

## UF400

### ULTRASONIC FLOW METER

#### Features

- Ultrasonic Measurement using Transit Time Technology
- Full Bore Type
- Local Indication through LCD Display
- Simple and Cost Effective Construction
- Empty Pipe Indication
- Automatic Meter Reading option over GSM, GPRS & RF
- Electronic Protection Class : Field Mount Weather Proof IP-67, DIN Standard (IP 54), Flameproof (CMRI IIA IIB Certified)
- Leak, Burst and Tamper Detection
- No Pressure Drop



#### Description

**B**RIX series UF400 Ultrasonic flow meters give the flexibility to install a reliable flow meter, virtually anywhere, without distorting accuracy and performance. The flow meter is extremely easy to use, simple to install and requires no regular maintenance. The product is engineered for various industrial as well as domestic applications such as Municipal and Industrial Water applications, Cooling tower, Water treatment, etc. The LCD display provides indication for flow rate and totalized flow with key selection. The display auto shuts off after 10 minutes, which increases the battery life in case of battery powered flow meter. The display can be turned ON by pressing the 'enter' key.

#### Technical Specifications

|                             |                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------|
| Media                       | Liquids                                                                                    |
| Line Size                   | 15 NB to 600 NB                                                                            |
| Number Of Paths             | Single                                                                                     |
| Electronics                 | 1) Integral (Local) 2) Remote                                                              |
| Output                      | 4 to 20mA DC, Pulse (Open Collector), Pulse (Active TTL), Frequency (0 to 1 KHz)           |
| Communication Output        | RS485 (MODBUS RTU), GSM & GPRS                                                             |
| Viscosity                   | 200 cp maximum                                                                             |
| Display                     | LCD Display – 7 digit for Flow Rate & 8 digit for Totalised Flow                           |
| Calibration Range           | As per requirement (Factory Calibrated)                                                    |
| Accuracy                    | $< \pm 0.5\%$ of M.V. $\pm 5\text{mm/sec}$ for Velocity Range 0.3 m/s to 6 or 12 m/s       |
| Linearity                   | $\pm 0.5\%$ of M.V.                                                                        |
| Repeatability               | $\pm 0.2\%$ of M.V.                                                                        |
| Temperature Coefficient     | $\pm 0.05\%$ per $^{\circ}\text{C}$                                                        |
| Process Temperature         | $-20^{\circ}\text{C}$ to $85^{\circ}\text{C}$ maximum                                      |
| Process Pressure            | $16\text{ kg/cm}^2$ maximum                                                                |
| Material of Construction    | Flow tube – SS304, SS316, PVC & MS                                                         |
| Power Supply                | 24V DC (+/-10%), Solar Powered                                                             |
| Low Battery indication      | Provided                                                                                   |
| Battery Life                | 5 to 10 Years depending on sampling time and communication interval                        |
| Response Time               | Less than 10 Sec.                                                                          |
| Electronic Protection Class | Field Mount Weather Proof IP-67, DIN Standard (IP 54), Flameproof (CMRI IIA IIB Certified) |
| Certification               |         |

|                     |                                                            |
|---------------------|------------------------------------------------------------|
| Process Connections | ASA 150 Flanged (As per table B 16.5)                      |
| Ambient Conditions  | Temperature -20 to 70°C / Humidity 5 to 95% Non Condensing |
| Data Logging        | For 5 Years (Per day 1 Sample)                             |

### Assembly Overview

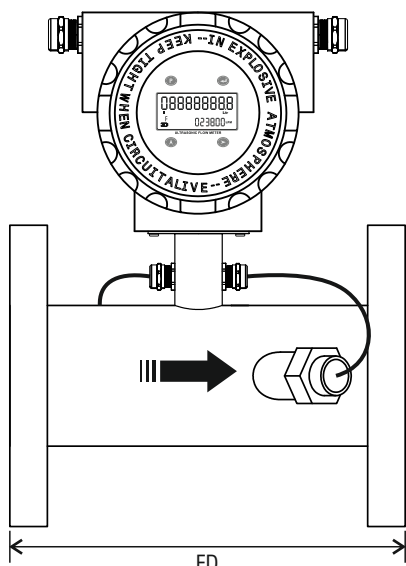


Fig. 1 Front View

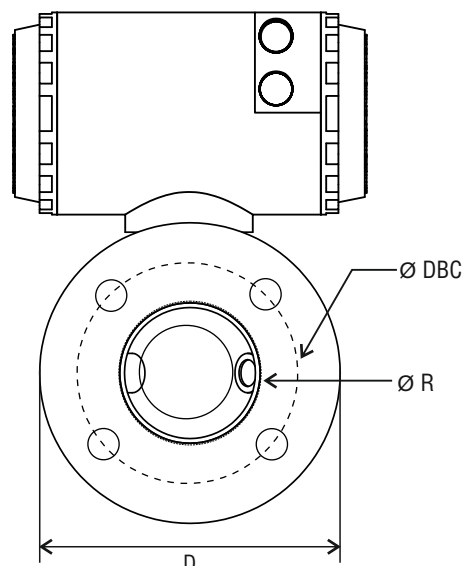


Fig. 2 Side View

TABLE : Dimensional Details (Flow Meter with ANSI 150 Flange)

