



# Vision

Turbine Flow Meters

## Flow sensor

Vision Series 2000 battery powered

### DESCRIPTION

The small flow sensors VISION measurement technology is ideal for the accurate measurement of low viscous and non-aggressive fluids. The VISION 2000 series is most suited for the measurement of flow rates from 0.5 to 35 l/min. The flow sensors can be mounted in any position.

### MEASURING PRINCIPLE

Flow sensors are indirect volumetric meters. When the fluid passes through, a rotor is activated and the movement is either electronically or mechanically transmitted outside. The rotor is turned by the fluid force, proportional to the flow rate. A coil detects the passage of the rotor and supplies pulses, which can be utilized for digital or analogue signal processing. The generated pulses are specified as the K-factor. The large number of pulses provides high resolution. As the mass of the turbine is very small the response time is very short. It is not necessary to install a straight length of pipeline at the upstream side of the meter.



### SPECIFICATIONS

|             |  |
|-------------|--|
| <b>Type</b> | VISION 2006 - COIL<br>VISION 2008 - COIL |
|-------------|--|

|                                |  |
|--------------------------------|--|
| <b>Performance</b>             |  |
| <b>Flow rate</b>               | 0.5 – 35 l/min                             |
| <b>Accuracy</b>                | ± 3% of reading                            |
| <b>Repeatability</b>           | < 0.5% under the same operating conditions |
| <b>Operating temperature</b>   | -20°C to 100°C                             |
| <b>Operating pressure rate</b> | max. 25 bar                                |
| <b>Burst pressure</b>          | 100 bar                                    |

|                          |                        |                 |                     |                   |                  |
|--------------------------|------------------------|-----------------|---------------------|-------------------|------------------|
| <b>Pick up</b>           |                        |                 |                     |                   |                  |
| <b>Pulse sensor</b>      | COIL (battery powered) |                 |                     |                   |                  |
| <b>Input power</b>       | 2 – 5.5 V              |                 |                     |                   |                  |
| <b>Output signal</b>     | Push-Pull              |                 |                     |                   |                  |
| <b>Power consumption</b> | approx. 2.2 µA @ 2V    |                 |                     |                   |                  |
| <b>K-factor</b>          | <b>Version</b>         | <b>Material</b> | <b>Nominal size</b> | <b>Flow range</b> | <b>K-factor</b>  |
|                          | VISION 2008 4F17-COIL  | Trogamid CX7323 | 8 mm                | 2 – 35 l/min      | 750 pulse/liter  |
|                          | VISION 2008 4F22-COIL  | Trogamid CX7323 | 8 mm                | 1 – 25 l/min      | 1000 pulse/liter |
|                          | VISION 2008 4F44-COIL  | Trogamid CX7323 | 8 mm                | 1 – 15 l/min      | 2200 pulse/liter |
|                          | VISION 2006 4F44-COIL  | Trogamid CX7323 | 6 mm                | 1 – 10 l/min      | 3300 pulse/liter |
|                          | VISION 2008 2F66-COIL  | Trogamid CX7323 | 8 mm                | 0.5 – 7.5 l/min   | 4700 pulse/liter |
|                          | VISION 2006 2F66-COIL  | Trogamid CX7323 | 6 mm                | 0.5 – 5 l/min     | 6900 pulse/liter |



Badger Meter

|                 |  |
|-----------------|--|
| <b>Material</b> |  |
| <b>Housing</b>  | Trogamid CX7323  |
| <b>Rotor</b>    | PPS Ferrite bound  |
| <b>Bearings</b> | 2 PTFE / Graphite bearings (standard), bearings without added graphite for deionized water or Hostaform bearings for contact with foodstuffs |

