open* 2nd range: closed* contact outputs (optional) |
| Direct/Reverse, Dual Range, Auto Selection | <ul style="list-style-type: none"> Direct and reverse flow with two ranges Switching between measuring ranges is automatic (Hysteresis illustrated in Figure 11) | Both 4 to 20 mA dc | Pulse weight is same regardless of flow direction | Minus sign appears when flow is in reverse direction | No effect | Factory setting direct: open* reverse: closed* |
| Direct/Reverse, Dual Range, External Selection | <ul style="list-style-type: none"> Direct and reverse flow with two ranges Switching between ranges is done externally | Both 4 to 20 mA dc | Pulse weight is same regardless of flow direction | Minus sign appears when flow is in reverse direction | Range select direct: open reverse: closed | Factory setting direct: open* reverse: closed* contact output (optional) |

*Reverse setting is also possible.



Selection of Corrosion-Resistant Materials

The corrosiveness of fluids used under practical conditions may vary according to the type and amount of impurities present, the operating temperatures, the variances in flow rate, and the concentration of fluids.

Selection of Lining Materials

The lining materials for use in the MagneW 3000 **PLUS** include Teflon PFA, alumina ceramic, polyurethane rubber, and chloroprene rubber. Their general characteristics are shown in Table 4.

Selection of Materials for Electrodes and Wet Contact Rings

The general characteristics of electrode materials is shown in Table 4.

Selection of Ground Ring Material

The same material for ground rings as for electrodes should be selected since both come in contact with fluids.

Table 4—Characteristics of Wet Contact Materials

| Material | Main Component | Characteristics | Recommended Environment |
|----------------------------|--|---|---|
| Lining Materials | | | |
| Polyurethane rubber | Polyurethane | A synthetic elastic rubber. Excellent abrasion resistance. Little chemical resistance. | <i>Temperature:</i> –40 to +50°C (–40 to +122°F) <i>Pressure:</i> 426 psi maximum |
| Teflon PFA | Tetrafluoroethylene resin | A synthetic polymer containing fluorine (F) in the molecule. Resistant to almost all chemicals except for high-temperature fluorine, molten alkalis, and some halogen compounds. Excellent heat resistance together with a low friction characteristic and non-adhesiveness. | NOTE: Provides heat resistance in hot atmospheres. <i>Temperature:</i> –40 to +100°C (–40 to +212°F) for diameters 2.5 to 10 mm (0.1 to 0.4 in.) –40 to +160°C (–40 to +320°F) for diameters 15 to 200 mm (0.6 to 7.9 in.) –40 to +100°C (–40 to +212°F) for diameters 2.5 to 10 mm (0.1 to 0.4 in.) <i>Pressure:</i> Refer to Table 5, page 15. |
| Ceramic | Alumina ceramic Al ₂ O ₃ : 99.7% | Excellent friction resistance. Suited for high temperatures and high pressures. Chemical resistance is slightly lower than that of Teflon PFA. Weak to alkali fluids. | <i>Temperature:</i> –40 to +180°C (–40 to +356°F) <i>Pressure:</i> 1 to 40 kg/cm ² 14 psi maximum |
| Chloroprene rubber | Chloroprene | The friction and chemical resistances are almost comparable to those of polyurethane rubber. | <i>Temperature:</i> –10 to +70°C (14 to 158°F) <i>Pressure:</i> 142 psi maximum |
| Electrode Materials | | | |
| SUS316L | Cr : 17% Ni : 13% Mo : 2.25% C : <0.03% Fe : Remainder | Resistant to corrosion in a weak alkali or acidic atmosphere. Unusable in inorganic and organic acids, chlorides, etc. | Water (tap and sewage) and weak alkalis (such as caustic soda of 50% or less) |
| Titanium | Ti : >99.3% | Resistant to corrosion in an oxidizing atmosphere. In particular, usable in the presence of chlorine ions. Unusable in sulfuric acid, nitric acid, etc. (The empty-detection function of the converter cannot be used.) | A variety of chloride solutions (ammonium chloride, potassium chloride, ferrous chloride, etc.), sea water, etc. |
| Hastelloy C-276 | Mo : 16% Cr : 16% Fe : 5% W : 4% Ni : Remainder | A wide range of uses since it is usable in moderately oxidizing and reducing atmospheres. Weak to sulfides, sulfuric acid, etc. | A variety of organic and inorganic acids, alkalis, etc. |

Table 4—Characteristics of Wet Contact Materials, continued

| Material | Main Component | Characteristics | Recommended Environment |
|--|--|---|---|
| Electrode Materials (continued) | | | |
| Tantalum | <i>For Teflon PFA lining:</i> Ta : >99.5% <i>For ceramic use:</i> Ta : 90% W : 10% | Resistant to corrosion in strongly oxidizing and reducing atmospheres, but unusable in alkalis, fluorides, and fuming sulfuric acid. Because an insulating film may form on these electrodes, pay special attention to process conditions when selecting this material. (The empty-detection function of the converter cannot be used.) | Concentrated hydrochloric acid, sulfuric acid, nitric acid, aqua regia, etc. |
| Platinum-iridium alloy | Pt : 90% Ir : 10% | Resistant to corrosion in almost all acids and alkalis except for aqua regia and ammonium salts. Very expensive. | Phosphoric acid, nitric acid, fluoric acid, hydrochloric acid, sulfuric acid, alkalis, etc. |
| Tungsten carbide | | Highly abrasion-resistant and causes less slurry noise. Cannot be used for corrosive fluids. | Cement slurry, muddy slurry, filthy slurry, earth/sand slurry, etc. |
| Nickel | | Highly corrosion-resistant against strong alkali fluids, especially against caustic soda and fluoric acid as compared with corrosion resistances of other metals. | Caustic soda, fluoric acid, alkali fluids, etc. |
| Zirconium | | Corrosion-resistant against various chemicals, especially against sulfides. | Copper sulfide, formic acid, potassium hydroxide, etc. |

Application Assistance

While the technical information provided in this guide is usually adequate for sizing a meter for a particular application, Honeywell has Application Assistance available. An Application Data Sheet (36-KI-08-01) is included at the end of this document. When completed it provides the information necessary for a thorough review by our Field Instrument Application Engineers. Using your application and installation information, process fluid data, and cost and operation objectives, these engineers will apply their wide industry experiences and various application software programs to assist in determining the most cost-effective flow solution available. To use this Honeywell service, please complete the Application Data Sheet and forward it to your Honeywell Representative for submission to Field Instrument Application Engineering.

Installation Planning Considerations

The MagneW 3000 **PLUS** planning considerations are summarized in Table 5. To ensure proper flowmeter selection and operation, the following installation conditions should be reviewed:

- Environmental conditions
- Fluid to be measured
- Measured liquid flow conditions
- Detector location in piping
- Clearance for maintenance and inspection

Table 5—Summary of Installation Considerations

| Factor | Consideration |
|--------------------------|---|
| Environmental conditions | <p>The following should be considered when installing the MagneW 3000 PLUS.</p> <ul style="list-style-type: none"> • The ambient temperature should be within the following ranges: <ul style="list-style-type: none"> – <i>Integral model:</i> –25 to +60°C (–13 to +140°F) – <i>Remote converter:</i> –25 to +60°C (–13 to +140°F) – <i>Remote detector:</i> <ul style="list-style-type: none"> PFA lining: –30 to +80°C (–22 to +176°F) Polyurethane rubber or Chloroprene rubber lining: –30 to +60°C (–22 to +140°F) • Whenever possible, the flowmeter should not be exposed to direct sunlight, rain, or other unfavorable weather. • The flowmeter should be installed as far from any pump in the line as practical, so that the flow does not pulsate. • The flowmeter must not be subjected to severe vibration, as equipment damage could result. • The flowmeter must not be subjected to a highly corrosive atmosphere, as equipment damage could result. • The flowmeter must be installed sufficiently apart from high-current power lines, motors, transformers, or any other source of electromagnetic interference. |

Table 5—Summary of Installation Considerations, continued

| Factor | Consideration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|---|-----------------------------|-------------------------|---------------------------|-------------------------|----|--|------------------------|-------------------------|-----------|------------|--|------------|---------------------------|------------|------------|--|------------|---------------------------|------------|------------|--|------------|----------------------------|------------|------------|--|-----------------------|-----------------------------|-----------|-----------|
| Fluid to be measured | <p>The fluids to be measured must fall within MagneW 3000 PLUS specifications for:</p> <ul style="list-style-type: none">• electrical conductivity—3μS/cm or greater• temperature• pressure <div><div><div>psig</div><div>kPa</div><div>Pressure</div><div>+426</div><div>+284</div><div>+142</div><div>-14</div><div>+2937</div><div>+1958</div><div>+979</div><div>-97</div></div><div><div>This area (120 to 160°C/ 248 to 320°F) applies to remote detectors only with PFA liner and detector size 15 to 200 mm (0.6 to 7.9 inches)</div></div><div><div>°C</div><div>°F</div><div>-40</div><div>0</div><div>+50</div><div>+100</div><div>+120</div><div>+160</div><div>-40</div><div>+32</div><div>+122</div><div>+212</div><div>+248</div><div>+320</div></div><div><div>Temperature (Degrees)</div><div>LEGEND</div><table><tr><th>Code</th><th>Liner</th><th>Detector Size mm (in.)</th><th>Temperature Range °C</th><th>°F</th></tr><tr><td></td><td>Polyurethane Rubber</td><td>25 to 200 (1 to 7.9)</td><td>-40 to 50</td><td>-40 to 122</td></tr><tr><td></td><td>Teflon PFA</td><td>2.5 to 10 (0.1 to 0.4)</td><td>-40 to 100</td><td>-40 to 212</td></tr><tr><td></td><td>Teflon PFA</td><td>15 to 200 (0.6 to 7.9)</td><td>-40 to 160</td><td>-40 to 320</td></tr><tr><td></td><td>Teflon PFA</td><td>250 to 600 (9.8 to 236)</td><td>-40 to 120</td><td>-40 to 248</td></tr><tr><td></td><td>Chloroprene Rubber</td><td>250 to 600 (9.8 to 23.6)</td><td>-10 to 70</td><td>14 to 158</td></tr></table></div><div>23451</div><p>The following liquids may not be successfully measured by MagneW 3000 PLUS, even if their conductance, temperature, and pressure fall within its limits.</p><ul style="list-style-type: none">• Fluids that have sufficient conductivity at high temperatures but not at room temperature, approximately 20°C (68°F). EXAMPLE: fatty acids and soap• Fluids that contain surface active agents EXAMPLE: shampoo, rinse, and soap material liquids• Conductive adherents EXAMPLE: deposition of rosin plus conductive material• Insulating adherents EXAMPLE: oil, kaolinite, kaolin, and calcium stearate</div> | Code | Liner | Detector Size mm (in.) | Temperature Range °C | °F | | Polyurethane Rubber | 25 to 200 (1 to 7.9) | -40 to 50 | -40 to 122 | | Teflon PFA | 2.5 to 10 (0.1 to 0.4) | -40 to 100 | -40 to 212 | | Teflon PFA | 15 to 200 (0.6 to 7.9) | -40 to 160 | -40 to 320 | | Teflon PFA | 250 to 600 (9.8 to 236) | -40 to 120 | -40 to 248 | | Chloroprene Rubber | 250 to 600 (9.8 to 23.6) | -10 to 70 | 14 to 158 |
| Code | Liner | Detector Size mm (in.) | Temperature Range °C | °F | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Polyurethane Rubber | 25 to 200 (1 to 7.9) | -40 to 50 | -40 to 122 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Teflon PFA | 2.5 to 10 (0.1 to 0.4) | -40 to 100 | -40 to 212 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Teflon PFA | 15 to 200 (0.6 to 7.9) | -40 to 160 | -40 to 320 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Teflon PFA | 250 to 600 (9.8 to 236) | -40 to 120 | -40 to 248 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Chloroprene Rubber | 250 to 600 (9.8 to 23.6) | -10 to 70 | 14 to 158 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Measured liquid flow conditions | <p>When determining the piping location for the flowmeter, make sure the measured liquid flow meets the following conditions:</p> <ul style="list-style-type: none">• The fluid has the required conductivity for measurement and the distribution of conductance is uniform.• The fluid is electrochemically uniform. For example, if two fluids are mixed at an upstream point, the two fluids should be uniformly mixed by the time they reach the measurement point.• The distribution of suspended solids is uniform. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Table 5—Summary of Installation Considerations, continued

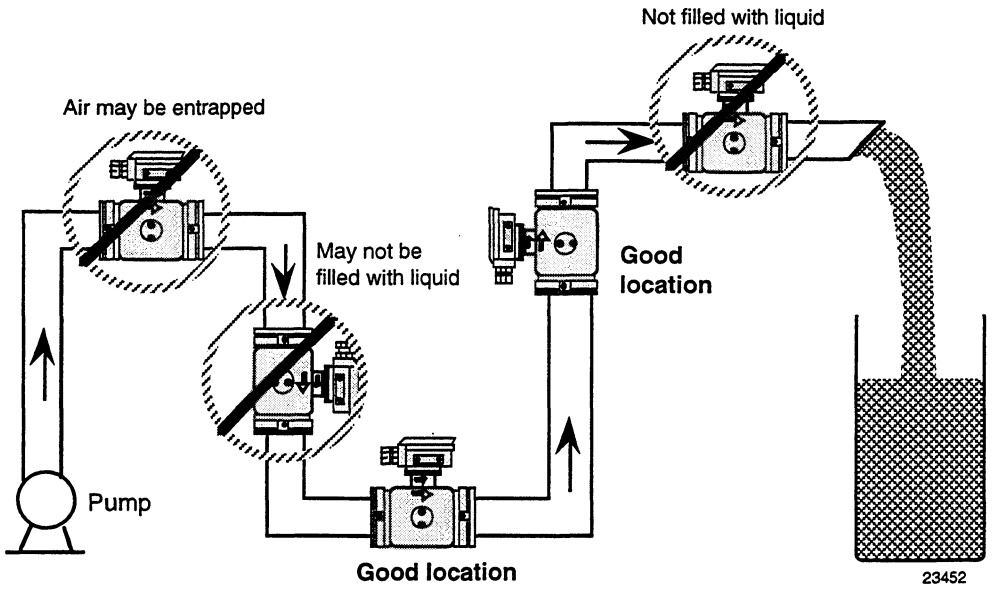
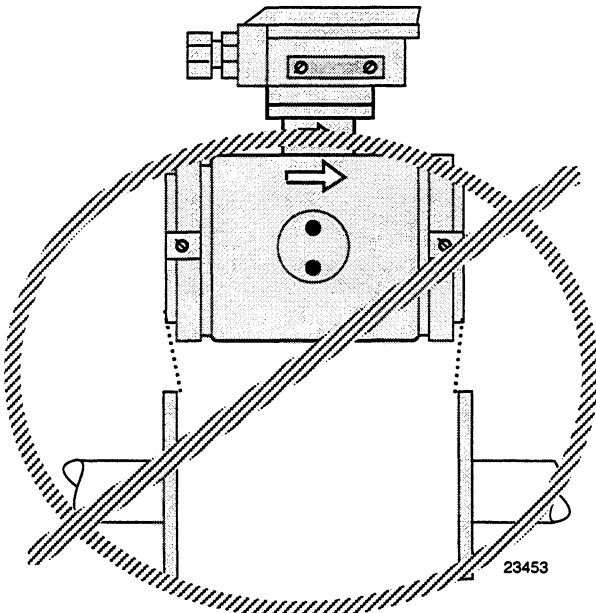
| Factor | Consideration |
|------------------------------------|--|
| <p>Detector location in piping</p> | <p>The detector should be installed in the pipeline where it will always be filled with the measured fluid.</p>  <p>23452</p> |
| | <p>The face-to-face space between the flanges must be sufficient for the given detector size. Never force the detector into an insufficient face-to-face space.</p>  <p>23453</p> |

Table 5—Summary of Installation Considerations, continued

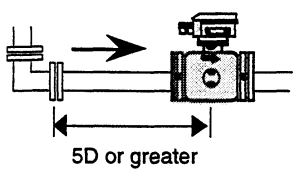
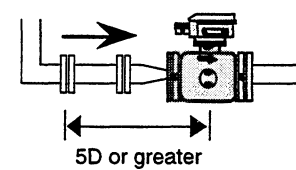
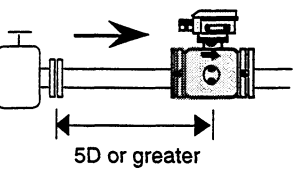
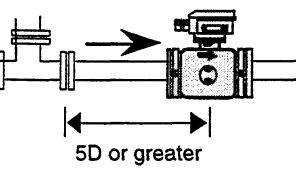
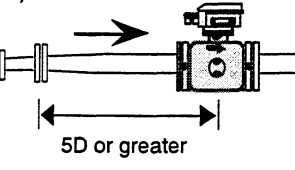
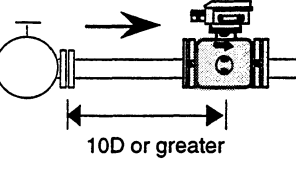
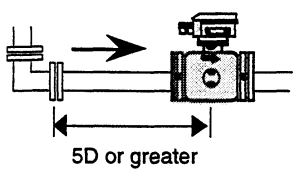
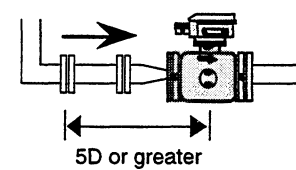
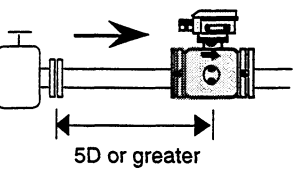
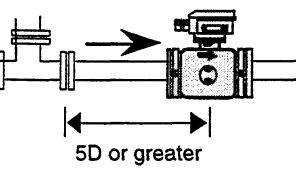
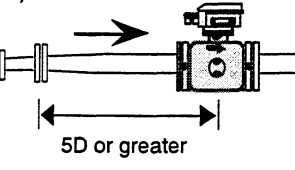
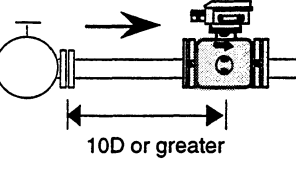
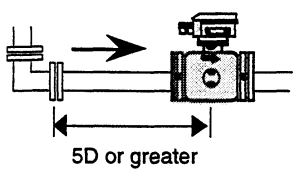
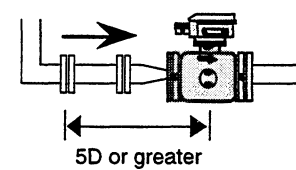
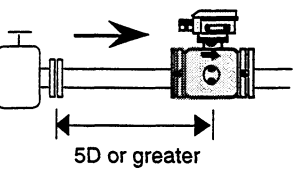
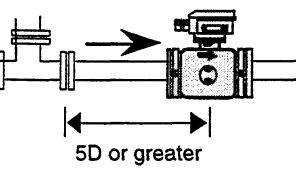
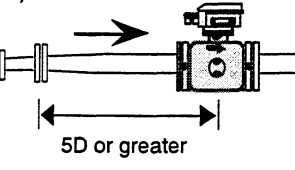
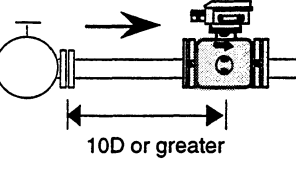
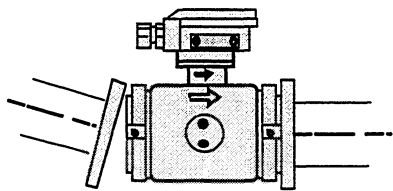
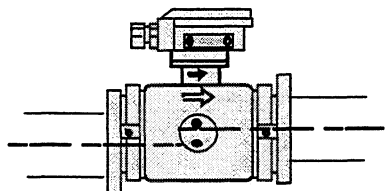
| Factor | Consideration | | | | | | |
|---|---|--|--|---|--|---|--|
| Detector location in piping (continued) | <p data-bbox="505 163 1524 216">Straight pipe sections must be provided on the upstream and downstream sides of the detector as shown.</p> <div data-bbox="553 243 1476 1245"> <p data-bbox="813 243 1216 296" style="text-align: center;">UPSTREAM SIDE (D = Nominal diameter of detector)</p> <table border="1" data-bbox="553 296 1476 1098"> <tr> <td data-bbox="553 296 1008 558"> <p data-bbox="570 306 729 338">90-degree elbow</p>  </td><td data-bbox="1008 296 1476 558"> <p data-bbox="1040 306 1346 359">Reducer pipe (can be regarded as a straight pipe section)</p>  </td></tr> <tr> <td data-bbox="553 558 1008 800"> <p data-bbox="570 569 781 600">Sluice valve (full open)</p>  </td><td data-bbox="1008 558 1476 800"> <p data-bbox="1040 569 1089 600">Tee</p>  </td></tr> <tr> <td data-bbox="553 800 1008 1098"> <p data-bbox="570 810 989 915">Expansion pipe with cone angle 15 degrees or more (if the cone angle is less than 15 degrees, can be regarded as a straight pipe section)</p>  </td><td data-bbox="1008 800 1476 1098"> <p data-bbox="1040 810 1330 842">Valve other than a sluice type</p>  </td></tr> </table> <div data-bbox="708 1119 1313 1220" style="text-align: center;"> <p>DOWNSTREAM SIDE (D = Nominal diameter of detector)</p> <p>2D or greater (minimum 2D if drift current or the like is possible)</p> </div> <p data-bbox="1411 1245 1459 1266" style="text-align: right;">23454</p> </div> | <p data-bbox="570 306 729 338">90-degree elbow</p>  | <p data-bbox="1040 306 1346 359">Reducer pipe (can be regarded as a straight pipe section)</p>  | <p data-bbox="570 569 781 600">Sluice valve (full open)</p>  | <p data-bbox="1040 569 1089 600">Tee</p>  | <p data-bbox="570 810 989 915">Expansion pipe with cone angle 15 degrees or more (if the cone angle is less than 15 degrees, can be regarded as a straight pipe section)</p>  | <p data-bbox="1040 810 1330 842">Valve other than a sluice type</p>  |
| <p data-bbox="570 306 729 338">90-degree elbow</p>  | <p data-bbox="1040 306 1346 359">Reducer pipe (can be regarded as a straight pipe section)</p>  | | | | | | |
| <p data-bbox="570 569 781 600">Sluice valve (full open)</p>  | <p data-bbox="1040 569 1089 600">Tee</p>  | | | | | | |
| <p data-bbox="570 810 989 915">Expansion pipe with cone angle 15 degrees or more (if the cone angle is less than 15 degrees, can be regarded as a straight pipe section)</p>  | <p data-bbox="1040 810 1330 842">Valve other than a sluice type</p>  | | | | | | |
| | <p data-bbox="505 1293 1524 1346">The process piping with flanges must be straight and centered. Below are examples of improper alignments.</p> <div data-bbox="594 1367 1422 1598">  <p data-bbox="732 1566 846 1598" style="text-align: center;">Tilted pipe</p>  <p data-bbox="1170 1566 1300 1598" style="text-align: center;">Off-centered</p> </div> <p data-bbox="1362 1598 1411 1619" style="text-align: right;">23455</p> | | | | | | |

Table 5—Summary of Installation Considerations, continued

| Factor | Consideration |
|---------------------------|--|
| Clearance for maintenance | <p>Sufficient space must be provided for maintenance of the electrodes and inspection of the terminals, and for operation of the converter with an integral type flowmeter.</p> <p>Suggested minimum clearances are provided below.</p> <div data-bbox="435 283 1393 1117"> <p>The diagrams illustrate the required clearance for two types of flowmeters. For the Remote detector, a vertical clearance of 500 mm (19.7 in.) is shown above the unit, and a horizontal clearance of 400 mm (15.8 in.) is shown to the left and right of the unit. For the Integral type flowmeter, a vertical clearance of 500 mm (19.7 in.) is shown above the unit, and a horizontal clearance of 400 mm (15.8 in.) is shown to the left and right of the unit. The integral type unit is shown with its display and terminals on top, while the remote detector has a separate terminal box on top.</p> </div> <p style="text-align: right;">23456</p> |

Specifications

Table 6 summarizes pertinent specification data for the MagneW 3000 *PLUS*.

