

\*As per Manufacturing and Quality Standards -  
CE/019408/1129 and ISO 9001-2015\*



- Three Phase Multi Turn: MFT Series
- Three Phase Thruster Type Linear: TMFT Series
- Single Phase Linear : SLFT Series
- Single Phase Linear with worm Gear box : QLFT Series
- Water Level Controller Systems : WL-QFT
- GSM-Operated Actuators : GFT





## About : Instruments & Systems

As a "I & S" we are a team of expert engineers, having wide and huge practical as well as online field experience of almost 15 to 20 years in electrical actuators, motorized valves, dampers, etc for its design, manufacturing, retrofitting , installations and it's commissioning in various private and Govt sectors. Over these period with our strong marketing analysis and customer's-relations & with their valued feedback we come to know the major problems and loop - holes in the automation area for electrical actuators. So keeping all these points in mind and to meet customer's exact requirements, we have started our own designed high quality and high performance user-friendly electrical actuators, motorized valves and dampers. Our Actuators and other products are widely used in the industrial sectors like:

- **Water Treatment plants.**
- **Power Plants.**
- **Sugar Plants.**
- **Chemical & pharmaceutical Industries.**
- **HVAC Applications.**
- **Marine & Irrigation**
- **Mobile base GSM base system for remote area applications in farming & irrigation system.**
- **Water sewage plants.**
- **Steel Plants.**
- **Cement Industries.**
- **Paper & Pulp Industries.**
- **Oil & Gas Industries.**
- **Water level control systems for high tower building water tanks**

Our Actuators can widely be used for on/off, as well as control duty applications, suitable for various type of valves like Butterfly valve, Ball valve, Sluice gate valves, Globe valves, Plug Valves, Gate valves, V-Notch ball valves and various of types of Dampers

### Mission:-

To produce the best quality Actuators, Motorized valves & Dampers (Fit & forget type) to become lifetime partner in the Automation systems for customer's needs and their satisfaction with latest technology & Economic solutions.

### Vision:-

To achieve Global leadership name for product quality, it's services manufacturing & marketing of Electrical Actuators with customer's satisfaction in the Automation world.

## MANUFACTURING STANDARDS

- Actuator Manufacturing Standards  
IEC / EN 15714-2 ( Electrical Actuator for Industrial Valves )
- Actuator Enclosure Standard - IP 67  
IS / IEC 60529 / 2009 ( Degree of Protection provided by Enclosure )
- Actuator Motor Standard  
IEC - 60034-1 ( Routing Electrical Machines )  
IS - 996 ( Single Phase Induction Motor )
- Actuator Mounting Standard ISO 5211

## APPLICABLE DIRECTIVES

- EC Machinery Directive - 2006 / 42 / EC
- Low Voltage Directive - 2006 / 95 EC



## I & S Range of Electrical Actuators

Sr. No.	Actuator Type	Actuator Models	Torque Range in Nm	Supply Voltage	Optional Features
1	Single Phase Quarter Turn	QFT- Series QFT-03 To QFT-30	30 Nm to 300 Nm	230 VAC/50 Hz 110 VAC/50 Hz 24 VAC/DC	<ul style="list-style-type: none"> <li>• With Integral starter</li> <li>• With motor tripping mechanism,</li> <li>• PLC/SCADA/DCS &amp; GSM compatible.</li> <li>• Water level controls with Panel &amp; Sensors.</li> </ul>
2	Three Phase Quarter Turn	QMF- Series (With G.B) QMF-60-WG30 to QMF-200-WG850	600 Nm to 50,000Nm	415 VAC/50Hz 380 VAC/50Hz	<ul style="list-style-type: none"> <li>• Integral Starter(Blinkartransmitter)</li> </ul>
3	Three Phase Mul? Turn	MFT- Series MFT-30 to MFT -200/SG14	30 Nm to 2500 Nm	415 VAC/50Hz 380 VAC/50Hz	<ul style="list-style-type: none"> <li>• Wall mounted control Panel</li> <li>• Manual override provided with SS hand wheel</li> </ul>
4	Three Phase Linear Thruster type	TMFT - Series TMFT - 500 to TMFT - 2000	500 Kgs to 2000 Kgs	415 VAC/50Hz 380 VAC/50Hz	<ul style="list-style-type: none"> <li>• SCADA/DCS/PLC Compatible</li> </ul>
5	Single Phase Linear	SLFT- Series SLFT-200 SLFT-900	Thrust 300 kgs to 900 kgs	230 VAC/50Hz 110 VAC/50Hz	<ul style="list-style-type: none"> <li>• Integral Starter</li> <li>• Manual override provided with declutching mechanism</li> </ul>
6	Single Phase Linear with worm Gear box	QLFT Series QLFT-200 QLFT-300	300 Nm 600 Nm	230 VAC/50Hz	<ul style="list-style-type: none"> <li>• SCADA/DCS/PLC Compatible</li> </ul>



