

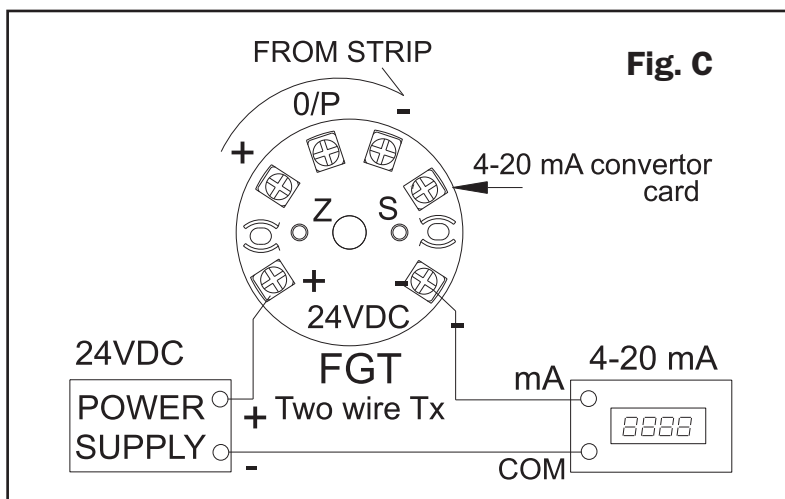
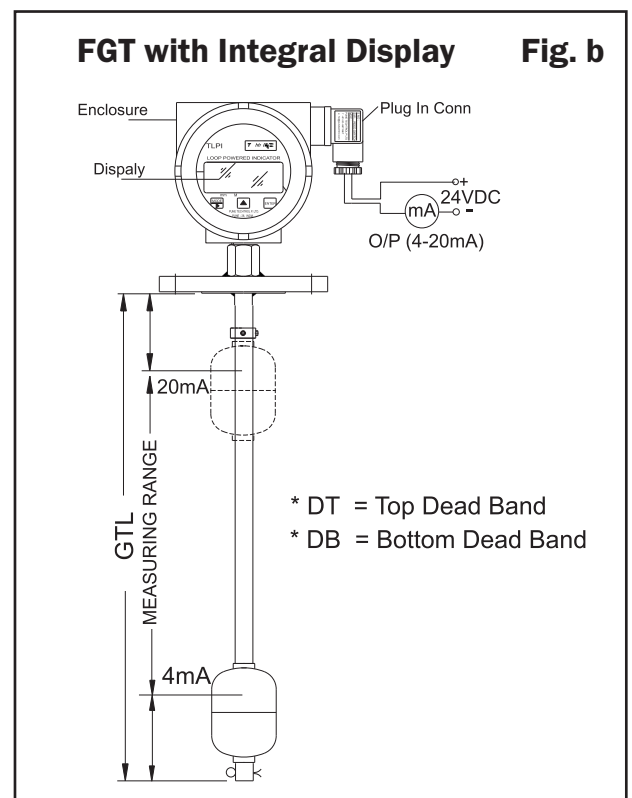
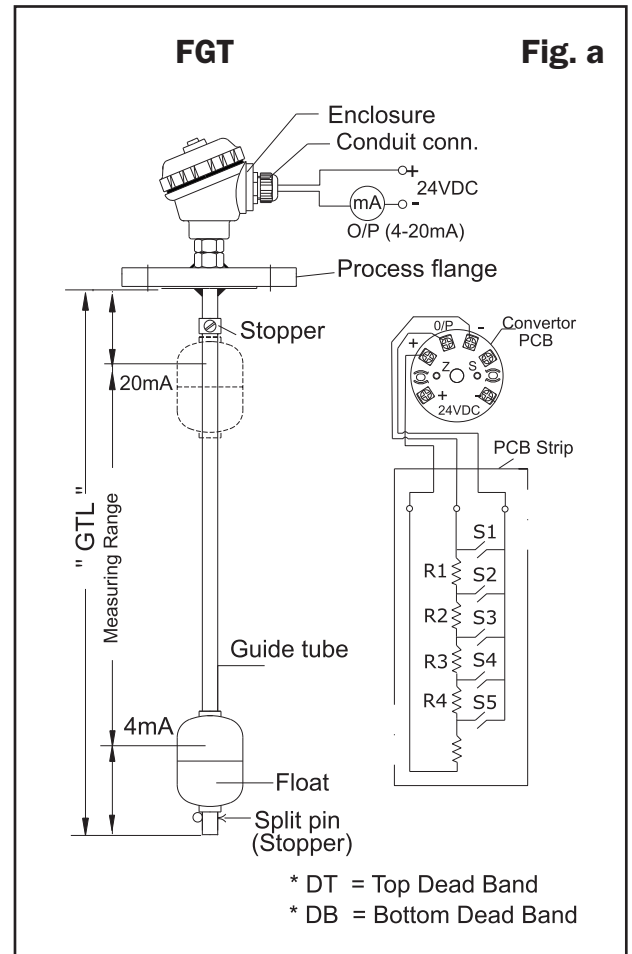
## Float Guided Transmitter - 'FGT'

'FGT' is used for continuous level indication. It is available in two configurations.

