

NEW

## Air Flow Monitor

EWA1 SERIES

CE  
Conforming to EMC Directive (all models)  
& Pressure Equipment Directive  
(AEWA1150/1200 only)



Small Pipe Size

Visualize Air Consumption to Eliminate Waste!



Medium Pipe Size

Essential for Air Leak Detection and Energy Saving

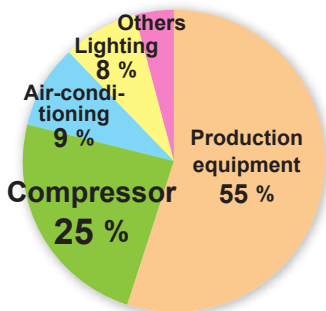
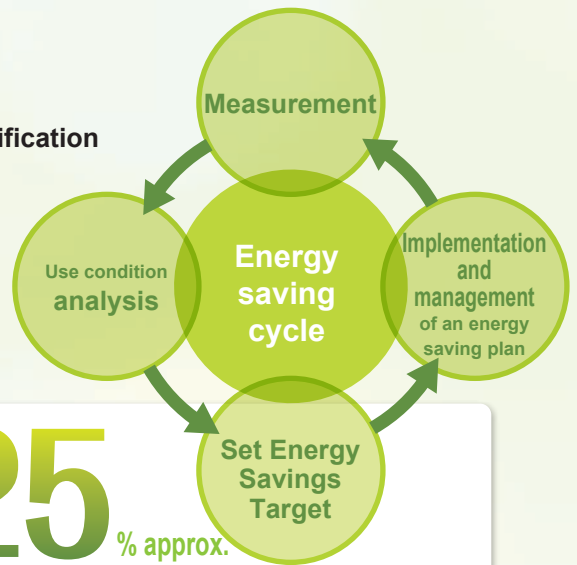


Large Pipe Size



# Easily Visualize Air Consumption Eliminate Waste!

Reducing power consumption in a factory starts with the identification of waste. Waste can be fairly obvious in cases such as air conditioning and lighting, however, hidden sources of waste may exist in the use of air within the factory. By visually detecting how air is wasted, a plant operator can repair and eliminate the source of the loss.



(Breakdown of the power consumption by a typical factory)

What does this figure mean?

Ratio of power consumption by compressors to the total power consumption at factories **25** % approx.

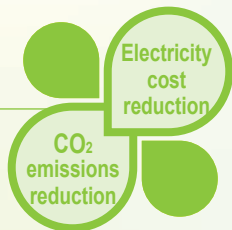
Compressors typically require more electricity to run than other equipment.

Reducing the power consumption of air compressors should be a key target of any energy savings plan.

**Visualize Air Consumption to Identify and Eliminate Waste!**

Install the ultrasonic type Air Flow Monitor on each compressor to monitor air leakage and provide an overall improvement of the compressor's operating efficiency.

## Application example



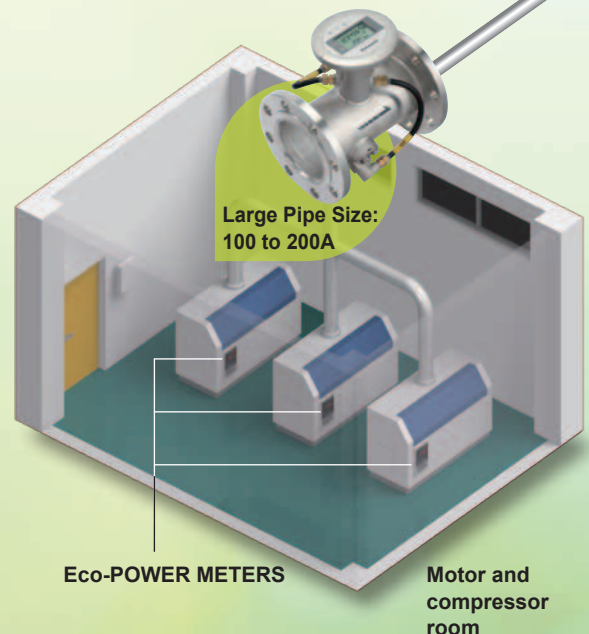
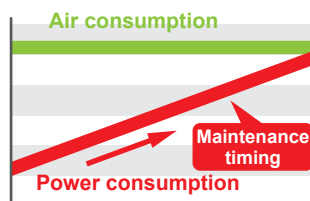
## Installation in compressors

### Improve the Operating Efficiency of Compressors

The monitor allows you to determine if the air supply capacity of the compressor is appropriate for the air consumption. Compressors in an unloaded state consume 30 to 40 % of the electricity required in a loaded state. Full operation of fewer compressors will lead to a reduction of the total power consumption of your factory.