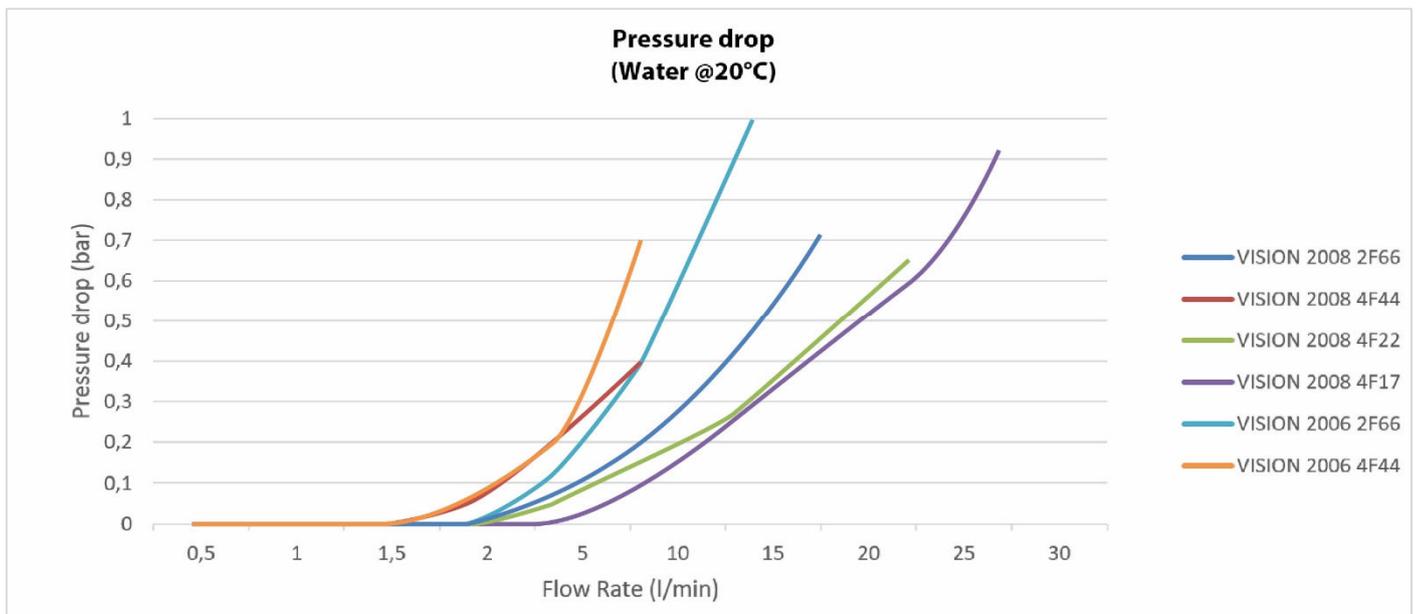
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|-------------------|--|
| <b>Fluids</b>     |  |
| <b>Viscosity</b>  | 0.8 – 16 mm <sup>2</sup> /sec (mPas/cST) |
| <b>Fluid type</b> | Liquids                                  |
| <b>Filter</b>     | 20 to 40 micron recommended              |

|   |  |
|---|--|
| <b>Installation</b>                             |  |
| <b>Nominal size DN</b>                          | 6 mm, 8 mm   |
| <b>Mounting position</b>                        | In any orientation                                 |
| <b>Electrical connection</b>                    | 3 Pin (2.8 x 0.5) for MINI DIN Connector, EN 60529 |
| <b>IP Protection class (DIN Connector)</b>      | IP67   |
| <b>Mechanical connection</b>                    | Trogamid: G 3/8", NPT 3/8", O-ring, Hose nipple    |
| <b>Tightening torque for screwed connection</b> | approx. 6 Nm                                       |