Refer Drg. Fig.1 & 2

| Line Size<br>Inch | NB  | Flange<br>Diameter<br>D (mm) | Diameter<br>of Raised<br>Face<br>R (mm) | Diameter<br>of Bolt<br>Hole Circle<br>DBC (mm) | Diameter<br>of Bolt Hole<br>(mm) | No.<br>of<br>Holes | Thickness<br>of<br>Flange | Flange Distance 'FD' |                                 | Flow Range (m³/hr)<br>for Velocity 0.3m/s to 6m/s |         |
|-------------------|-----|------------------------------|-----------------------------------------|------------------------------------------------|----------------------------------|--------------------|---------------------------|----------------------|---------------------------------|---------------------------------------------------|---------|
|                   |     |                              |                                         |                                                |                                  |                    |                           | Fixed Inline         | Hot<br>Retractable<br>Insertion | Min.                                              | Max.    |
| 1/2"              | 15  | 88.9                         | 34.9                                    | 60.3                                           | 15.9                             | 4                  | 11.1                      | 200                  | -                               | 0.19                                              | 3.817   |
| 1"                | 25  | 107.9                        | 50.8                                    | 79.4                                           | 15.9                             | 4                  | 14.3                      | 200                  | -                               | 0.53                                              | 10.602  |
| 1 1/2"            | 40  | 127.0                        | 73                                      | 98.4                                           | 15.9                             | 4                  | 17.5                      | 250                  | -                               | 1.35                                              | 27.143  |
| 2"                | 50  | 152.4                        | 92.1                                    | 120.6                                          | 19.0                             | 4                  | 19.0                      | 300                  | 490                             | 2.12                                              | 42.4115 |
| 2 1/2"            | 65  | 177.8                        | 104.8                                   | 139.7                                          | 19.0                             | 4                  | 22.2                      | 350                  | 510                             | 3.58                                              | 71.675  |
| 3"                | 80  | 190.5                        | 127.0                                   | 152.4                                          | 19.0                             | 4                  | 23.8                      | 350                  | 530                             | 5.42                                              | 108.573 |
| 4"                | 100 | 228.5                        | 157.2                                   | 190.5                                          | 19.0                             | 8                  | 23.8                      | 360                  | 560                             | 8.48                                              | 169.646 |
| 5"                | 125 | 254.0                        | 185.7                                   | 215.9                                          | 22.2                             | 8                  | 23.8                      | 400                  | 580                             | 13.25                                             | 265.071 |
| 6"                | 150 | 279.4                        | 215.9                                   | 241.3                                          | 22.2                             | 8                  | 25.4                      | 420                  | 610                             | 19.085                                            | 381.703 |
| 8"                | 200 | 342.9                        | 269.9                                   | 298.4                                          | 22.2                             | 8                  | 28.6                      | 470                  | 670                             | 33.929                                            | 678.584 |
| 10"               | 250 | 406.4                        | 323.8                                   | 361.9                                          | 25.4                             | 12                 | 30.2                      | 550                  | 730                             | 53.014                                            | 1060.28 |
| 12"               | 300 | 482.6                        | 381.0                                   | 431.8                                          | 25.4                             | 12                 | 31.8                      | 620                  | 780                             | 76.340                                            | 1526.81 |
| 14"               | 350 | 533.4                        | 412.7                                   | 476.2                                          | 28.6                             | 12                 | 34.9                      | 680                  | 820                             | 103.908                                           | 2078.16 |
| 16"               | 400 | 596.9                        | 469.9                                   | 539.7                                          | 28.6                             | 16                 | 36.5                      | 750                  | 880                             | 135.716                                           | 2714.33 |
| 18"               | 450 | 635.0                        | 533.4                                   | 577.8                                          | 31.7                             | 16                 | 39.7                      | 800                  | 930                             | 171.766                                           | 3435.33 |
| 20"               | 500 | 698.5                        | 584.2                                   | 635.0                                          | 31.7                             | 20                 | 42.9                      | 870                  | 990                             | 212.057                                           | 4241.15 |
| 24"               | 600 | 812.8                        | 692.1                                   | 749.3                                          | 34.9                             | 20                 | 47.6                      | 1000                 | 1100                            | 305.362                                           | 6107.25 |

Note : Flange to flange distance (FD) Tolerance : 1) 1/2"(15NB) to 6"(150NB) : +/-3mm 2) 8"(200NB) to 24"(600NB) : +/-5mm

- All dimensions are in 'mm'
- For dimensions of line size above 600NB, please consult factory.
- Typical mounting dimensions are for reference only.