### Identify the best timing for maintenance.

You can identify the best timing for compressor maintenance by monitoring air consumption vs. power consumption in real time. When power consumption begins to increase while the air consumption remains steady, it is time to perform maintenance on the compressor.



Eco-POWER METERS

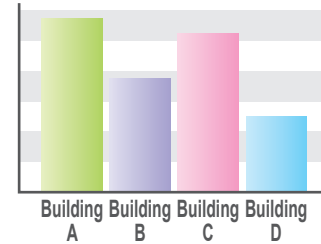
Motor and compressor room

# in order to Identify and

## Installation in each building

### Manage Air Consumption by Building or by Floor

You can monitor the overall air consumption of an entire building or by floor to analyze the site for areas with an abnormally high usage.

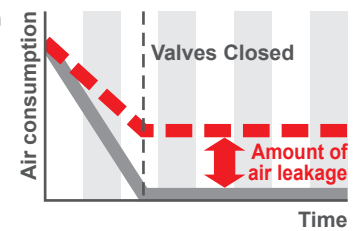


Medium Pipe Size  
40 to 80A

## Installation in each line

### Find air leaks.

When a monitor installed on a piece of equipment is registering an air flow when all valves are closed, there is a leak present on the machine. By identifying the location of the leak, it allows the plant operator to quickly fix the problem.



Medium Pipe Size  
40 to 80A

In general, air leakage accounts for up to 20 to 25 % of the overall air usage.

Small to Medium Pipe Sizes  
25 to 50A

Small to Medium Pipe Sizes  
25 to 50A

Small to Medium Pipe Sizes  
25 to 50A

Medium Pipe Size  
40 to 80A



# Ultrasonic Operation for Durability

## Resistant to oil mist and maintenance-free!

Since the ultrasonic type Air Flow Monitor does not have any obstructions in the detection pipe, it does not need mist separators or other filters. By not requiring filter maintenance or replacement, you can reduce operation costs and maintenance time. Also, factory air containing oil mist can also be correctly monitored due to its unique and durable design, thus ensuring long life and high reliability.



Pipe size: 25A or 32A



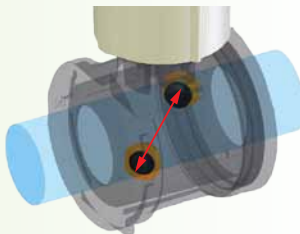
Pipe size: 40A, 50A, 65A or 80A



Pipe size: 100A, 150A, or 200A

### Ultrasonic detection system

Ultrasonic sensors installed at the inlet and outlet sides detect the flow rate of the air based on the difference in the ultrasonic propagation time between the two sensors. The volumetric flow rate is then calculated based on the cross-sectional area of the monitor pipe and the detected flow rate.



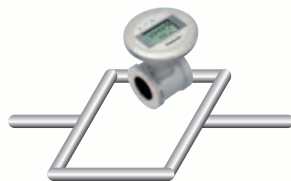
#### Normal value conversion function

This monitor indicates the air consumption, pressure and temperature under normal conditions as obtained by using a normal value conversion function. You don't have to separately install a pressure gauge or thermometer.

- Note on installation  
When installing the monitor in a horizontal pipe, install it with its display facing up.

### Usable in loop pipes

Direct and reverse flow can be measured and output.



### Zero energy losses

There are no obstructions within the measurement pipe due to the ultrasonic detection system, thus causing zero pressure losses.



### A variety of output functions

A number of output options are available such as pulse output, upper and lower limit alarm, and 4 to 20 mA analog current output.