Table 6—Specifications for MagneW 3000 *PLUS*

| Performance | | | |
|---|--|-------------------------------------|----------------------------|
| Accuracy | Refer to the following tables. | | |
| | Diameters 2.5 mm to 15 mm (0.1 in. to 0.6 in.): Upper limit value of Vs = set velocity range | | |
| | Vs (m/s) | Accuracy at Vs ≥40% | Accuracy at Vs ≤ 40% |
| | 1.0 ≤ Vs ≤ 10 | ±0.5% of indicated value | ±0.2% of Vs |
| | 0.1 ≤ Vs ≤ 1.0 | ±(0.1/Vs + 0.4%) of indicated value | ±0.4 (0.1/Vs + 0.4)% of Vs |
| | Diameters 25 mm to 600 mm (1 in. to 23.6 in.): Upper limit value of Vs = set velocity range | | |
| Vs (m/s) | Accuracy at Vs ≥20% | Accuracy at Vs ≤20% | |
| 1.0 ≤ Vs ≤ 10 | ±0.5% of indicated value | ±0.1% of Vs | |
| 0.1 ≤ Vs ≤ 1.0 | ±(0.1/Vs + 0.4%) of indicated value | ±0.2 (0.1/Vs + 0.4)% of Vs | |
| Design | | | |
| Flow Velocity Ranges | 0-0.1 m/s to 0-10 m/s (0-0.3 ft/s to 0-30 ft/s) The range can be set locally through the DOP or remotely through the SFC. See Table 7 for minimum and maximum ranges by diameter. | | |
| Electrical Conductivity of Liquid | 300 microsiemens/m (3 micromhos/cm) minimum. | | |
| Liquid Pressure and Temperature Ranges for Detector | See Table 5, Page 14. | | |
| Damping Time Constant | Variable from 0.5 to 199.9 seconds. | | |
| Low Flow Cutoff | Current output corresponding to 0-10% of set range (variable integer) | | |
| Dropout | Pulse output corresponding to 0-10% of set range (variable integer) for 20 kHz maximum | | |
| Lightning Protection | 12 kV, 1000A Incorporated into the power source and external input and output terminals. | | |
| Power Failure | EEPROM retains data record of total flow volume when pulse output is used (retention period approximately 10 years). | | |
| Input (Transmitter) | Detector flow signals plus external selections that drive a semiconductor or no-voltage open-close contact signal for any one of the following functions: <ul style="list-style-type: none">External 0% lock: Enables 0% stop of the flow indication, analog output, digital output, and pulse output via contact input.External automatic zero adjustment: Adjusts the zero point by contact input.External range changeover: Switches dual range or forward/reverse range by contact input.Built-in counter reset (optional for pulse output model): Resets the total flow volume value of the built-in counter by contact input. | | |

Table 6—Specifications for MagneW 3000 PLUS, continued

| Design (continued) | |
|------------------------------|--|
| Outputs (Transmitter) | <ul style="list-style-type: none"> Detector's coil excitation current Current output without SFC communications requirement: 4 to 20 mA dc into a 0 to 600 ohms load with external 24 Vdc power supply. Current output with SFC/DE communications requirement: 4 to 20 mA dc into a 250 to 1460 ohms load with an external 24 Vdc power supply. <div style="text-align: center;"> $\text{Load Resistance } (\Omega) = \frac{\text{Supply voltage } 8.5}{0.025}$ <p>Load Resistance (Ω)</p> <p>Supply Voltage (Vdc)</p> <p>Operating Range</p> </div> <ul style="list-style-type: none"> Contact output: For a maximum external load of 30 Vdc/200 mA, indicating any one of the following condition states: <ul style="list-style-type: none"> Alarm actuating contacts for <ul style="list-style-type: none"> <u>Self-diagnosis alarm</u>—Outputs an alarm-actuating contact when the self-diagnosis function detects an error. <u>No-load detection alarm (with empty-status detection)</u>—Outputs an alarm-actuating contact when the fluid level in the detector goes below the electrode level. <u>Upper/lower flow limit value alarm</u>—Outputs an alarm-actuating contact when the flow volume exceeds the upper/lower limit values. <u>Two-stage flow value alarm (with two contact outputs)</u>—Outputs an alarm-actuating contact when the flow value exceeds the two upper limits (H and HH) or the two lower limits (L and LL). Range identification output—Outputs a contact for large and small ranges, forward and reverse direction ranges. Counter preset status (for pulse output model)—Outputs a contact when the built-in counter reaches the preset value. |
| Display | <p>Display card can rotate 90° for installation on vertical pipe.</p> <p>Backlit liquid crystal display (LCD).</p> <p>Display board: One line with six 7-segmented digits—Main display Dot matrix, two lines with 16 columns—Auxiliary display</p> <p>Display contents:</p> <ul style="list-style-type: none"> instantaneous flow rate in percent instantaneous actual flow rate in a variety of engineering units total volume (with pulse output model) engineering data |
| Operator Interface | <p>Four infrared touch sensor keys OR</p> <p>Hand-held communicator with keyboard and LCD. Connects anywhere in the 4-20 mA output line.</p> |
| Mounting | <p>Converter:</p> <ul style="list-style-type: none"> Integral mounts directly on detector Remote mounts on wall or 2-inch pipe <p>Detector: A variety of piping connections are offered—flange, wafer, hose, sanitary coupling, etc.</p> |

Table 6—Specifications for MagneW 3000 *PLUS*, continued

| <i>Design (continued)</i> | |
|---------------------------|---|
| Flange Rating | <ul style="list-style-type: none"> • 25 to 50 mm (1 to 2 in.) diameters: JIS 10K, JIS 16K, JIS 20K, JIS 30K, JPI 150, JPI 300, ANSI 150, ANSI 300, DIN PN10, DIN PN16, DIN PN25, DIN PN40 • 80 to 200 mm (3.2 to 7.9 in.) diameters: JIS 10K, JIS 20K, JIS 30K, JPI 150, JPI3 00, ANSI 150, ANSI 300, DIN PN10, DIN PN16, DIN PN25, DIN PN40, JIS G3451 F12 • 250 to 600 mm (9.8 to 23.6 in.) diameters with PFA lining: JIS 10K, JIS 16K, JIS 20K, JPI 150, JPI3 00, ANSI 150, ANSI 300, DIN PN10, DIN PN16, DIN PN25, JIS G3451 F12 • 250 to 600 mm (9.8 to 23.6 in.) diameters with chloroprene rubber lining: JIS 10K, JPI 150, ANSI 150, DIN PN10, JIS G3451 F12 |
| Structure | <p><i>Converter:</i> NEMA 4X, IEC IP66, JIS C 0920 waterproof model</p> <ul style="list-style-type: none"> • Converter can rotate 180°. <p><i>Detector:</i></p> <ul style="list-style-type: none"> • NEMA 4X, IEC IP67, JIS C 0920 watertight model • NEMA 6, IEC IP68, JIS C 0920 submersible model <p><i>Electrode</i></p> <ul style="list-style-type: none"> • Watertight—External insertion (electrode can be removed) • Submersible—Internal insertion (electrode cannot be removed) |
| Finish | <p><i>Converter:</i> acrylic resin</p> <p><i>Detector:</i></p> <ul style="list-style-type: none"> • <u>Watertight:</u> 2.5 to 200 mm (0.1 to 7.9 in.) diameters, terminal box only of remote model—corrosion-preventive acrylic resin 250 to 600 mm (9.8 to 23.6 in.) diameters, terminal box of remote model and case of remote/integral models—Corrosion-preventive polyurethane resin • <u>Submersible:</u> 15 to 200 mm (0.6 to 7.9 in) diameters, terminal box only; and 250 to 600 mm (9.8 to 23.6 in.) diameters, terminal box and case—Corrosion-preventive tar epoxy |
| Color | <p><i>Converter:</i> light beige</p> <p><i>Detector:</i></p> <ul style="list-style-type: none"> • Watertight: light beige • Submersible: black |
| Material | <p><i>Converter:</i></p> <ul style="list-style-type: none"> • Main body—Aluminum alloy • Display cover—Tempered glass, 5 mm thick; aluminum alloy <p><i>Detector:</i></p> <ul style="list-style-type: none"> • Flange 25 to 65 mm (1 to 2.6 in.) diameters—SUS304 stainless steel 80 to 600 mm (3.2 to 23.6 in.) diameters—carbon steel plus corrosion-preventive coating • Case 2.5 to 15 mm (0.1 to 0.6 in) diameters—SCS13 stainless steel 25 to 200 mm (1 to 7.9 in.) diameters—SUS304 stainless steel 250 to 600 mm (9.8 to 23.6 in.) diameters—SS400 carbon steel • Terminal box—Aluminum alloy (remote model) |

Table 6—Specifications for MagneW 3000 PLUS, continued

| Design (continued) | |
|------------------------------|--|
| Wetted Materials | <p><i>Lining:</i></p> <ul style="list-style-type: none"> • 2.5 to 600 mm (0.1 to 23.6 in.) diameters—PFA • 25 to 200 mm (1 to 7.9 in.) diameters—polyurethane rubber • 250 to 600 mm (9.8 to 23.6 in.) diameters—chloroprene rubber <p><i>Electrode:</i> SUS316L, Hastelloy C, Titanium, Zirconium, Tantalum, Tungsten-Carbide, Platinum/Iridium</p> <p><i>Ground ring:</i> SUS316, Hastelloy C, Titanium, Zirconium, Tantalum, Platinum</p> <p><i>Union joint for diameters 2.5 to 15 mm (0.1 to 0.6 in.):</i> SUS316</p> <p><i>Hose for diameters 2.5 to 15 mm (0.1 to 0.6 in.):</i> SUS316</p> <p><i>IDF clamp:</i> SUS316</p> <p><i>Tri-clamp:</i> SUS316</p> <p><i>Gasket:</i> PTFE gaskets are supplied with ground rings of Hastelloy C, Titanium, Zirconium, Tantalum, and Platinum. For ground rings made of SUS316, gaskets are supplied by customer; non-rubber, such as PTFE or joint sheet, is recommended.</p> <p><i>O-ring:</i> Viton rubber (with union joints)</p> |
| Electrical Conduit | 1/2 inch NPT, G1/2, CM20, Pg13.5 internal threads, optional plastic and brass waterproof glands (G1/2 only) |
| Nuts and Bolts | For wafer construction models only S20C carbon steel, SUS304 stainless steel |
| Electrical Connection | <p><i>Integral:</i> M4-12P screw terminals</p> <p><i>Remote:</i></p> <ul style="list-style-type: none"> • Converter—M4-19P screw terminals • Detector—M4-5P screw terminals |
| Cables | <p><i>Signal cable:</i> 2-core individually double-shielded cable</p> <p><i>Coil excitation current cable:</i> 2-core chloroprene cabtyre cable</p> |
| Cable Length | 300 meters (984 feet) maximum |
| Grounding | Category 3 100 ohms maximum ground resistance |
| Dimensions | See Figures 12 through 20, as applicable. |
| Weight | <p><i>Converter:</i> 3.7 kg (8.2 lbs)</p> <p><i>Detector:</i> Refer to Table 8, 9, or 10, as applicable.</p> |

Table 6—Specifications for MagneW 3000 *PLUS*, continued

| Environmental and Operating Conditions | | | |
|---|--|-----------------------------|--|
| Ambient Temperature | <p><i>Converter:</i> -25 to +60°C (-13 to +140°F)</p> <p><i>Detector:</i></p> <ul style="list-style-type: none"> • Integral model: -25 to +60°C (-13 to +140°F) • Remote model, PFA lining: -30 to +80°C (-22 to +176°F) • Remote model, polyurethane rubber lining/chloroprene rubber lining: -30 to +60°C (-22 to +140°F) | | |
| Relative Humidity | 5 to 100% | | |
| Power Requirements | <ul style="list-style-type: none"> • <i>Voltage (Vac) ±10%:</i> 100, 110, 115/120, 200, 220, 230/240 • <i>Voltage (Vdc) ±10%:</i> 24 • <i>Frequency:</i> 50 or 60 Hz | | |
| Power Consumption | 13W (17 VA) | | |
| Approval Bodies | <u>Model No.</u> | <u>Approval Body</u> | <u>Approval Type and Classification</u> |
| | MGG14C Remote Converter | CSA and FM | Nonincendive – Class I, II, III, Division 2, Groups A, B, C, D, E, G |
| | MGG17D, F, U Remote Detector | CSA and FM | Special Protection – Class I, II, III, Division 1, Groups B, C, D, E, F, G |
| | MGG18D, F, U Remote Detector (Water Tight) | CSA and FM | Nonincendive – Class I, II, III, Division 2, Groups A, B, C, D, F, G |
| | MGG19D, F, U Remote Detector (Submersible) | CSA and FM | Nonincendive – Class I, II, III, Division 2, Groups A, B, C, D, F, G |
| | MGG14C (Converter) MGG18D, F, U Integral Unit | CSA and FM | Nonincendive – Class I, II, III, Division 2, Groups A, B, C, D, F, G |
| | MGG16D, F, U Remote Detector | CENELEC | EEx de ia II CT4 |
| CE Mark Conformity (Europe) | MagneW 3000 <i>PLUS</i> meets the emission limits for EN 50081-1-1993 and the immunity standards for EN 50082-2-1995. | | |

Table 7—Minimum and Maximum Ranges

| Diameter mm (inches) | Minimum Range—m³/h (ft³/h) [Minimum constant flow speed of 0 to 0.1 m/s (0 to 0.3 ft/s)] | Maximum Range—m³/h (ft³/h) [Maximum constant flow speed of 0 to 10 m/s (0 to 30 ft/s)] |
|---------------------------------|---|---|
| 2.5 (0.1) | 0 to 0.00177 (0 to 0.625) | 0 to 0.177 (0 to 6.25) |
| 5 (0.2) | 0 to 0.00707 (0 to 0.2498) | 0 to 0.707 (0 to 24.98) |
| 10 (0.4) | 0 to 0.0283 (0 to 1) | 0 to 2.83 (0 to 100) |
| 15 (0.6) | 0 to 0.0636 (0 to 2.24) | 0 to 6.36 (0 to 224.73) |
| 25 (1) | 0 to 0.177 (0 to 6.25) | 0 to 17.7 (0 to 625.44) |
| 40 (1.6) | 0 to 0.452 (0 to 15.97) | 0 to 45.2 (0 to 1, 597.17) |
| 50 (2.0) | 0 to 0.707 (0 to 24.98) | 0 to 70.7 (0 to 2,498.23) |
| 65 (2.6) | 0 to 1.19 (0 to 42.04) | 0 to 119 (0 to 4,204.94) |
| 80 (3.1) | 0 to 1.81 (0 to 63.95) | 0 to 181 (0 to 6,395.75) |
| 100 (3.9) | 0 to 2.83 (0 to 100) | 0 to 283 (0 to 10,000) |
| 125 (4.9) | 0 to 4.42 (0 to 156.18) | 0 to 442 (0 to 15,618.37) |
| 150 (5.9) | 0 to 6.36 (0 to 224.73) | 0 to 636 (0 to 22,473.49) |
| 200 (7.9) | 0 to 11.31 (0 to 399.64) | 0 to 1,131 (0 to 39,964.66) |
| 250 (9.8) | 0 to 17.67 (0 to 624.38) | 0 to 1,767 (0 to 62,438.16) |
| 300 (11.8) | 0 to 25.45 (0 to 899.29) | 0 to 2,545 (0 to 89,929.32) |
| 350 (13.8) | 0 to 34.64 (0 to 1,224.02) | 0 to 3,464 (0 to 122,402.82) |
| 400 (15.8) | 0 to 45.24 (0 to 1,598.58) | 0 to 4,524 (0 to 159,858.65) |
| 450 (17.7) | 0 to 57.26 (0 to 2,023.32) | 0 to 5,726 (0 to 202,332.15) |
| 500 (19.7) | 0 to 70.70 (0 to 2,498.23) | 0 to 7,070 (0 to 249,823.32) |
| 600 (23.6) | 0 to 101.79 (0 to 3,596.81) | 0 to 10,179 (0 to 359,681.97) |

Dimensions

Figures 12 through 20 and Tables 8 through 10 list reference dimensions for the various MagneW 3000 *PLUS* styles and sizes.