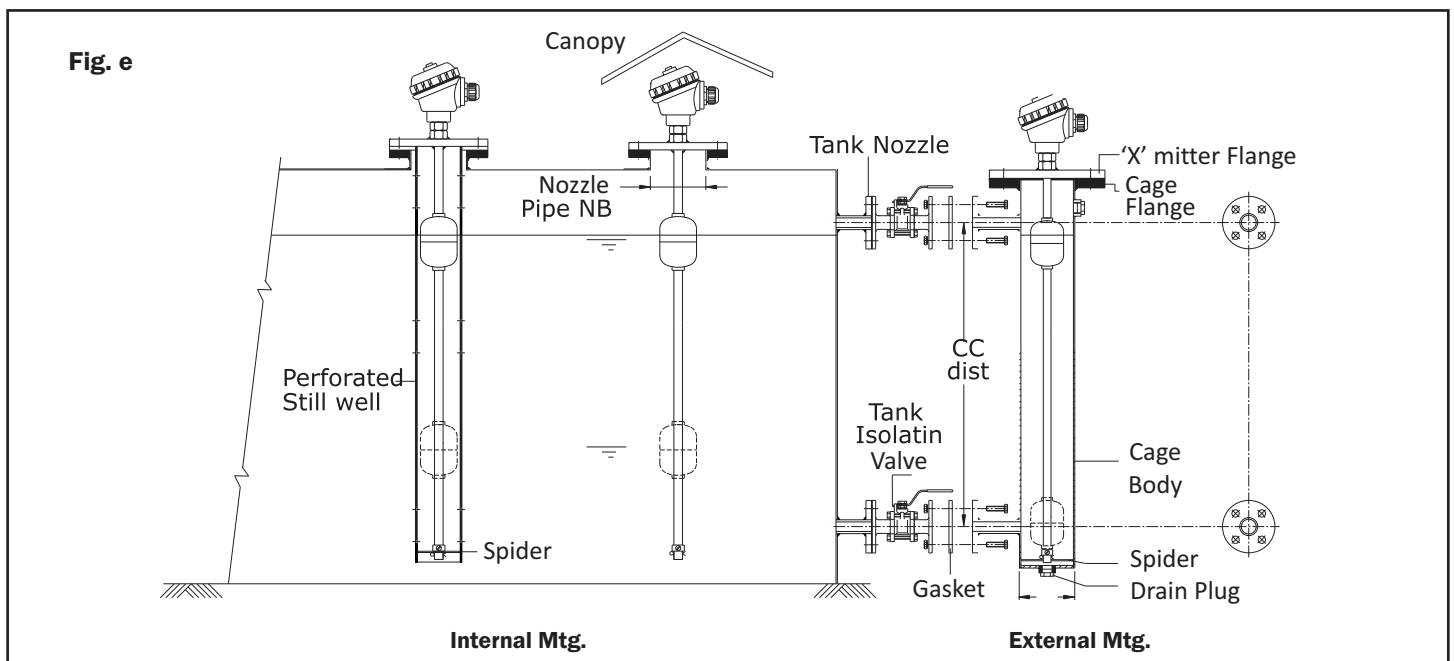
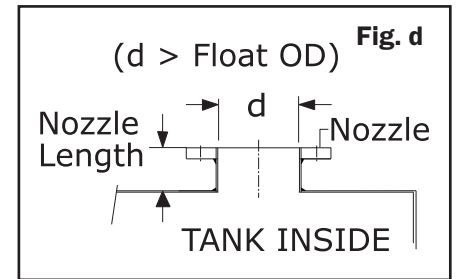
- 1) 'FGT' (fig a) provides variable o/p viz . 4-20mA , 4-20mA with HART, 1 - 5 VDC or RS485. There outputs can be wired to any remote display unit viz. TLPI, TLIC or TUIC to indicate level and control or PLC/DCS.
- 2) 'FGT' with Integral Display Unit' (fig b) provides 4-20mA output and in addition indicates liquid level in mm or % or mtr.

### Pre-Installation Check

- ☑ Ensure supplied goods are in accordance to required specification.
- ☑ Ensure 'FGT' is not physically damaged & stoppers have not loosened in transit.
- ☑ 'FGT' is pre calibrated by setting trim pot on convertor and should be installed without disturbing it.
- ☑ Follow the steps below to check 'FGT' with 4 to 20 mA output.
  1. **Step1** - Connect +ve & -ve of '24VDC' supply respectively to +ve terminal of x'mitter and -ve terminal of x'mitter through multimeter in current mode such that it is in series, as shown in (fig. c.)
  2. **Step2** - Move the float manually over the guide tube gradually from bottom to top end and observe change in current readings in an ascending order.
  3. **Step3** - The multimeter will indicate 4mA, when float is in bottom position and 20mA in top position.