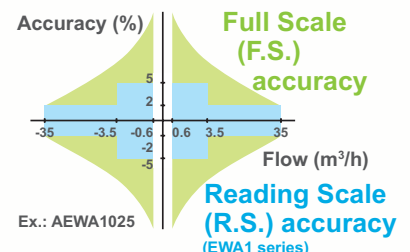
**Pulse output 1**  
(Direct flow pulse)

**Pulse output 2**  
(Select reverse flow pulse or upper and lower limit alarm.)

**Analog current output**  
(Select instant flow, pressure or temperature.)

### High accuracy flow rate measurement

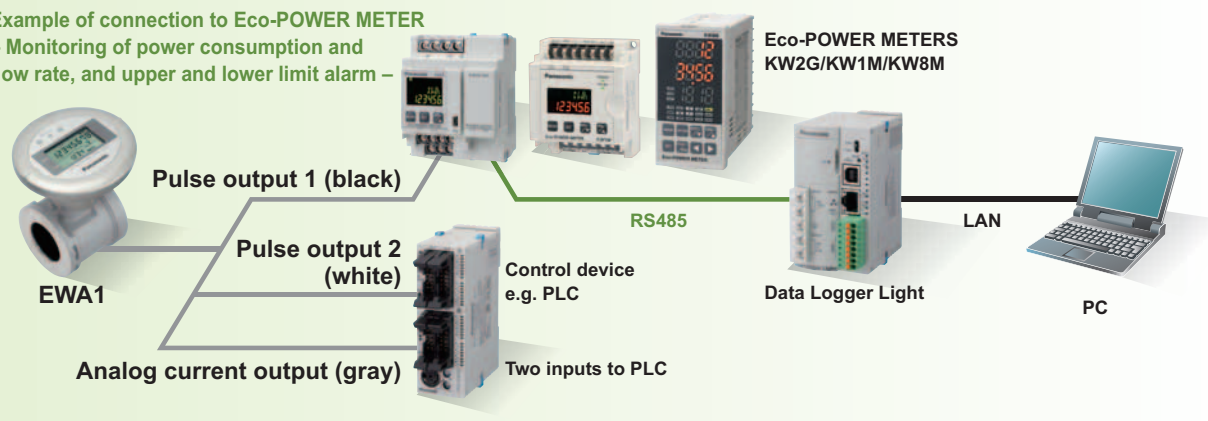
The R.S. (reading scale) accuracy is the accuracy applicable to all readings in the flow rate range. Therefore, flow rates even in the low flow rate range can be read with high accuracy.



# and Simplicity

## Connection to Eco-POWER METER enhances the effects of energy-saving measures.

Example of connection to Eco-POWER METER  
– Monitoring of power consumption and flow rate, and upper and lower limit alarm –



Use in combination with the Eco-POWER METER and KW Watcher to visualize the all aspects of energy usage in one place.

1. Connect the pulse output of Air Flow Monitor to Eco-POWER METER.
  2. Display graphs of electricity, temperature, air usage and other data as collected by the **Data Logger Light** using the **KW Watcher** PC software. This helps to analyze the electricity and air usage of different buildings/areas from multiple points of view.
- The pulse output 2 of the Air Flow Monitor can be used to output upper and lower limit alarms, allowing for early detection of problems.

### • What is an Eco-POWER METER?

An Eco-POWER METER is a simple and compact power meter which facilitates power consumption management of industrial machines and equipment.

### • What is the KW Watcher?

The **KW Watcher** is a PC based software package for retrieving and displaying data log files from the Panasonic **Web Datalogger Unit** or **Data Logger Light**.

**This software can be downloaded\* free of charge from our website.** \*Registration is required.



## PRODUCT TYPES

For the lead time, please contact your dealer.

