

Ontrac[®]

Keeping Your Process On Track



Easytrac

EME/EOE Electric Actuator

Operation Instruction Rev01

(for actuators with software release V1.28)



Ontracactuators.com

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1. Device Identification

1.1 Actuator ID Label

Actuator: Easytrac EME/EOE	
No:	Year
Torque=	Speed=
Output flange=	Signal=
P=	I=
U=	
Temp=	IP67
Made by Ontrac	

- line 1: actuator Type
- line 2: serial no. / year of construction
- line 3: max. switch-off torque /max. output speed
- line 4: output flange / input/output signal
- line 5: motor performance data
- line 6: power supply
- line 7: permissible ambient temperature / protection classification

1.2 Legend



ELECTRICAL WARNING

An instruction with reference to electrical components or equipment. It draws attention to the risk of injury or death to persons or damage to the product, process or surroundings



WARNIG

General instruction that draws attention to the risk of injury or death to persons or damage to the product, process or surroundings



INFORMATION

Further reference for more detailed information or technical details.



We remind the installer that the classification of the zone (REF. ATEX 2014/34/EU former 94/9/CE directive) for potentially explosive atmosphere zones has to be done by the operator of the actuator and communicated to Ontrac and/or approved agent for the right choice of classification of the equipment to work in these zones.



This symbol signals a danger or a situation that requires the maximum attention of the personnel. It's important to respect the instructions stated at the margin of this symbol and proceed very carefully. It's necessary to inform all the personnel and/or users that the rules indicated prevent injuries.

2. General

2.1 Application

2.1.1 Purpose of the Manual

The main purpose of this manual is to assure that the activities of installation, operation and maintenance of the pumps are executed in a correct and safe way by all the personnel in charge of these operations. This document offers also indications useful for the customer to solve the problems, order spare parts and contact Ontrac service.



ATTENTION: check on our website www.ontracactuators.com for future revisions to this manual.

Actuators are exclusively used for the operation of final control elements (valves, flaps, etc.). If they are used for other purposes, people may be injured or the actuator may be damaged. This instruction contains all necessary information concerning the operating elements, handling, start-up and maintenance and repair work, as well as relevant technical data. The operating instructions are a component of the machine.

Therefore, keep the instructions ready on hand to ensure easy access to the necessary information at all times. Read the operating instructions thoroughly. All of the points presented in these instructions must be understood and observed by those persons responsible for the installation, operation, maintenance and repair of the machine. Ontrac does not accept any liability for damage resulting from failure to comply with these maintenance and operating instructions.

2.1.2 Qualification and Training of the Personnel

Those in charge of the installation, operation and maintenance of the actuator have to be qualified to carry out the actions indicated in this manual. Ontrac is not responsible for the inadequate qualification and training of the customer's staff or for the lack of information of the staff regarding the contents of this manual. It is compulsory to always show this manual to the personnel in charge of the installation, operation and maintenance of the actuator. Assembly, electrical connection, commissioning, operation, and maintenance must be carried out by suitably qualified personnel authorized by the end user or contractor of the plant only. Prior to working on this product, the staff must have thoroughly read and understood these instructions and, furthermore, know and observe officially recognized rules regarding occupational health and safety. Keep this manual in a safe place for future consultations.

2.1.3 Explosive Atmosphere Zones



The use in potentially explosive atmospheres require special models that Ontrac manufactures with particular materials and precautions. Customers who want to use actuator in these kinds of zones have to contact Ontrac technical office for the correct choice of the product. The actuator manufactured by Ontrac for these kinds of applications belong to the series EX-Proof Version. We remind you that the classification of the zone (REF. ATEX 2014/34/EU former 94/9/CE directive) for potentially explosive atmosphere zones has to be done by the customer and communicated to Ontrac for the right choice of the kind of actuator suitable to work in these zones.

2.2 Safety Advice

Preliminary remarks

All the references to the manual have to be considered applicable also to environment and system that use these actuators unless it's specified otherwise.

2.2.1 Introduction



ATTENTION: the non-observance of the indications stated in this manual or the inappropriate use of the equipment by unqualified or unauthorized staff, can cause serious personal injuries or death and damage to the equipment! The technical assistance office is at complete disposal; in case of doubts or problems you can contact us at www.ontracactuators.com If these warnings are not observed and followed, the certification and the warranty of the actuator may be invalidated.

2.2.2 Indications of Danger



For the safety of those in charge of the installation of the actuator, it's necessary to use safety clothing and individual safety devices approved by the current provisions of the law and regulations (e.g. Safety glass, gloves and safety insulating-shoes).



