



Electric Actuator
MULTI-TURN

ITM Series

0180 / 0450 / 0750 / 1800 / 3000



INNOBIZ
기술혁신형중소기업



With many years of experience with wide range of products used in the Valve Automation field. We has achieved successful reputation and technical improvement to take another step forward once again.

We are pleased to introduce our Multi-turn Electric Actuator the 'ITM Series'.

Following on from our well-known Quarter-turn Electric Actuator the 'ITQ Series'.

Our ITM Series is expected to be a valued addition to our range of industrial valve automation products with the same proven reliability as our Quarter-turn 'ITQ Series'.

We are now able to provide our customers with the complete actuators solution, whether it is a Quater-turn or a Multi-turn solution that is required.

Meeting with our customers needs and requirements is our top priority.

Rest assured that our After Sales service is second to none.

We stand behind our products 100%.

Main Application Fields

ENERGY : Petrochemical/Oil-Refining Facilities, Power Plants, District Heating Systems,

WATER TREATMENT : Filtration, Sewage Disposal Plants, Reservoirs, Pump Stations, Sluice Gates, Dams,

CHEMICAL PLANT : Pharmaceutical Factories, Various Industrial Plants,

OTHERS : Steel Mills, Cement Factories, Shipbuilding (Ship-Yards), Food Factories, HVAC, and so on.





General Information

- High efficiency & torque motor with thermal protectors
- Digitalized torque sensing system
(adjustable range: 30% - 100%)
- Precisely machined gearing system & oil lubrication
- Top-mounted hand-wheel for easy operation
- Battery back-up for position detecting system
- Integrated local control unit
- 52-pin terminal block
- Mounting base according to ISO5210
- Bushing for adapting valve stem
- Remote control for setting device/tool
- IP68 Enclosure (10m for 100hrs in water)

STANDARD SPECIFICATIONS

- *MAIN POWER : 3PH, AC 220/380/400/415/440/460/480 V, 50/60Hz ($\pm 10\%$)
- *MOTOR : TENV, External Cooling Pin, Insulation Class: F, Thermostat,
- *REMOTE MONITORING SWITCH :
Standard-8EA (S1-S8, LATCH, AC250V 2A), Other-1EA (FAULT, 1C)
- *INDICATION ON LOCAL CONTROL PANEL :
Graphic LCD, 4-LED (Power, Fault, Close, Open)
- *TERMINAL : Double Sealing Structure with O-ring
 - CONTROL : 48 Contacts/M4 (Voltage rated: AC250V 5A)
 - POWER : 4 Contacts/M5 (Voltage rated: AC660V 63A)
- *ENCLOSURE : IP68 (10m for 100hrs in water)
- *SPACE HEATER : 10W, DC 24V
- *OPERATIONAL TEMPERATURE : $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$
- *MANUAL HAND-WHEEL : Top-mounted, directly connected to drive sleeve,
switching lever (manual-electric) with automatic reset
- *CABLE ENTRY : 1 - PF1 1/2", 2 - PF1"
- *LOCAL CONTROL PANEL :
Selector Switch for OPEN/CLOSE, Selector Switch for REMOTE/STOP/LOCAL
- *STANDARD PAINTING : Liquefied Paint

OPTION

- *REMOTE SIGNAL TRANSMITTER : CT (Current Transmitter) (Output: 4-20mA)
- *MODULATING : RPC (Remote Position Controller)
 - INPUT SIGNAL : 4-20mA, 0-10VDC, 2-10VDC, 0-5VDC, 1-5VDC
 - OUTPUT SIGNAL : 4-20mA (Option: 0-10VDC)
- *FIELD BUS : Profibus, CANOPEN, other Bus communication protocol types available
- *EXPLOSION-PROOF : Ex d IIC T4

MANUAL HAND-WHEEL AND SWITCHING LEVER

Top-Mounted Hand-wheel for easy manual operation
No-interruption structure while installing actuator
Simple switching from electric to manual (by switching lever even when the motor is running)
Automatic switching from manual to electric (if the motor is running by electricity)