### Main units

| Type             | Appearance | Pipe size    | Model No.       | Flow range (actual flow)   |
|------------------|------------|--------------|-----------------|--|
| Small pipe size  |            | 25A (1B)     | <b>AEWA1025</b> | -0.6 to -35 m <sup>3</sup> /h or +0.6 to +35 m <sup>3</sup> /h     |
|                  |            | 32A (1 1/4B) | <b>AEWA1032</b> | -1.1 to -65 m <sup>3</sup> /h or +1.1 to +65 m <sup>3</sup> /h     |
| Medium pipe size |            | 40A (1 1/2B) | <b>AEWA1040</b> | -1.3 to -80 m <sup>3</sup> /h or +1.3 to +80 m <sup>3</sup> /h     |
|                  |            | 50A (2B)     | <b>AEWA1050</b> | -2.5 to -150 m <sup>3</sup> /h or +2.5 to +150 m <sup>3</sup> /h   |
|                  |            | 65A (2 1/2B) | <b>AEWA1065</b> | -4 to -240 m <sup>3</sup> /h or +4 to +240 m <sup>3</sup> /h       |
|                  |            | 80A (3B)     | <b>AEWA1080</b> | -5 to -300 m <sup>3</sup> /h or +5 to +300 m <sup>3</sup> /h       |
| Large pipe size  |            | 100A (4B)    | <b>AEWA1100</b> | -10 to -500 m <sup>3</sup> /h or +10 to +500 m <sup>3</sup> /h     |
|                  |            | 150A (6B)    | <b>AEWA1150</b> | -24 to -1,200 m <sup>3</sup> /h or +24 to +1,200 m <sup>3</sup> /h |
|                  |            | 200A (8B)    | <b>AEWA1200</b> | -40 to -2,000 m <sup>3</sup> /h or +40 to +2,000 m <sup>3</sup> /h |

### Options

The connecting cable is not included. Please be sure to purchase it.

| Type             | Model No.       | Descriptions                       |   |
|------------------|-----------------|------------------------------------|---|
| Connecting cable | <b>AEWA1C05</b> | Cable length: 5 m <b>16.40 ft</b>  | 0.2 mm <sup>2</sup> 6-core cabtyre cable with connector on one side |
|                  | <b>AEWA1C20</b> | Cable length: 20 m <b>65.62 ft</b> |   |

## COMMON SPECIFICATIONS

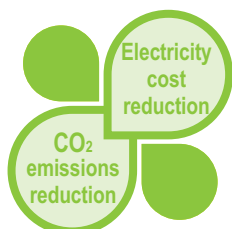
| Item  | Specifications  |  |
|---|---|--|
| Rated pressure range                                | 0 to 1 MPa (gauge pressure)   |  |
| Measurable fluid                                    | Air (compressed air)  |  |
| Rated operating voltage                             | 24 V DC $\pm 10\%$  |  |
| Rated power consumption                             | 40 mA or less   |  |
| Pulse output<br>(Pulse output 1 and Pulse output 2) | Open drain output<br>•Max. inflow current: 10 mA<br>•Applied voltage: 24 V DC or less<br>•Residual voltage: 1 V or less<br>(at inflow current 10 mA)                              |  |
|   | Output mode<br>Pulse output 1: Direct flow pulse<br>Pulse output 2: Reverse flow pulse,<br>Flow limit alarm<br>(select by button operation)                                       |  |
|   | Over current protection   | Equipped   |
|   | Pulse output duty   | 1:1 (35 to 65 %)   |
| Analog current output                               | Output current: 4 to 20 mA<br>Output accuracy: $\pm 0.1$ mA<br>Max. external load: 400 $\Omega$ or less   |  |
|   | Output mode<br>Instant flow, air pressure and temperature<br>(select by button operation)   |  |
|   | Instant flow<br>Zero point:<br>4 mA (Direct flow display mode,<br>reverse flow ~ within low flow cut off)<br>12 mA (Direct/Reverse flow display<br>mode, within low flow cut off) |  |
|   | Air pressure  | 0 kPa: 4 mA, 1 MPa: 20 mA  |
| Temperature   | -10 °C +14 °F: 4 mA,<br>+60 °C +140 °F: 20 mA   |  |
| Pressure loss                                       | Extremely small<br>(same as straight pipe)  |  |
| Response time                                       | 500 ms  |  |
| Using environment                                   | Enclosure protection  | IP64 (IEC)   |
|   | Ambient temperature   | -10 to +60 °C +14 to +140 °F<br>(Storage: -20 to +70 °C -4 to +158 °F) |
|   | Ambient humidity  | 90 % RH or less<br>(No dew condensation or icing<br>allowed)           |