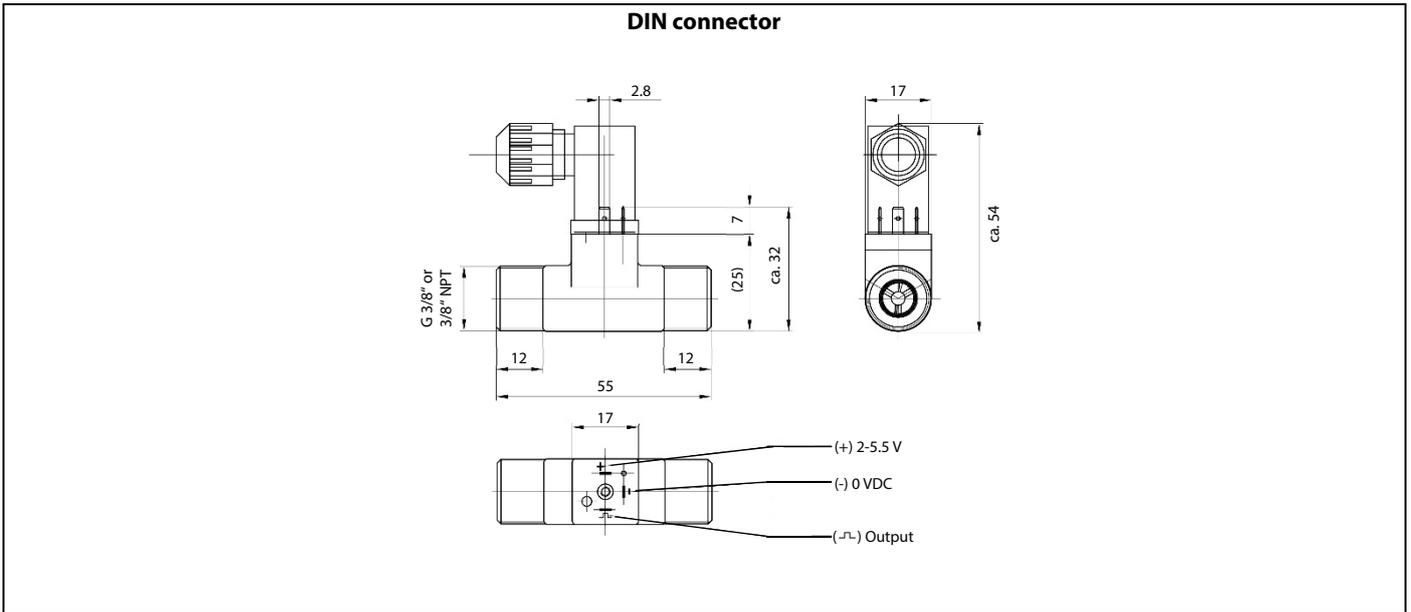
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|---------------|-----------------|------------------|---------------|
| <b>Weight</b> |                 |                  |               |
|               | <b>Housing</b>  | <b>Connector</b> | <b>Weight</b> |
|               | Trogamid CX7323 | DIN              | 20 g          |

|                  |                               |                          |
|------------------|-------------------------------|--------------------------|
| <b>Approvals</b> |                               |                          |
|                  | <b>VISION with housing of</b> | <b>Approvals</b>         |
|                  | Trogamid CX7323               | KTW-BWGL, ROHS, CE, UKCA |