BATTERY HOLDER

Battery : U9VL (9V, 1200mAh)
LITHIUM/Manganese Dioxide Designation
NEDA 1604LC

MOTOR (TENV Type)

TENV (Totally Enclosed Non-Ventilated) Type
Insulation Class: F, Thermostat installed, Standard Rating : 15min.
Voltage: available within +/-10%
Large torque Motor with a large output starting torque
Radiating Cooling Plate to maximize radiation effect
in high temperature during abnormal operation
Motor is mounted in easy-detachable structure
(for easy replacement if damaged)

DECELERATOR / REDUCTION-GEAR

Highly efficient 'single reduction gear (worm)' ensures low noise
Higher efficiency compared to multi-level gearing

TERMINAL UNIT

Double sealing structure with O-ring
to protect the inside of the actuator
when terminal cover is open
Rigid outer wiring

CABLE ENTRY

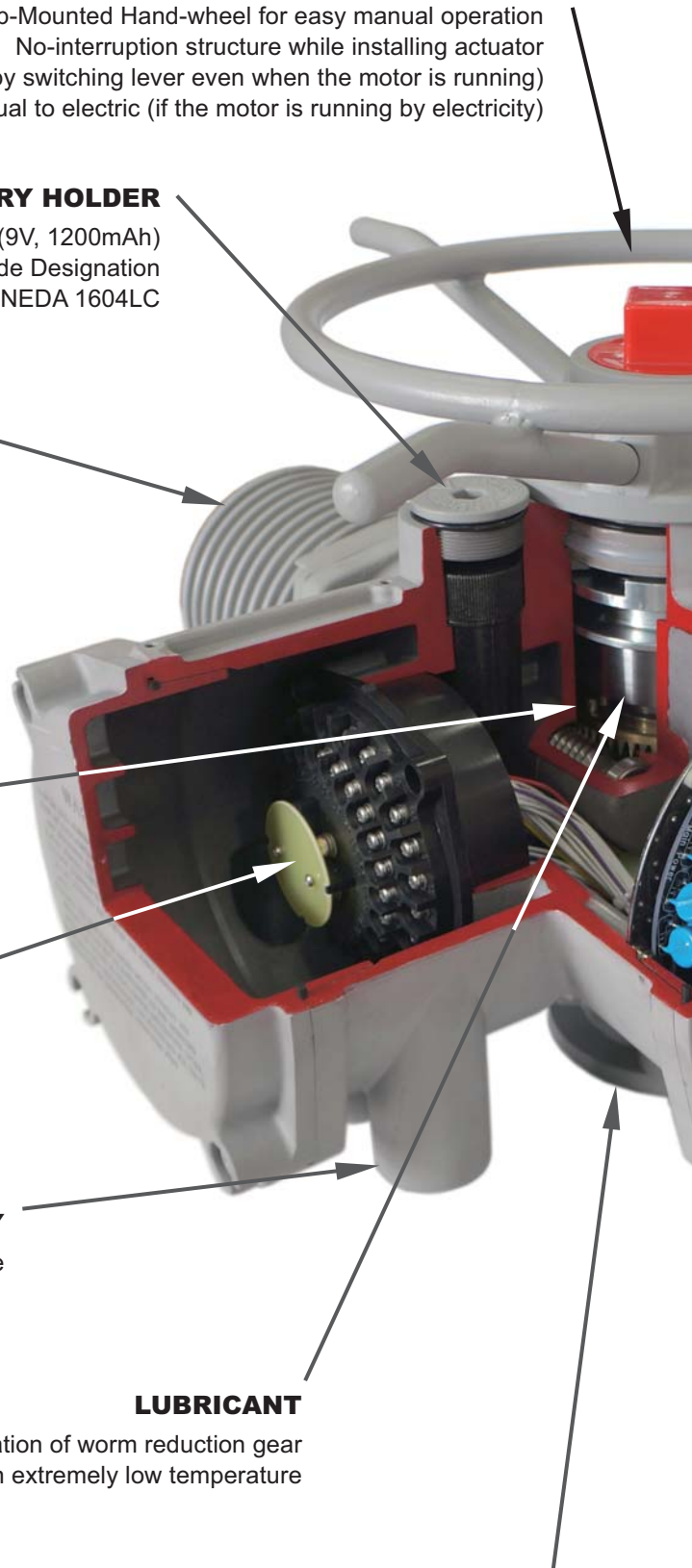
Various types available

LUBRICANT

Oil lubrication of worm reduction gear
Stable operation ensured even in extremely low temperature