**Single Phase Quarter Turn Electrical Actuator Models**

**QFT Series Technical Data:-**

Model No.	QFT03-S	QFT05-S	QFT03	QFT05	QFT10	QFT20	QFT30
Rated Output Torque in Nm	30	50	30	50	100	200	300
Operation Time (Sec/90°)	12	17	17	17	20	20	20
Weight Kg's	3	4	8	9	12	13	16
<b>Motor Data</b>							
Type	Non-Blocking AC Motors "F" - Class						
Supply Voltage	230V AC/50 Hz ±5%, Single Phase						
Motor Type	Synchronous						
Nominal Current (Amp)	0.15	0.16	0.45	0.50	0.75	0.85	1
Wattage (Watts)	18	20	80	110	154	240	260

**Special Features for "QFT" Single phase Quarter Turn Electrical Actuator:-**

1. Operating angle/stroke (Degree): 90°
2. Degree of protection class: IP67/68
3. Area of operation: Safe
4. Manual over ride: Hand wheel provided (Stationary & opposite side of motor)
5. Mechanical Indicator: Provided Dome type for "Open" & "Close"
6. Optional supply available : 110V AC/24V AC
7. Mechanical arrangement with Butterfly valves, Ball valves: Coupler/Brackets and extended shaft can be provided as per system requirements
8. Integral starters: As an optional can be provided with light weight metallic body having "Open/close/stop selector switch & Open closed power indicators.
9. Limit switches: 1NO+ 1NC : 2 Nos. + 1NO+1NC: 2 Nos. extra auxiliary
10. Motor Tripping signal: A very special feature provided for actuator models QFT: 03/05/10/20/30 having microprocessor based control system to get over heating motor signal to stop the actuator and reset command to operate
11. Linkage Application: All QFT Series electrical actuators can be converted into Angular one with the help of linkage application as a LMB Series to operate lifting material, flap gates and dampers etc.
12. For Regulating/Modulating Duty: For this control duty application provision of two wire position transmitter along with potentiometer actuator mounted which gives 4-20mA output signal.  
+ positioner unit panel mounted to accept 4-20mA input command signal.
13. All actuators are PLC/SCADA/DCS compatible and optionally available in GSM compatible systems.

## I & S Three Phase Electrical actuators:-

- Three Phase Quarter Turn: QMF Series
- Three Phase Multi Turn: MFT Series
- Three Phase Thruster Type Linear Electrical Actuators : TMFT Series

## Standard Features of "I & S" Actuators:-

1. Three phase electric Motor: Supply Voltage 415V AC/50Hz
2. Motor Type: AC Three phase induction - TEFC
3. Insulation: Class "F"
4. Limit Switches:  
Travel limit switches: 2NO+2NC: 2 Nos. (Potential free contacts)  
Torque limit switches: 2NO+2NC: 2 Nos. (Potential free contacts)
5. Local position indicator: Continuous type –Mechanical
6. Manual operation: Provision of Hand wheel with clutch mechanism
7. Hammer blow effect
8. Output coupling: Provision for A/B/C/D/E Type as per DIN 3210

## Optional Features of "I & S" Actuators:-

1. Three phase Electrical Motors: 415V AC/50Hz, TEFC, having S2/S4-Duty with Thermostat in motor windings
2. Auxiliary limit switches: 2NO+2NC: 2 Nos. (Potential free contacts)
3. Potentiometer feedback (Actuator Mounted)
4. Two wire Position Transmitter (Actuator Mounted) [Give 4-20mA output signal]
5. Position Indicator: Digital/Analogue for remote Indication
6. Positioner Unit: To accept 4-20mA input signal (Panel or actuator mounted)
7. Protection Class: IP65/67/68
8. Space Heater
9. For, Linear Application Provision set of linkages/attachments
10. For Higher torque actuators: Provision of supplementary Worm gear box for Quarter Turn Models & Spur Gear Box for multi turn models
11. Integral starters can be provided
12. Panels: Wall mounted & Desk type can be provided
13. Foot mounting brackets or tailor made accessories as per customer's requirements can be provided