- Wet Calibrated at IEC/ISO/EN17025 Accredited Calibration Laboratory.
- Flow meter should be selected with the help of Nomograph (recommended full scale velocity).
- Flow indication of 6 digit max. up to 999999.

## Product Ordering Information :

Order Code for Flow Transmitter

Sample Order Code : TX 3B1C1D2E1F1H2I2J2

| Parameter |                         | Code | Description                         |
|-----------|-------------------------|------|-------------------------------------|
| TX        | Electronics Transmitter | TX 1 | Field Mount Weather Proof IP67      |
|           |                         | TX 3 | DIN Standard (IP 54)                |
|           |                         | TX 4 | Flameproof (CMRI IIA IIB Certified) |

|   |              |    |                       |
|---|--------------|----|-----------------------|
| B | Power Supply | B1 | 90 to 250 VAC         |
|   |              | B2 | 24 VDC                |
|   |              | B3 | Battery Operated      |
|   |              | B5 | Solar Powered 24V DC  |
|   |              | B6 | Solar Powered 3.6V DC |

|   |                           |    |                    |
|---|---------------------------|----|--------------------|
| C | MOC Electronics Enclosure | C1 | Aluminium Die Cast |
|   |                           | C2 | SS316              |

|   |                       |    |               |
|---|-----------------------|----|---------------|
| D | Electrical Connection | D1 | M20 *1.5 F    |
|   |                       | D2 | ½ Inch NPT F  |
|   |                       | D3 | M12 Connector |
|   |                       | DY | Other         |

| Parameter |             | Code | Description |
|-----------|-------------|------|-------------|
| E         | Output 1 ** | E1   | 4 to 20 mA  |
|           |             | EX   | NA          |

|   |          |    |                             |
|---|----------|----|-----------------------------|
| F | Output 2 | F1 | Pulse (Open Collector Type) |
|   |          | FX | NA                          |

|   |                                    |    |                    |
|---|------------------------------------|----|--------------------|
| H | **Communication Output 1 (Any one) | H1 | RS485 (MODBUS RTU) |
|   |                                    | HX | NA                 |

|   |                                  |    |      |
|---|----------------------------------|----|------|
| I | Communication Output 2 (Any one) | I1 | GSM  |
|   |                                  | I2 | GPRS |
|   |                                  | IX | NA   |

|   |                                    |    |       |
|---|------------------------------------|----|-------|
| J | Process Pressure Calibration Range | J1 | 10 Kg |
|   |                                    | J2 | 20 Kg |
|   |                                    | JX | NA    |

Note :

- In case of flameproof version only electronics enclosure is flameproof certified.

\*\* Features Available with external power supply not with battery operated.