THRUST UNIT

Detachable, as separate from the actuator main body for easy installation
Ductile material, Drive bushing and Thrust bearing
Drive Bushing: two (2) types for Quarter-turn and Multi-turn



POSITION DETECTING SWITCH

Hall Incremental Encoder developed by us to ensure accurate valve position detection, Valve position memorized and recorded accurately even without power supply

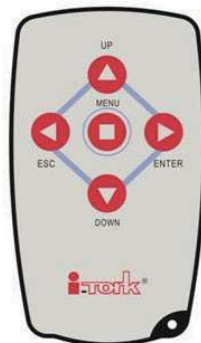
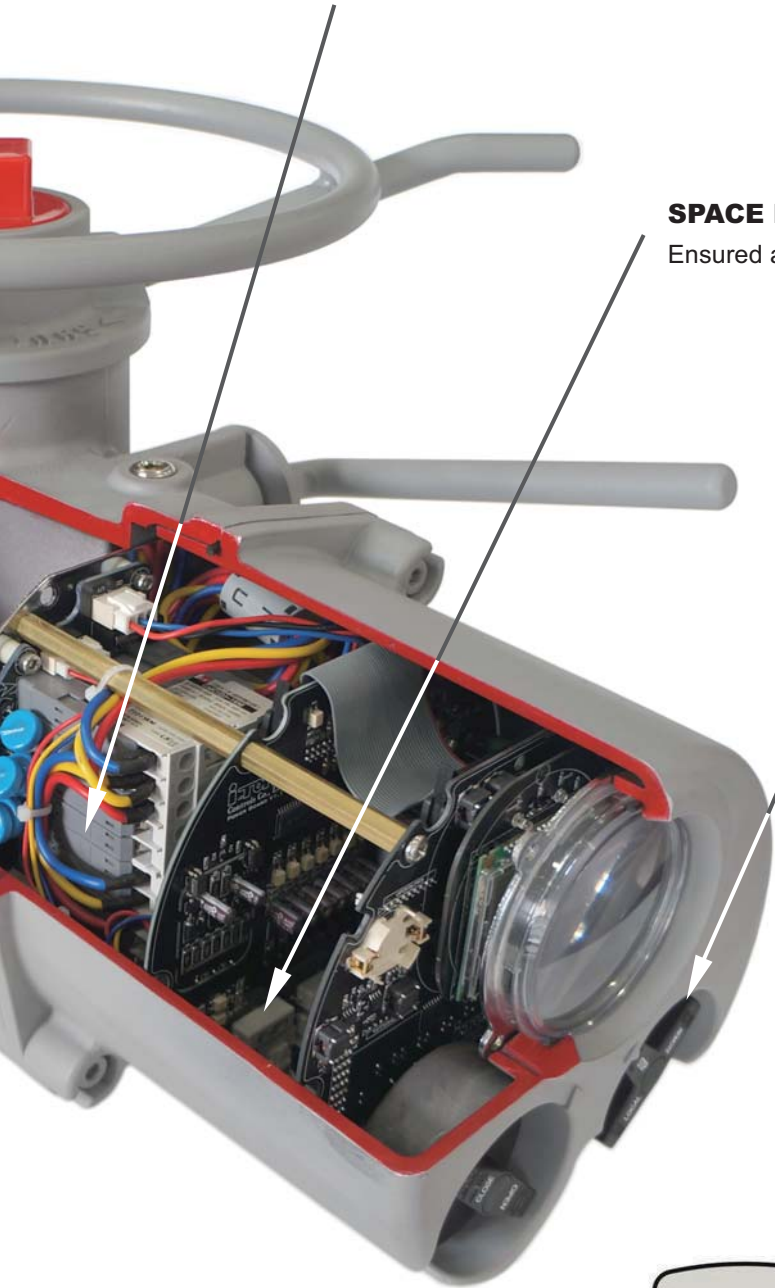
SPACE HEATER