Always shut down the power to actuator before touching or proceeding with any intervention such as wiring the circuit of installation. Make sure that the electrical system to which the actuator will be connected to has adequate power and has the correct protection devices (e.g. grounding, life safe). Always switch off the electrical supply before working on the actuator for open box maintenance or part substitution.



Actuators are exclusively used for the operation of final control elements (valves, flaps, etc.). If they are used for other purposes, people may be injured or the actuator may be damaged.

The responsible institution should take protective measures if the actuator is installed in an area where non-authorized personnel might have access to it.

- Metallic components can become hot at high ambient temperatures. To avoid injuries, the operating personnel should use suitable gloves
- Depending on the intended purpose actuators make swiveling movements to drive flaps, valves etc. Improper operation of the actuator can endanger the operating person.
- Oil which may have spilled during an oil change must be carefully cleared away to avoid accidents. Waste oil must be disposed of according to local regulations.
- All installation and setup work as well as making electrical connections may only be carried out by qualified persons.
- Take care of safety rules and regulations for set-up of electric equipment while working on the actuator. Switch off the voltage supply prior to any work on electrical components. Protect the connection against inadvertent powering on.

2.3 Other Safety Advices:



1. If the content of this manual conflicts with laws and regulations of local country or area, then follow relevant local and area laws and regulations.
2. Appropriate protection is needed in some poor operating environments.
3. All installation and commissioning work as well as electrical connections may only be carried out by trained technicians and qualified personnel.
4. Installation or maintenance can-not be carried on when actuator is powered on, prior to any work at actuator. switch off the power.
5. Please be particularly cautious when the actuator is installed in high and/or in confined spaces.
6. Please do not operate hand crank when not necessary.
7. The temperature of a motor's surface can exceed 70° C under normal working condition. Please do not touch it to avoid personal injury.
8. The main power supply may be supplied as three phases or single phase voltage. Please apply caution when wiring.
9. Before commissioning, check whether all settings meet the requirements. Incorrect settings may be dangerous.
10. Consult the vendor of the equipment or Ontrac before making any physical changes to the equipment.

3. Receiving and Storage

3.1 Condition When Supplied

The actuators feature protection class IP 40 when supplied. Protection class IP 67 can be guaranteed once the cable glands and the cable entries are installed.

If not other specified, the Intelligent Type of Easytrac actuators are supplied with the following standard configuration:

Local operate mode:	Inching Mode (In the local state, the knob is in inching mode. Once the knob is released, the equipment stops running.)
Remote operate mode:	Inching Mode (In the remote state, the port is level driven. Once the actuator DI Port does not receive the level signal, the equipment stops running)
DI1	Open direction
DI2	Close direction
DI3	Stop direction
DI4	ESD direction
DI5	Set point enable
DO1	Full open indication
DO2	Full close indication
DO3	Remote indication
DO4	Failure & alarm

For basic type of Easytrac (without control unit), we provide:

Digital input 1 - 2 for open and close; output 1 - 2 for full open position and full close position

3.2 Receiving Inspection

Upon receiving, check whether the outer package is unsealed, damaged or damp, and open the package to check whether the parts are lost. If the above conditions are found, please be sure to take same pictures and contact the factory within one week after receiving the actuators.

3.3 Warranty

The warranty period is 12 months after putting into operation or 18 months after shipping out from factory. This actuator has been designed and manufactured to be used in specific conditions and within defined limits. The use outside these specifications has to be agreed and approved by Ontrac. It must be considered also that, if the actuators are used outside their technical specifications, the factory warranty are no longer valid.



The actuator has to be used only for the applications specified in the order for which Ontrac has selected the model, the materials of construction and has tested the actuator to respect the specifications. For other uses

different from those stated in the order, the customer has to send always a written request to the Ontrac technical office, which on its part will reply in a written form. There will not be any warranty for repairs or alterations on the product done by the users or third parties not specifically authorized by Ontrac.

3.4 Storage



1. Improper storage will cause the risk of equipment corrosion!
2. Store in a well ventilated and dry room.
3. Store on shelves or wooden pallets to prevent moisture on the ground.
4. Cover the equipment to prevent dust and dirt.
5. Wipe the uncoated surface with a suitable preservative.
6. If the temperature is lower than the allowable range, the display screen will be damaged!
Ontrac actuators' control devices cannot be stored at temperatures below - 30 ° C.