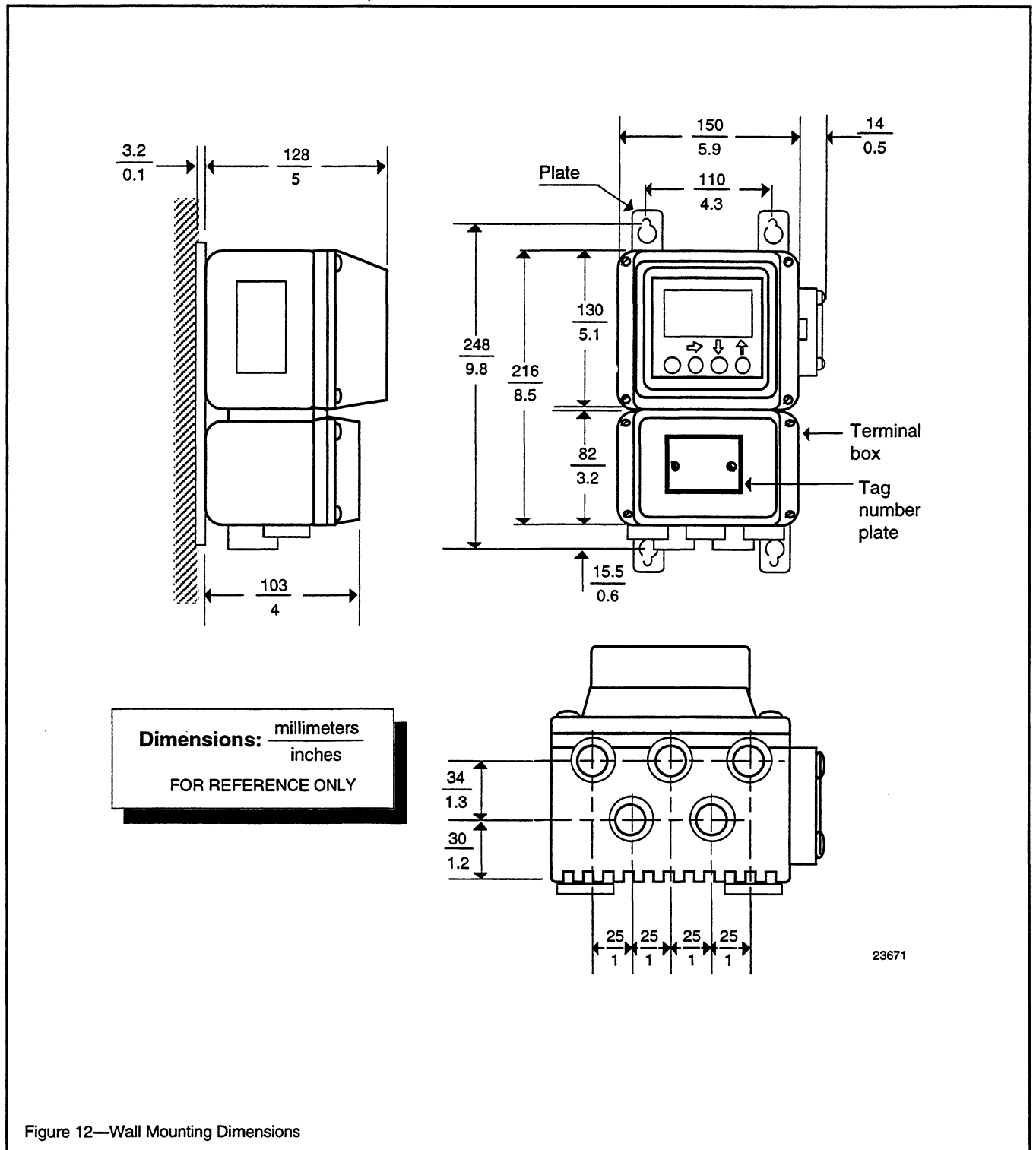


Figure 12—Wall Mounting Dimensions

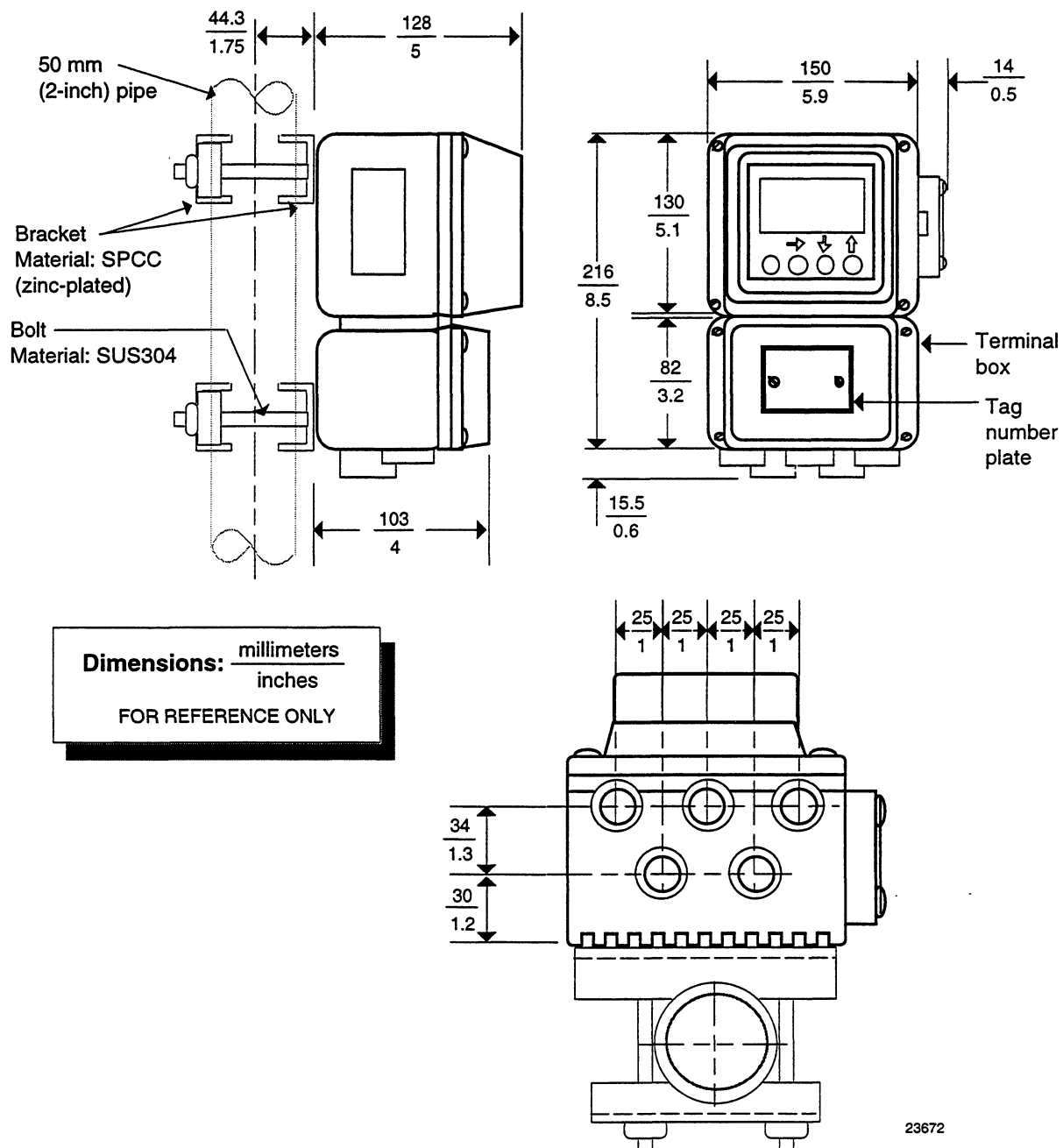


Figure 13—2-inch Pipe Mounting Dimensions

Dimensions: $\frac{\text{millimeters}}{\text{inches}}$
 FOR REFERENCE ONLY

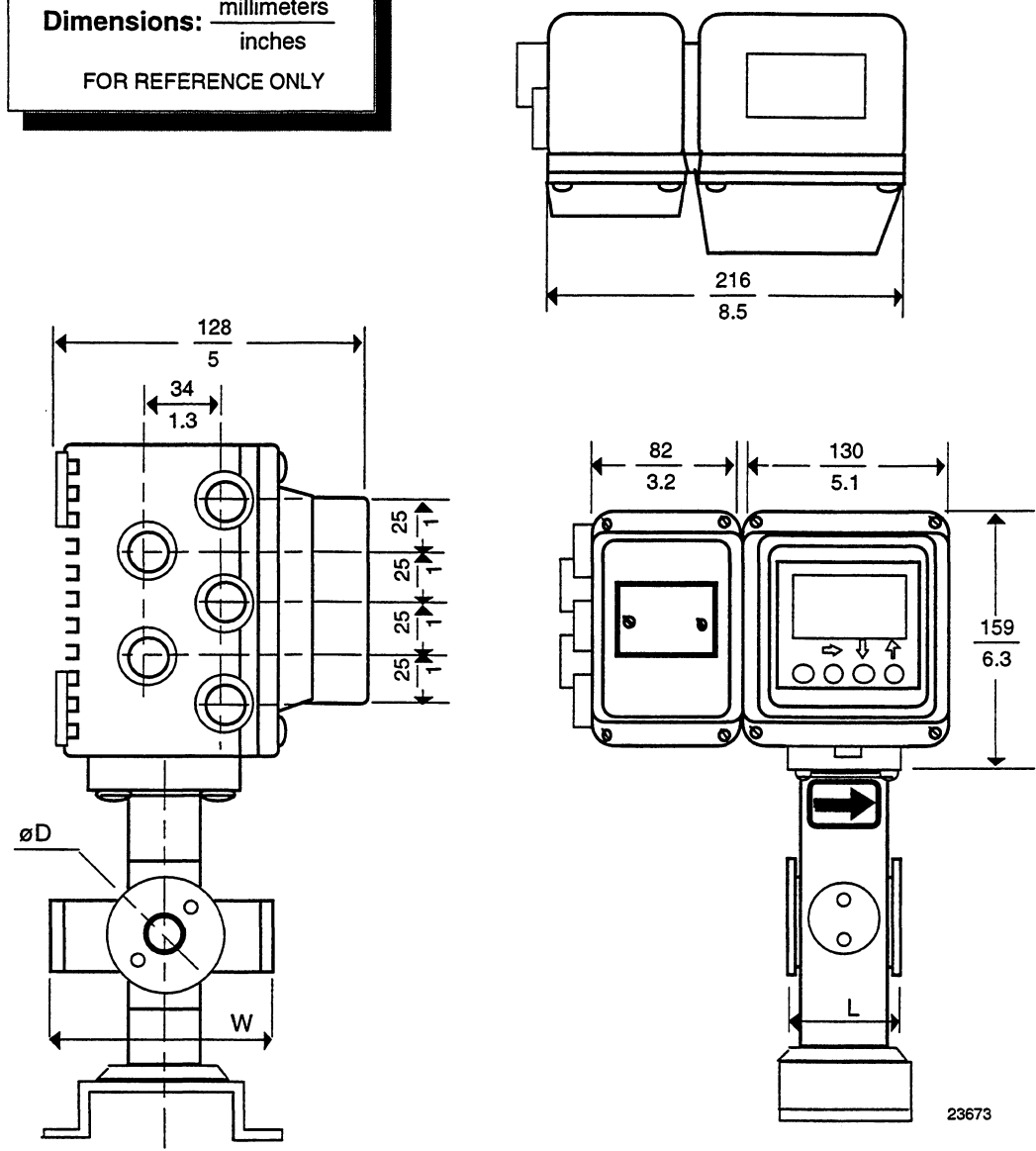
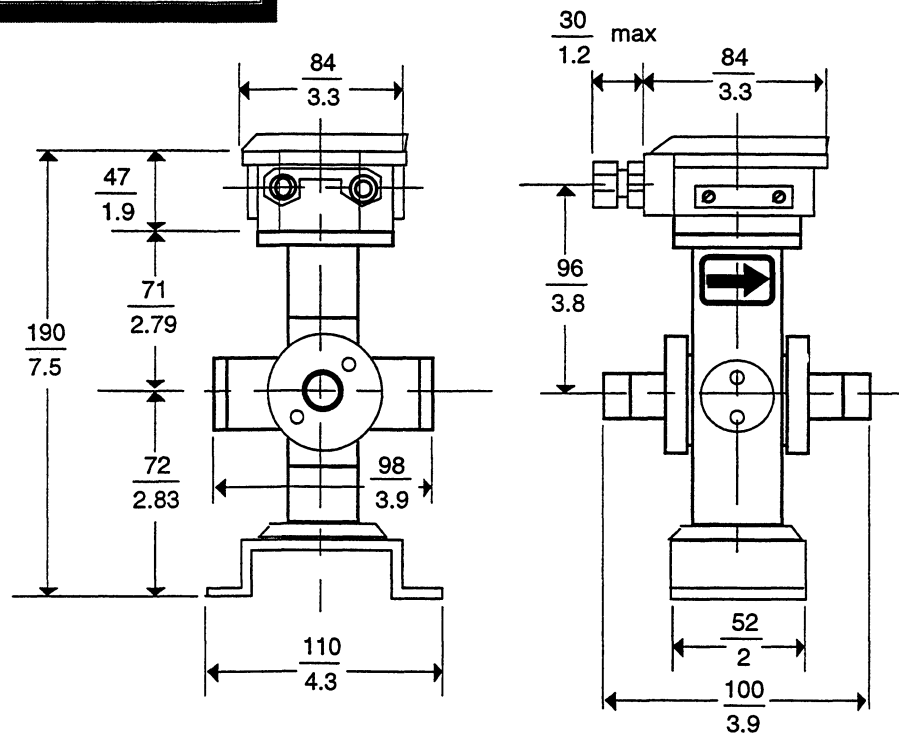


Figure 14—Dimensions for Integral Model—Refer to Table 8

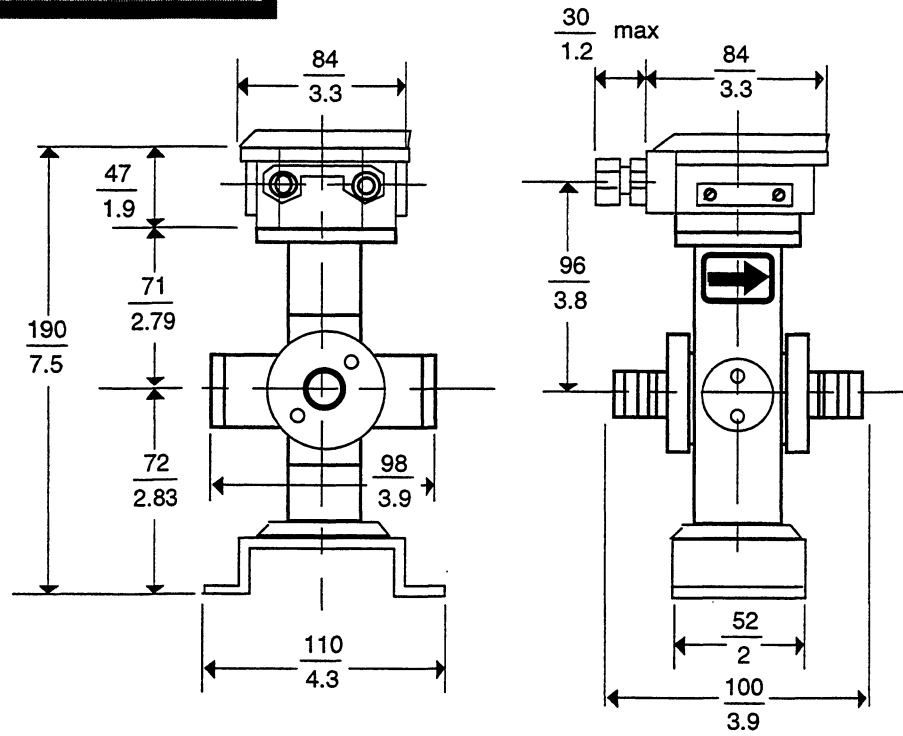
Dimensions: $\frac{\text{millimeters}}{\text{inches}}$
FOR REFERENCE ONLY



23457

Figure 15—Union Joint Dimensions – 2.5 mm to 15 mm (0.1 in. to 0.6 in.) Sizes

Dimensions: $\frac{\text{millimeters}}{\text{inches}}$
FOR REFERENCE ONLY



23458

Figure 16—Hose Joint Dimensions – 2.5 mm to 15 mm (0.1 in. to 0.6 in.) Sizes

Dimensions: $\frac{\text{millimeters}}{\text{inches}}$
FOR REFERENCE ONLY

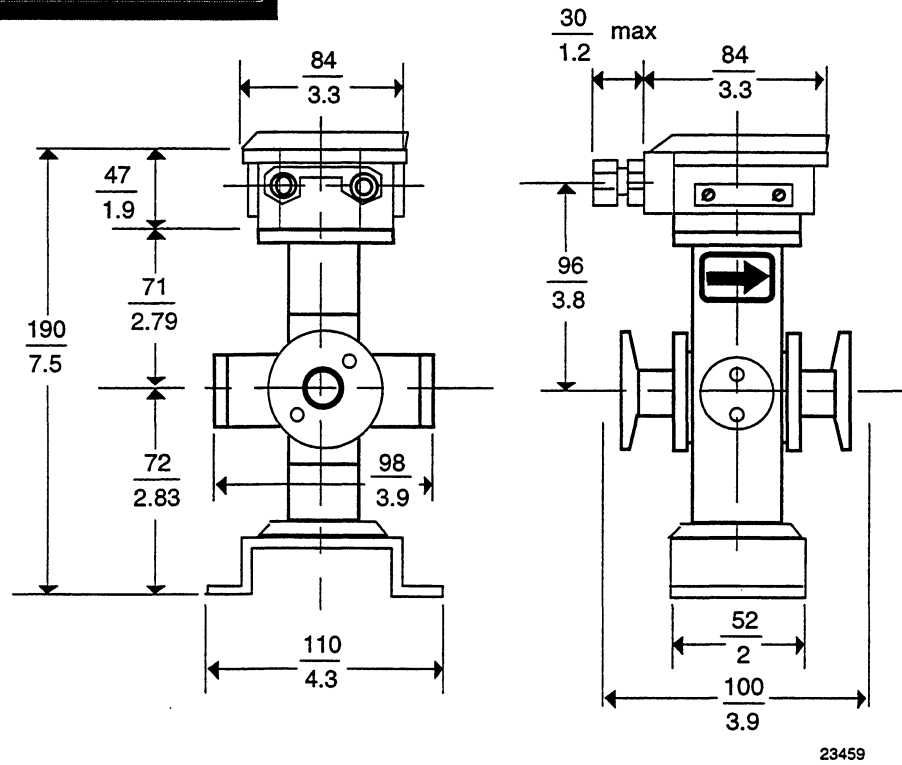
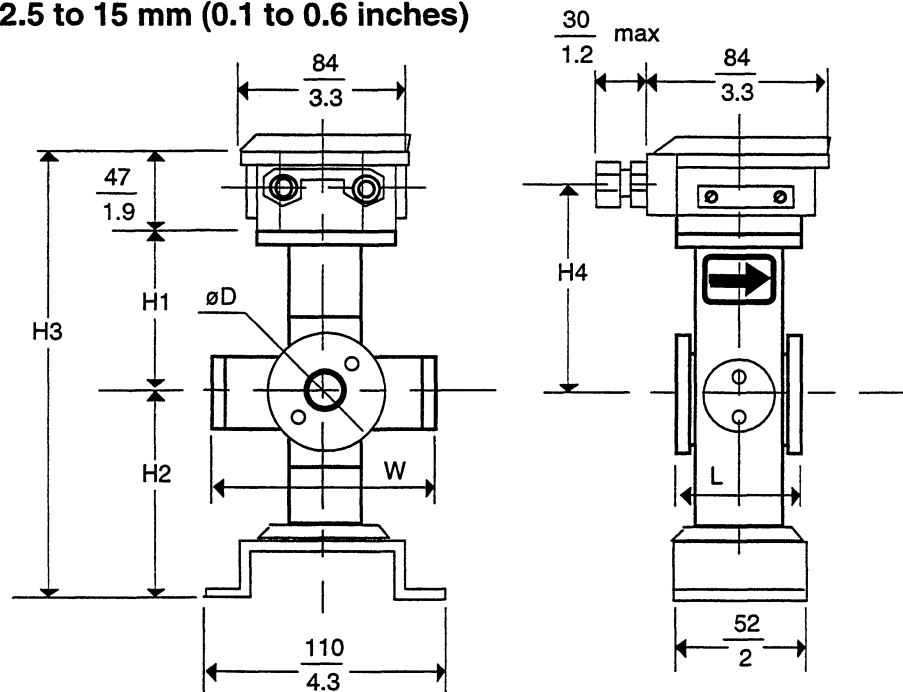


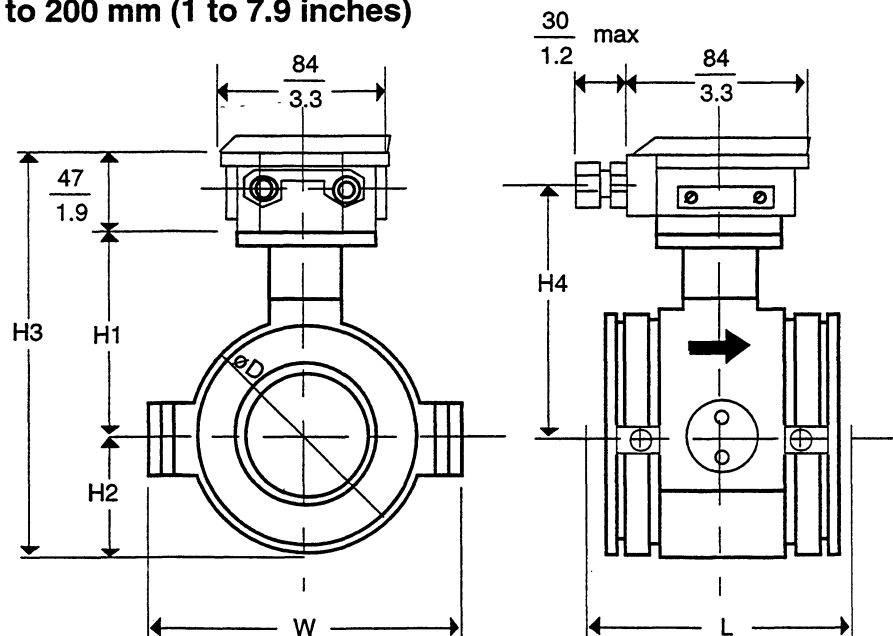
Figure 17—IDF/Tri-Clamp Dimensions – 2.5 mm to 15 mm (0.1 in. to 0.6 in.) Sizes

Dimensions: $\frac{\text{millimeters}}{\text{inches}}$
FOR REFERENCE ONLY

Sizes 2.5 to 15 mm (0.1 to 0.6 inches)



Sizes 25 to 200 mm (1 to 7.9 inches)



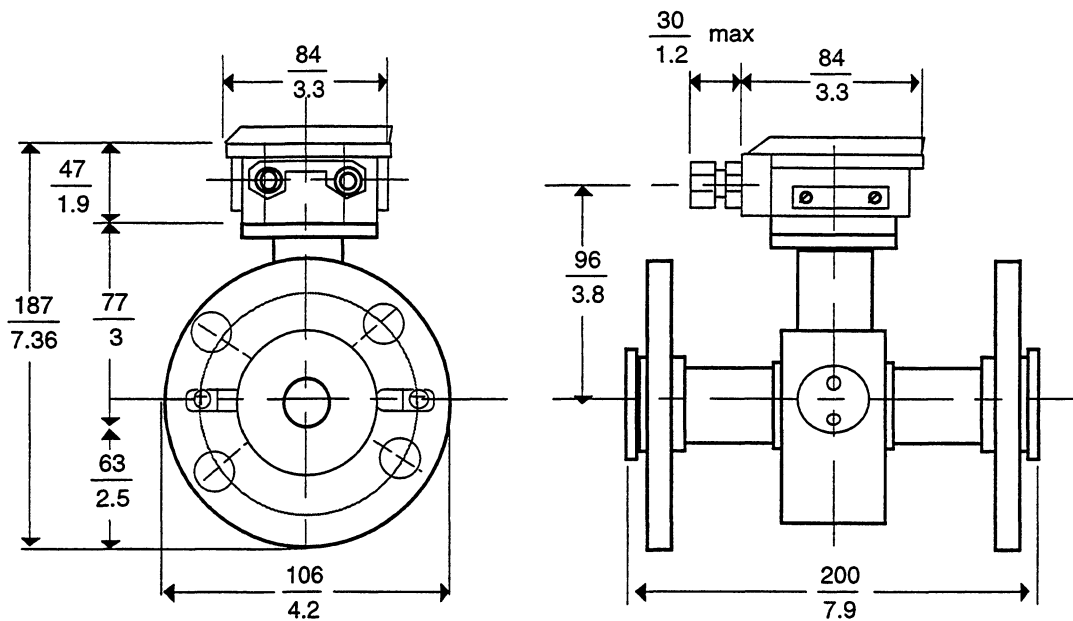
23460

Figure 18—Wafer Dimensions – 2.5 mm to 15 mm (0.1 in. to 0.6 in.) and 25mm to 200 mm (1 in. to 7.9 in.) Sizes—Refer to Table 8

Table 8—Dimensions for Figures 14 and 18

| Detector Diameter mm (in.) | Face to Face Dimension mm (in.) | Height mm (in.) | | | | Width mm (in.) | Outer Diameter mm (in.) | Inner Diameter mm (in.) | Weight kg (lbs) |
|-------------------------------|---------------------------------------|--------------------|---------------|----------------|----------------|-------------------|----------------------------|----------------------------|--------------------|
| | | L | H1 | H2 | H3 | | | | |
| 2.5 (0.1) | 56 (2.2) | 71 (2.79) | 72 (2.83) | 190 (7.5) | 96 (3.8) | 98 (3.9) | 49.5 (1.95) | 2.5 ±0.2 (0.098 ±0.007) | 2.6 (5.7) |
| 5 (0.2) | 56 (2.2) | 71 (2.79) | 72 (2.83) | 190 (7.5) | 96 (3.8) | 98 (3.9) | 49.5 (1.95) | 5 ±0.3 (0.196 ±0.011) | 2.6 (5.7) |
| 10 (0.4) | 56 (2.2) | 71 (2.79) | 72 (2.83) | 190 (7.5) | 96 (3.8) | 98 (3.9) | 49.5 (1.95) | 10 ±0.5 (0.393 ±0.019) | 2.6 (5.7) |
| 15 (0.6) | 56 (2.2) | 71 (2.79) | 72 (2.83) | 190 (7.5) | 96 (3.8) | 98 (3.9) | 49.5 (1.95) | 15 ±0.5 (0.590 ±0.019) | 2.6 (5.7) |
| 25 (1) | 56 (2.2) | 77 (3) | 34 (1.3) | 158 (6.2) | 102 (4) | 106 (4.2) | 68 (2.7) | 24 ±0.5 (0.944 ±0.019) | 2.6 (5.7) |
| 40 (1.6) | 80 (3.2) | 84 (3.3) | 43.5 (1.7) | 174.5 (6.9) | 109 (4.3) | 125 (5) | 87 (3.4) | 38.5 ±1 (1.515 ±0.039) | 2.8 (6.2) |
| 50 (2) | 86 (3.4) | 93 (3.7) | 52 (2) | 192 (7.6) | 118 (4.7) | 135 (5.0) | 104 (4.1) | 50 ±1 (1.968 ±0.039) | 3.4 (7.5) |
| 65 (2.6) | 96 (3.8) | 100 (4) | 62 (2.4) | 209 (8.2) | 125 (5) | 148 (5.8) | 124 (4.9) | 63 ±1 (2.480 ±0.039) | 4.5 (9.9) |
| 80 (3.1) | 106 (4.2) | 108 (4.3) | 67 (2.6) | 222 (8.7) | 133 (5.2) | 164 (6.5) | 134 (5.3) | 75 ±2 (2.952 ±0.078) | 5.2 (11.5) |
| 100 (3.9) | 120 (4.7) | 120.5 (4.7) | 79.5 (3.1) | 247 (9.7) | 145.5 (5.7) | 189 (7.4) | 159 (6.3) | 100 ±2 (3.937 ±0.078) | 6.7 (14.8) |
| 125 (4.9) | 140 (5.5) | 133 (5.2) | 95 (3.7) | 275 (10.8) | 158 (6.2) | 214 (8.4) | 190 (7.5) | 123 ±3 (4.842 ±0.118) | 10.0 (22.1) |
| 150 (5.9) | 160 (6.3) | 160 (6.3) | 110 (4.3) | 317 (12.5) | 240 (9.5) | 240 (9.5) | 220 (8.7) | 147 ±3 (5.787 ±0.118) | 13.6 (30) |
| 200 (7.9) | 200 (7.90) | 185 (7.3) | 135 (5.3) | 367 (14.5) | 210 (8.3) | 290 (11.4) | 270 (10.6) | 195 ±3 (7.677 ±0.118) | 22.0 (48.5) |

Dimensions: $\frac{\text{millimeters}}{\text{inches}}$
FOR REFERENCE ONLY



Inner diameter: 24 ± 0.5 mm (0.944 ± 0.019 in.)