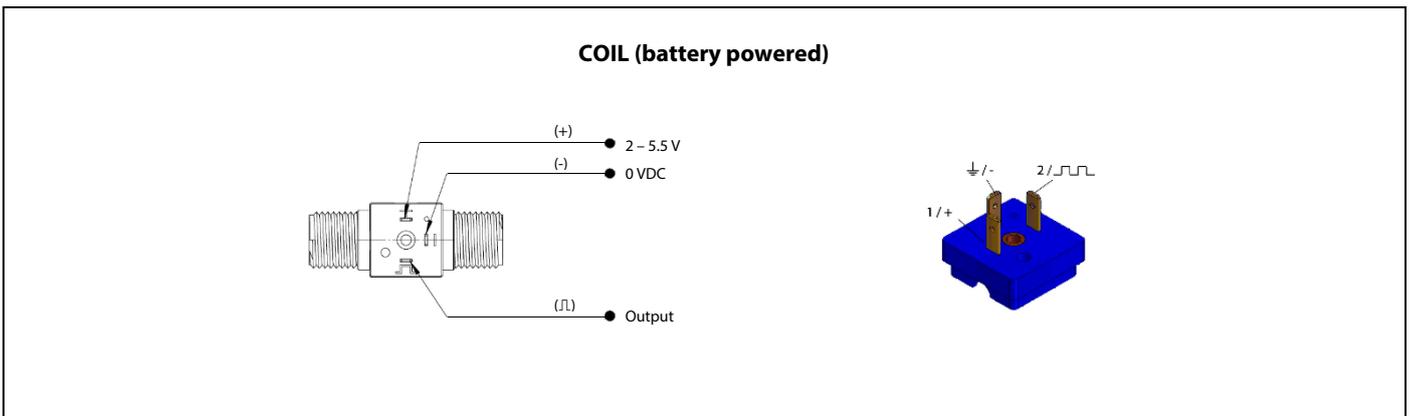
## PRESSURE DROP



## DRAWINGS



## ELECTRICAL WIRING



## ORDERING MATRIX - VISION 2000 – COIL + DISPLAY

| Select process and electrical connection | Code  |                |
|--|-------|----------------|
| <b>Mechanical connector:</b>             |       |                |
| VISION 2008, G 3/8"                      | 56500 |                |
| VISION 2008, NPT 3/8"                    | 56502 |                |
| VISION 2008, O-Ring                      | 56520 |                |
| VISION 2008, Hose nipple                 | 56138 |                |
| VISION 2006, G 3/8"                      | 56510 |                |
| VISION 2006, NPT 3/8"                    | 56512 |                |
| VISION 2006, O-Ring                      | 56521 |                |
| VISION 2006, Hose nipple                 | 56138 |                |
| <b>Electrical connection:</b>            |       |                |
| COIL and DIN connector                   | -166  |                |
| <b>Turbine model:</b>                    |       |                |
| VISION 2008                              |       | -4F17          |
| VISION 2008                              |       | -4F22          |
| VISION 2008                              |       | -4F44          |
| VISION 2008                              |       | -2F66          |
| VISION 2006                              |       | -4F44          |
| VISION 2006                              |       | -2F66          |
| <b>Available displays see below</b>      |       | Display option |

| Ordering code displays:   |   | Code   |
|---|---|--------|
| Remote mounted ILR-701T display (3 m cable) / Total / Flow rate<br><br><u>Example</u> shows display with flow sensor                  |   | -56703 |
| Remote mounted ILR-750T display (3 m cable) / Total / Flow rate / 4-20 mA output<br><br><u>Example</u> shows display with flow sensor |   | -56704 |
| RF-Display ILR 701T (transmitter + receiver) / Total  |  Receiver  Transmitter | -56700 |

|   |  |        |
|---|--|--------|
| Meter mounted ILR-701T display / Total / Flow rate<br>(Display including bracket)                 |  | -56707 |
| Meter mounted ILR-750T display / Total / Flow rate / 4.20mA output<br>(Display including bracket) |  | -56705 |

| Examples:  | Code  |      |       |        |
|--|-------|------|-------|--------|
| VISION 2008 2F66 - COIL G3/8"                                | 56500 | -166 | -2F66 |        |
| VISION 2008 4F17 - COIL G3/8" with ILR701T remote (3m cable) | 56500 | -166 | -4F17 | -56703 |
| VISION 2008 4F22 - COIL O-ring with ILR750T metermount       | 56520 | -166 | -4F22 | -56705 |
| VISION 2006 2F66 - COIL G3/8"                                | 56510 | -166 | -2F66 |        |
| VISION 2006 4F44 - COIL G3/8" with ILR701T remote (3m cable) | 56510 | -166 | -4F44 | -56703 |
| VISION 2006 4F44 - COIL O-Ring with ILR750T metermount       | 56521 | -166 | -4F44 | -56705 |