Long term storage

If the equipment needs long-term storage (more than 6 months), the following points shall also be observed:

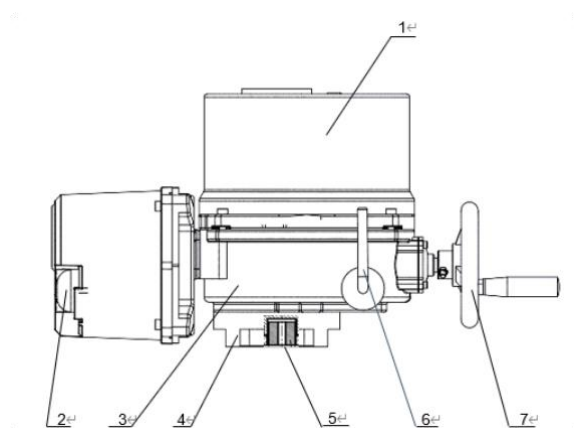
1. Before storage:
Wipe uncoated surfaces, especially output drive components and assembly surfaces, with a long term corrosion inhibitor.
2. After every 6 months:
Check for rust. If there are signs of rust, please take new anti-corrosion measures.

3.5 Return to Factory

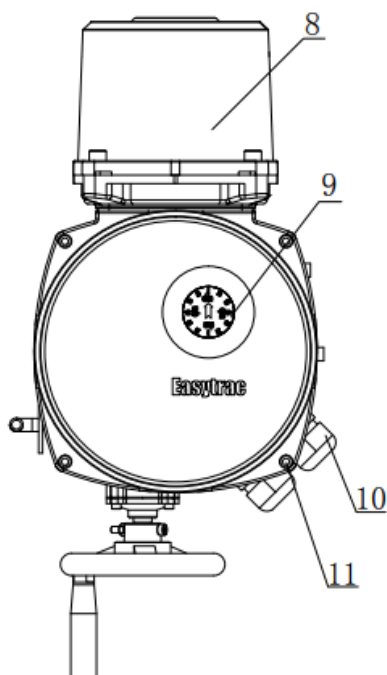
Please send your request to service@ontracactuator.com for return policy and approval from factory prior to any action.

4. Main Components

4.1 Name of Each Component

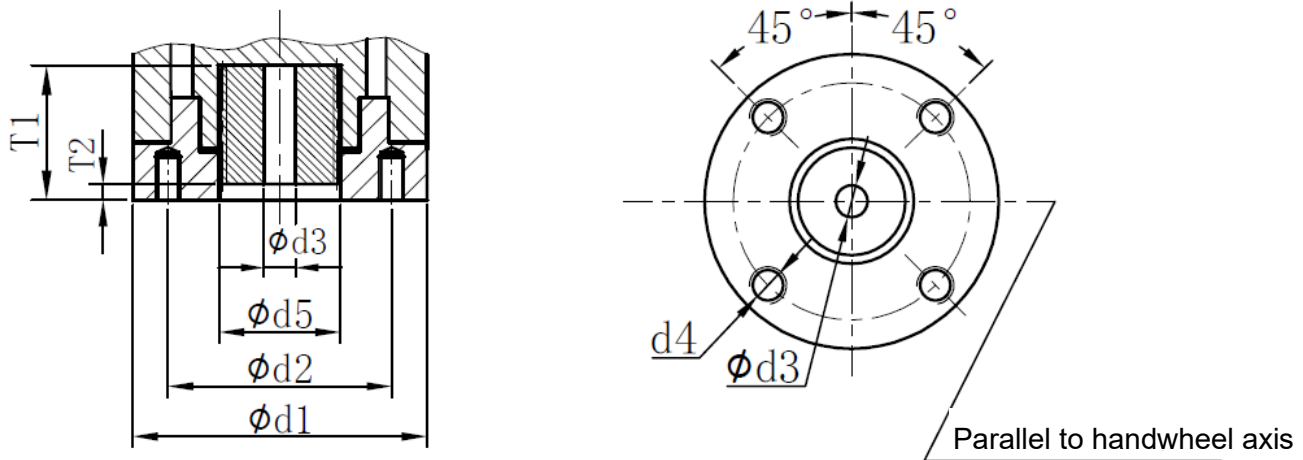


1. Upper cover for motor & wiring connections compartment
2. Control panel
3. Gearcase
4. Connecting flange
5. Removable valve adaptor
6. Manual override level(hand crank)
7. Handwheel



8. Integral electrical control unit
9. Local indication
10. Cable/conduit entries
11. Inner hexagon screw for upper cover