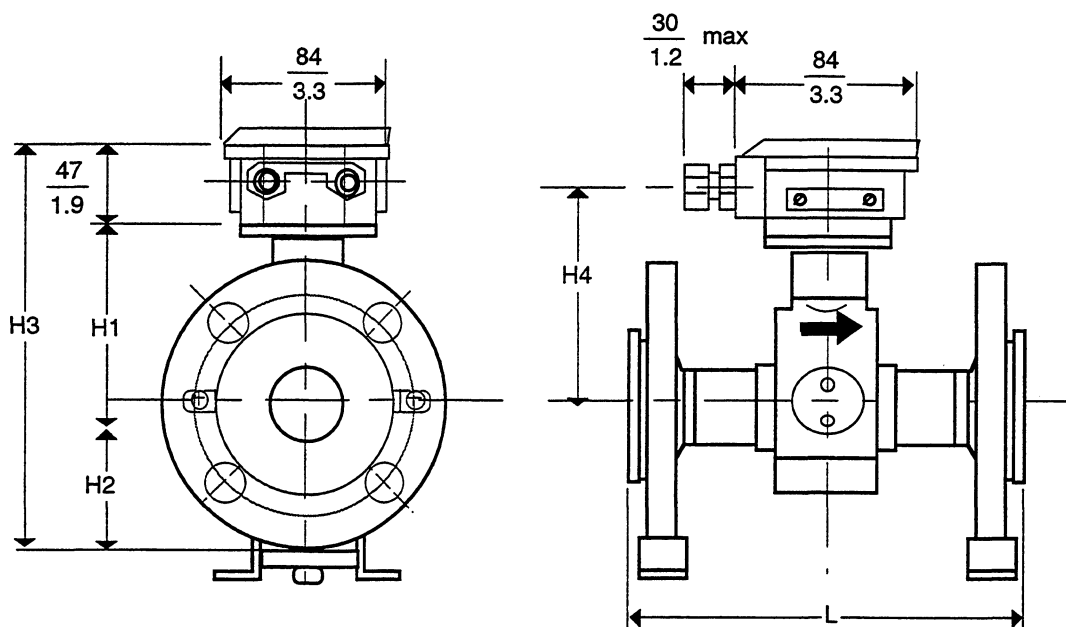
Weight: 5.5 kg (12.1 lbs.)

23461

Figure 19—Flange Dimensions – 25 mm (1 in.) Sizes

Dimensions: $\frac{\text{millimeters}}{\text{inches}}$
FOR REFERENCE ONLY

Sizes 40 to 100 mm (1.6 to 3.4 inches)



Sizes 150 to 600 mm (5.9 to 23.6 inches)

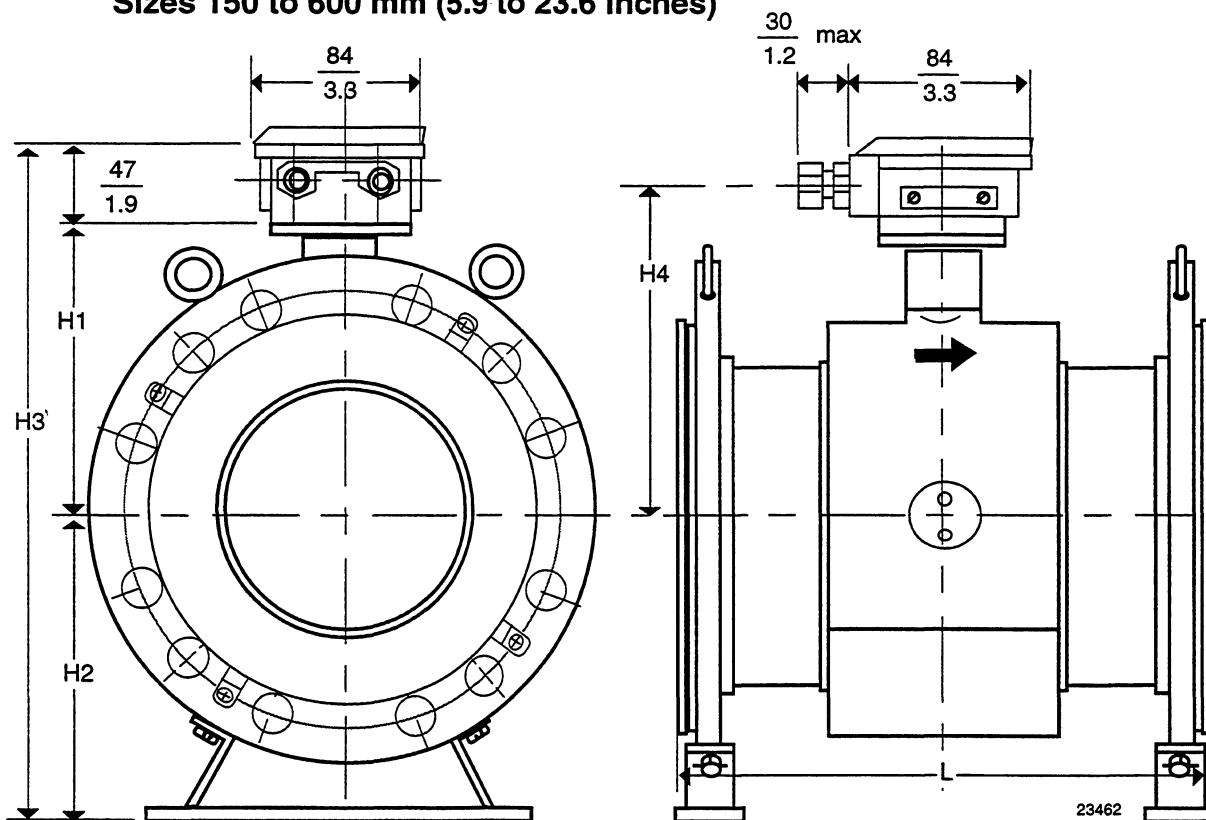


Figure 20—Flange Dimensions – 40 mm to 100 mm (1.6 in. to 3.9 in.) and 150 mm to 600 mm (5.9 in. to 23.6 in.) Sizes—Refer to Table 9

Table 9—Dimensions for Figure 20

| Detector Diameter mm (in.) | Face to Face Dimension mm (in.) | Height mm (in.) | | | | Inner Diameter mm (in.) | Weight kg (lbs) |
|-------------------------------|---------------------------------------|--------------------|---------------|----------------|---------------|-------------------------------|--------------------|
| | | L | H1 | H2 | H3 | H4 | |
| 40 (1.6) | 200 (7.9) | 84 (3.3) | 85 (3.35) | 216 (8.5) | 109 (4.3) | 38.5 ±1 (1.515 ±0.039) | 6.5 (14.3) |
| 50 (2) | 200 (7.9) | 93 (3.7) | 90 (3.5) | 230 (9.1) | 118 (4.7) | 50 ±1 (1.968 ±0.039) | 8.5 (18.7) |
| 65 (2.6) | 200 (7.9) | 100 (3.9) | 102 (4) | 249 (9.8) | 125 (4.9) | 63 ±1 (2.480 ±0.039) | 10 (22.1) |
| 80 (3.1) | 200 (7.9) | 108 (4.3) | 105 (4.1) | 260 (10.2) | 133 (5.2) | 75 ±2 (2.952 ±0.078) | 12.6 (27.8) |
| 100 (3.9) | 250 (9.8) | 120.5 (4.7) | 115 (4.5) | 167.5 (6.6) | 45.5 (5.7) | 100 ±2 (3.937 ±0.078) | 18.4 (40.6) |
| 125 (4.9) | 250 (9.8) | 133 (5.2) | 143 (5.6) | 323 (12.7) | 158 (6.2) | 123 ±3 (4.842 ±0.118) | 26 (57.3) |
| 150 (5.9) | 300 (11.8) | 160 (6.3) | 158 (6.2) | 365 (14.4) | 185 (7.3) | 147 ±3 (5.787 ±0.118) | 32.6 (71.9) |
| 200 (7.9) | 350 (13.8) | 185 (7.3) | 175 (7.1) | 411 (16.2) | 210 (8.3) | 195 ±3 (7.677 ±0.118) | 48 (105.8) |
| 250 (9.8) | 450 (17.7) | 212 (8.3) | 221 (8.7) | 480 (18.9) | 237 (9.3) | 245 ±4 (9.645 ±0.157) | 60 (132.3) |
| 300 (11.8) | 500 (19.7) | 235 (9.3) | 250 (9.8) | 532 (20.9) | 260 (10.2) | 295 ±4 (11.614 ±0.167) | 73 (160.9) |
| 350 (13.8) | 550 (21.7) | 259 (10.2) | 273 (10.8) | 579 (22.8) | 298 (11.7) | 345 ±5 (13.582 ±0.196) | 96 (211.6) |
| 400 (15.8) | 600 (23.6) | 287 (11.3) | 321 (12.6) | 655 (25.8) | 312 (12.3) | 395 ±5 (15.551 ±0.196) | 128 (282.2) |
| 450 (17.7) | 600 (23.6) | 339 (13.3) | 364 (14.3) | 750 (29.5) | 364 (14.3) | 445 ±6 (17.519 ±0.236) | 213 (469.5) |
| 500 (19.7) | 600 (23.6) | 343 (13.5) | 383 (15.1) | 773 (30.4) | 368 (14.5) | 495 ±6 (19.488 ±0.236) | 202 (445.3) |
| 600 (23.6) | 650 (25.6) | 392 (15.4) | 446 (17.6) | 885 (34.8) | 417 (16.4) | 595 ±6 (23.425 ±0.236) | 272 (599.6) |

Ordering Data and Special Instructions

Refer to the following model selection guides to build the appropriate model numbers for the MagneW 3000 **PLUS** components that you need to meet your application requirements.

MagneW 3000 *PLUS* Integral Converter and Wafer Style Detector

Model Selection Guide

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Tables I thru III, using the column below the proper arrow. Select as many Table IV options as desired. (If no selections are desired, specify 00.) A dot (•) denotes unrestricted availability. A letter denotes restricted availability. Restrictions follow Table IV.
- A complete Model Number must have the designated number of digits in each table.

| Key Number | I | II | III | IV |
|------------|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ |
| | V | VI | VII | VIII |
| | _____ | _____ | _____ | _____ |

* = Stocked

KEY NUMBER

| Description | Selection | Availability |
|---|-----------|--------------|
| MagneW 3000 <i>PLUS</i> Integral Converter and MGG 18D Wafer Style Detector | MGG14ID | ↓ |

TABLE I

| A - Power Supply | | | |
|---|---------------------------------|---------|-----|
| AC100V 50/60Hz | - Refer to Factory for Delivery | A _ _ _ | • |
| AC110V 50/60Hz | - Refer to Factory for Delivery | B _ _ _ | • |
| AC115/120V-50/60Hz | | C _ _ _ | • * |
| AC200V 50/60Hz | - Refer to Factory for Delivery | D _ _ _ | • |
| AC220V 50/60Hz | - Refer to Factory for Delivery | E _ _ _ | • |
| AC230/240V 50/60Hz | | F _ _ _ | • |
| DC24V (Noise Filter 50Hz) | | G _ _ _ | • |
| DC24V (Noise Filter 60Hz) | | H _ _ _ | • |
| B - Output Signal/Communication | | | |
| Volume Flow 4-20mA DC Output/without Communication (Active 4-20) | | _ A _ _ | • |
| Volume Flow 4-20mA DC Output/with Communication (Passive 4-20) | | _ B _ _ | • * |
| Volume Flow DE Output/with Communication | | _ C _ _ | • |
| Volume Flow Fieldbus Output/with Communication Note 1 | | _ F _ _ | k |
| Volume Flow HART Protocol Output/with Communication | | _ H _ _ | • |
| C - Conduit Connection/Watertight Gland | | | |
| G1/2 Internal Thread/without Watertight Gland Not CSA/FM Approved | | _ _ 1 _ | • |
| G1/2 Internal Thread/with brass (Ni-plated) Watertight Gland Not CSA/FM Approved | | _ _ 2 _ | • |
| G1/2 Internal Thread/with Plastic Watertight Gland Not CSA/FM Approved | | _ _ 3 _ | • * |
| 1/2 NPT Internal Thread/without Watertight Gland CSA FM Approved | | _ _ 4 _ | • |
| CM20 Internal Thread/without Watertight Gland Not CSA/FM Approved | | _ _ 5 _ | • |
| Pg13.5 Internal Thread/without Watertight Gland Not CSA/FM Approved | | _ _ 6 _ | • |
| G1/2 Internal Thread/with SUS304 Watertight Gland Not CSA/FM Approved | | _ _ 7 _ | • |
| D - Installation/Wiring Direction | | | |
| Horizontal Piping Mounting/Upstream Side | | _ _ _ A | • * |
| Horizontal Piping Mounting/Downstream Side | | _ _ _ B | • |
| Horizontal Piping Mounting/Left Side Viewed from Upstream | | _ _ _ C | • |

MGG14ID



TABLE I (continued)

| | Selection | Availability |
|--|-----------|--------------|
| D - Installation/Wiring Direction (continued) | | |
| Horizontal Piping Mounting/Right Side View from Upstream | ___ D | • |
| Vertical Piping Mounting/Downstream Side (flow direction downstream to upstream) | ___ E | • |
| Vertical Piping Mounting/Downstream Side (flow direction upstream to downstream) | ___ F | • |

TABLE II

| | | | |
|---|---------|---|---|
| A - Finish | | | |
| Standard | X ___ | • | * |
| Corrosion-Resistant Finish | 1 ___ | • | |
| Corrosion-Proof Finish | 2 ___ | • | |
| B - Display | | | |
| None | _ X _ | • | * |
| Main Display: Instantaneous Indication of Flow Volume in % | _ A _ | • | |
| Main Display: Instantaneous Indication of Actual Flow Volume | _ B _ | • | |
| Main Display: Indication of Integrated Flow Volume (need pulse output board) | _ C _ | m | |
| Note 2 | | | |
| C - Contact Inputs/Outputs | | | |
| None | _ _ X _ | • | |
| 1 Input and 1 Output (ranging function, warning for contact input/output, etc.) | _ _ 1 _ | n | |
| Note 3 | | | |
| 2 Inputs (ranging function, external automatic zero adjustment input, etc.) | _ _ 2 _ | p | |
| Note 3 | | | |
| 2 Outputs (ranging function, warning for contact outputs) | _ _ 3 _ | r | |
| D - Style Code | | | |
| None | _ _ _ X | • | * |

TABLE III

| | | | |
|--|----|---|---|
| A - Version | | | |
| Honeywell Version (indication other than SI units) | SH | • | * |

TABLE IV

| | | | |
|--|----|---|---|
| A - Options | | | |
| Empty Pipe Detection Function | A | • | * |
| Pulse Output (open collector) | B | • | |
| Polycarbonate Window | G | • | |
| Traceability Certificate | C | • | |
| Attachment of Tagplate to the Terminal Box | J | • | |
| Specific Color Finish | L | • | |
| Note 4 | | | |
| Note 5 | | | |
| Ranging Functions - See Chart for Availability | | | |
| Automatic switching dual range | F1 | s | b |
| External ranges switching | F2 | t | |
| Direct/reverse automatic ranges | F3 | s | |
| Direct/reverse external switching | F4 | t | |

Availability

| A - Diameter | | Flow Range Minimum | | Flow Range Maximum | | | |
|--|--------|--------------------|-----------|--------------------|-----------|------------|-----|
| Millimeter | Inches | In US GPM | In Litres | In US GPM | In Litres | | |
| 2.5 | 0.1 | 0.008 | 0.03 | 0.779 | 2.95 | 002 | • |
| 5.0 | 0.2 | 0.031 | 0.12 | 3.113 | 11.78 | 005 | • |
| 10 | 0.39 | 0.125 | 0.47 | 12.460 | 47.17 | 010 | • |
| 15 | 0.5 | 0.280 | 1.06 | 28.002 | 106.00 | 015 | • |
| 25 | 1.0 | 0.779 | 2.95 | 77.931 | 295.00 | 025 | • |
| 40 | 1.5 | 1.990 | 7.53 | 199.011 | 753.34 | 040 | • |
| 50 | 2.0 | 3.113 | 11.78 | 311.285 | 1178.34 | 050 | • |
| 65 | 2.5 | 5.239 | 19.83 | 523.945 | 1983.34 | 065 | • |
| 80 | 3.0 | 7.969 | 30.17 | 796.924 | 3016.68 | 080 | • |
| 100 | 4.0 | 12.46 | 47.17 | 1246.02 | 4716.68 | 100 | • |
| 125 | 5.0 | 19.46 | 73.67 | 1946.08 | 7366.69 | 125 | • |
| 150 | 6.0 | 28.00 | 106.00 | 2800.24 | 10600.04 | 150 | • |
| 200 | 8.0 | 49.80 | 188.50 | 4979.68 | 18850.07 | 200 | • |
| B - Liner | | | | | | | |
| PFA | | | | | | ___ P ___ | • * |
| Polyurethane Rubber (25 to 200mm only) | | | | | | ___ Q ___ | d |
| C - Pipe Connection | | | | | | | |
| Wafer JIS10K | | | | | | ___ 11 ___ | j |
| Wafer JIS20K | | | | | | ___ 12 ___ | j |
| Wafer JIS30K | | | | | | ___ 13 ___ | j |
| Wafer JIS10/20K for 10mm flange | | | | | | ___ 14 ___ | g |
| Wafer JIS30K for 10mm flange | | | | | | ___ 15 ___ | g |
| Wafer ANSI150 | | | | | | ___ 21 ___ | • * |
| Wafer ANSI300 | | | | | | ___ 22 ___ | • |
| Wafer JIS G3451 F12 (diameter 80mm or larger) | | | | | | ___ 31 ___ | h |
| Wafer DIN PN10 | | | | | | ___ 41 ___ | j |
| Wafer DIN PN16 | | | | | | ___ 42 ___ | j |
| Wafer DIN PN25 | | | | | | ___ 43 ___ | j |
| Wafer DIN PN40 | | | | | | ___ 44 ___ | j |
| Wafer DIN PN10/16/25/40 for 10mm flange | | | | | | ___ 45 ___ | g |
| Wafer JPI150 | | | | | | ___ 61 ___ | • |
| Wafer JPI300 | | | | | | ___ 62 ___ | • |
| D - Electrodes | | | | | | | |
| SUS316L | | | | | | ___ L ___ | • * |
| Hastelloy C (with Teflon PFA only) | | | | | | ___ C ___ | c |
| Titanium | | | | | | ___ K ___ | • |
| Zirconium (with Teflon PFA only) | | | | | | ___ H ___ | c |
| Tantalum (with Teflon PFA only) | | | | | | ___ T ___ | c |
| Tungsten Carbide (only for size 10mm and above) | | | | | | ___ W ___ | e |
| Platinum-Iridium (with Teflon PFA only) | | | | | | ___ P ___ | c |
| Alloy 20 (with Teflon PFA only) | | | | | | ___ A ___ | c |
| Hastelloy B (with Teflon PFA only) | | | | | | ___ B ___ | c |
| SUS304 (with Teflon PFA only) | | | | | | ___ E ___ | c |
| Monel (with Teflon PFA only) | | | | | | ___ M ___ | c |
| Nickel (with Teflon PFA 15-200mm only) | | | | | | ___ N ___ | f |
| SUS316L Protruded Tip (with Teflon PFA 15-200mm only) | | | | | | ___ 1 ___ | f |
| SUS316L for Alumina with Flat Tip (with Teflon PFA 15-200mm only) | | | | | | ___ 2 ___ | f |
| SUS316L for Alumina with Pointed Tip (with Teflon PFA 15-200mm only) | | | | | | ___ 3 ___ | f |