Ensured anti-condensation

LOCAL CONTROL

All selector switches : non-penetration type and complete separation to ensure insulation with internal circuit, Remote Control and Selector Switches to ensure easy setting and checking of the actuator condition (no need to open local control cover), Water-proof

- Operating Selector Switch:
Open/Close, Remote/Stop/Local, Indication and Setting on LCD display, Remote Control Receiver
- Integral Unit:
Automatic Phase Change, Negative/Open Phase Protection, Transformer, Magnetic Contactor, CPU Card, Relay Card



REMOTE CONTROL

Up/Down/ESC/Enter/Menu, Weather-proof (up to IP67)
Size : 80 x 46 x 11.2mm
Power : 3.0V DC, CR2025 x 1pcs

MAIN POWER	3PH, AC 220/380/400/415/440/460/480V, 50/60Hz, (±10%)
CONTROL POWER	INTERNAL POWER: DC 24V EXTERNAL POWER: AC/DC 24V~48V EXTERNAL POWER: AC 110V, 1PH EXTERNAL POWER: AC 220V, 1PH
LOCAL CONTROL	OPEN/CLOSE LOCAL/STOP/REMOTE - SELECTABLE
INTERLOCK	INCHING / HOLDING NORMAL (CW=CLOSE) / REVERSE (CCW=CLOSE)
STATUS (DRY CONTACT : N/O)	OPENING (LATCH, *N/O, N/C) FULL OPEN (LATCH, *N/O, N/C) CLOSING (LATCH, *N/O, N/C) FULL CLOSE (LATCH, *N/O, N/C) CLOSE OVER TORQUE (LATCH, *N/O, N/C) OPEN OVER TORQUE (LATCH, *N/O, N/C) REVERSE 3PH (LATCH, *N/O, N/C) LOCAL / REMOTE STATUS (LATCH, *N/O, N/C) POWER FAIL (N/C) (Standard)
PROTECTION	From Reversed-Phase and Open-Phase Auto-Phase Discriminator or Phase-Protection Motor Protection with built-in TP in the motor
ESD (EMERGENCY SHUTDOWN)	User can select the status of the actuator when ESD signal is detected; CLOSE / STOP / OPEN
MODULATION	INPUT SIGNAL: DC 4-20mA / DC 0-5V / DC 0-10 / DC 1-5V / DC 2-10V FAIL SAFE POSITION: CLOSE / STOP / OPEN (When Input Signal Lost) OUTPUT SIGNAL: DC 4-20mA
DISPLAY	LCD: 128 x 64 Graphic LCD 4 LEDs POWER : WHITE FAULT : YELLOW CLOSE : GREEN OPEN : RED

ITM	180	450	750	1800	3000
BODY TYPE	TOP HANDLE			WORM GEAR HANDLE	
GEARING	WORM GEAR				
ENCLOSURE	IP68				
EXPLOSION PROOF	Ex d II C T4				
OUTPUT TORQUE (Kg.m)	18	45	75	180	300
rpm 50/60Hz	11.7 ~ 236 rpm				
MOTOR (Kw)	0.75	1.5	3.7	7.5	15
STEM Ø KEY	Ø 35	Ø 50	Ø 60	Ø 95	Ø 115
STEM SCREW	TW40	TW60	TW72	TW110	TW130
FLANGE (ISO 5210)	F10	F14	F16	F25	F30
DECLUTCHING	YES				
SELF LOCKING	YES (WORM GEAR)				
TORQUE SWITCHES	TORQUE SENSOR				
LIMIT SWITCHES	HALL INCREMENTAL ENCODER				
DISPLAY	128 X 64 Graphic LCD / 4-LED				
DUTY CYCLE	S2 : 15min (Option - S4 : 30~50%)				
MOTOR CLASS (INSULATION)	F				
MAIN POWER	3PH, AC 220/380/400/415/440/460/480V, 50/60Hz (±10%)				
AMBIENT TEMPERATURE	-20°C ~ 70°C				
TERMINAL	52 PIN			75 PIN	
CABLE ENTRIES	*1-PF 1-1/2", NPT 1-1/2" 1 - M40 x 1.5, 1 - PG29 *2 - PF 1", 2 - NPT 1" 2 - M25 x 1.5, 2 - PG16			4 - PF 1", 4 - NPT 1" 4 - M25 x 1.5, 4 - PG16	
BODY MATERIAL	ALUMINUM ALLOY				
LUBRICATION	OIL				



