

Major Leak Detection (WG1) BREEAM WAT02 and WAT03



WG1 System

The System

The WG1 system complies with BREEAM 2011 Section WAT03. It is a Major Leak Detection System which covers all mains supplies in the building. It is programmable, has an audible alarm and can identify different flow rates. It also complies with BREEAM W02 as the system uses a water meter with pulsed outputs and a pulse splitter that can connect to a BMS.

The standard single zone WG1 system comprises a WG Control Unit with a display connected to a pulsed output water meter. This is installed inside the building just after the stopcock, monitoring for internal water leaks.

It is used where the outside wall of the building forms the property boundary or the external MCWS enters a number of buildings at different points. In this situation a WG2 (two zone control panel) will be connected to a water meter at the boundary and a second where the pipework enters the building usually nearest to the boundary. A WG1 control panel is then installed and connected to a water meter at each entry point in all the other buildings being feed from the MCWS externally.

It is not a requirement of BREEAM WAT03 that the leak detection system shuts off the water supply when an alarm is triggered. It is however possible to fit a latching valve if required for pipe sizes between 20mm - 50mm.

Installation

The WG1 Control Unit is wall mounted adjacent to the stopcock and requires a mains power supply. The unit is linked to the water meter by a screened 1mm² conductor 2 core cable up to 500m.

The water meters have BSP threads up to 40mm, above which the meters have PN16 flanged connections. If valves are required, these are latching valves, available from Aqualeak, and should be installed just after the water meters.

The WG1 Control Unit can also be linked to the BMS or any onward alarm system. Remote output alarms can be connected to the PCB terminals marked alarm. A reset relay can be used by the BMS to date stamp when the mute button is pressed (this indicates when action was taken after the system was in alarm), or it can be used to mute a remote repeater alarm.



Operation

The system operates by monitoring the number of pulses given out by the pulse reader attached to the water meter, this equates to the volume of water with 1 pulse being equal to 10 litres of water. The control unit is programmed to suit the occupants' requirements between 10 and 320,000 litres of water in a 30 minute period. There is a Pulse Splitter allowing pulses from the water meter to be registered at both the control unit, and the BMS.

Adjustable parameters are:

- water volumes
- occupancy periods
- days of the week

If latching valves are required, the system can then shut off the water when flow is exceeded, or at specific times of the day.

Under normal conditions the control unit displays green lights:

- system is live
- system is clear

On alarming, the unit displays:

- leak detected
- The system clear lamp changes to red, indicating:
- water detected

The alarm changeover relays will activate, providing onward alarm signalling to a repeater or BMS.

Pressing the 'Water On' button will mute the alarm, and return the system to normal. If it is necessary for the system to remain in alarm and valves to remain closed, the Mute button will silence the audible alarm but the system will remain in alarm mode. Once the leak has been cleared, pressing the 'Water On' button will return the system to normal operation.

AQUALEAK DETECTION LTD

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www.aqualeak.com

Our full range of Water Leak Detection Systems, Oil Leak Detection, Overtemperature & Environmental Alarms, Telephone Autodial Units can be seen at : <http://www.aqualeak.com>

WG1 SYSTEM SPECIFICATIONS

| System/ Dimension | Width (mm) | Height (mm) | Depth (mm) |
|--------------------|----------------------|----------------------|----------------------|
| WG1 (control unit) | 200 | 150 | 77 |
| Meters | Subject to pipe size | Subject to pipe size | Subject to pipe size |