## I & S : "MFT" SERIES - THREE PHASE MULTY TURN ELECTRICAL ACTUATORS

Sr.	MODEL NO	Output Data				MOTOR DATA:TYPE			Output Bore Mounting PCD As per ISO 5211	Weight Approx		
		Rated Torque	Adjustable Torque	Out put Speed	Actuator Self Locking	415 VAC/50 Hzs ,Three phase Squirrel Cage Induction Motor						
						Output Rated	No of Pole	Current Rated				
Nm	Nm	Rpm	Yes/No	Kw / Hp	Pole	Amp	ISO	Kgs				
1	I.ACT-80	30	10-30	10,15,20,30, 40,60 &70	YES	0.37/0.5	4	1	F10	60		
				80,120&140	No						2	1.1
				190, 240, 270 & 365								
2	I.ACT-80	60	18-80	10,15,20,30, 40,60 &70	YES	0.37/0.5	4	1	F10	60		
				80,120&140	No						2	1.1
				190, 240, 270 & 365								
3	I.ACT-80	80	20-80	10,15,20,30, 40,60 &70	YES	0.75/1.0	4	1.8	F10	64		
				80,120&140	No	0.75/1.0					2	1.7
				190, 240, 270 & 365								
4	I.ACT-250	100	25-100	10,15,20,30, 40,60 &70	YES	0.75/1.0	4	1.8	F10	65		
				80,120&140	No	2.20/3.0				2	4.6	68
				190, 240, 270 & 365								
5	I.ACT-250	150	30-150	10,20 &30	YES	0.75/1.0	4	1.8	F14	75		
				40,60,70, 80 & 120	No						2	1.7
6	I.ACT-250	200	60-200	10,20 &30	YES	0.75/1.0	1410	1.8	F14	75		
				40,60,70, 80 & 120	No	1.5/2.0	2800	3.4		78		
								4.6				
7	I.ACT-250	250	75-250	10,20 &30	YES	1.5/2.0	1410	3.4	F16	85		
				40,60,70, 80,120&140	No	3.70/5.0	2800	7.2		98		



**MFT - SERIES :**  
**THREE PHASE MULTI TURN ELECTRICAL ACTUATORS**

Note : Motor frame size : 1HP-80L, 2/3HP-90L, 5HP-100L

**I & S : "MFT" SERIES - THREE PHASE MULTI TURN ELECTRICAL ACTUATORS  
WITH SPUR GEAR BOX.**

Sr.	MODEL NO	Output Data				MOTOR DATA:TYPE			Output Bore Mounting PCD As per ISO 5211	Weight Approx
		Rated Torque	Adjustable Torque	Out put Speed	Actuator Self Locking	415 VAC/50 Hzs ,Three phase Squirrel Cage Induction Motor				
						Output Rated	No of Pole	Current Rated		
Nm	Nm	Rpm	Yes/No	Kw / Hp	Pole	Amp	ISO	Kgs		
1	I.ACT-250-SG02 /BGS03	400	120-400	10,15, 20 &30	YES	0.75/1.0	4	1.8	F16	114
				40,60,70,80, 120 & 140	No	1.50/2.0	4	3.4		120
					No	2.20/3.0	2	4.6		
2	I.ACT-250-SG04 /BGS04	800	300-800	10,15, 20 &30	YES	0.75/1.0	4	1.8	F16	120
				40 &60	No	1.50/2.0	4	3.4		126
					No	2.20/3.0	2	4.6		
3	I.ACT-250-SG06 /BGS04A	1000	350-1000	10,15, 20 &30	YES	0.75/1.0	4	1.8	F16	122
				40 &60	No	1.50/2.0	4	3.4		128
					No	2.20/3.0	2	4.6		
4	I.ACT-250-SG10 /BGS05	1300	480-1300	10,15, 20 &30	YES	0.75/1.0	4	1.8	F25	152
				40 &60	No	1.50/2.0	4	3.4		162
					No	2.20/3.0	2	4.6		
5	I.ACT-250-SG12 /BGS05	1800	600-1800	10,15, 20 &30	YES	0.75/1.0	4	1.8	F25	164
				40 &60	No	1.50/2.0	4	3.4		168
					No	2.20/3.0	2	4.6		
6	I.ACT-250-SG14 /BGS05A	2000	700-2000	10,15, 20 &30	YES	0.75/1.0	4	1.8	F25	204
				40 &60	No	1.50/2.0	4	3.4		208
					No	2.20/3.0	2	4.6		
7	I.ACT-250-SG18 /BGS05A	2500	900-2500	10,15, 20 &30	YES	0.75/1.0	4	1.8	F25	212
				40 &60	No	1.50/2.0	4	3.4		218
					No	2.20/3.0	2	4.6		