SPEED TORQUE TABLE

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(*STANDARD)

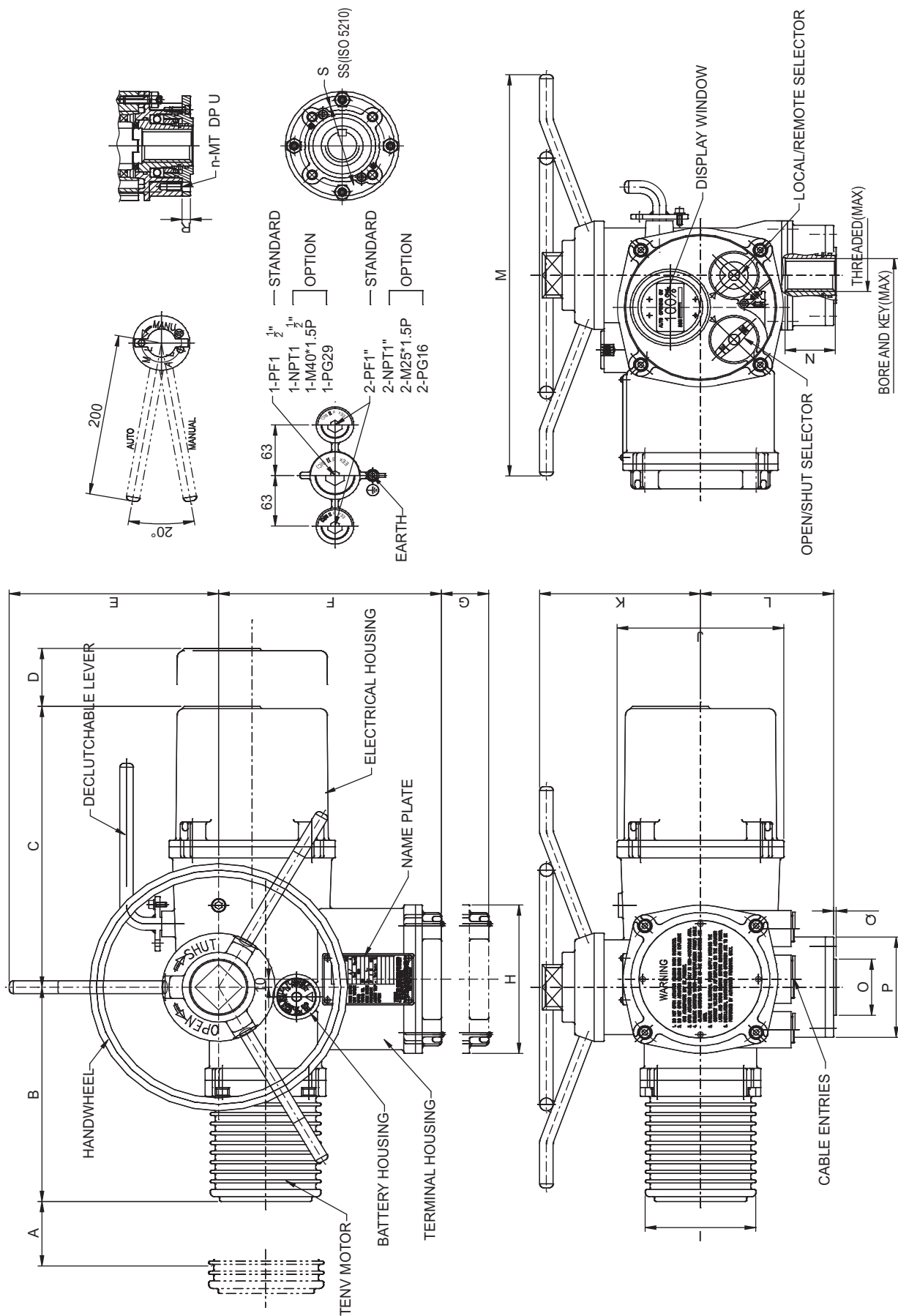
MODEL	RPM 50/60Hz	12/14	16/19	<u>*23/28</u>	32/38	<u>*48/57</u>	<u>*73/87</u>	<u>*98/118</u>
	Motor (Kw)	Max. Torque (Kgf . m)						
ITM 0180	0.2	2.66	3.7	6.65	2.66	3.2	2.13	1.33
	0.4	4.7	6.58	11.75	4.7	5.64	3.76	2.35
	0.75	10	14	18	10	12	8	5
ITM 0450	0.75	11	17	22.5	12	16	11	7.5
	1.5	22	34	45	24	32	22	15
ITM 0750	1.5	15.2	22.4	30	15.6	20.8	14.4	10
	2.2	22.8	33.6	45	23.4	31.2	21.6	15
	3.7	38	56	75	39	52	36	25
ITM 1800	3.7	45	67.5	90	47.5	63	44	31
	5.5	65.7	98.6	131.4	69.4	92	64.2	45.3
	7.5	90	135	180	95	126	88	62
ITM 3000	7.5	75	112.5	150	79	105	73.5	51.5
	11	109.5	164.3	219	115.3	153.3	107.3	75.2
	15	150	225	300	158	210	147	103