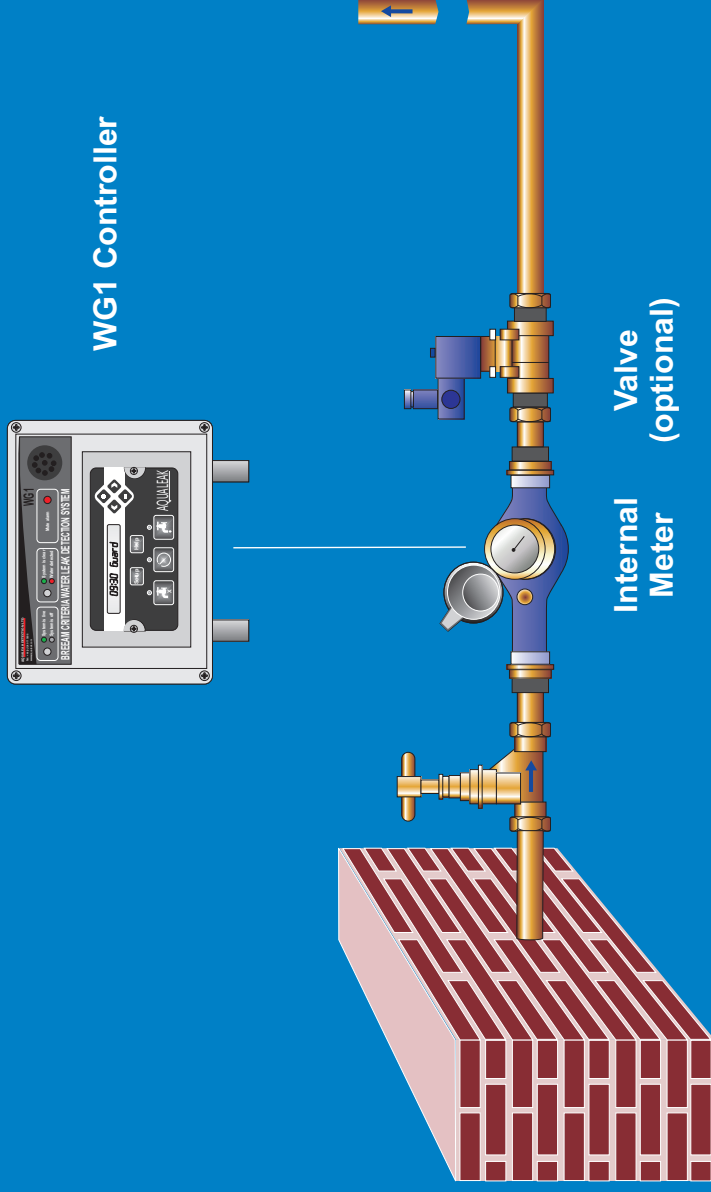
Electrical specifications

Mains 230VAC single phase L.N.E. LIVE is fused with a 20mm, 2A power fuse.
External & Internal Alarm Relay is rated 230VAC, 6A.
Reset Relay is rated 230VAC 2A.

Panel to Meter cabling: Screened 1mm² conductor (pair) up to 500m

Panel to Latching Valve cabling: 1mm² conductor (pair) up to 100m
2.5mm² conductor (pair) up to 500m

WG1 SYSTEM SCHEMATIC



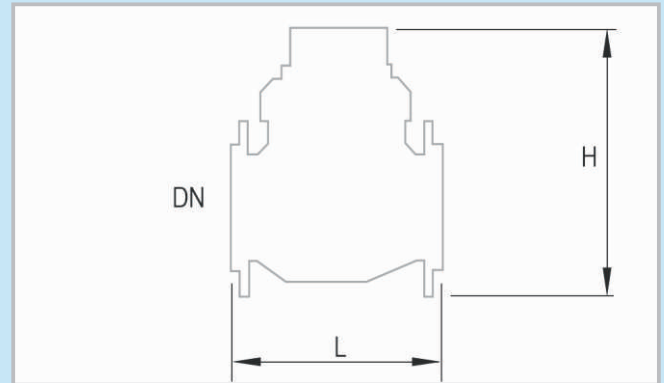
Turbine Water Meters

50CB/65CB/80CB/100CB/150CB/200CB



- WRAS Approved
- EEC Class B Approved
- Working Pressure: 16 Bar
- Pulse Output 1 pulse = 10 Litres
- Pulse rate = 128 milliseconds
- For cold (30°C) or Hot (90°C) water
- Brass Body
- Epoxy Power Coated
- For horizontal installation