MGG14ID



TABLE V (continued)

| | Selection | Availability | |
|--|-------------|--------------|---|
| E - Grounding Rings | | | |
| SUS316 | -----S----- | • | * |
| SS Top Hat Style (Upstream Only) | -----G----- | c | |
| Hastelloy C (with Teflon PFA only) | -----C----- | c | |
| Titanium | -----K----- | • | |
| Zirconium (with Teflon PFA only) | -----H----- | c | |
| Tantalum (with Teflon PFA only) | -----T----- | c | |
| Platinum (with Teflon PFA only) | -----P----- | c | |
| Alloy 20 | -----A----- | c | |
| Hastelloy B | -----B----- | c | |
| SUS304 | -----E----- | c | |
| SUS316L | -----L----- | c | |
| Nickel | -----N----- | c | |
| F - Wiring Connection/Water Tight Gland | | | |
| Integral Type | -----1----- | • | * |
| G - Face to Face Dimension | | | |
| Standard | -----A----- | • | * |
| Competitive (Refer to Table 103 and Consult Factory) | -----9----- | c | |
| H - Installation/Wiring Direction | | | |
| Integral Type | -----H----- | • | * |
| I - Calibration | | | |
| Standard Calibration - 2 Point (0, 100%) w/ Master Converter | -----R----- | • | * |
| 3 Point (0, 50, 100%) with Master Converter | -----P----- | • | |
| 5 Point (0, 25, 50, 75, 100%) with Master Converter | -----Q----- | • | |
| 2 Point (0, 100%) with Customer's Specific Converter | -----J----- | • | |
| 3 Point (0, 50, 100%) with Customer's Specific Converter | -----A----- | • | |
| 5 Point (0, 25, 50, 75, 100%) with Customer's Specific Converter | -----E----- | • | |

TABLE VI

| | | | |
|----------------------------|-----|---|---|
| A - Finish | | | |
| Standard | X _ | • | * |
| Corrosion-resistant Finish | 1 _ | • | |
| Corrosion-proof Finish | 2 _ | • | |
| B - Bolts/Nuts | | | |
| None | _ X | • | * |
| Carbon Steel | _ 1 | • | |
| SUS304 | _ 2 | • | |

MGG14ID



TABLE VII

| Version | Selection | Availability |
|----------|-----------|--------------|
| Standard | S | • * |

TABLE VIII

| Options | | |
|--|---|---|
| Calibration Certificate (additional copy) | A | • |
| Traceability Certificate | B | • |
| Mill Sheet (only for electrodes and grounding rings) | C | • |
| Gasket for Plastic Piping | J | • |
| Attachment of Tagplate to Detector Terminal Box (Note 4) | K | • |
| Attachment of Tagplate to Neck of Detector (Note 4) | L | • |
| Specific Color Finish (Note 5) | P | • |

Notes

- 1 Not available with 4 "B".
- 2 Option "B" must be selected.
- 3 Observing restriction, please specify required F1-F4 codes from table below.
- 4 Must be selected if Tag number is required.
- 5 Order must specify Munsell color number.
- 5 Must be selected if Tag number is required.

| Code | Ranging Functions | 1 Input/Output | 2 Inputs | 2 Outputs |
|------|-----------------------------------|----------------|----------|-----------|
| | 0 : Available Selection | 1 | 2 | 3 |
| F1 | Automatic Switching Dual Range | • | | • |
| F2 | External Ranges Switching | • | • | |
| F3 | Direct/Reverse Automatic Ranges | • | | • |
| F4 | Direct/Reverse External Switching | • | • | |

RESTRICTIONS

| Restrictions Letter | Available Only With | Not Available With |
|-------------------------------|----------------------------------|--------------------|
| b c d e f g h j k m n p r s t | Table Selection | Table Selection |
| ■ | VB --- P | |
| ■ | | VA 002, 005, 010 |
| ■ | | VA 002, 005 |
| ■ | VB --- P | VA 002, 005, 010 |
| ■ | VA 10 | |
| ■ | VA 080, 100, 125, 150, 200 | |
| ■ | | VA 010 |
| ■ | | IV B |
| ■ | IV B | |
| ■ | IV F1, F2, F3, F4 | |
| ■ | IV F2, F4 | |
| ■ | IV F1, F3 | |
| ■ | 2C -- 1, -- 3 | |
| ■ | 2C -- 1, -- 3 | |
| ■ | Select only one from this group. | |

MagneW 3000 *PLUS* Integral Converter and Flanged Style Detector

Model Selection Guide

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Tables I thru III, using the column below the proper arrow. Select as many Table IV options as desired. (If no selections are desired, specify 00.) A dot (•) denotes unrestricted availability. A letter denotes restricted availability. Restrictions follow Table IV.
- A complete Model Number must have the designated number of digits in each table.

| Key Number | I | II | III | IV | V | VI | VII | VIII |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ | _____ |

* = Stocked

KEY NUMBER

| Description | Selection | Availability |
|---|-----------|--------------|
| MagneW 3000 <i>PLUS</i> Integral Converter and MGG18F Flange Style Detector | MGG14IF | ↓ |

TABLE I

| A - Power Supply | | | |
|---|---------------------------------|---------|-----|
| AC100V 50/60Hz | - Refer to Factory for Delivery | A _ _ _ | • |
| AC110V 50/60Hz | - Refer to Factory for Delivery | B _ _ _ | • |
| AC115/120V-50/60Hz | | C _ _ _ | • * |
| AC200V 50/60Hz | - Refer to Factory for Delivery | D _ _ _ | • |
| AC220V 50/60Hz | - Refer to Factory for Delivery | E _ _ _ | • |
| AC230/240V 50/60Hz | | F _ _ _ | • |
| DC24V (Noise Filter 50Hz) | | G _ _ _ | • |
| DC24V (Noise Filter 60Hz) | | H _ _ _ | • |
| B - Output Signal/Communication | | | |
| Volume Flow 4-20mA DC Output/without Communication (Active 4-20) | | _ A _ _ | • |
| Volume Flow 4-20mA DC Output/with Communication (Passive 4-20) | | _ B _ _ | • * |
| Volume Flow DE Output/with Communication | | _ C _ _ | • |
| Volume Flow Fieldbus Output/with Communication Note 1 | | _ F _ _ | f |
| Volume Flow HART Protocol Output/with Communication | | _ H _ _ | • |
| C - Conduit Connection/Watertight Gland | | | |
| G1/2 Internal Thread/without Watertight Gland Not CSA/FM approved | | _ _ 1 _ | • |
| G1/2 Internal Thread/with brass (Ni-plated) Watertight Gland Not CSA/FM approved | | _ _ 2 _ | • |
| G1/2 Internal Thread/with Plastic Watertight Gland Not CSA/FM approved | | _ _ 3 _ | • |
| 1/2 NPT Internal Thread/without Watertight Gland CSA/FM NI approved | | _ _ 4 _ | • * |
| CM20 Internal Thread/without Watertight Gland Not CSA/FM approved | | _ _ 5 _ | • |
| Pg13.5 Internal Thread/without Watertight Gland Not CSA/FM approved | | _ _ 6 _ | • |
| G1/2 Internal Thread/with SUS304 Watertight Gland Not CSA/FM approved | | _ _ 7 _ | • |
| D - Installation/Wiring Direction | | | |
| Horizontal Piping Mounting/Upstream Side | | _ _ _ A | • * |
| Horizontal Piping Mounting/Downstream Side | | _ _ _ B | • |
| Horizontal Piping Mounting/Left Side Viewed from Upstream | | _ _ _ C | • |

MGG14IF



TABLE I (continued)

| | Selection | Availability |
|--|-----------|--------------|
| D - Installation/Wiring Direction (continued) | | |
| Horizontal Piping Mounting/Right Side View from Upstream | ___ D | • |
| Vertical Piping Mounting/Downstream Side (flow direction downstream to upstream) | ___ E | • |
| Vertical Piping Mounting/Downstream Side (flow direction upstream to downstream) | ___ F | • |

TABLE II

| | | | |
|---|---------|---|---|
| A - Finish | | | |
| Standard | X ___ | • | * |
| Corrosion-Resistant Finish | 1 ___ | • | |
| Corrosion-Proof Finish | 2 ___ | • | |
| B - Display | | | |
| None | _ X _ | • | |
| Main Display: Instantaneous Indication of Flow Volume in % | _ A _ | • | * |
| Main Display: Instantaneous Indication of Actual Flow Volume | _ B _ | • | |
| Main Display: Indication of Integrated Flow Volume (need pulse output board) | _ C _ | e | |
| Note 2 | | | |
| C - Contact Inputs/Outputs | | | |
| None | _ _ X _ | • | * |
| 1 Input and 1 Output (ranging function, warning for contact input/output, etc.) | _ _ 1 _ | g | |
| Note 3 | | | |
| 2 Inputs (ranging function, external automatic zero adjustment input, etc.) | _ _ 2 _ | j | |
| Note 3 | | | |
| 2 Outputs (ranging function, warning for contact outputs) | _ _ 3 _ | k | |
| Note 3 | | | |
| D - Style Code | | | |
| None | _ _ _ X | • | * |

TABLE III

| | | | |
|--|----|---|---|
| A - Version | | | |
| Honeywell Version (indication other than SI units) | SH | • | * |

TABLE IV

| | | | |
|--|----|---|---|
| A - Options | | | |
| Empty Pipe Detection Function | A | • | * |
| Pulse Output (open collector) | B | • | |
| Traceability Certificate | C | • | |
| Attachment of Tagplate to the Terminal Box | J | | |
| Specific Color Finish | L | | |
| Ranging Functions | | | |
| Automatic switching dual range | F1 | n | b |
| External ranges switching | F2 | r | |
| Direct/reverse automatic ranges | F3 | n | |
| Direct/reverse external switching | F4 | r | |

MGG14IF



TABLE V

Selection Availability

| A - Diameter | | Flow Range Minimum | | Flow Range Maximum | | | |
|--|--------|--------------------|-----------|------------------------|-----------|-------------|-----|
| Millimeter | Inches | In US GPM | In Litres | In US GPM | In Litres | | |
| 25 | 1.0 | 0.779 | 2.95 | 77.931 | 295.00 | 025 | • |
| 40 | 1.5 | 1.990 | 7.53 | 199.011 | 753.34 | 040 | • |
| 50 | 2.0 | 3.113 | 11.78 | 311.285 | 1178.34 | 050 | • |
| 65 | 2.5 | 5.239 | 19.83 | 523.945 | 1983.34 | 065 | • |
| 80 | 3.0 | 7.969 | 30.17 | 796.924 | 3016.68 | 080 | • |
| 100 | 4.0 | 12.46 | 47.17 | 1246.02 | 4716.68 | 100 | • |
| 125 | 5.0 | 19.46 | 73.67 | 1946.08 | 7366.69 | 125 | • |
| 150 | 6.0 | 28.00 | 106.00 | 2800.24 | 10600.04 | 150 | • |
| 200 | 8.0 | 49.80 | 188.50 | 4979.68 | 18850.07 | 200 | • |
| B - Liner | | | | | | | |
| PFA | | | | | | --- P --- | • * |
| Polyurethane Rubber (25 to 200mm only) | | | | | | --- Q --- | • |
| C - Pipe Connection | | | | Flange Material | | | |
| Flange JIS10K | | | | Standard | | --- J11 --- | • |
| Flange JIS20K | | | | Standard | | --- J21 --- | • |
| Flange JIS30K | | | | Standard | | --- J31 --- | • |
| Flange ANSI 150 | | | | Standard | | --- A11 --- | • * |
| Flange ANSI 300 | | | | Standard | | --- A21 --- | • |
| Flange JIS G3451 F12 (diameter 80mm or larger) | | | | Standard | | --- G11 --- | h |
| Flange DIN PN10 | | | | Standard | | --- D11 --- | • |
| Flange DIN PN16 | | | | Standard | | --- D21 --- | • |
| Flange DIN PN25 | | | | Standard | | --- D31 --- | • |
| Flange DIN PN40 | | | | Standard | | --- D41 --- | • |
| Flange JPI 150 | | | | Standard | | --- P11 --- | • |
| Flange JPI 300 | | | | Standard | | --- P21 --- | • |
| Flange JIS 10K (diameter 80mm or larger) | | | | SUS304 | | --- J14 --- | m |
| Flange JIS 20K (diameter 80mm or larger) | | | | SUS304 | | --- J24 --- | m |
| Flange JIS 30K (diameter 80mm or larger) | | | | SUS304 | | --- J34 --- | m |
| Flange ANSI 150 (diameter 80mm or larger) | | | | SUS304 | | --- A14 --- | m |
| Flange ANSI 300 (diameter 80mm-450mm only) | | | | SUS304 | | --- A24 --- | m |
| Flange JIS G3451 F12 (diameter 80mm or larger) | | | | SUS304 | | --- G14 --- | m |
| Flange DIN PN10 (diameter 80mm or larger) | | | | SUS304 | | --- D14 --- | m |
| Flange DIN PN16 (diameter 80mm or larger) | | | | SUS304 | | --- D24 --- | m |
| Flange DIN PN25 (diameter 80mm or larger) | | | | SUS304 | | --- D34 --- | m |
| Flange DIN PN40 (diameter 80mm or larger) | | | | SUS304 | | --- D44 --- | m |
| Flange JPI150 (diameter 80mm or large) | | | | SUS304 | | --- P14 --- | m |
| Flange JPI300 (diameter 80mm or larger) | | | | SUS304 | | --- P24 --- | m |

MGG14IF



TABLE V (continued)

| | | Selection | Availability |
|--|--|---------------|--------------|
| D - Electrodes | | | |
| SUS316L | | ----- L ----- | • * |
| Hastelloy C | (with Teflon PFA only) | ----- C ----- | c |
| Titanium | | ----- K ----- | • |
| Zirconium | (with Teflon PFA only) | ----- H ----- | c |
| Tantalum | (with Teflon PFA only) | ----- T ----- | c |
| Tungsten Carbide | | ----- W ----- | • |
| Platinum-Iridium | (with Teflon PFA only) | ----- P ----- | c |
| Alloy 20 | (with Teflon PFA only) | ----- A ----- | c |
| Hastelloy B | (with Teflon PFA only) | ----- B ----- | c |
| SUS304 | (with Teflon PFA only) | ----- E ----- | c |
| Monel | (with Teflon PFA only) | ----- M ----- | c |
| Nickel | (with Teflon PFA only) | ----- N ----- | c |
| SUS316L Protruded Tip | (with Teflon PFA only) | ----- 1 ----- | c |
| SUS316L for Alumina with Flat Tip | (with Teflon PFA only) | ----- 2 ----- | c |
| SUS316L for Alumina with Pointed Tip | (with Teflon PFA only) | ----- 3 ----- | c |
| E - Grounding Rings | | | |
| SUS316 | | ----- S ----- | • * |
| SS Top Hat Style (Upstream Only) | | ----- G ----- | • |
| Hastelloy C | (with Teflon PFA only) | ----- C ----- | c |
| Titanium | | ----- K ----- | • |
| Zirconium | (with Teflon PFA only) | ----- H ----- | c |
| Tantalum | (with Teflon PFA only) | ----- T ----- | c |
| Platinum | (with Teflon PFA only) | ----- P ----- | c |
| Alloy 20 | (with Teflon PFA only) | ----- A ----- | c |
| Hastelloy B | (with Teflon PFA only) | ----- B ----- | c |
| SUS304 | (with Teflon PFA only) | ----- E ----- | c |
| SUS316L | (with Teflon PFA only) | ----- L ----- | c |
| Nickel | (with Teflon PFA only) | ----- N ----- | c |
| SS Top Hat Style (Upstream Only) | | ----- G ----- | c |
| F - Wiring Connection/Watertight Gland | | | |
| Integral Type | | ----- 1 ----- | • * |
| G - Face to Face Dimension | | | |
| Standard | | ----- A ----- | • * |
| Competitive | (refer to Table 103 and consult factory) | ----- 9 ----- | c |
| H - Installation/Wiring Direction | | | |
| Integral Type | | ----- H ----- | • * |
| I - Calibration | | | |
| Standard Calibration - 2 Point (0, 100%) w/ Master Converter | | ----- R ----- | • * |
| 3 Point (0, 50, 100%) with Master Converter | | ----- P ----- | • |
| 5 Point (0, 25, 50, 75, 100%) with Master Converter | | ----- Q ----- | • |
| 2 Point (0, 100%) with Customer's Specific Converter | | ----- J ----- | • |
| 3 Point (0, 50, 100%) with Customer's Specific Converter | | ----- A ----- | • |
| 5 Point (0, 25, 50, 75, 100%) with Customer's Specific Converter | | ----- E ----- | • |

MGG14IF 

TABLE VI

Selection Availability

| A - Finish | | |
|----------------------------|---|-----|
| Standard | X | • * |
| Corrosion-resistant Finish | 1 | • |
| Corrosion-proof Finish | 2 | • |

TABLE VII

| Version | | |
|----------|---|-----|
| Standard | S | • * |

TABLE VIII

| Options | | |
|--|---|---|
| Calibration Certificate (additional copy) | A | • |
| Traceability Certificate | B | • |
| Mill Sheet (only for electrodes and grounding rings) | C | • |
| Gasket for Plastic Piping | J | • |
| Attachment of Tagplate to Detector Terminal Box (Note 4) | K | • |
| Attachment of Tagplate to Neck of Detector (Note 4) | L | • |
| Specific Color Finish (Note 5) | P | • |

Note 1: Not available with Option B, Table IV.

Note 2: Available only with Table IV B.

Note 3: Observing restriction, please specify required F1-F4 codes from Table below.

Note 4: Must be selected if Tag number is required.

Note 5: Order must specify Munsell color number.

| Code | Ranging Functions | 1 Input/Output | 2 Inputs | 2 Outputs |
|------|-----------------------------------|----------------|----------|-----------|
| | 0 : Available Selection | 1 | 2 | 3 |
| F1 | Automatic Switching Dual Range | • | | • |
| F2 | External Ranges Switching | • | • | |
| F3 | Direct/Reverse Automatic Ranges | • | | • |
| F4 | Direct/Reverse External Switching | • | • | |

RESTRICTIONS

| Restriction Letter | Table | Available Only With Selection | Table | Not Available With Selection |
|--------------------|-------|---|-------|------------------------------|
| b | | Select only one option from this group. | | |
| c | VB | ___ P | | |
| e | IV | B | | |
| f | | | IV | B |
| g | IV | F1, F2, F3, F4 | | |
| h | | | VA | 025, 040, 050, 065 |
| j | IV | F2, F4 | | |
| k | IV | F1, F3 | | |
| m | VA | 080, 100, 125, 150, 200 | | |
| | VB | __ P | | |
| n | IIC | __ 1, __ 3 | | |
| r | IIC | __ 1, __ 2 | | |

MagneW 3000 *PLUS* Remote Converter

Model Selection Guide

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Tables I thru III, using the column below the proper arrow. Select as many Table IV options as desired. (If no selections are desired, specify 00.) A dot (•) denotes unrestricted availability. A letter denotes restricted availability. Restrictions follow Table IV.
- A complete Model Number must have the designated number of digits in each table.

Key Number I II III IV
 [] - [] - [] - [] - []

* = Stocked

| KEY NUMBER | Selection | Availability |
|--|-----------|--------------|
| Description | | |
| MagneW 3000 <i>PLUS</i> Remote Converter | MGG14C | ↓ |

TABLE I

| | | |
|--|---------|---|
| A - Power Supply | | |
| AC100V 50/60Hz - Refer to Factory for Delivery | A _ _ _ | • |
| AC110V 50/60Hz - Refer to Factory for Delivery | B _ _ _ | • |
| AC115/120V 50/60Hz | C _ _ _ | • |
| AC200V 50/60Hz - Refer to Factory for Delivery | D _ _ _ | • |
| AC220V 50/60Hz - Refer to Factory for Delivery | E _ _ _ | • |
| AC230/240V 50/60Hz | F _ _ _ | f |
| DC24V (Noise Filter 50Hz) | G _ _ _ | • |
| DC24V (Noise Filter 60Hz) | H _ _ _ | • |
| B - Output Signal/Communication | | |
| Volume Flow 4-20mA DC Output/without Communication (Active 4-20) | _ A _ _ | • |
| Volume Flow 4-20mA DC Output/with Communication (Passive 4-20) | _ B _ _ | • |
| Volume Flow DE Output/with Communication | _ C _ _ | • |
| Volume Flow Fieldbus Output/with Communication Note 1 | _ F _ _ | • |
| Volume Flow HART Protocol Output/with Communication | _ H _ _ | • |
| C - Conduit Connection/Watertight Gland | | |
| G1/2 Internal Thread/without Watertight Gland (Not CSA/FM approved) | _ _ 1 _ | • |
| G1/2 Internal Thread/with brass (Ni-plated) Watertight Gland (Not CSA/FM approved) | _ _ 2 _ | • |
| G1/2 Internal Thread/with Plastic Watertight Gland (Not CSA/FM approved) | _ _ 3 _ | • |
| 1/2 NPT Internal Thread/without Watertight Gland (CSA/FM approved) | _ _ 4 _ | • |
| CM20 Internal Thread/without Watertight Gland (Not CSA/FM approved) | _ _ 5 _ | • |
| Pg13.5 Internal Thread/without Watertight Gland (Not CSA/FM approved) | _ _ 6 _ | • |
| G1/2 Internal Thread/with SUS304 Watertight Gland (Not CSA/FM approved) | _ _ 7 _ | • |
| D - Installation/Wiring Direction | | |
| Wall Mounting with Standard Bracket | _ _ _ G | • |
| 2B Pipe Mounting with Standard Bracket | _ _ _ H | • |
| Without Mounting Bracket | _ _ _ X | • |

MGG14C



TABLE II

| | Selection | Availability |
|---|-----------|--------------|
| A - Finish | | |
| Standard | X _ _ _ | • * |
| Corrosion-Resistant Finish | 1 _ _ _ | • |
| Corrosion-Proof Finish | 2 _ _ _ | • |
| B - Display | | |
| None | _ X _ _ | • |
| Main Display: Instantaneous Indication of Flow Volume in % | _ A _ _ | • |
| Main Display: Instantaneous Indication of Actual Flow Volume | _ B _ _ | • * |
| Main Display: Indication of Integrated Flow Volume (need pulse output board) | _ C _ _ | e |
| Note 2 | | |
| C - Contact Inputs/Outputs | | |
| None | _ _ X _ | • * |
| 1 Input and 1 Output (ranging function, warning for contact input/output, etc.) | _ _ 1 _ | g |
| Note 3 | | |
| 2 Inputs (ranging function, external automatic zero adjustment input, etc.) | _ _ 2 _ | h |
| Note 3 | | |
| 2 Outputs (ranging function, warning for contact outputs) | _ _ 3 _ | i |
| Note 3 | | |
| D - Style Code | | |
| None | _ _ _ X | • * |

TABLE III

| | | |
|--|----|-----|
| A - Version | | |
| Honeywell Version (indication other than SI units) | SH | • * |

TABLE IV

| | | | |
|--|----|---|-----|
| A - Options | | | |
| Empty Pipe Detection Function | A | • | • * |
| Pulse Output (open collector) | B | • | |
| Traceability Certificate | C | • | |
| Polycarbonate Window | G | | |
| Attachment of Tagplate to the Terminal Box | J | | |
| Specific Color Finish | L | | |
| Note 4 | | | |
| Note 5 | | | |
| Ranging Functions | | | |
| Automatic switching dual range | F1 | c | b |
| External ranges switching | F2 | d | |
| Direct/reverse automatic ranges | F3 | c | |
| Direct/reverse external switching | F4 | d | |
| Note 6 | | | |

Notes

- 1 Not available with Option "B".
- 2 Option "B" must be selected.
- 3 Observing restriction, please specify required F1-F4 codes from table below.
- 4 Must be selected if Tag number is required.
- 5 Order must specify Munsell color number.
- 6 Refer to Chart for Range Functions Restrictions.

| Code | Ranging Functions | 1 Input/Output | 2 Inputs | 2 Outputs |
|------|-----------------------------------|----------------|----------|-----------|
| | • : Available Selection | 1 | 2 | 3 |
| F1 | Automatic Switching Dual Range | • | | • |
| F2 | External Ranges Switching | • | • | |
| F3 | Direct/Reverse Automatic Ranges | • | | • |
| F4 | Direct/Reverse External Switching | • | • | |

RESTRICTIONS

| Restrictions Letter | | | | | | | | | Available Only With | | Not Available With | |
|---------------------|---|---|---|---|---|---|---|--|---------------------------------|----------------|--------------------|-----------|
| b | c | d | e | f | g | h | i | | Table | Selection | Table | Selection |
| | ■ | | | | | | | | IIC | __ 1, __ 3 | | |
| | | ■ | | | | | | | IIC | __ 1, __ 2 | | |
| | | | ■ | | | | | | IV | B | | |
| | | | | ■ | | | | | | | IV | B |
| | | | | | ■ | | | | IV | F1, F2, F3, F4 | | |
| | | | | | | ■ | | | IV | F2, F4 | | |
| | | | | | | | ■ | | IV | F1, F3 | | |
| ■ | | | | | | | | | Select only one from this group | | | |

Next Page Blank

MagneW 3000 *PLUS* Remote Detector Model Selection Guide Wafer Type, Size 2.5-200mm

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Tables I thru III, using the column below the proper arrow.
Select as many Table IV options as desired. (If no selections are desired, specify 00.)
A dot (•) denotes unrestricted availability. A letter denotes restricted availability.
Restrictions follow Table IV.
- A complete Model Number must have the designated number of digits in each table.