MODEL	TORQUE (Kgf . m)	STEM DIAMETER (mm) Key / Threaded	FLANGE ISO No. TAP PCD SIZE (mm)	Weight (Kg)
ITM 0180	18	35 / 40	125 F10 102 4 - M10 70	40
ITM 0450	45	50 / 60	175 F14 140 4 - M16 100	60
ITM 0750	75	60 / 72	210 F16 165 4 - M20 130	89
ITM 1800	180	95/110	300 F25 254 8 - M16 200	185
ITM 3000	300	115/130	350 F30 298 8 - M20 230	210



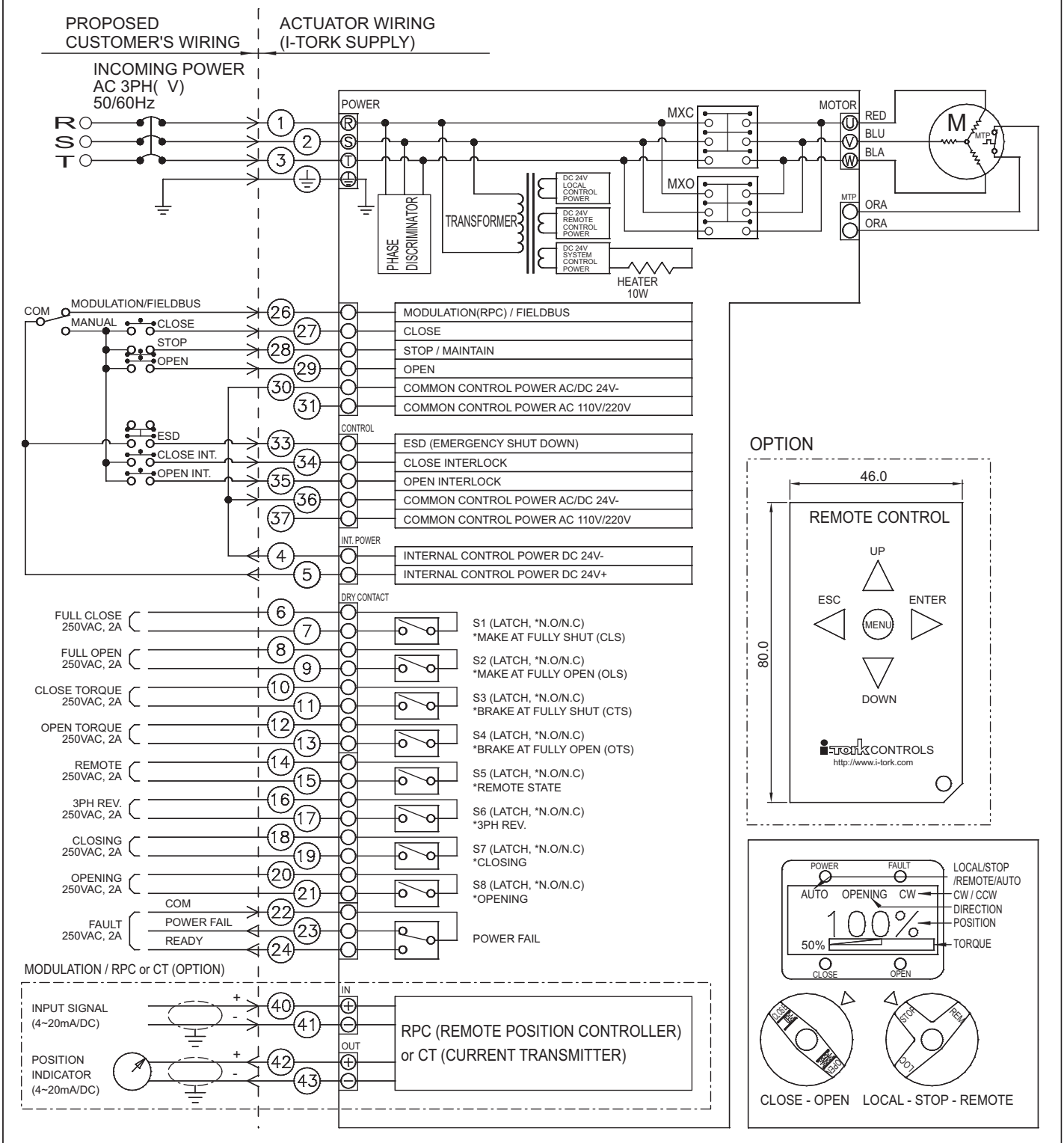
DIMENSIONS

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MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	SS	n-MT DPU	BORE AND KEY	THREAD
ITM0180	185	267	350	210	250	266	120	Ø185	Ø132	Ø199	192	159	Ø500	60	Ø70	Ø125	3	10	Ø102	F10	4-M10 DP18	Ø35(MAX)	Ø40(MAX)
ITM0450	195	300	364	210	275	286	120	Ø185	Ø162	Ø199	209	193	Ø550	80	Ø100	Ø175	4	13	Ø140	F14	4-M16 DP30	Ø50(MAX)	Ø60(MAX)
ITM0750	225	362	376	210	320	316	120	Ø185	Ø184	Ø199	232	209	Ø640	95	Ø130	Ø210	5	16	Ø165	F16	4-M20 DP36	Ø60(MAX)	Ø72(MAX)