Note : Motor frame size : 1HP-80L, 2/3HP-90L, 5HP-100L



### **TECHNICAL DESCRIPTION:**

1. These actuators are widely used in the field of water sectors, particularly in the water irrigation projects, where the pipelines spreads in the large areas and manual valve/actuator operation is not possible.
2. These actuators are mobile base GSM controls, which are wireless devise to control the folw of water through valves/actuator operation for "on/off" duty.
3. This Actuator consists of: Butterfly valves of small sizes like 40 NB to 100 NB which are assembled with electrical Actuators having supply voltage: 230 VAC/50Hzs, with respective brackets and couplers
4. The GSM Unit is compact and inbuilt in the actuator itself
5. When we give control command from mobile for open/close the valve/actuator unit operates accordingly and gives us feedback for the real-time position of valve for open or close position.
6. These are field based units and can be operated form any location where mobile range is available
7. We can make the codifications for larger quantities of valves/actuators so as the operation for grouping will be possible to control no of valve/actuators at a time to avoid delay in time for individual operations
8. These valve/actuator units can be coupled to flow meters and level sensors to get the required process data, like water deliveries in liters/min or day , valve open/close status, fault indications and all necessary feedback by configuring the system through SCADA/PLC to computer modes by RS485 Modbus communications.
9. Since these are wireless device due to which we can save the cost of cables, excess manpower for operation and covers largers and remote areas for valve/actuator operations.
10. These valve/actuator units can be used to control the water levels of over-head water tanks and also the levels In the underground water level tanks by means of automatic water pump operation for water levels in the tanks.
11. So considering today's need for controlling wide range of area in larger pipelines for opera?on of valves/actuators this is very much advanced technology developed by I & S, Dehradun



**POSITION TRANSMITTER-TWO WIRE : MODEL: FPT-100**

Model: FPT-100 : Actuator Mounted Electronic Device to convert Resistance input into Current output.

A change in resistance: value 100-235 Ohms of potentiometer ( other values are also available) which convert 4-20 mA output signal. The maximum load resistance will be 500 W. The span and zero adjustment/ setting are provided on this device The supply voltage of the transmitter: 12 to 36 V D.C

**Technical Specifications:**

- Output : 4 to 20 mA DC.
- Resistive Input : 100-235 Ohms
- Supply: 12 to 36 V D.C.
- Close/Zero : 4 mA and Full Open/Span : 20 m A



**POSITIONER UNIT : Panel/Integral Starter Actuator Mounted : Single Phase Series: FPS-01: And Three Phase Series: FPS-03**

- These positioners are available for both single phase and three phase actuators
- These are electronic positioner units Panel or Actuator mounted (Inbuilt in Integral Starters)
- This positioner units accepts incoming command signal: 4-20 mA or 0-10 VDC/0-5VDC the same converts into 230 VAC Bi-directional forward and reverse operations of relays for open and close positions.
- Re-transmission output is self powered with 500 ohms load (max) having dead band, time-delay and feedback signal

**Technical Specifications:**

- Supply: 230 VAC,50 Hzs
- Input signal: 4-20 mA or 0 to 10 VDC ( Full close position: 4 mA and full open position: 20 mA)
- Output signal: 4-20 mA or 0 to 10 VDC
- Selection mode : Auto/Manual: available
- Indications: Digital display of open/close/opening/closing with display of Input command signal
- Indicator: 3.1/2 digits for 0 to 100% opening of final control element.
- Fuse protection provided

**POT AND POT GEAR**

Resistive ohmic transmitter with single turn and multi-turn pot with pot gear for required resistive ohmic output

**TRAVEL & TORQUE LIMIT SWITCHES**

Travel & Torque Limit Switches : 2NO+2NC : 02 nos available as standard and : 1NO+1NC : 02 nos can be provided



# Instruments & Systems

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