Key Number I II III IV
 [] - [] - [] - [] - []

* = Stocked

KEY NUMBER

Selection Availability

| Description | |
|--|----------|
| MagneW 3000 <i>PLUS</i> Remote Detector, Wafer Type, Sizes 2.5-200mm CSA FM SP Approved CL I, Div.1, Groups B-G | MGG17D ↓ |

TABLE I

| A - Diameter | | Flow Range Minimum | | Flow Range Maximum | | | |
|---|--------|--------------------|-----------|--------------------|------------|-----------|---|
| Millimeter | Inches | In US GPM | In Litres | In US GPM | In Litres | | |
| 2.5 | 0.1 | 0.008 | 0.03 | 0.779 | 2.95 | 002 | • |
| 5.0 | 0.2 | 0.031 | 0.12 | 3.113 | 11.78 | 005 | • |
| 10 | 0.39 | 0.125 | 0.47 | 12.460 | 47.17 | 010 | • |
| 15 | 0.5 | 0.28 | 1.06 | 28.002 | 106.00 | 015 | • |
| 25 | 1.0 | 0.779 | 2.95 | 77.931 | 295.00 | 025 | • |
| 40 | 1.5 | 1.99 | 7.53 | 199.011 | 753.34 | 040 | • |
| 50 | 2.0 | 3.113 | 11.78 | 311.285 | 1178.34 | 050 | • |
| 65 | 2.5 | 5.239 | 19.83 | 523.945 | 1983.34 | 065 | • |
| 80 | 3.0 | 7.969 | 30.17 | 796.924 | 3016.68 | 080 | • |
| 100 | 4.0 | 12.46 | 47.17 | 1246.02 | 4716.68 | 100 | • |
| 125 | 5.0 | 19.46 | 73.67 | 1946.08 | 7366.69 | 125 | • |
| 150 | 6.0 | 28 | 106.00 | 2800.24 | 10600.04 | 150 | • |
| 200 | 8.0 | 49.8 | 188.50 | 4979.68 | 18850.07 | 200 | • |
| B - Liner | | | | | | | |
| PFA | | | | | | --- P --- | • |
| Polyurethane (25 to 200mm only) | | | | | | --- Q --- | d |
| C - Pipe Connection | | | | | | | |
| Wafer JIS10K | | | | | --- 11 --- | • | |
| Wafer JIS20K | | | | | --- 12 --- | • | |
| Wafer JIS30K | | | | | --- 13 --- | • | |
| Wafer JIS10/20K for 10mm flange | | | | | --- 14 --- | g | |
| Wafer JIS30K for 10mm flange | | | | | --- 15 --- | g | |
| Wafer ANSI150 | | | | | --- 21 --- | • | * |
| Wafer ANSI300 | | | | | --- 22 --- | • | |
| Wafer JIS G3451 F12 (diameter 80mm or larger) | | | | | --- 31 --- | h | |
| Wafer DIN PN10 | | | | | --- 41 --- | • | |
| Wafer DIN PN16 | | | | | --- 42 --- | • | |
| Wafer DIN PN25 | | | | | --- 43 --- | • | |
| Wafer DIN PN40 | | | | | --- 44 --- | • | |
| Wafer DIN PN10/16/25/40 for 10mm flange | | | | | --- 45 --- | g | |
| Wafer JPI150 | | | | | --- 61 --- | • | |
| Wafer JPI300 | | | | | --- 62 --- | • | |

Table I continued on next page.

Effective: November 1, 1997

TABLE I (Continued)

MGG17D



| TABLE I (Continued) | | Selection | Availability |
|--|---------------------------------|---------------|--------------|
| D - Electrodes | | | |
| SUS316L | | ----- L ----- | • |
| Hastelloy C | (with Teflon PFA only) | ----- C ----- | c |
| Titanium | | ----- K ----- | • |
| Zirconium | (with Teflon PFA only) | ----- H ----- | c |
| Tantalum | (with Teflon PFA only) | ----- T ----- | c |
| Tungsten Carbide | (only for size 10mm and above) | ----- W ----- | e |
| Platinum-Iridium | (with Teflon PFA only) | ----- P ----- | c |
| Alloy 20 | (with Teflon PFA only) | ----- A ----- | c |
| Hastelloy B | (with Teflon PFA only) | ----- B ----- | c |
| SUS304 | (with Teflon PFA only) | ----- E ----- | c |
| Monel | (with Teflon PFA only) | ----- M ----- | c |
| Nickel | (with Teflon PFA only) | ----- N ----- | f |
| SUS316L Protruded Tip | (with Teflon PFA 15-200mm only) | ----- 1 ----- | f |
| SUS316L for Alumina with Flat Tip | (with Teflon PFA 15-200mm only) | ----- 2 ----- | f |
| SUS316L for Alumina with Pointed Tip | (with Teflon PFA 15-200mm only) | ----- 3 ----- | f |
| E - Grounding Rings | | | |
| SUS316 | | ----- S ----- | • |
| SS Top Hat Style (Upstream Only) | | ----- G ----- | c |
| Hastelloy C | (with Teflon PFA only) | ----- C ----- | c |
| Titanium | | ----- K ----- | • |
| Zirconium | (with Teflon PFA only) | ----- H ----- | c |
| Tantalum | (with Teflon PFA only) | ----- T ----- | c |
| Platinum | (with Teflon PFA only) | ----- P ----- | c |
| Alloy 20 | (with Teflon PFA only) | ----- A ----- | c |
| Hastelloy B | (with Teflon PFA only) | ----- B ----- | c |
| SUS304 | (with Teflon PFA only) | ----- E ----- | c |
| SUS316L | (with Teflon PFA only) | ----- L ----- | c |
| Nickel | (with Teflon PFA only) | ----- N ----- | c |
| F - Wiring Connection | | | |
| 1/2" NPT Internal Thread without Watertight Gland | | ----- 5 ----- | • |
| G - Face to Face Dimension | | | |
| Standard | | ----- A ----- | • |
| Competitive (Refer to Table 103 and Consult Factory) | | ----- 9 ----- | • |
| H - Installation/Wiring Direction - Remote Only | | | |
| Upstream Side (horizontal/vertical piping mounting) | | ----- A ----- | • |
| Downstream Side (horizontal/vertical piping mounting) | | ----- B ----- | • |
| Horizontal Piping Mounting/Left Side Viewed from Upstream | | ----- C ----- | • |
| Horizontal Piping Mounting/Right Side Viewed from Upstream | | ----- D ----- | • |
| I - Calibration | | | |
| Standard Calibration - 2 Point (0, 100%) w/ Master Converter | | ----- R ----- | • |
| 3 Point (0, 50, 100%) with Master Converter | | ----- P ----- | • |
| 5 Point (0, 25, 50, 75, 100%) with Master Converter | | ----- Q ----- | • |
| 2 Point (0, 100%) with Customer's Specific Converter | | ----- J ----- | • |
| 3 Point (0, 50, 100%) with Customer's Specific Converter | | ----- A ----- | • |
| 5 Point (0, 25, 50, 75, 100%) with Customer's Specific Converter | | ----- E ----- | • |

MGG17D

**TABLE II**

| | Selection | Availability | |
|----------------------------|-----------|--------------|---|
| A - Finish | | | |
| Standard | X _ | • | * |
| Corrosion-resistant Finish | 1 _ | • | |
| Corrosion-proof Finish | 2 _ | • | |
| B - Bolts/Nuts | | | |
| None | _ X | • | * |
| Carbon Steel | _ 1 | • | |
| SUS304 | _ 2 | • | |

TABLE III

| | | | |
|----------------|---|---|---|
| Version | | | |
| Standard | S | • | * |

TABLE IV

| | | | |
|--|---|---|--|
| Options | | | |
| Calibration Certificate (additional copy) | A | • | |
| Traceability Certificate | B | • | |
| Mill Sheet (only for electrodes and grounding rings) | C | • | |
| Gasket for Plastic Piping | J | • | |
| Attachment of Tagplate to Detector Terminal Box (Note 1) | K | • | |
| Attachment of Tagplate to Neck of Detector (Note 1) | L | • | |
| Specific Color Finish (Note 2) | P | • | |

Note 1: Must be selected if Tag number is required.

Note 2: Order must specify Munsell color number.

RESTRICTIONS

| Restrictions Letter | | | | | | Available Only With | | Not Available With | |
|---------------------|---|---|---|---|---|---------------------|----------------------------|--------------------|--------------------|
| c | d | e | f | g | h | Table | Selection | Table | Selection |
| ■ | | | | | | IB | ___ P | | |
| | ■ | | | | | | | IA | 002, 005, 010, 015 |
| | | ■ | | | | | | IA | 002, 005 |
| | | | ■ | | | IB | ___ P | IA | 002, 005, 010 |
| | | | | ■ | | IA | 010 | | |
| | | | | | ■ | IA | 080, 100, 125, 150, 200 | | |

MagneW 3000 *PLUS* Remote Detector Model Selection Guide

Flange Type, Size 25-400mm

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Tables I thru III, using the column below the proper arrow.
Select as many Table IV options as desired. (If no selections are desired, specify 00.)
A dot (•) denotes unrestricted availability. A letter denotes restricted availability.
Restrictions follow Table IV.
- A complete Model Number must have the designated number of digits in each table.

Key Number I II III IV

----- - ----- - ----- - ----- - -----

* = Stocked

KEY NUMBER

Selection Availability

| Description | | |
|--|--------|---|
| MagneW 3000 <i>PLUS</i> Remote Detector, Flange Type, Sizes 15-400mm | MGG17F | ↓ |
| CSA FM SP Approved CL I, Div. 1, Groups B-G | | |

TABLE I

| A - Diameter | | Flow Range Minimum | | Flow Range Maximum | | | |
|--|--------|--------------------|-----------|--------------------|-----------|---------------|---|
| Millimeter | Inches | In US GPM | In Litres | In US GPM | In Litres | | |
| 25 | 1.0 | 0.779 | 2.95 | 77.931 | 295.00 | 025 ----- | • |
| 40 | 1.5 | 1.990 | 7.53 | 199.011 | 753.34 | 040 ----- | • |
| 50 | 2.0 | 3.113 | 11.78 | 311.285 | 1178.34 | 050 ----- | • |
| 65 | 2.5 | 5.239 | 19.83 | 523.945 | 1983.34 | 065 ----- | • |
| 80 | 3.0 | 7.969 | 30.17 | 796.924 | 3016.68 | 080 ----- | • |
| 100 | 4.0 | 12.46 | 47.17 | 1246.02 | 4716.68 | 100 ----- | • |
| 125 | 5.0 | 19.46 | 73.67 | 1946.08 | 7366.69 | 125 ----- | • |
| 150 | 6.0 | 28.00 | 106.00 | 2800.24 | 10600.04 | 150 ----- | • |
| 200 | 8.0 | 49.80 | 188.50 | 4979.68 | 18850.07 | 200 ----- | • |
| 250 | 9.8 | 77.80 | 294.50 | 7779.92 | 29450.11 | 250 ----- | • |
| 300 | 11.8 | 112.05 | 424.17 | 11205.37 | 42416.82 | 300 ----- | • |
| 350 | 13.8 | 152.52 | 577.34 | 15251.64 | 57733.55 | 350 ----- | • |
| 400 | 15.8 | 199.19 | 754.00 | 19918.71 | 75400.28 | 400 ----- | • |
| B - Liner | | | | | | | |
| PFA | | | | | | --- P ----- | • |
| Polyurethane Rubber (25 to 200mm only) | | | | | | --- Q ----- | d |
| C - Pipe Connection | | | | Flange Material | | | |
| Flange JIS10K | | | | Standard | | --- J11 ----- | • |
| Flange JIS20K | | | | Standard | | --- J21 ----- | • |
| Flange JIS30K | | | | Standard | | --- J31 ----- | f |
| Flange ANSI 150 | | | | Standard | | --- A11 ----- | • |
| Flange ANSI 300 | | | | Standard | | --- A21 ----- | • |
| Flange JIS G3451 F12 (diameter 80mm or larger) | | | | Standard | | --- G11 ----- | h |
| Flange DIN PN10 | | | | Standard | | --- D11 ----- | • |
| Flange DIN PN16 | | | | Standard | | --- D21 ----- | • |
| Flange DIN PN25 | | | | Standard | | --- D31 ----- | • |
| Flange DIN PN40 | | | | Standard | | --- D41 ----- | f |
| Flange JPI 150 | | | | Standard | | --- P11 ----- | • |
| Flange JPI 300 | | | | Standard | | --- P21 ----- | • |
| Flange JIS 10K (diameter 80mm or larger) | | | | SUS304 | | --- J14 ----- | e |
| Flange JIS 20K (diameter 80mm or larger) | | | | SUS304 | | --- J24 ----- | e |
| Flange JIS 30K (diameter 80mm-200mm) | | | | SUS304 | | --- J34 ----- | k |

Table I continued on next page.

MGG17F



TABLE I (Continued)

| | | Selection | Availability | |
|--|--------|-----------------|--------------|---|
| Flange ANSI 150 (diameter 80mm or larger) | SUS304 | ----- A14 ----- | e | |
| Flange ANSI 300 (diameter 80mm or larger) | SUS304 | ----- A24 ----- | e | |
| Flange JIS G3451 F12 (diameter 80mm or larger) | SUS304 | ----- G14 ----- | e | |
| Flange DIN PN10 (diameter 80mm or larger) | SUS304 | ----- D14 ----- | e | |
| Flange DIN PN16 (diameter 80mm or larger) | SUS304 | ----- D24 ----- | e | |
| Flange DIN PN25 (diameter 80mm or larger) | SUS304 | ----- D34 ----- | e | |
| Flange DIN PN40 (diameter 80mm-200mm) | SUS304 | ----- D44 ----- | k | |
| Flange JPI150 (diameter 80mm-200mm) | SUS304 | ----- P14 ----- | k | |
| Flange JPI300 (diameter 80mm-200mm) | SUS304 | ----- P24 ----- | k | |
| D - Electrodes | | | | |
| SUS316L | | ----- L ----- | e | * |
| Hastelloy C (with Teflon PFA only) | | ----- C ----- | c | |
| Titanium | | ----- K ----- | e | |
| Zirconium (with Teflon PFA only) | | ----- H ----- | c | |
| Tantalum (with Teflon PFA only) | | ----- T ----- | c | |
| Tungsten Carbide | | ----- W ----- | e | |
| Platinum-Iridium (with Teflon PFA only) | | ----- P ----- | c | |
| Alloy 20 (with Teflon PFA only) | | ----- A ----- | c | |
| Hastelloy B (with Teflon PFA only) | | ----- B ----- | c | |
| SUS304 (with Teflon PFA only) | | ----- E ----- | c | |
| Monel (with Teflon PFA only) | | ----- M ----- | c | |
| Nickel (with Teflon PFA 25-200mm only) | | ----- N ----- | g | |
| SUS316L Protruded Tip (with Teflon PFA 25-200mm only) | | ----- 1 ----- | g | |
| SUS316L for Alumina with Flat Tip (with Teflon PFA 25-200mm only) | | ----- 2 ----- | g | |
| SUS316L for Alumina with Pointed Tip (with Teflon PFA 25-200mm only) | | ----- 3 ----- | g | |
| E - Grounding Rings | | | | |
| SUS316 | | ----- S ----- | e | * |
| SS Top Hat Style (Upstream Only) | | ----- G ----- | c | |
| Hastelloy C (with Teflon PFA only) | | ----- C ----- | c | |
| Titanium | | ----- K ----- | e | |
| Zirconium (with Teflon PFA 25-200mm only) | | ----- H ----- | g | |
| Tantalum (with Teflon PFA 25-200mm only) | | ----- T ----- | g | |
| Platinum (with Teflon PFA 25-200mm only) | | ----- P ----- | g | |
| Alloy 20 (with Teflon PFA only) | | ----- A ----- | c | |
| Hastelloy B (with Teflon PFA only) | | ----- B ----- | c | |
| SUS304 (with Teflon PFA only) | | ----- E ----- | c | |
| SUS316L (with Teflon PFA only) | | ----- L ----- | c | |
| Nickel (with Teflon PFA only) | | ----- N ----- | c | |
| F - Wiring Connection/Water Tight Gland | | | | |
| NPT1/2 Internal Thread without Water Tight Gland | | ----- 5 ----- | e | * |
| G - Face to Face Dimension | | | | |
| Standard | | ----- A ----- | e | * |
| Competitive (Refer to Table 103 and Consult Factory) | | ----- 9 ----- | e | |
| H - Installation/Wiring Direction - Remote Only | | | | |
| Upstream Side (horizontal/vertical piping mounting) | | ----- A ----- | e | * |
| Downstream Side (horizontal/vertical piping mounting) | | ----- B ----- | e | |
| Horizontal Piping Mounting/Left Side Viewed from Upstream | | ----- C ----- | e | |
| Horizontal Piping Mounting/Right Side Viewed from Upstream | | ----- D ----- | e | |
| I - Calibration | | | | |
| Standard Calibration - 2 Point (0, 100%) w/ Master Converter | | ----- R ----- | e | * |
| 3 Point (0, 50, 100%) with Master Converter | | ----- P ----- | e | |
| 5 Point (0, 25, 50, 75, 100%) with Master Converter | | ----- Q ----- | e | |
| 2 Point (0, 100%) with Customer's Specific Converter | | ----- J ----- | e | |
| 3 Point (0, 50, 100%) with Customer's Specific Converter | | ----- A ----- | e | |
| 5 Point (0, 25, 50, 75, 100%) with Customer's Specific Converter | | ----- E ----- | e | |

MGG17F



TABLE II

| | | Selection | Availability | |
|----------------------------|--|-----------|--------------|---|
| A - Finish | | | | |
| Standard | | X | • | * |
| Corrosion-resistant Finish | | 1 | • | |
| Corrosion-proof Finish | | 2 | • | |

TABLE III

| | | | |
|----------------|---|---|---|
| Version | | | |
| Standard | S | • | * |

TABLE IV

| | | | |
|--|----------|---|---|
| Options | | | |
| Calibration Certificate (additional copy) | | A | • |
| Traceability Certificate | | B | • |
| Mill Sheet (only for electrodes and grounding rings) | | C | • |
| Gasket for Plastic Piping | | J | • |
| Attachment of Tagplate to Detector Terminal Box | (Note 1) | K | • |
| Attachment of Tagplate to Neck of Detector | (Note 1) | L | • |
| Specific Color Finish | (Note 2) | P | • |

Note 1: Must be selected if Tag number is required.

Note 2: Order must specify Munsell color number.

RESTRICTIONS

| Restrictions Letter | | | | | | | Available Only With | | Not Available With | |
|---------------------|---|---|---|---|---|---|---------------------|------------|--------------------|--------------|
| c | d | e | f | g | h | k | Table | Selection | Table | Selection |
| ■ | | ■ | | ■ | | ■ | IB | --- P | | |
| | ■ | | | | | | IA | 025 to 200 | | |
| | | | ■ | ■ | | | | | IA | 250 to 400mm |
| | | ■ | | | ■ | | | | IA | 015 to 65mm |
| | | | | | | ■ | IA | 080 to 200 | | |

MagneW 3000 *PLUS* Remote Detector Model Selection Guide Wafer Type, Size 2.5-200mm

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Tables I thru III, using the column below the proper arrow.
Select as many Table IV options as desired. (If no selections are desired, specify 00.)
A dot (•) denotes unrestricted availability. A letter denotes restricted availability.
Restrictions follow Table IV.
- A complete Model Number must have the designated number of digits in each table.