FGND			
1 MAIN POWER *R*			
2 MAIN POWER *S*			
3 MAIN POWER *T*			
4 INTERNAL CONTROL POWER DC 24V-	16 S6	28 STOP / MAINTAIN	40 ANALOG INPUT SIGNAL +
5 INTERNAL CONTROL POWER DC 24V+	17 *3PH REV.	29 OPEN	41 ANALOG INPUT SIGNAL -
6 S1	18 S7	30 EXTERNAL CONTROL POWER AC/DC 24V-	42 ANALOG OUTPUT SIGNAL +
7 *MAKE AT FULLY SHUT (CLS)	19 *CLOSING	31 EXTERNAL CONTROL POWER AC 110V/220V	43 ANALOG OUTPUT SIGNAL -
8 S2	20 S8	32	44
9 *MAKE AT FULLY OPEN (OLS)	21 *OPENING	33 ESD	45
10 S3	22 COM	34 CLOSE INTERLOCK	46
11 *BRAKE AT FULLY SHUT (CTS)	23 FAULT	35 OPEN INTERLOCK	47
12 S4	24 READY	36 EXTERNAL CONTROL POWER AC/DC 24V-	48
13 *BRAKE AT FULLY OPEN (OTS)	25	37 EXTERNAL CONTROL POWER AC 110V/220V	49
14 S5	26 MODULATION(RPC) / FIELDBUS	38	50
15 *REMOTE STATE	27 CLOSE	39	51



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