### Normal flow conversion

$$\text{Normal flow [Nm}^3\text{/h]} = \frac{\text{Absolute temperature of } 0\text{ }^{\circ}\text{C } 32\text{ }^{\circ}\text{F} (273.15\text{ [K]})}{\text{Absolute temperature of operating temperature } (273.15\text{ [K]} + t)} \times \frac{\text{Absolute pressure of operating pressure } (0.10133\text{ [MPa]} + p)}{\text{Absolute pressure of 1 atm } (0.10133\text{ [MPa]})} \times \text{Actual flow [m}^3\text{/h]}$$

t: Temperature in pipe [°C °F], p: Supply pressure (gauge pressure) [MPa]

\* Conversion with 0 °C 32 °F and 1 atm



## INDIVIDUAL SPECIFICATIONS

### Small pipe size type

| Model No.                   | AEWA1025  | AEWA1032  |
|-----------------------------|---|---|
| Pipe size                   | 25A (1B)  | 32A (1 1/4B)  |
| Flow range<br>(actual flow) | -0.6 to -35 m <sup>3</sup> /h or<br>+0.6 to +35 m <sup>3</sup> /h                     | -1.1 to -65 m <sup>3</sup> /h or<br>+1.1 to +65 m <sup>3</sup> /h   |
| Flow measuring accuracy     | $\pm 5\%$ R.S.<br>-0.6 to -3.5 m <sup>3</sup> /h or<br>+0.6 to +3.5 m <sup>3</sup> /h | -1.1 to -6.5 m <sup>3</sup> /h or<br>+1.1 to +6.5 m <sup>3</sup> /h |
|                             | $\pm 2\%$ R.S.<br>-3.5 to -35 m <sup>3</sup> /h or<br>+3.5 to +35 m <sup>3</sup> /h   | -6.5 to -65 m <sup>3</sup> /h or<br>+6.5 to +65 m <sup>3</sup> /h   |
| Normal conversion accuracy  | $\pm 2.5\%$ R.S.<br>(at dry air, ordinary temperatures and 0.5 MPa)                   |   |
| Unit for pulse output       | 10, 100, 1,000 NL/pulse or L/pulse  |   |
| Low flow cut off            | Within $\pm 0.09$ m <sup>3</sup> /h   | Within $\pm 0.16$ m <sup>3</sup> /h                                 |
| Material                    | Measuring pipe: Aluminum alloy, PPS and phlor silicone rubber                         |   |
| Net weight                  | 1.5 kg approx.  | 1.4 kg approx.  |
| Accessories                 | M4 hexagon wrench: 1 pc   |   |