4.2 Flange Structure and Valve Connection Size



	Flange	d1	d2		d3		d5	T1	T2	d4
			Standard size	Factory default	Factory default	Maximum allowed				
EME/EOE50	F05	Ø65	Ø35	Ø50	Ø8	Ø 12	Ø26	35	3	4-M6 deep 9
EME/EOE100	F07	Ø90	Ø55	Ø70	Ø10	Ø 14	Ø38	35	3	4-M8 deep 12
EME/EOE200	F10	Ø125	Ø70	Ø102	Ø10	Ø18	Ø38	35	3	4-M10 deep 15
EME/EOE400	F10	Ø125	Ø70	Ø102	Ø10	Ø 18	Ø38	55	3	4-M10 deep 15
EME/EOE600	F12	Ø150	Ø85	Ø125	Ø10	Ø 22	Ø43	55	3	4-M12 deep 18
EME/EOE800	F12	Ø150	Ø85	Ø125	Ø10	Ø 28	Ø48	55	3	4-M12 deep 18
EME/EOE1000	F12	Ø150	Ø85	Ø125	Ø10	Ø 28	Ø48	55	3	4-M12 deep 18
EOE2000	F14	Ø175	Ø100	Ø140	Ø10	Ø 36	Ø73	85	4	4-M16 deep 24
EOE3000	F16	Ø210	Ø130	Ø165	Ø10	Ø 42	Ø73	85	5	4-M20 deep 30

Note: d2 and d3 parameters can be processed according to customer requirements before delivery.

4.3 Operation

The power electronic controlled motor drives the worm shaft, which is mounted on a hollow splined shaft. This can be coupled to the valve directly.

A position sensor next to the worm shaft detects speed and the direction of rotation.



A hand crank is provided for manual operation. Please refer to 6.3 for specific operation steps.

The actuator is equipped with a local control panel with various elements for operation and display.

Switch the mode selector switch to LOCAL in order to drive the actuator with the operation switch open/close.

