

### Features

- Full bore type
- Suitable for conductive liquids
- Two Wire system
- Empty Pipe Indication
- Material option depending upon Process Data
- Local Indication through LCD Display
- Maintenance free
- Simple & Cost Effective Construction



### Description

Electronet series ELMAG<sup>®</sup>-TX22 are micro-controller based 2 wire full bore type electromagnetic flow transmitters specially used for various industrial applications. These flow transmitters accurately measure the flow rate of conductive liquids and slurries in closed pipes. Due to its simple and rigid design, the flow transmitter is an obstruction-less and maintenance-free instrument in place of conventional mechanical flow measuring device. The use of 'Pulsed DC' technology offers highest ability and better measuring accuracy in the form of electrical signal 4-20 mA DC linearly proportional to volumetric flow, The instrument is based on Faraday's law of electromagnetic induction. A magnetic field is generated by the instrument in the flow tube. The fluid flowing through this magnetic field generates a voltage that is proportional to the flow velocity and corresponding electrical output is provided with respect to ensuring voltage.

### Technical Specifications

|                     |                                                                                                |
|---------------------|------------------------------------------------------------------------------------------------|
| Media               | Liquids (Conductive)                                                                           |
| Line Size           | 15 NB to 300 NB                                                                                |
| Electronics         | Integral                                                                                       |
| Power Supply        | 24V DC                                                                                         |
| Power Consumption   | 40 mw                                                                                          |
| Conductivity        | > 5 $\mu\text{S}/\text{cm}$                                                                    |
| Viscosity           | 200 cp max                                                                                     |
| Excitation          | Pulsed DC Coil                                                                                 |
| Type of Output      | 4 to 20mA DC, 4 to 20mA DC with HART                                                           |
| Display             | LCD display - 5 Digit for Flow Rate and 8 Digit for Totalizer Flow                             |
| Engineering Unit    | User Programmable ( $\text{m}^3/\text{hr}$ by default)                                         |
| Calibration         | Wet Calibrated at IEC/ISO/EN17025 Accredited Calibration Laboratory.                           |
| Accuracy            | $< \pm 0.5\%$ of M.V. $+(\pm 5\text{mm}/\text{sec})$ for Velocity Range 0.3 m/s to 6 or 12 m/s |
| Flow Velocity Range | 0.3 m/s to + 6 m/s                                                                             |

**Technical Specifications**

|                                     |                                                                                                                                                                                                                         |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Velocity                            | 0.3 m/s - 2.5m/s upto Max. 10m/s                                                                                                                                                                                        |
| Linearity                           | +/- 0.5% of M.V.                                                                                                                                                                                                        |
| Repeatability                       | +/- 0.2% of M.V.                                                                                                                                                                                                        |
| Temperature Coefficient             | +/- 0.1% per °C                                                                                                                                                                                                         |
| Process Temperature                 | -20 to 85° C max for Rubber Lining & -20 to 220°C for PTFE Lining                                                                                                                                                       |
| Process Pressure                    | 16 kg/cm <sup>2</sup> max (Higher on request)                                                                                                                                                                           |
| Material of construction            | 1) Lining - Neoprene / Ebonite Rubber, PFA, PTFE, PU, CERAMIC<br>2) Flange - MS, CS, SS316, SS304 & PVC<br>3) Electrode - SS316L, Hastelloy C, Platinum, Tantalum, Titanium<br>4) Coil Housing - MS, SS304, SS316 & PVC |
| Isolation                           | 1.4 KV between Input, Output and Power Supply                                                                                                                                                                           |
| Response Time                       | < 10 Sec.                                                                                                                                                                                                               |
| Electronic Protection Class         | Field Mount Weather Proof IP-67<br>Field Mount Weather Proof IP-68                                                                                                                                                      |
| Sensor / Flow Tube Protection class | Weather Proof IP-68                                                                                                                                                                                                     |
| Process Connections                 | ANSI150 flanged, as per table B 16.5 (Other On Requirement)                                                                                                                                                             |
| Mounting                            | In-Line Horizontal / Vertical                                                                                                                                                                                           |
| Ambient Conditions                  | Temperature -20 to 75°C / Humidity 5 to 95% non condensing                                                                                                                                                              |
| Certification                       | CE                                                                                                                                                                                                                      |