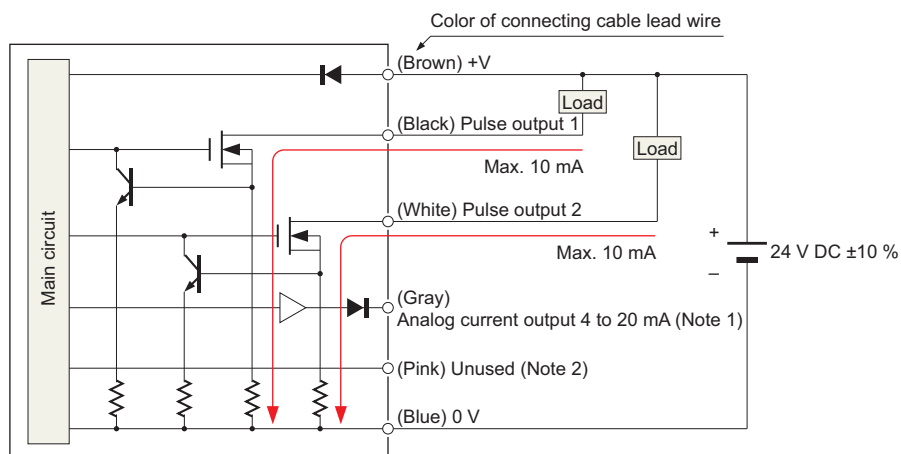
### Medium pipe size type

| Model No.                   | AEWA1040  | AEWA1050   | AEWA1065   | AEWA1080   |
|-----------------------------|---|--|--|--|
| Pipe size                   | 40A (1 1/2B)  | 50A (2B)   | 65A (2 1/2B)   | 80A (3B)   |
| Flow range<br>(actual flow) | -1.3 to -80 m <sup>3</sup> /h<br>or<br>+1.3 to +80 m <sup>3</sup> /h  | -2.5 to -150 m <sup>3</sup> /h<br>or<br>+2.5 to +150 m <sup>3</sup> /h | -4 to -240 m <sup>3</sup> /h<br>or<br>+4 to +240 m <sup>3</sup> /h   | -5 to -300 m <sup>3</sup> /h<br>or<br>+5 to +300 m <sup>3</sup> /h   |
| Flow measuring accuracy     | $\pm 5\%$ R.S.<br>-1.3 to -8 m <sup>3</sup> /h<br>or<br>+1.3 to +8 m <sup>3</sup> /h  | -2.5 to -15 m <sup>3</sup> /h<br>or<br>+2.5 to +15 m <sup>3</sup> /h   | -4 to -24 m <sup>3</sup> /h<br>or<br>+4 to +24 m <sup>3</sup> /h     | -5 to -30 m <sup>3</sup> /h<br>or<br>+5 to +30 m <sup>3</sup> /h     |
|                             | $\pm 2\%$ R.S.<br>-8 to -80 m <sup>3</sup> /h<br>or<br>+8 to +80 m <sup>3</sup> /h  | -15 to -150 m <sup>3</sup> /h<br>or<br>+15 to +150 m <sup>3</sup> /h   | -24 to -240 m <sup>3</sup> /h<br>or<br>+24 to +240 m <sup>3</sup> /h | -30 to -300 m <sup>3</sup> /h<br>or<br>+30 to +300 m <sup>3</sup> /h |
| Normal conversion accuracy  | $\pm 2.5\%$ R.S.<br>(at dry air, ordinary temperatures and 0.5 MPa)   |  |  |  |
| Unit for pulse output       | 10, 100, 1,000 NL/pulse or L/pulse  |  |  |  |
| Low flow cut off            | Within $\pm 0.2$ m <sup>3</sup> /h  | Within $\pm 0.4$ m <sup>3</sup> /h                                     | Within $\pm 0.6$ m <sup>3</sup> /h                                   | Within $\pm 0.8$ m <sup>3</sup> /h                                   |
| Material                    | Measuring pipe: Aluminum alloy, PPS and phlor silicone rubber   |  |  |  |
| Net weight                  | 1.0 kg approx.  | 1.2 kg approx.   | 1.5 kg approx.   | 1.7 kg approx.   |
| Accessories                 | Positioning collar: 4 pcs,<br>M4 hexagon wrench: 1 pc, Flange packing: 2 pcs,<br>Bolt set: 1 set (bolt, nut and plain washer) |  |  |  |

### Large pipe size type

| Model No.                   | AEWA1100   | AEWA1150   | AEWA1200   |
|-----------------------------|--|--|--|
| Pipe size                   | 100A (4B)  | 150A (6B)  | 200A (8B)  |
| Flow range<br>(actual flow) | -10 to -500 m <sup>3</sup> /h<br>or<br>+10 to +500 m <sup>3</sup> /h                   | -24 to -1,200 m <sup>3</sup> /h<br>or<br>+24 to +1,200 m <sup>3</sup> /h   | -40 to -2,000 m <sup>3</sup> /h<br>or<br>+40 to +2,000 m <sup>3</sup> /h   |
| Flow measuring accuracy     | $\pm 5\%$ R.S.<br>-10 to -50 m <sup>3</sup> /h<br>or<br>+10 to +50 m <sup>3</sup> /h   | -24 to -120 m <sup>3</sup> /h<br>or<br>+24 to +120 m <sup>3</sup> /h       | -40 to -200 m <sup>3</sup> /h<br>or<br>+40 to +200 m <sup>3</sup> /h       |
|                             | $\pm 2\%$ R.S.<br>-50 to -500 m <sup>3</sup> /h<br>or<br>+50 to +500 m <sup>3</sup> /h | -120 to -1,200 m <sup>3</sup> /h<br>or<br>+120 to +1,200 m <sup>3</sup> /h | -200 to -2,000 m <sup>3</sup> /h<br>or<br>+200 to +2,000 m <sup>3</sup> /h |
| Normal conversion accuracy  | $\pm 2\%$ R.S.<br>(at dry air, ordinary temperatures and 0.5 MPa)                      |  |  |
| Unit for pulse output       | 0.1, 1, 10 Nm <sup>3</sup> /pulse or m <sup>3</sup> /pulse                             |  |  |
| Low flow cut off            | Within $\pm 2.6$ m <sup>3</sup> /h   | Within $\pm 5.0$ m <sup>3</sup> /h   | Within $\pm 9.0$ m <sup>3</sup> /h   |
| Material                    | Measuring pipe: Stainless steel alloy, PPS and phlor silicone rubber                   |  |  |
| Net weight                  | 10.3 kg approx.  | 18.3 kg approx.  | 24.4 kg approx.  |
| Accessories                 | Positioning collar: 2 pcs, M4 hexagon wrench: 1 pc                                     |  |  |