Key Number

| | | | |
|-----|-----|-----|-----|
| I | II | III | IV |
| --- | --- | --- | --- |

* = Stocked

KEY NUMBER

Selection Availability

| Description | | |
|--|--------|---|
| MagneW 3000 <i>PLUS</i> Remote Detector, Wafer Type, Sizes 2.5-200mm | MGG18D | ↓ |

TABLE I

| A - Diameter | | Flow Range Minimum | | Flow Range Maximum | | | |
|---|--------|--------------------|-----------|--------------------|-----------|------------|---|
| Millimeter | Inches | In US GPM | In Litres | In US GPM | In Litres | | |
| 2.5 | 0.1 | 0.008 | 0.03 | 0.779 | 2.95 | 002 | • |
| 5.0 | 0.2 | 0.031 | 0.12 | 3.113 | 11.78 | 005 | • |
| 10 | 0.39 | 0.125 | 0.47 | 12.460 | 47.17 | 010 | • |
| 15 | 0.5 | 0.280 | 1.06 | 28.002 | 106.00 | 015 | • |
| 25 | 1.0 | 0.779 | 2.95 | 77.931 | 295.00 | 025 | • |
| 40 | 1.5 | 1.990 | 7.53 | 199.011 | 753.34 | 040 | • |
| 50 | 2.0 | 3.113 | 11.78 | 311.285 | 1178.34 | 050 | • |
| 65 | 2.5 | 5.239 | 19.83 | 523.945 | 1983.34 | 065 | • |
| 80 | 3.0 | 7.969 | 30.17 | 796.924 | 3016.68 | 080 | • |
| 100 | 4.0 | 12.46 | 47.17 | 1246.02 | 4716.68 | 100 | • |
| 125 | 5.0 | 19.46 | 73.67 | 1946.08 | 7366.69 | 125 | • |
| 150 | 6.0 | 28.00 | 106.00 | 2800.24 | 10600.04 | 150 | • |
| 200 | 8.0 | 49.80 | 188.50 | 4979.68 | 18850.07 | 200 | • |
| B - Liner | | | | | | | • |
| PFA | | | | | | --- P --- | |
| Polyurethane Rubber (25 to 200mm only) | | | | | | --- Q --- | |
| C - Pipe Connection | | | | | | | • |
| Wafer JIS10K | | | | | | --- 11 --- | |
| Wafer JIS20K | | | | | | --- 12 --- | |
| Wafer JIS30K | | | | | | --- 13 --- | |
| Wafer JIS10/20K for 10mm flange | | | | | | --- 14 --- | |
| Wafer JIS30K for 10mm flange | | | | | | --- 15 --- | |
| Wafer ANSI150 | | | | | | --- 21 --- | |
| Wafer ANSI300 | | | | | | --- 22 --- | |
| Wafer JIS G3451 F12 (diameter 80mm or larger) | | | | | | --- 31 --- | |
| Wafer DIN PN10 | | | | | | --- 41 --- | |
| Wafer DIN PN16 | | | | | | --- 42 --- | |
| Wafer DIN PN25 | | | | | | --- 43 --- | |
| Wafer DIN PN40 | | | | | | --- 44 --- | |
| Wafer DIN PN10/16/25/40 for 10mm flange | | | | | | --- 45 --- | |
| Wafer JPI150 | | | | | | --- 61 --- | |
| Wafer JPI300 | | | | | | --- 62 --- | |

Table I continued on next page.

MGG18D



TABLE I (continued)

Selection Availability

| D - Electrodes | | Selection | Availability | |
|---|---------------------------------|---------------|--------------|---|
| SUS316L | | ----- L ----- | • | * |
| Hastelloy C | (with Teflon PFA only) | ----- C ----- | c | |
| Titanium | | ----- K ----- | • | |
| Zirconium | (with Teflon PFA only) | ----- H ----- | c | |
| Tantalum | (with Teflon PFA only) | ----- T ----- | c | |
| Tungsten Carbide | (only for size 10mm and above) | ----- W ----- | e | |
| Platinum-Iridium | (with Teflon PFA only) | ----- P ----- | c | |
| Alloy 20 | (with Teflon PFA only) | ----- A ----- | c | |
| Hastelloy B | (with Teflon PFA only) | ----- B ----- | c | |
| SUS304 | (with Teflon PFA only) | ----- E ----- | c | |
| Monel | (with Teflon PFA only) | ----- M ----- | c | |
| Nickel | (with Teflon PFA 15-200mm only) | ----- N ----- | f | |
| SUS316L Protruded Tip | (with Teflon PFA 15-200mm only) | ----- 1 ----- | f | |
| SUS316L for Alumina with Flat Tip | (with Teflon PFA 15-200mm only) | ----- 2 ----- | f | |
| SUS316L for Alumina with Pointed Tip | (with Teflon PFA 15-200mm only) | ----- 3 ----- | f | |
| E - Grounding Rings | | | | |
| SUS316 | | ----- S ----- | • | * |
| SS Top Hat Style (Upstream Only) | | ----- G ----- | c | |
| Hastelloy C | (with Teflon PFA only) | ----- C ----- | c | |
| Titanium | | ----- K ----- | • | |
| Zirconium | (with Teflon PFA only) | ----- H ----- | c | |
| Tantalum | (with Teflon PFA only) | ----- T ----- | c | |
| Platinum | (with Teflon PFA only) | ----- P ----- | c | |
| Alloy 20 | (with Teflon PFA only) | ----- A ----- | c | |
| Hastelloy B | (with Teflon PFA only) | ----- B ----- | c | |
| SUS304 | (with Teflon PFA only) | ----- E ----- | c | |
| SUS316L | (with Teflon PFA only) | ----- L ----- | c | |
| Nickel | (with Teflon PFA only) | ----- N ----- | c | |
| F - Wiring Connection/Water Tight Gland | | | | |
| G1/2 Internal Thread without Water Tight Gland (Not CSA/FM approved) | | ----- 2 ----- | • | |
| G1/2 Internal Thread with Brass (Ni-plated) Water Tight Gland (Not CSA/FM approved) | | ----- 3 ----- | • | |
| G1/2 Internal Thread with Plastic Water Tight Gland (Not CSA/FM approved) | | ----- 4 ----- | • | |
| 1/2 NPT Internal Thread without Water Tight Gland (CSA/FM NI approved) | | ----- 5 ----- | • | * |
| CM20 Internal Thread without Water Tight Gland (Not CSA/FM approved) | | ----- 6 ----- | • | |
| Pg13.5 Internal Thread without Water Tight Gland (Not CSA/FM approved) | | ----- 7 ----- | • | |
| G1/2 Internal Thread with SUS304 Water Tight Gland (Not CSA/FM approved) | | ----- 8 ----- | • | |
| G - Face to Face Dimension | | | | |
| Standard | | ----- A ----- | • | * |
| Competitive (refer to Table 103 and consult factory) | | ----- 9 ----- | c | |
| H - Installation/Wiring Direction | | | | |
| Upstream Side (horizontal/vertical piping mounting) | | ----- A ----- | • | * |
| Downstream Side (horizontal/vertical piping mounting) | | ----- B ----- | • | |
| Horizontal Piping Mounting/Left Side Viewed from Upstream | | ----- C ----- | • | |
| Horizontal Piping Mounting/Right Side Viewed from Upstream | | ----- D ----- | • | |

MGG18D



TABLE I (continued)

| | Selection | Availability | |
|--|-----------|--------------|---|
| I - Calibration | | | |
| Standard Calibration - 2 Point (0, 100%) w/ Master Converter | -----R | • | * |
| 3 Point (0, 50, 100%) with Master Converter | -----P | • | |
| 5 Point (0, 25, 50, 75, 100%) with Master Converter | -----Q | • | |
| 2 Point (0, 100%) with Customer's Specific Converter | -----J | • | |
| 3 Point (0, 50, 100%) with Customer's Specific Converter | -----A | • | |
| 5 Point (0, 25, 50, 75, 100%) with Customer's Specific Converter | -----E | • | |

TABLE II

| | | | |
|----------------------------|-----|---|---|
| A - Finish | | | |
| Standard | X _ | • | * |
| Corrosion-resistant Finish | 1 _ | • | |
| Corrosion-proof Finish | 2 _ | • | |
| B - Bolts/Nuts | | | |
| None | _ X | • | * |
| Carbon Steel | _ 1 | • | |
| SUS304 | _ 2 | • | |

TABLE III

| | | | |
|----------------|---|---|---|
| Version | | | |
| Standard | S | • | * |

TABLE IV

| | | | |
|--|---|---|--|
| Options | | | |
| Calibration Certificate (additional copy) | A | • | |
| Traceability Certificate | B | • | |
| Mill Sheet (only for electrodes and grounding rings) | C | • | |
| Gasket for Plastic Piping | J | • | |
| Attachment of Tagplate to Detector Terminal Box (Note 1) | K | • | |
| Attachment of Tagplate to Neck of Detector (Note 1) | L | • | |
| Specific Color Finish (Note 2) | P | • | |

Note 1: Must be selected if Tag number is required.

Note 2: Order must specify Munsell color number.

RESTRICTIONS

| Restrictions Letter | | | | | | Available Only With | | Not Available With | |
|---------------------|---|---|---|---|---|---------------------|-------------------------|--------------------|---------------|
| c | d | e | f | g | h | Table | Selection | Table | Selection |
| ■ | | | | | | IB | --- P | | |
| | ■ | | | | | | | IA | 002, 005, 010 |
| | | ■ | | | | | | IA | 002, 005 |
| | | | ■ | | | IB | --- P | IA | 002, 005, 010 |
| | | | | ■ | | IA | 002P, 005P, 010P | | |
| | | | | | ■ | IA | 080, 100, 125, 150, 200 | | |

MagneW 3000 *PLUS* Remote Detector Model Selection Guide

Flange Type, Size 25-600mm

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Tables I thru III, using the column below the proper arrow.
Select as many Table IV options as desired. (If no selections are desired, specify 00.)
A dot (•) denotes unrestricted availability. A letter denotes restricted availability.
Restrictions follow Table IV.
- A complete Model Number must have the designated number of digits in each table.

Key Number

| | | | |
|-------|-------|-------|-------|
| I | II | III | IV |
| ----- | ----- | ----- | ----- |

* = Stocked

KEY NUMBER

Selection Availability

| Description | | |
|--|--------|---|
| MagneW 3000 <i>PLUS</i> Remote Detector, Flange Type, Sizes 25-600mm | MGG18F | ↓ |

TABLE I

| A - Diameter | | Flow Range Minimum | | Flow Range Maximum | | | |
|--|--------|--------------------|-----------|--------------------|-----------|-------------|-----|
| Millimeter | Inches | In US GPM | In Litres | In US GPM | In Litres | | |
| 25 | 1.0 | 0.779 | 2.95 | 77.931 | 295.00 | 025 | • |
| 40 | 1.5 | 1.990 | 7.53 | 199.011 | 753.34 | 040 | • |
| 50 | 2.0 | 3.113 | 11.78 | 311.285 | 1178.34 | 050 | • |
| 65 | 2.5 | 5.239 | 19.83 | 523.945 | 1983.34 | 065 | • |
| 80 | 3.0 | 7.969 | 30.17 | 796.924 | 3016.68 | 080 | • |
| 100 | 4.0 | 12.46 | 47.17 | 1246.02 | 4716.68 | 100 | • |
| 125 | 5.0 | 19.46 | 73.67 | 1946.08 | 7366.69 | 125 | • |
| 150 | 6.0 | 28.00 | 106.00 | 2800.24 | 10600.04 | 150 | • |
| 200 | 8.0 | 49.80 | 188.50 | 4979.68 | 18850.07 | 200 | • |
| 250 | 9.8 | 77.80 | 294.50 | 7779.92 | 29450.11 | 250 | • |
| 300 | 11.8 | 112.05 | 424.17 | 11205.37 | 42416.82 | 300 | • |
| 350 | 13.8 | 152.52 | 577.34 | 15251.64 | 57733.55 | 350 | • |
| 400 | 15.8 | 199.19 | 754.00 | 19918.71 | 75400.28 | 400 | • |
| 450 | 17.7 | 252.11 | 954.34 | 25210.99 | 95433.69 | 450 | • |
| 500 | 19.7 | 311.28 | 1178.34 | 31128.49 | 117833.77 | 500 | • |
| 600 | 23.6 | 448.17 | 1696.51 | 44817.09 | 169650.63 | 600 | • |
| B - Liner | | | | | | | |
| PFA | | | | | | --- P --- | • * |
| Polyurethane Rubber (25 to 200mm only) | | | | | | --- Q --- | d |
| C - Pipe Connection | | Flange Material | | | | | |
| Flange JIS10K | | Standard | | | | --- J11 --- | • |
| Flange JIS20K | | Standard | | | | --- J21 --- | • |
| Flange JIS30K | | Standard | | | | --- J31 --- | f |
| Flange ANSI 150 | | Standard | | | | --- A11 --- | • * |
| Flange ANSI 300 (diameter 15mm-450mm only) | | Standard | | | | --- A21 --- | j |
| Flange JIS G3451 F12 (diameter 80mm or larger) | | Standard | | | | --- G11 --- | h |
| Flange DIN PN10 | | Standard | | | | --- D11 --- | • |
| Flange DIN PN16 | | Standard | | | | --- D21 --- | • |
| Flange DIN PN25 | | Standard | | | | --- D31 --- | • |
| Flange DIN PN40 | | Standard | | | | --- D41 --- | f |
| Flange JPI 150 | | Standard | | | | --- P11 --- | • |
| Flange JPI 300 (diameter 15mm-450mm only) | | Standard | | | | --- P21 --- | j |

Table I continued on next page.

MGG18F



TABLE I (Continued)

Selection Availability

| | | | |
|--|--------|-----------------|---|
| Flange JIS 10K (diameter 80mm or larger) | SUS304 | ----- J14 ----- | e |
| Flange JIS 20K (diameter 80mm or larger) | SUS304 | ----- J24 ----- | e |
| Flange JIS 30K (diameter 80mm-200mm) | SUS304 | ----- J34 ----- | m |
| Flange ANSI 150 (diameter 80mm or larger) | SUS304 | ----- A14 ----- | e |
| Flange ANSI 300 (diameter 80mm-450mm only) | SUS304 | ----- A24 ----- | n |
| Flange JIS G3451 F12 (diameter 80mm or larger) | SUS304 | ----- G14 ----- | e |
| Flange DIN PN10 (diameter 80mm or larger) | SUS304 | ----- D14 ----- | e |
| Flange DIN PN16 (diameter 80mm or larger) | SUS304 | ----- D24 ----- | e |
| Flange DIN PN25 (diameter 80mm or larger) | SUS304 | ----- D34 ----- | e |
| Flange DIN PN40 (diameter 80mm-200mm) | SUS304 | ----- D44 ----- | m |
| Flange JPI150 (diameter 80mm-200mm) | SUS304 | ----- P14 ----- | m |
| Flange JPI300 (diameter 80mm-200mm) | SUS304 | ----- P24 ----- | m |
| D - Electrodes | | | |
| SUS316L | | ----- L ----- | • |
| SS Top Hat Style (Upstream Only) | | ----- G ----- | • |
| Hastelloy C (with Teflon PFA only) | | ----- C ----- | c |
| Titanium | | ----- K ----- | • |
| Zirconium (with Teflon PFA only) | | ----- H ----- | c |
| Tantalum (with Teflon PFA only) | | ----- T ----- | c |
| Tungsten Carbide | | ----- W ----- | • |
| Platinum-Iridium (with Teflon PFA only) | | ----- P ----- | c |
| Alloy 20 (with Teflon PFA only) | | ----- A ----- | c |
| Hastelloy B (with Teflon PFA only) | | ----- B ----- | c |
| SUS304 (with Teflon PFA only) | | ----- E ----- | c |
| Monel (with Teflon PFA only) | | ----- M ----- | c |
| Nickel (with Teflon PFA 15-200mm only) | | ----- N ----- | g |
| SUS316L Protruded Tip (with Teflon PFA 15-200mm only) | | ----- 1 ----- | g |
| SUS316L for Alumina with Flat Tip (with Teflon PFA 15-200mm only) | | ----- 2 ----- | g |
| SUS316L for Alumina with Pointed Tip (with Teflon PFA 15-200mm only) | | ----- 3 ----- | g |
| E - Grounding Rings | | | |
| SUS316 | | ----- S ----- | • |
| Hastelloy C (with Teflon PFA only) | | ----- C ----- | c |
| Titanium | | ----- K ----- | • |
| Zirconium (with Teflon PFA 15-200mm only) | | ----- H ----- | g |
| Tantalum (with Teflon PFA 15-200mm only) | | ----- T ----- | g |
| Platinum (with Teflon PFA 15-200mm only) | | ----- P ----- | g |
| Alloy 20 (with Teflon PFA only) | | ----- A ----- | c |
| Hastelloy B (with Teflon PFA only) | | ----- B ----- | c |
| SUS304 (with Teflon PFA only) | | ----- E ----- | c |
| SUS316L (with Teflon PFA only) | | ----- L ----- | c |
| Nickel (with Teflon PFA only) | | ----- N ----- | c |
| F - Wiring Connection/Water Tight Gland | | | |
| G1/2 Internal Thread without Water Tight Gland (Not CSA/FM approved) | | ----- 2 ----- | • |
| G1/2 Internal Thread with Brass (Ni-plated) Water Tight Gland (Not CSA/FM approved) | | ----- 3 ----- | • |
| G1/2 Internal Thread with Plastic Water Tight Gland (Not CSA/FM approved) | | ----- 4 ----- | • |
| 1/2 NPT Internal Thread without Water Tight Gland (CSA/FM NI approval) | | ----- 5 ----- | • |
| CM20 Internal Thread without Water Tight Gland (Not CSA/FM approved) | | ----- 6 ----- | • |
| Pg13.5 Internal Thread without Water Tight Gland (Not CSA/FM approved) | | ----- 7 ----- | • |
| G1/2 Internal Thread with SUS304 Water Tight Gland (Not CSA/FM approved) | | ----- 8 ----- | • |

*

*

*

MGG18F 
Selection Availability

| | | | |
|--|---------------|---|---|
| G - Face to Face Dimension | | | |
| Standard | ----- A ----- | • | * |
| Competitive (refer to Table 103 and consult factory) | ----- 9 ----- | c | |
| H - Installation/Wiring Direction - Remote Only | | | |
| Upstream Side (horizontal/vertical piping mounting) | ----- A ----- | • | * |
| Downstream Side (horizontal/vertical piping mounting) | ----- B ----- | • | |
| Horizontal Piping Mounting/Left Side Viewed from Upstream | ----- C ----- | • | |
| Horizontal Piping Mounting/Right Side Viewed from Upstream | ----- D ----- | • | |
| I - Calibration | | | |
| Standard Calibration - 2 Point (0, 100%) w/ Master Converter | ----- R ----- | • | * |
| 3 Point (0, 50, 100%) with Master Converter | ----- P ----- | • | |
| 5 Point (0, 25, 50, 75, 100%) with Master Converter | ----- Q ----- | • | |
| 2 Point (0, 100%) with Customer's Specific Converter | ----- J ----- | • | |
| 3 Point (0, 50, 100%) with Customer's Specific Converter | ----- A ----- | • | |
| 5 Point (0, 25, 50, 75, 100%) with Customer's Specific Converter | ----- E ----- | • | |

TABLE II

| | | | |
|----------------------------|---|---|---|
| A - Finish | | | |
| Standard | X | • | * |
| Corrosion-resistant Finish | 1 | • | |
| Corrosion-proof Finish | 2 | • | |

TABLE III

| | | | |
|----------------|---|---|---|
| Version | | | |
| Standard | S | • | * |

TABLE IV

| | | | |
|--|---|---|--|
| Options | | | |
| Calibration Certificate (additional copy) | A | • | |
| Traceability Certificate | B | • | |
| Mill Sheet (only for electrodes and grounding rings) | C | • | |
| Gasket for Plastic Piping | J | • | |
| Attachment of Tagplate to Detector Terminal Box (Note 1) | K | • | |
| Attachment of Tagplate to Neck of Detector (Note 1) | L | • | |
| Specific Color Finish (Note 2) | P | • | |

Note 1: Must be selected if Tag number is required.

Note 2: Order must specify Munsell color number.

RESTRICTIONS

| Restrictions Letter | | | | | | | | | Available Only With | | Not Available With | |
|---------------------|---|---|---|---|---|---|---|---|---------------------|--------------|--------------------|--------------|
| c | d | e | f | g | h | j | m | n | Table | Selection | Table | Selection |
| ■ | | | | | | | | | IB | --- P | | |
| | ■ | | | | | | | | IA | 025 to 200 | | |
| | | ■ | | | | | | | IB | --- P | IA | 025 to 65mm |
| | | | ■ | | | | | | | | IA | 250 to 600mm |
| | | | | ■ | | | | | IB | --- P | IA | 250 to 600mm |
| | | | | | ■ | | | | | | IA | 025 to 65mm |
| | | | | | | ■ | | | | | IA | 500, 600mm |
| | | | | | | | ■ | | IA | 080 to 200mm | | |
| | | | | | | | | ■ | 1B | --- P | | |
| | | | | | | | | | 1A | 080 to 450mm | | |
| | | | | | | | | | IB | --- P | | |

MagneW 3000 *PLUS* Submersible Detector Model Selection Guide Wafer Type, Size 15-200mm

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Tables I thru III, using the column below the proper arrow.
Select as many Table IV options as desired. (If no selections are desired, specify 00.)
A dot (•) denotes unrestricted availability. A letter denotes restricted availability.
Restrictions follow Table IV.
- A complete Model Number must have the designated number of digits in each table.