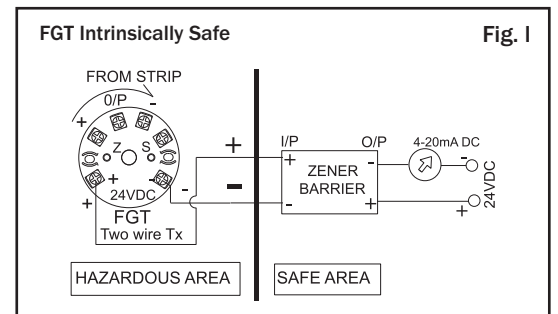
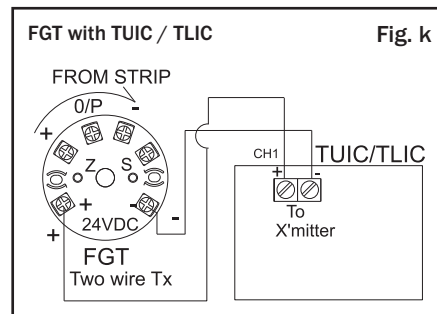
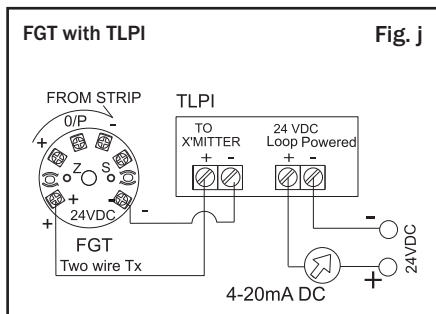
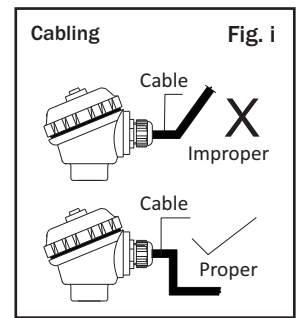
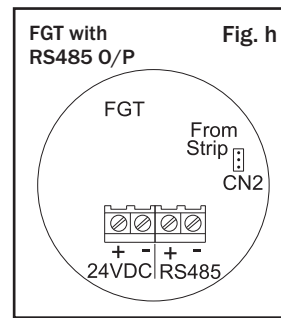
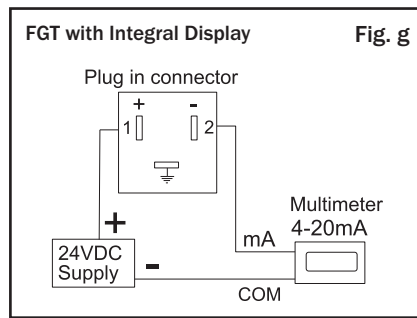
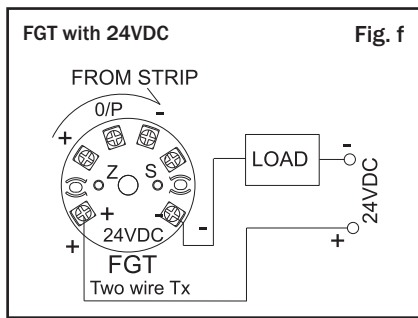


1. 'FGT' is 'Top Mtd' X'mitter. It can be installed internally or externally through external cage (fig. e)
2. Select suitable location for transmitter on tank where vibrations are minimum. Perforated still well is recommended for tanks with excessive turbulence.
3. Ensure process connection of transmitter should match with counter connection provided on tank.
4. Ensure ID (**d**) of nozzle is greater than float 'OD' to enable insertion of transmitter through the nozzle. In case  $d < \text{float OD}$ , remove float and insert on guide tube from below after installing transmitter without float, refer (fig d.)
5. In case of external mounting, provide separate isolation valve on the tank for safety and removal of level transmitter for repairs and maintenance.
6. Ensure that there is no leakage at process connection by providing gasket / tape for flanged / threaded connections respectively.
7. In case of outdoor location electronics should be protected from severe weather conditions by using canopy.



Termination and Wiring diagram

- ☑ While wiring, power supply should be strictly 'Off'.
- ☑ Ensure the distance between 'x'mitter' and controller should not exceed 3000 mtrs. ('Max load' = 600 Ohm)
- ☑ Wires/cables from enclosures are routed down to avoid seepage of water inside the enclosure. (fig. i)
- ☑ Follow the diagrams showing 'Termination & Wiring' of 'FGT' with other instruments. (fig. g, h, i, j, k, l)
- ☑ In case of 'FGT' with RS485 output, refer protocol document for DIP S/W setting.
- ☑ 'FGT' with intrinsic safety is supplied with zener barrier. Refer (fig. l) for wiring while ensuring that zener barrier is installed in safe area.