## I/O CIRCUIT DIAGRAM

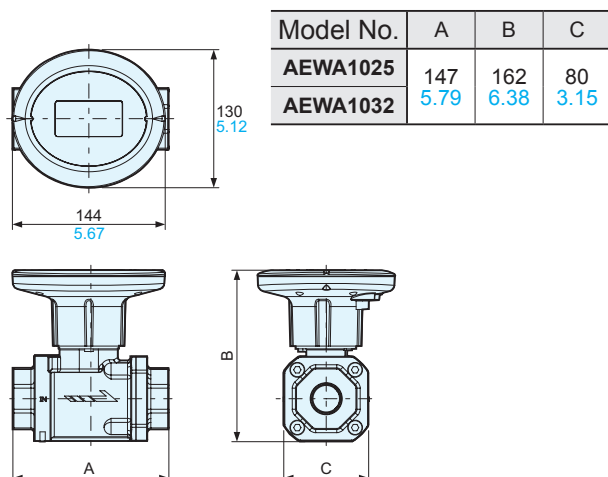


- Notes: 1) Max. resistive load should be 400  $\Omega$  or less.  
2) Lead wire (pink) is not used. Be sure to insulate it.

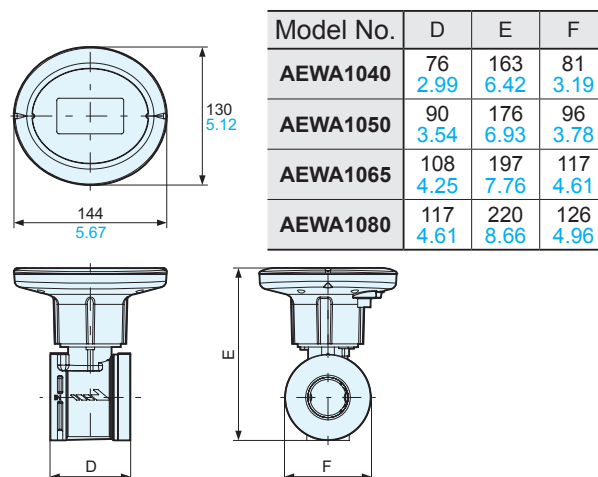
## DIMENSIONS (Unit: mm in)

The CAD data of the dimensions can be downloaded from our website.