Key Number I II III IV
 _____ - _____ - _____ - _____ - _____

KEY NUMBER

Selection Availability

| Description | | |
|--|--------|---|
| MagneW 3000 <i>PLUS</i> Submersible Detector, Wafer Type, Sizes 15-200mm | MGG19D | ↓ |

TABLE I

| A - Diameter | | Flow Range Minimum | | Flow Range Maximum | | | |
|---|--------|--------------------|-----------|--------------------|-----------|---------------|---|
| Millimeter | Inches | In US GPM | In Litres | In US GPM | In Litres | | |
| 15 | 0.5 | 0.280 | 1.06 | 28.002 | 106.00 | 015 _____ | • |
| 25 | 1.0 | 0.779 | 2.95 | 77.931 | 295.00 | 025 _____ | • |
| 40 | 1.5 | 1.990 | 7.53 | 199.011 | 753.34 | 040 _____ | • |
| 50 | 2.0 | 3.113 | 11.78 | 311.285 | 1178.34 | 050 _____ | • |
| 65 | 2.5 | 5.239 | 19.83 | 523.945 | 1983.34 | 065 _____ | • |
| 80 | 3.0 | 7.969 | 30.17 | 796.924 | 3016.68 | 080 _____ | • |
| 100 | 4.0 | 12.46 | 47.17 | 1246.02 | 4716.68 | 100 _____ | • |
| 125 | 5.0 | 19.46 | 73.67 | 1946.08 | 7366.69 | 125 _____ | • |
| 150 | 6.0 | 28.00 | 106.00 | 2800.24 | 10600.04 | 150 _____ | • |
| 200 | 8.0 | 49.80 | 188.50 | 4979.68 | 18850.07 | 200 _____ | • |
| B - Liner | | | | | | | |
| PFA | | | | | | ____ P _____ | • |
| Polyurethane Rubber (25 to 200mm only) | | | | | | ____ Q _____ | d |
| C - Pipe Connection | | | | | | | |
| Wafer JIS10K | | | | | | ____ 11 _____ | • |
| Wafer JIS20K | | | | | | ____ 12 _____ | • |
| Wafer JIS30K | | | | | | ____ 13 _____ | • |
| Wafer ANSI150 | | | | | | ____ 21 _____ | • |
| Wafer ANSI300 | | | | | | ____ 22 _____ | • |
| Wafer JIS G3451 F12 (diameter 80mm or larger) | | | | | | ____ 31 _____ | h |
| Wafer DIN PN10 | | | | | | ____ 41 _____ | • |
| Wafer DIN PN16 | | | | | | ____ 42 _____ | • |
| Wafer DIN PN25 | | | | | | ____ 43 _____ | • |
| Wafer DIN PN40 | | | | | | ____ 44 _____ | • |
| Wafer JPI150 | | | | | | ____ 61 _____ | • |
| Wafer JPI300 | | | | | | ____ 62 _____ | • |

Table I continued on next page.

MGG19D



TABLE I (continued)

Selection Availability

| D - Electrodes | | Selection | Availability |
|--|------------------------|---------------|--------------|
| SUS316L | | ----- L ----- | • |
| Hastelloy C | (with Teflon PFA only) | ----- C ----- | c |
| Titanium | | ----- K ----- | • |
| Zirconium | (with Teflon PFA only) | ----- H ----- | c |
| Tantalum | (with Teflon PFA only) | ----- T ----- | c |
| Tungsten Carbide | | ----- W ----- | • |
| Platinum-Iridium | (with Teflon PFA only) | ----- P ----- | c |
| Alloy 20 | (with Teflon PFA only) | ----- A ----- | c |
| Hastelloy B | (with Teflon PFA only) | ----- B ----- | c |
| SUS304 | (with Teflon PFA only) | ----- E ----- | c |
| Monel | (with Teflon PFA only) | ----- M ----- | c |
| Nickel | (with Teflon PFA only) | ----- N ----- | c |
| SUS316L Protruded Tip | (with Teflon PFA only) | ----- 1 ----- | c |
| SUS316L for Alumina with Flat Tip | (with Teflon PFA only) | ----- 2 ----- | c |
| SUS316L for Alumina with Pointed Tip | (with Teflon PFA only) | ----- 3 ----- | c |
| E - Grounding Rings | | | |
| SUS316 | | ----- S ----- | • |
| SS Top Hat Style (Upstream Only) | | ----- G ----- | c |
| Hastelloy C | (with Teflon PFA only) | ----- C ----- | c |
| Titanium | | ----- K ----- | • |
| Zirconium | (with Teflon PFA only) | ----- H ----- | c |
| Tantalum | (with Teflon PFA only) | ----- T ----- | c |
| Platinum | (with Teflon PFA only) | ----- P ----- | c |
| Alloy 20 | (with Teflon PFA only) | ----- A ----- | c |
| Hastelloy B | (with Teflon PFA only) | ----- B ----- | c |
| SUS304 | (with Teflon PFA only) | ----- E ----- | c |
| SUS316L | (with Teflon PFA only) | ----- L ----- | c |
| Nickel | (with Teflon PFA only) | ----- N ----- | c |
| F - Wiring Connection/Water Tight Gland | | | |
| G1/2 Internal Thread with Brass (Ni-plated) Water Tight Gland | | ----- 3 ----- | • |
| G1/2 Internal Thread with SUS304 Water Tight Gland | | ----- 8 ----- | • |
| G - Face to Face Dimension | | | |
| Standard | | ----- A ----- | • |
| Competitive Refer to Table 103 and Consult Factory) | | ----- 9 ----- | c |
| H - Installation/Wiring Direction - Remote Only | | | |
| Upstream Side (horizontal/vertical piping mounting) | | ----- A ----- | • |
| Downstream Side (horizontal/vertical piping mounting) | | ----- B ----- | • |
| Horizontal Piping Mounting/Left Side Viewed from Upstream | | ----- C ----- | • |
| Horizontal Piping Mounting/Right Side Viewed from Upstream | | ----- D ----- | • |
| I - Calibration | | | |
| Standard Calibration - 2 Point (0, 100%) w/ Master Converter | | ----- R ----- | • |
| 3 Point (0, 50, 100%) with Master Converter | | ----- P ----- | • |
| 5 Point (0, 25, 50, 75, 100%) with Master Converter | | ----- Q ----- | • |
| 2 Point (0, 100%) with Customer's Specific Converter | | ----- J ----- | • |
| 3 Point (0, 50, 100%) with Customer's Specific Converter | | ----- A ----- | • |
| 5 Point (0, 25, 50, 75, 100%) with Customer's Specific Converter | | ----- E ----- | • |


MGG19D 

TABLE II

| | Selection | Availability |
|-----------------------|-----------|--------------|
| A - Finish | | |
| Standard | X _ | • |
| B - Bolts/Nuts | | |
| None | _ X | • |
| Carbon Steel | _ 1 | • |
| SUS304 | _ 2 | • |

TABLE III

| | |
|----------------|-----|
| Version | |
| Standard | S • |

TABLE IV

| | | |
|--|---|---|
| Options | | |
| Calibration Certificate (additional copy) | A | • |
| Traceability Certificate | B | • |
| Mill Sheet (only for electrodes and grounding rings) | C | • |
| Gasket for Plastic Piping | J | • |
| Attachment of Tagplate to Detector Terminal Box (Note 1) | K | • |
| Attachment of Tagplate to Neck of Detector (Note 1) | L | • |
| Specific Color Finish (Note 2) | P | • |

Note 1: Must be selected if Tag number is required.

Note 2: Order must specify Munsell color number.

RESTRICTIONS

| Restrictions Letter | | | Available Only With | | Not Available With | |
|---------------------|---|---|---------------------|----------------------------|--------------------|-----------|
| c | d | h | Table | Selection | Table | Selection |
| ■ | | | IB | ___ P | | |
| | ■ | | | | IA | 015 |
| | | ■ | IA | 080, 100, 125, 150, 200 | | |

MagneW 3000 *PLUS* Submersible Remote Detector Flange Type, Size 25-600mm

Model Selection Guide

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Tables I thru III, using the column below the proper arrow.
Select as many Table IV options as desired. (If no selections are desired, specify 00.)
A dot (•) denotes unrestricted availability. A letter denotes restricted availability.
Restrictions follow Table IV.
- A complete Model Number must have the designated number of digits in each table.

Key Number

----- -
 ----- I ----- -
 -- II -- -
 -- III -- -
 -- IV --

KEY NUMBER

Selection Availability

| Description | | |
|--|--------|---|
| MagneW 3000 <i>PLUS</i> Submersible Remote Detector, Flange Type, Sizes 25-600mm | MGG19F | ▼ |

TABLE I

| A - Diameter | | Flow Range Minimum | | Flow Range Maximum | | | |
|--|--------|--------------------|-----------|------------------------|-----------|---------------|---|
| Millimeter | Inches | In US GPM | In Litres | In US GPM | In Litres | | |
| 25 | 1.0 | 0.779 | 2.95 | 77.931 | 295.00 | 025 ----- | • |
| 40 | 1.5 | 1.990 | 7.53 | 199.011 | 753.34 | 040 ----- | • |
| 50 | 2.0 | 3.113 | 11.78 | 311.285 | 1178.34 | 050 ----- | • |
| 65 | 2.5 | 5.239 | 19.83 | 523.945 | 1983.34 | 065 ----- | • |
| 80 | 3.0 | 7.969 | 30.17 | 796.924 | 3016.68 | 080 ----- | • |
| 100 | 4.0 | 12.46 | 47.17 | 1246.02 | 4716.68 | 100 ----- | • |
| 125 | 5.0 | 19.46 | 73.67 | 1946.08 | 7366.69 | 125 ----- | • |
| 150 | 6.0 | 28.00 | 106.00 | 2800.24 | 10600.04 | 150 ----- | • |
| 200 | 8.0 | 49.80 | 188.50 | 4979.68 | 18850.07 | 200 ----- | • |
| 250 | 9.8 | 77.80 | 294.50 | 7779.92 | 29450.11 | 250 ----- | • |
| 300 | 11.8 | 112.05 | 424.17 | 11205.37 | 42416.82 | 300 ----- | • |
| 350 | 13.8 | 152.52 | 577.34 | 15251.64 | 57733.55 | 350 ----- | • |
| 400 | 15.8 | 199.19 | 754.00 | 19918.71 | 75400.28 | 400 ----- | • |
| 450 | 17.7 | 252.11 | 954.34 | 25210.99 | 95433.69 | 450 ----- | • |
| 500 | 19.7 | 311.28 | 1178.34 | 31128.49 | 117833.77 | 500 ----- | • |
| 600 | 23.6 | 448.17 | 1696.51 | 44817.09 | 169650.63 | 600 ----- | • |
| B - Liner | | | | | | | |
| PFA | | | | | | --- P ----- | • |
| Polyurethane Rubber (25 to 200mm only) | | | | | | --- Q ----- | d |
| C - Pipe Connection | | | | Flange Material | | | |
| Flange JIS10K | | | | Standard | | --- J11 ----- | • |
| Flange JIS20K | | | | Standard | | --- J21 ----- | • |
| Flange JIS30K (diameter 25mm-200mm only) | | | | Standard | | --- J31 ----- | f |
| Flange ANSI 150 | | | | Standard | | --- A11 ----- | • |
| Flange ANSI 300 (diameter 25mm-450mm only) | | | | Standard | | --- A21 ----- | m |
| Flange JIS G3451 F12 (diameter 80mm or larger) | | | | Standard | | --- G11 ----- | h |
| Flange DIN PN10 | | | | Standard | | --- D11 ----- | • |
| Flange DIN PN16 | | | | Standard | | --- D21 ----- | • |
| Flange DIN PN25 | | | | Standard | | --- D31 ----- | • |
| Flange DIN PN40 (diameter 25mm-200mm only) | | | | Standard | | --- D41 ----- | f |

Table I continued on next page.

MGG19F



TABLE I (Continued)

| | | Selection | Availability |
|--|----------|-----------------|--------------|
| Flange JPI 150 | Standard | ----- P11 ----- | • |
| Flange JPI 300 | Standard | ----- P21 ----- | m |
| Flange JIS 10K (diameter 80mm or larger) | SUS304 | ----- J14 ----- | e |
| Flange JIS 20K (diameter 80mm or larger) | SUS304 | ----- J24 ----- | e |
| Flange JIS 30K (diameter 80mm-200mm only)) | SUS304 | ----- J34 ----- | k |
| Flange ANSI 150 (diameter 80mm or larger) | SUS304 | ----- A14 ----- | e |
| Flange ANSI 300 (diameter 80mm-450mm only) | SUS304 | ----- A24 ----- | j |
| Flange JIS G3451 F12 (diameter 80mm or larger) | SUS304 | ----- G14 ----- | e |
| Flange DIN PN10 (diameter 80mm or larger) | SUS304 | ----- D14 ----- | e |
| Flange DIN PN16 (diameter 80mm or larger) | SUS304 | ----- D24 ----- | e |
| Flange DIN PN25 (diameter 80mm or larger) | SUS304 | ----- D34 ----- | e |
| Flange DIN PN40 (diameter 80mm-200mm only)) | SUS304 | ----- D44 ----- | k |
| Flange JPI150 (diameter 80mm-200mm) | SUS304 | ----- P14 ----- | k |
| Flange JPI300 (diameter 80mm-200mm) | SUS304 | ----- P24 ----- | k |
| D - Electrodes | | | |
| SUS316L | | ----- L ----- | • |
| Hastelloy C (with Teflon PFA only) | | ----- C ----- | c |
| Titanium | | ----- K ----- | • |
| Zirconium (with Teflon PFA only) | | ----- H ----- | c |
| Tantalum (with Teflon PFA only) | | ----- T ----- | c |
| Tungsten Carbide | | ----- W ----- | • |
| Platinum-Iridium (with Teflon PFA only) | | ----- P ----- | c |
| Alloy 20 (with Teflon PFA only) | | ----- A ----- | c |
| Hastelloy B (with Teflon PFA only) | | ----- B ----- | c |
| SUS304 (with Teflon PFA only) | | ----- E ----- | c |
| Monel (with Teflon PFA only) | | ----- M ----- | c |
| Nickel (with Teflon PFA 25-200mm only) | | ----- N ----- | g |
| SUS316L Protruded Tip (with Teflon PFA 25-200mm only) | | ----- 1 ----- | g |
| SUS316L for Alumina with Flat Tip (with Teflon PFA 25-200mm only) | | ----- 2 ----- | g |
| SUS316L for Alumina with Pointed Tip (with Teflon PFA 25-200mm only) | | ----- 3 ----- | g |
| SS Top Hat Style (Upstream Only) | | ----- G ----- | c |
| E - Grounding Rings | | | |
| SUS316 | | ----- S ----- | • |
| Hastelloy C (with Teflon PFA only) | | ----- C ----- | c |
| Titanium | | ----- K ----- | • |
| Zirconium (with Teflon PFA 25-200mm only) | | ----- H ----- | g |
| Tantalum (with Teflon PFA 25-200mm only) | | ----- T ----- | g |
| Platinum (with Teflon PFA 25-200mm only) | | ----- P ----- | g |
| Alloy 20 (with Teflon PFA only) | | ----- A ----- | c |
| Hastelloy B (with Teflon PFA only) | | ----- B ----- | c |
| SUS304 (with Teflon PFA only) | | ----- E ----- | c |
| SUS316L (with Teflon PFA only) | | ----- L ----- | c |
| Nickel (with Teflon PFA only) | | ----- N ----- | c |
| F - Wiring Connection/Water Tight Gland | | | |
| G1/2 Internal Thread with Brass (Ni-plated) Water Tight Gland | | ----- 3 ----- | • |
| G1/2 Internal Thread with SUS304 Water Tight Gland | | ----- 8 ----- | • |

MGG19F

Selection Availability

| | | | |
|--|--|---------------|---|
| G - Face to Face Dimension | | | |
| Standard | | ----- A ----- | • |
| Competitive (Refer to Table 103 and Consult Factory) | | ----- 9 ----- | c |
| H - Installation/Wiring Direction | | | |
| Upstream Side (horizontal/vertical piping mounting) | | ----- A ----- | • |
| Downstream Side (horizontal/vertical piping mounting) | | ----- B ----- | • |
| Horizontal Piping Mounting/Left Side Viewed from Upstream | | ----- C ----- | • |
| Horizontal Piping Mounting/Right Side Viewed from Upstream | | ----- D ----- | • |
| I - Calibration | | | |
| Standard Calibration - 2 Point (0, 100%) w/ Master Converter | | ----- R ----- | • |
| 3 Point (0, 50, 100%) with Master Converter | | ----- P ----- | • |
| 5 Point (0, 25, 50, 75, 100%) with Master Converter | | ----- Q ----- | • |
| 2 Point (0, 100%) with Customer's Specific Converter | | ----- J ----- | • |
| 3 Point (0, 50, 100%) with Customer's Specific Converter | | ----- A ----- | • |
| 5 Point (0, 25, 50, 75, 100%) with Customer's Specific Converter | | ----- E ----- | • |

TABLE II

| | | | |
|-------------------|--|---|---|
| A - Finish | | | |
| Standard | | X | • |

TABLE III

| | | | |
|----------------|--|---|---|
| Version | | | |
| Standard | | S | • |

TABLE IV

| | | | |
|--|--|---|---|
| Options | | | |
| Calibration Certificate (additional copy) | | A | • |
| Traceability Certificate | | B | • |
| Mill Sheet (only for electrodes and grounding rings) | | C | • |
| Gasket for Plastic Piping | | J | • |
| Attachment of Tagplate to Detector Terminal Box (Note 1) | | K | • |
| Attachment of Tagplate to Neck of Detector (Note 1) | | L | • |
| Specific Color Finish (Note 2) | | P | • |

Note 1: Must be selected if Tag number is required.

Note 2: Order must specify Munsell color number.

RESTRICTIONS

| Restrictions Letter | | | | | | | | | | Available Only With | | Not Available With | |
|---------------------|---|---|---|---|---|---|---|---|--|---------------------|------------|--------------------|--------------|
| c | d | e | f | g | h | j | k | m | | Table | Selection | Table | Selection |
| ■ | | | | | | | | | | IB | --- P | | |
| | ■ | | | | | | | | | IA | 025 to 200 | | |
| | | ■ | | | | | | | | IB | --- P | IA | 025 to 65mm |
| | | | ■ | | | | | | | | | IA | 250 to 600mm |
| | | | | ■ | | | | | | IB | --- P | IA | 250 to 600mm |
| | | | | | ■ | | | | | | | IA | 025 to 65mm |
| | | | | | | ■ | | | | IB | --- P | IA | 500, 600mm |
| | | | | | | | ■ | | | IA | 080 to 200 | | |
| | | | | | | | | ■ | | | | IA | 500, 600mm |

MagneW 3000 *PLUS* Cables

Model Selection Guide

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make one selection from Tables I thru II, using the column below the proper arrow.
A dot (•) denotes unrestricted availability. A letter denotes restricted availability.
Restrictions follow Table IV.
- A complete Model Number must have the designated number of digits in each table.
- A complete Model Number must have the designated number of digits in each table.

Key Number I II
 [] - [] - []

| KEY NUMBER | Selection | Availability |
|---------------------------|-----------|--------------|
| Description | | |
| MagneW <i>PLUS</i> Cables | MGA12W | ↓ |

TABLE I

| A - Cable Item | | |
|-----------------------------------|---|---|
| Signal Cable and Excitation Cable | C | • |

TABLE II

| A - Length | Meters | Feet | | |
|------------|--|------|--------|---|
| | 2 | 6 | 002 __ | • |
| | 3 | 9 | 003 __ | • |
| | 4 | 12 | 004 __ | • |
| | 5 | 15 | 005 __ | • |
| | 10 | 30 | 010 __ | • |
| | 15 | 45 | 015 __ | • |
| | 20 | 60 | 020 __ | • |
| | 30 | 90 | 030 __ | • |
| | 40 | 120 | 040 __ | • |
| | 50 | 150 | 050 __ | • |
| | 60 | 180 | 060 __ | • |
| | 70 | 210 | 070 __ | • |
| | 80 | 240 | 080 __ | • |
| | 90 | 270 | 090 __ | • |
| | 100 | 300 | 100 __ | • |
| | 150 | 450 | 150 __ | • |
| | 200 | 600 | 200 __ | • |
| | 250 | 750 | 250 __ | • |
| | 300 | 1000 | 300 __ | • |
| | Other length (longer than 10m, 300m Max) | | XXX __ | • |

MGA12W
↓

TABLE II (continued)

| | Selection | Availability |
|--|-----------|--------------|
| B - Terminals (Detector Side) | | |
| Without Terminals | --- X - | • |
| With Terminals for MGG Type Detector (MG <i>PLUS</i>) | --- A - | • |
| With Terminals for KID Type Detector | --- B - | • |
| With Terminals for NNM TType Detector | --- C - | • |
| C - Terminals (Converter Side) | | |
| Without Terminals | ---- X | • |
| With Terminals for MGG/KIX/KIC Type Converter | ---- A | • |

MagneW 3000 Plus Smart Magnetic Flowmeter

Application Data Sheet

Date: _____ Site Location: _____
Customer: _____ Honeywell Sales Contact: _____

1. Detector Requirements (Must specify data in **bold** typeface to place an order)

- Environment: ☐ General Purpose Nonhazardous Area ☐ Hazardous Area ☐ Sanitary ☐ Submersible ☐ CIP ☐ Yes ☐ NO
- Process Liquid _____
- Electrodes: ☐ SS316L ☐ Hast C ☐ Zirconium ☐ Tantalum ☐ Platinum-Iridium ☐ Other _____
- Liner: ☐ PFA ☐ Polyurethane rubber ☐ Chloroprene ☐ Ceramic
- Process Temperature in °C or °F: Minimum: _____ Normal: _____ Maximum: _____
- Process Pressure in psi or bar: Minimum: _____ Normal: _____ Maximum: _____
- Density in g/cm³ or lb/ft³ _____
(If specific gravity value is given for density, be sure to give reference temperature as well.)
- Viscosity in cST, cP, or mPas: Minimum: _____ Maximum: _____
- Flow Range in GPM: Minimum: _____ Normal: _____ Maximum: _____
- Nominal Pipe Diameter in "in" or "mm": _____ • Process Pipe Material: _____
- Process Pipe Lined: ☐ Yes — Material type: _____
☐ NO
- Pulsating Flow: ☐ Yes ☐ NO
- Process Connections: ☐ DINPN ☐ ANSI (ANSI B16.5)
- Style: ☐ Flanged ☐ Wafer
Flange Rating _____

2. Transmitter

- Mode of Operation: ☐ Analog
☐ HART (Option)
- Mounting Configuration: ☐ Integral ☐ Remote
- Power Supply: _____
- Safety Approvals Required:
- Process Measurement Output(s):
☐ Standard
- Contact Outputs: ☐ One Input and One Output
☐ 2 Inputs
- Local Indicator: ☐ Yes ☐ NO
- Integral ☐ Remote ☐
- Corrosion - resistant Coating Required: ☐ Yes ☐ NO
- Watertight Glands Required: ☐ Yes ☐ NO

3. Other Application Details or Special Requirements

- Describe any other information that would be pertinent to MagneW 3000 PLUS model selection:

Honeywell

Industrial Automation and Control
Honeywell Inc.
16404 N. Black Canyon Highway
Phoenix, Arizona 85023

Helping You Control Your World