## Precautions

- ☑ Guide tube should not be subjected to '**mechanical shocks**' as the reed switch assembly inside is glass encapsulated.
- ☑ Ensure transmitter is duly earthed.
- ☑ Level transmitter should not be used in liquids containing iron particles/ burrs.
- ☑ Ensure that the liquid does not have excessive contaminants which may inhibit float operation.
- ☑ Do not disturb trimpots on convertor card, as they are set for calibrated range & will result in faulty readings.
- ☑ In '**hazardous**' locations, open enclosure only after disconnecting X'mitter from supply to prevent explosion
- ☑ Ensure IP 66 weather proofness by closing enclosure with its gasket and, cable should be full tight in cable gland ensuring no gap.
- ☑ Wiring should run away from '**high voltage cables, contactors and drive controls**'.
- ☑ Ensure that operating temperature and pressure does not exceed the specified limit.
- ☑ Before turning on power supply, ensure all wiring is correct and completed.

## Periodic maintenance

- ☑ During maintenance switch '**Off**' the '**Supply**'.
- ☑ Ensure that all terminal screws are properly tightened and not loose.
- ☑ Wipe the float /guide tube to remove sediment particles.
- ☑ Visually examine float for any puncture and bent in guide tube.
- ☑ After maintenance, ensure '**IP66**' weather proofness by closing enclosure cover with its gasket and, cable should be full tight in cable gland ensuring no gap.
- ☑ In '**hazardous locations**' do not open the enclosure cover before disconnecting switch from supply and carry out maintenance then after to prevent ignition / explosion.

SL	Faults/Defects	Cause	Solution
1	No variation in output or no output.	<ol style="list-style-type: none"> <li>Loose terminal wiring</li> <li>Incorrect wiring</li> <li>Incorrect supply voltage.</li> <li>Loose connection from PCB strip to x'mitter card.</li> <li>Damage in PCB strip.</li> <li>Float punctured or not suitable for liquid Sp.Gr.</li> <li>X'mitter card faulty</li> </ol>	<ol style="list-style-type: none"> <li>Tighten loose screws.</li> <li>Refer 'Wiring diagram' &amp; ensure correct polarity.</li> <li>Check and ensure correct supply (12 -30 VDC)</li> <li>Tighten loose connections.</li> <li>Consult factory</li> <li>Replace float with correct sp.gr or consult factory (op.pr should be within specs.)</li> <li>Consult factory</li> </ol>
2	Float does not rise or fall with liquid level	<ol style="list-style-type: none"> <li>Sediment/particles settled on guide tube or float.</li> <li>Float not suitable for liquid Sp.gr.</li> <li>Float punctured. (Check Op.pr.)</li> <li>Float stuck in still well</li> </ol>	<ol style="list-style-type: none"> <li>Wipe off deposition on float / guide tube and clean periodically .</li> <li>Replace float / consult factory with revised sp.gr for correct float.</li> <li>Replace float. Ensure op.pr is within specified limits/ Consult factory</li> <li>Use spider to bring guide tube in plumb</li> </ol>
3	Fluctuation in Current O/P	<ol style="list-style-type: none"> <li>Turbulence in liquid</li> </ol>	<ol style="list-style-type: none"> <li>Use still well or external cage.</li> </ol>
4	Improper output	<ol style="list-style-type: none"> <li>Incorrect supply voltage</li> <li>Fault in reed switch series</li> <li>X'mitter card faulty</li> <li>X'mitter card faulty due to ingress of water in enclosure</li> <li>Incorrect programming in case of Integral FGT</li> </ol>	<ol style="list-style-type: none"> <li>Check &amp; ensure supply voltage is rated (12 to 30 VDC)</li> <li>Consult factory. (Handle FGT carefully)</li> <li>Consult factory.</li> <li>Remove water &amp; dry electronics. Close encl. properly with gasket</li> <li>In addition, prevent ingress of water by using canopy</li> <li>For cabling refer fig I</li> <li>Re-program with correct values</li> </ol>
5	Communication in RS485	<ol style="list-style-type: none"> <li>Incorrect or loose wiring</li> <li>Incorrect DIP s/w setting</li> </ol>	<ol style="list-style-type: none"> <li>Tighten loose connections. Refer fig h and ensure correct polarity.</li> <li>Refer Protocol Doc. for DIP s/w setting</li> </ol>

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We reserve the right to modify design and specifications without prior notice.

MAN/FGT/Rev 03/08-13

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