## DISPLAYS

| Technical Data ILR 701T         |  |
|---------------------------------|--|
| <b>Display flow</b>             | Actual flow: 6 digits  |
|                                 | Total flow: 11 digits, non-resettable                        |
|                                 | 6 digits, resettable   |
| <b>Output</b>                   | Analog output: /   |
|                                 | Pulse output: /  |
| <b>Display units</b>            | Liter, Pints, Quarts, Gallons                                |
| <b>Input</b>                    | Coil   |
| <b>Pulse input scale</b>        | 0,5000 – 2,0000  |
| <b>Temperature</b>              | -20 °C to + 80 °C  |
| <b>Linearization (Optional)</b> | 9 points   |
| <b>Protection class</b>         | IP 67  |
| <b>Internal power supply</b>    | Battery CR123A Lithium, 3 VDC                                |
| <b>Remote mount</b>             | Installation: Available with 3 m cable or as RF Display      |
|                                 | Weight: 230 g  |
| <b>Meter mount</b>              | Installation: Including bracket for the VISION turbine meter |
|                                 | Weight: 155 g  |
| <b>Approvals</b>                | CE, UKCA, ROHS   |

| Technical Data ILR 750T         |   |
|---------------------------------|---|
| <b>Display flow</b>             | Actual flow: 6 digits   |
|                                 | Total flow: 11 digits, non-resettable<br>6 digits, resettable |
| <b>Output</b>                   | Analog output: 4-20 mA  |
|                                 | Pulse output: Scalable  |
| <b>Display units</b>            | Liter, Pints, Quarts, Gallons                                 |
| <b>Input</b>                    | Coil  |
| <b>Pulse input scale</b>        | 0.5000 – 2.0000   |
| <b>Temperature</b>              | -20 °C to + 80 °C   |
| <b>Linearization (Optional)</b> | 9 points  |
| <b>Protection class</b>         | IP 67   |
| <b>Internal power supply</b>    | Battery CR123A Lithium, 3 VDC                                 |
| <b>Remote mount</b>             | Installation: Available with 3 m cable                        |
|                                 | Weight: 340 g   |
| <b>Meter mount</b>              | Installation: Including bracket for the VISION turbine meter  |
|                                 | Weight: 275 g   |
| <b>Approvals</b>                | CE, UKCA, ROHS  |

| Technical Data RF ILR 701T      |  |
|---------------------------------|--|
| <b>Display flow</b>             | Actual flow: /   |
|                                 | Total flow: 11 digits, non-resettable<br>6 digits, resettable        |
| <b>Output</b>                   | Analog output: /   |
|                                 | Pulse output: /  |
| <b>Display units</b>            | Liter, Pints, Quarts, Gallons  |
| <b>Input</b>                    | Coil   |
| <b>Pulse input scale</b>        | 0.5000 – 2.0000  |
| <b>Temperature</b>              | -20 °C to + 80 °C  |
| <b>Linearization (Optional)</b> | 9 points   |
| <b>Protection class</b>         | IP 67  |
| <b>Internal power supply</b>    | Battery CR123A Lithium, 3 VDC (Transmitter, Receiver/Display)        |
| <b>RF frequency</b>             | 2.4 GHz ISM  |
| <b>Radio range</b>              | 5 to 6 m   |
| <b>Receiver / Display</b>       | LCD Display with wall mounting bracket                               |
| <b>Transmitter</b>              | Transmitter: Electronic board, battery powered CR123A Lithium, 3 VDC |
|                                 | Installation: Will be mounted directly onto the VISION turbine meter |
| <b>Remote mount</b>             | Installation: RF Display   |
|                                 | Weight: 210 g  |
| <b>Approvals</b>                | CE, UKCA, ROHS   |

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