## Order Code for Flow Tube

Sample Order Code : FT 15 K2 L1 M1 N3 O2 P1 Q1 R1 S1 T1 U1 W1

| Parameter |                                   | Code   | Description              | Code   | Description      |
|-----------|-----------------------------------|--------|--------------------------|--------|------------------|
| FT        | Flow Tube                         | FT 15  | 15 NB                    | FT 150 | 150 NB           |
|           |                                   | FT 20  | 20 NB                    | FT 200 | 200 NB           |
|           |                                   | FT 25  | 25 NB                    | FT 250 | 250 NB           |
|           |                                   | FT 32  | 32 NB                    | FT 300 | 300 NB           |
|           |                                   | FT 40  | 40 NB                    | FT 350 | 350 NB           |
|           |                                   | FT 50  | 50 NB                    | FT 400 | 400 NB           |
|           |                                   | FT 65  | 65 NB                    | FT 450 | 450 NB           |
|           |                                   | FT 80  | 80 NB                    | FT 500 | 500 NB           |
|           |                                   | FT 100 | 100 NB                   | FT 600 | 600 NB           |
|           |                                   | FT 125 | 125 NB                   |        |                  |
|           |                                   | K      | Spool Piece              | K1     | With Spool Piece |
| K2        | Without Spool Piece               |        |                          |        |                  |
| L         | Electronics Location              | L1     | Integral (Local)         |        |                  |
|           |                                   | L2     | Remote                   |        |                  |
| M         | Remote Cable Length               | M1     | 5 Meter                  |        |                  |
|           |                                   | M2     | 10 Meter                 |        |                  |
|           |                                   | M3     | 15 Meter                 |        |                  |
|           |                                   | MX     | NA                       |        |                  |
| N         | Flow Tube Protection Class        | N1     | IP-67                    |        |                  |
|           |                                   | N2     | IP-68                    |        |                  |
| O         | Process Connection                | O1     | Threaded (15 to 50 NB)   |        |                  |
|           |                                   | O2     | Flanged (15 To 600 NB)   |        |                  |
|           |                                   | O3     | Triclover (15 to 100 NB) |        |                  |
|           |                                   | O4     | SMS Union (25 to 100 NB) |        |                  |
| P         | Material of construction – Flange | P1     | MS                       |        |                  |
|           |                                   | P2     | CS                       |        |                  |
|           |                                   | P3     | SS304                    |        |                  |
|           |                                   | P4     | SS316                    |        |                  |
|           |                                   | P5     | PVC                      |        |                  |
|           |                                   | PY     | Other                    |        |                  |
|           |                                   | PX     | NA                       |        |                  |

| Parameter                                                                                                                                                                                                                                                                                                                                     |                                      | Code | Description                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------|--------------------------------------|
| Q                                                                                                                                                                                                                                                                                                                                             | Flange Standard and Rating           | Q1   | ANSI 150 B16.5                       |
|                                                                                                                                                                                                                                                                                                                                               |                                      | Q2   | ANSI 300 B16.5                       |
|                                                                                                                                                                                                                                                                                                                                               |                                      | Q3   | ANSI 600 B 16.5                      |
|                                                                                                                                                                                                                                                                                                                                               |                                      | Q4   | DIN PN 10 EN 1092-1                  |
|                                                                                                                                                                                                                                                                                                                                               |                                      | Q5   | DIN PN 16 EN 1092-1                  |
|                                                                                                                                                                                                                                                                                                                                               |                                      | Q6   | DIN PN 25 EN 1092-1                  |
|                                                                                                                                                                                                                                                                                                                                               |                                      | Q7   | DIN PN 40 EN 1092-1                  |
|                                                                                                                                                                                                                                                                                                                                               |                                      | Q8   | IS 1538                              |
|                                                                                                                                                                                                                                                                                                                                               |                                      | QY   | Other                                |
|                                                                                                                                                                                                                                                                                                                                               |                                      | QX   | NA                                   |
| R                                                                                                                                                                                                                                                                                                                                             | Material of construction – Flow Tube | R1   | SS304                                |
|                                                                                                                                                                                                                                                                                                                                               |                                      | R2   | SS316                                |
|                                                                                                                                                                                                                                                                                                                                               |                                      | R3   | PVC                                  |
|                                                                                                                                                                                                                                                                                                                                               |                                      | R4   | MS                                   |
|                                                                                                                                                                                                                                                                                                                                               |                                      | RY   | Other                                |
|                                                                                                                                                                                                                                                                                                                                               |                                      | RX   | NA                                   |
| S                                                                                                                                                                                                                                                                                                                                             | Material of construction – Sensor    | S1   | SS316                                |
|                                                                                                                                                                                                                                                                                                                                               |                                      | S2   | PVC                                  |
|                                                                                                                                                                                                                                                                                                                                               |                                      | SY   | Other                                |
| T                                                                                                                                                                                                                                                                                                                                             | Insertion Flow Sensor Installation   | T1   | Fixed Inline                         |
|                                                                                                                                                                                                                                                                                                                                               |                                      | T2   | Hot Retractable                      |
| U                                                                                                                                                                                                                                                                                                                                             | Inline Flow Sensor                   | U1   | Single Pair                          |
|                                                                                                                                                                                                                                                                                                                                               |                                      | U4   | Hot Retractable Sensor – Single Pair |
| W                                                                                                                                                                                                                                                                                                                                             | Inline Pressure Sensor               | W1   | 10 Kg                                |
|                                                                                                                                                                                                                                                                                                                                               |                                      | W2   | 20 Kg                                |
|                                                                                                                                                                                                                                                                                                                                               |                                      | WX   | NA                                   |
| <b>Note :</b> <ul style="list-style-type: none"><li>▪ Due to our continuous product revisions, design specification and model numbers are subject to change without notice.</li><li>▪ To be used for industrial applications.</li><li>▪ Accuracy defined at Lab Conditions.</li><li>▪ For other requirement please consult factory.</li></ul> |                                      |      |                                      |