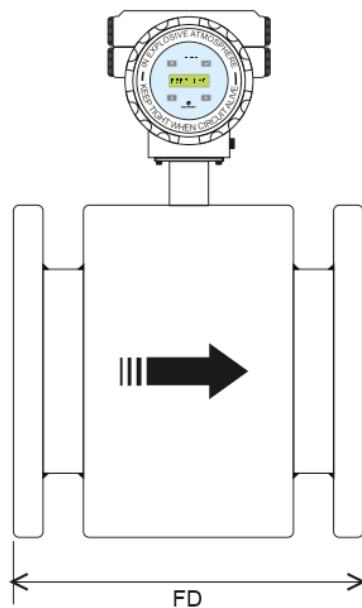
**Assembly Overview**

Fig. 1 Front View

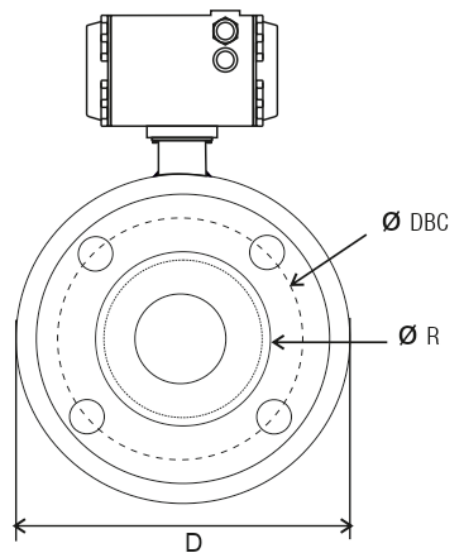


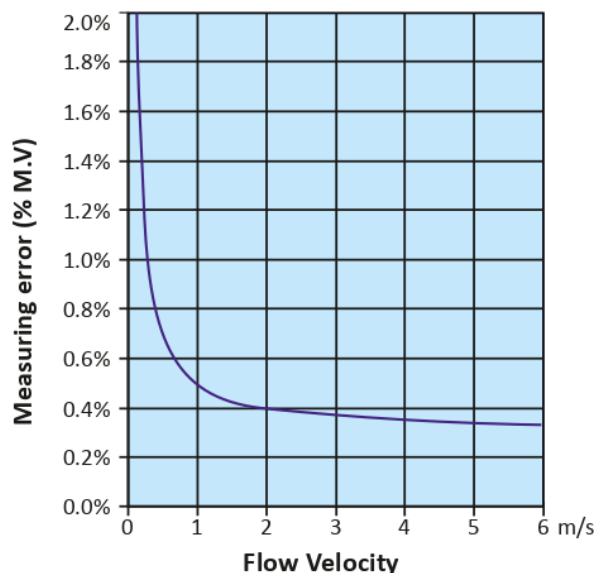
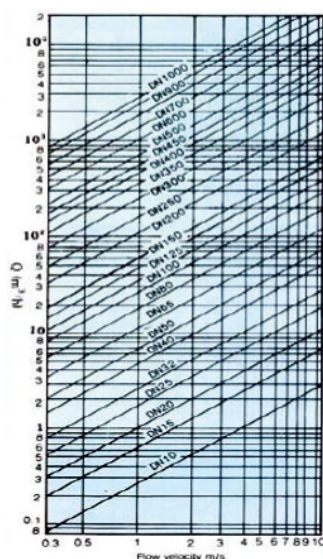
Fig. 2 Side View

| Line Size |     | Flange To<br>Flange Distance | Flow Range (m <sup>3</sup> /Hr) |                 |               |                |
|-----------|-----|------------------------------|---------------------------------|-----------------|---------------|----------------|
| Inch      | NB  |                              | Velocity 0.3m/s                 | Velocity 2.5m/s | Velocity 6m/s | Velocity 10m/s |
| ½"        | 15  | 200                          | 0.19                            | 1.59            | 3.81          | 6.36           |
| ¾"        | 20  | 200                          | 0.34                            | 2.83            | 6.785         | 11.31          |
| 1"        | 25  | 200                          | 0.53                            | 4.42            | 10.602        | 17.67          |
| 1¼"       | 32  | 200                          | 0.87                            | 7.24            | 17.371        | 28.95          |
| 1½"       | 40  | 200                          | 1.36                            | 11.31           | 27.143        | 45.24          |
| 2"        | 50  | 200                          | 2.12                            | 17.67           | 42.4115       | 70.69          |
| 2½"       | 65  | 200                          | 3.58                            | 29.86           | 71.675        | 119.46         |
| 3"        | 80  | 200                          | 5.43                            | 45.24           | 108.573       | 180.96         |
| 4"        | 100 | 250                          | 8.48                            | 70.69           | 169.646       | 282.74         |
| 5"        | 125 | 250                          | 13.25                           | 110.45          | 265.071       | 441.79         |
| 6"        | 150 | 300                          | 19.09                           | 159.04          | 381.703       | 636.17         |
| 8"        | 200 | 350                          | 33.93                           | 282.74          | 678.584       | 1130.97        |
| 10"       | 250 | 450                          | 53.01                           | 441.79          | 1060.28       | 1767.15        |
| 12"       | 300 | 500                          | 76.34                           | 636.17          | 1526.81       | 2544.69        |

Note : Flange to flange distance (FD) Tolerance : 1) 1/2"(15NB) to 6"(150NB) : +/-3mm 2) 8"(200NB) to 12"(300NB) : +/-5mm

- All dimensions are in 'mm'
- For dimensions of line size above 300NB, please consult factory.
- Typical mounting dimensions are for reference only.
- Wet Calibrated at IEC/ISO/EN17025 Accredited Calibration Rig.
- Flow meter should be selected with the help of Nomograph (recommended full scale velocity).