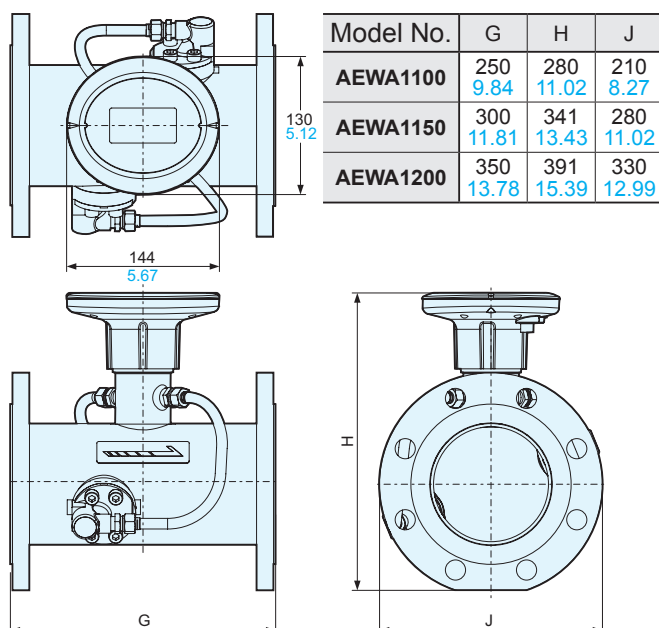
### Small pipe size type



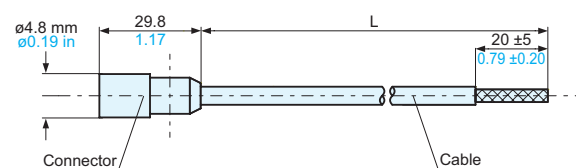
### Medium pipe size type



### Large pipe size type



### Connecting cable (Sold separately)



| Model No. | L  |
|-----------|--|
| AEWA1C05  | 5,000 $\pm 50$<br>196.85 $\pm 1.97$      |
| AEWA1C20  | 20,000 $^{+100}_0$<br>787.4 $^{+3.94}_0$ |



## CE Marking

### ■ Acquisition of CE marking

When using in the application conforming to 2004/108/EC EMC Directive, 97/23/EC Pressure Equipment Directive \*\*1, make sure to satisfy the following conditions.  
\*\* only applied to AEW1150 and AEW1200

#### [Environmental conditions]

- Indoor use
- An ambient temperature of -10 to +60 °C **+14 to 140 °F**
- An ambient non-condensing humidity 90 % or less

#### [Mount the product in a place with]

- A minimum of dust, and an absence of corrosive gases
- No flammable, explosive gasses
- Few mechanical vibrations or shocks
- No exposure to direct sunlight
- No large capacity electromagnetic switches or cables through which large current is flowing

#### [Additional information]

##### EMC Directive

- All models are in conformity to Directive 2004/108/EC, and CE marking is affixed to each one.

##### Pressure Equipment Directive

- Models as shown by \*\*1 conforming to Pressure Equipment Directive are classified as pressure equipment.

Conformity assessment procedure: Category I, Module A

- Models other than the mentioned above do not bear CE marking in accordance with article 3, paragraph 3 of the Directive 97/23/EC. General pressure safety compliance is achieved by sound engineering practice.

## Other available products

### Eco-POWER METERS connectable to Air Flow Monitor

#### KW2G SERIES



- Up to seven expansion units can be added.
- Measure up to 16 circuits (Single-phase two-wire system)
- Configurable on a PC via USB
- Compatible with DIN rails for installation
- Connectable to various sensors using analog/pulse input type

#### KW1M SERIES (Except AKW1110)



- Compatible with three-phase four-wire system
- Selectable screw, DIN rail and panel installation
- The lineup includes a SD memory card type and a built-in wireless type.

#### KW8M SERIES



- Compatible with three-phase four-wire system
- Log data can be saved to memory of main unit. (High performance type)
- Capable of direct input from 1 A / 5 A CT in the secondary side (1 A / 5 A CT input type)

### Integrated display type Digital Flow Sensor

#### FM-200 SERIES



- 2-color display with sub display
- Flow rate range: 500m l/min. to 1,000 l/min.
- Port size:  $\varnothing 4$  mm **0.16 in** push-in,  $\varnothing 8$  mm **0.31 in** push-in, Rc1/2 female thread, and G1/2 female thread
- No straight pipes needed

### Datalogger for data collection and storage

#### DLL (Data Logger Light)



- Collecting and storing power data of Eco-POWER METER
- Provided with a USB port and an SD/SDHC memory card slot
- Equipped with an AC/DC power supply
- Provided with a RS232C/RS485 communication port

#### DLU (Web Datalogger Unit)



- Collecting and storing power data of Eco-POWER METER
- Store collected data in CF cards
- Provided with a RS232C communication modem
- Provided with four parallel input points

Please contact .....

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