| Dn Size (mm) | Max Flow (m ³ h) | Nominal Flow (m ³ h) | Trans Flow (m ³ h) | Min Flow (m ³ h) |
|--------------|-----------------------------|---------------------------------|-------------------------------|-----------------------------|
| 50 | 30 | 15 | 3 | 0.45 |
| 65 | 50 | 25 | 5 | 0.75 |
| 80 | 80 | 40 | 8 | 1.2 |
| 100 | 120 | 60 | 12 | 1.8 |
| 125 | 200 | 100 | 20 | 3.0 |
| 150 | 300 | 150 | 30 | 4.5 |
| 200 | 500 | 250 | 50 | 7.5 |



| Dn Size (mm) | Length (mm) | Height (mm) | Diameter Outer (mm) | Bolt Circle (centres) | Bolt Diameter | Weight (kg) |
|--------------|-------------|-------------|---------------------|-----------------------|---------------|-------------|
| 50 | 200 | 225 | 165 | 125 | 4 x M16 | 16.3 |
| 65 | 200 | 242 | 185 | 145 | 4 x M16 | 17 |
| 80 | 225 | 255 | 200 | 160 | 8 x M16 | 18 |
| 100 | 250 | 265 | 220 | 180 | 8 x M16 | 22.8 |
| 125 | 250 | 275 | 250 | 210 | 8 x M16 | 28.3 |
| 150 | 300 | 325 | 285 | 240 | 8 x M20 | 46 |
| 200 | 350 | 352 | 340 | 295 | 12 x M20 | 59.6 |

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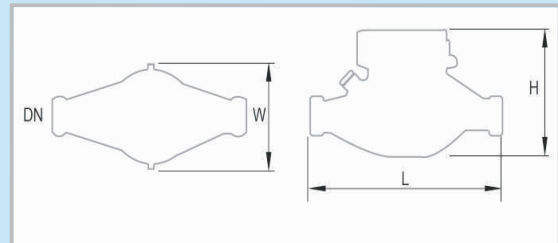
Turbine Water Meters

15CB/20CB/25CB/30CB/40CB



- WRAS Approved
- EEC Class B Approved
- Working Pressure: 16 Bar
- Pulse Output 1 pulse = 10 Litres
- Pulse rate = 128 milliseconds
- For cold (30°C) or Hot (90°C) water
- Brass Body
- Epoxy Power Coated
- For horizontal installation

| Dn Size (mm) | Max Flow (m ³ h) | Nominal Flow (m ³ h) | Trans Flow (L ³ h) | Min Flow (L ³ h) |
|--------------|-----------------------------|---------------------------------|-------------------------------|-----------------------------|
| 15 | 3 | 1.5 | 120 | 30 |
| 20 | 5 | 2.5 | 200 | 50 |
| 25 | 7 | 3.5 | 280 | 70 |
| 32 | 12 | 6 | 480 | 120 |
| 40 | 20 | 10 | 800 | 200 |
| 50 | 30 | 15 | 1050 | 300 |



| Dn Size (mm) | Body Length (mm) | Length with couplings (mm) | Height (mm) | Width (mm) | Weight (kg) |
|------------------|------------------|----------------------------|-------------|------------|-------------|
| 15 (DN15) 1/2" | 145 | 230 | 105 | 100 | 1.5 |
| 20 (DN20) 3/4" | 190 | 280 | 106 | 100 | 1.7 |
| 25 (DN25) 1" | 260 | 370 | 115 | 104 | 2.8 |
| 32 (DN32) 1 1/4" | 260 | 375 | 115 | 105 | 3.2 |
| 40 (DN40) 1 1/2" | 300 | 420 | 148 | 125 | 5.4 |
| 50 (DN50) 2" | 300 | 435 | 173 | 126 | 8.2 |

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