### Flow Nomograph



**Note :** • Due to our continuous product revisions, design specification and model numbers are subject to change without notice.  
• To be used for industrial applications. • For other requirement please consult factory.

# ELMAG TX-22

TWO WIRE ELECTROMAGNETIC FLOW METER



## Ordering Information of Transmitter

Sample Order Code: ELMAG TX 22 -TX-A1-B1-C1-D1-E1-F1

| Parameter |                         | Code | Value                 |
|-----------|-------------------------|------|-----------------------|
| TX        | Transmitter Electronics | TX   | ELMAG TX22            |
|           | Transmitter Mounting    | A1   | Integral (Local)      |
|           |                         | A2   | Remote (Max. 5 mtr. ) |
| B         | Enclosure MOC           | B1   | Aluminium die Cast    |
|           |                         | B2   | SS316                 |
|           |                         | BY   | Other                 |
| C         | Enclosure IP Rating     | C1   | IP54                  |
|           |                         | C2   | IP67                  |
|           |                         | C3   | IP68                  |

| Parameter |                            | Code | Value                |
|-----------|----------------------------|------|----------------------|
| D         | Hazardous Certification    | D1   | ATEX                 |
|           |                            | D2   | FF(CMRI 2A ,2B)      |
|           |                            | DX   | NA                   |
| E         | Electrical Connection      | E1   | M20                  |
|           |                            | E2   | 1/2" NPT             |
|           |                            | EY   | Other                |
| F         | Electrical Output(Current) | F1   | 4 to 20 mA           |
|           |                            | F2   | 4 to 20 mA with HART |
|           |                            | FX   | NA                   |

Note : ■ In case of flameproof version only electronics enclosure is flameproof certified.

## Ordering Information of Flow Tube

Sample Order Code: ELMAG TX 22- FT 15-N1-O1-P1-Q1-R1-S1-T1

| Parameter |                      | Code  | Value                        | Code   | Value             |
|-----------|----------------------|-------|------------------------------|--------|-------------------|
| FT        | Flow Tube            | FT 15 | 15NB                         | FT 80  | 80NB              |
|           |                      | FT 20 | 20NB                         | FT 100 | 100NB             |
|           |                      | FT 25 | 25NB                         | FT 125 | 125NB             |
|           |                      | FT 32 | 32NB                         | FT 150 | 150NB             |
|           |                      | FT 40 | 40NB                         | FT 200 | 200NB             |
|           |                      | FT 50 | 50NB                         | FT 250 | 250NB             |
|           |                      | FT 65 | 65NB                         | FT 300 | 300NB             |
|           |                      | N     | Electronics Location         | N1     | Integral (local ) |
| N2        | Remote ( Max 5 mtr ) |       |                              |        |                   |
| O         | Remote Cable Length  | O1    | 5 mtr                        |        |                   |
|           |                      | OX    | NA                           |        |                   |
| P         | Process Connection   | P1    | Threaded (15 to 50 NB)       |        |                   |
|           |                      | P2    | Flanged (15 To 300 NB)       |        |                   |
|           |                      | P3    | Triclover (15 to 100 NB)     |        |                   |
|           |                      | P4    | SMS Union (25 to 100 NB)     |        |                   |
|           |                      | P5    | Compact Wafer (15 to 100 NB) |        |                   |
| Q         | Flange MOC           | Q1    | MS                           |        |                   |
|           |                      | Q2    | CS                           |        |                   |
|           |                      | Q3    | SS304                        |        |                   |
|           |                      | Q4    | SS316                        |        |                   |
|           |                      | QX    | NA                           |        |                   |

| Parameter |                    | Code | Value                |
|-----------|--------------------|------|----------------------|
| R         | Flange Standard    | R1   | ASA150 B 16.5        |
|           |                    | R2   | ASA 300 B 16.5       |
|           |                    | R3   | ASA 600 B 16.5       |
|           |                    | R4   | DIN PN 10 EN 1092-1  |
|           |                    | R5   | DIN PN 16 EN 1092-1  |
|           |                    | R6   | DIN PN 25 EN 1092-1  |
|           |                    | R7   | DIN PN 40EN 1092-1   |
|           |                    | R8   | IS1538               |
|           |                    | RY   | Other                |
|           |                    | RX   | NA                   |
| S         | Lining Material    | S1   | Hard /Ebonite Rubber |
|           |                    | S2   | Neoprene Rubber      |
|           |                    | S3   | PFA                  |
|           |                    | S4   | PTFE                 |
|           |                    | S5   | Ceramic              |
|           |                    | S6   | PEEK                 |
| T         | Electrode Material | T1   | SS316L               |
|           |                    | T2   | Hastelloy C          |
|           |                    | T3   | Platinum             |
|           |                    | T4   | Tentalum             |

Note: ■ Due to our continuous product revisions, design specification and model numbers are subject to change without notice.

- Accuracy defined at Lab Conditions.
- For other requirement please consult factory.
- This product is meant for laboratory/Process application only & not for custody transfer application.

## ELECTRONET EQUIPMENTS PVT. LTD.

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