5. General and Technical Data

5.1 Technical Data

	EOE Basic Type	EOE/EME Intelligent Type		
		Part-turn	Linear	Full-turn
Output Torque/Thrust	50-1000 Nm	50-3000 Nm	0~4000N/0~6000N	≤50Nm
Whole Stroke Time	11-62s	11-102s	100s at 40mm (Speed: 0.4mm/s)	20 turns/ 3 rpm
Power Supply	Three-phase: 380V ±10%, 50/60Hz ±5% Single-phase: 110/220V ±10%, 50/60Hz ±5% Single-phase/Three-phase: 100-500V (wide voltage optional)	Three-phase: 380V ±10%, 50/60Hz ±5% Single-phase: 110/220V ±10%, 50/60Hz ±5% Single-phase/Three-phase: 100-500V (wide voltage optional)	Three-phase: 380V ±10%, 50/60Hz ±5% Single-phase: 110/220V ±10%, 50/60Hz ±5% Single-phase/Three-phase: 100-500V (wide voltage optional)	Three-phase: 380V ±10%, 50/60Hz ±5% Single-phase: 110/220V ±10%, 50/60Hz ±5% Single-phase/Three-phase: 100-500V (wide voltage optional)
Failsafe Function	DC 24V (Optional)	DC 24V (Optional)	DC 24V (Optional)	DC 24V (Optional)
Internal Power Supply (Optional)	N/A	Fail safe	Fail safe	Fail safe
Duty Mode	On-off (EOE Type) S2-15 min	On-off and Inching (EOE Type) S2-15 min	On-off and inching (EOE Type) S2-15 min	On-off and inching (EOE Type) S2-15 min
	Modulating N/A	Modulating, EME Type S4-25%	Modulating, EME Type S4-25%	Modulating, EME Type S4-25%
Ambient Temp.	-20℃ to 65℃	-20℃ to 65℃	-20℃ to 65℃	-20℃ to 65℃
	-40℃ and -60℃ optional	-40℃ and -60℃ optional	-40℃ and -60℃ optional	-40℃ and -60℃ optional
Humidity	≤100% (25℃)	≤100% (25℃)	≤100% (25℃)	≤100% (25℃)
Motor Control	Class F	Class F	Class F	Class F
Valve Connection	ISO5211 direct connection, splined bore	ISO5211 direct connection, splined bore	ISO5211 flange connection, thread hole	ISO5211 flange connection, thread hole
Manual Device	Handwheel with manual override level	Handwheel with manual override level	Handwheel with manual override level	Handwheel with manual override level
Signal Input	N/A	24 VDC (Optional for 110/220VAC)	24 VDC (Optional for 110/220VAC)	24 VDC (Optional for 110/220VAC)
Analog Input Signal	N/A	4-20 mA (Analogue Input)	4-20 mA (Analogue Input)	4-20 mA (Analogue Input)
Output Signal	5A 110/220 VAC (Dry contact 2 SPST)	5A 110/220 VAC (Dry contact 4 SPST) +2 SPST (Optional) Contact load (resistive): 5A 250VAC/30VDC Maximum switching voltage: 250VAC/30VDC Maximum switching current: 5A Maximum switching power: 250VAC/150W	5A 110/220 VAC (Dry contact 4 SPST) +2 SPST (Optional) Contact load (resistive): 5A 250VAC/30VDC Maximum switching voltage: 250VAC/30VDC Maximum switching current: 5A Maximum switching power: 250VAC/150W	5A 110/220 VAC (Dry contact 4 SPST) +2 SPST (Optional) Contact load (resistive): 5A 250VAC/30VDC Maximum switching voltage: 250VAC/30VDC Maximum switching current: 5A Maximum switching power: 250VAC/150W
Digital Input Signal	N/A	Open/close, State indicator, Alarm	Open/close, State indicator, Alarm	Open/close, State indicator, Alarm
Analog Output Signal (Optional)	N/A	4-20 mA (Analogue Output)	4-20 mA (Analogue Output)	4-20 mA (Analogue Output)
Intermediate Valve Position (Optional)	N/A	Intermediate Valve Position	Intermediate Valve Position	Intermediate Valve Position
Optional Extension board (Control B)	N/A	6 switch contacts (110/220VAC, 5A) 4-20 mA (Analogue output)	6 switch contacts (110/220VAC, 5A) 4-20 mA (Analogue Output)	6 switch contacts (110/220VAC, 5A) 4-20 mA (Analogue Output)
Communication (optional)	N/A	Profibus-DP/Modbus/Hart/Foundation Fieldbus/Ethernet	Profibus-DP/Modbus/Hart/Foundation Fieldbus/Ethernet	Profibus-DP/Modbus/Hart/Foundation Fieldbus/Ethernet
Anti-condensation	Standard	Standard	Standard	Standard
Enclosure Protection	IP67 (standard) IP68 (2 meter, 72 hr) optional and enhanced option available (10 meter, 72 hr)	IP67 (standard) IP68 (2 meter, 72 hr) optional and enhanced option available (10 meter, 72 hr)	IP67 (standard) IP68 (2 meter, 72 hr) optional and enhanced option available (10 meter, 72 hr)	IP67 (standard) IP68 (2 meter, 72 hr) optional and enhanced option available (10 meter, 72 hr)
Safety Integrated Level(Optional)		SIL2 & SIL3, Electric actuators with configurable safety functions: Stay put or Emergency shut-down (ESD) open or close on demand.	SIL2 & SIL3, Electric actuators with configurable safety functions: Stay put or Emergency shut-down (ESD) open or close on demand.	SIL2 & SIL3, Electric actuators with configurable safety functions: Stay put or Emergency shut-down (ESD) open or close on demand.
Explosive-Protection (Optional)	Ex db eb IIC T4 Gb	Ex db eb IIC T4 Gb	Ex db eb IIC T4 Gb	Ex db eb IIC T4 Gb
CCC (Optional)	CCC	CCC ≤1000Nm	CCC	CCC
Cable Connection	2*M25 for cable Φ10-Φ16	2*M25 for cable Φ10-Φ16	2*M25 for cable Φ10-Φ16	2*M25X1.5, for cable Φ10-Φ16
Coating	RAL9005 (Black). Anti corrosion epoxy resin power coating; C5-M for corrosion environment (optional)			
				

5.2 Model and Weight

Model (Basic Type)	EOE50	EOE100	EOE200	EOE400	EOE600	EOE800	EOE1000
Weight (Kg)	10	12	12	20	22	25	27

Model (Intelligent Type)	EME50 EOE50	EME100 EOE100	EME200 EOE200	EME400 EOE400	EME600 EOE600	EME800 EOE800	EME1000 EOE1000	EOE2000	EOE3000
Weight (Kg)	10	12	12	20	22	25	27	48	48

5.3 Dimensions

5.3.1 BASIC TYPE OUTLINE DIMENSION DRAWINGS

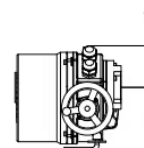
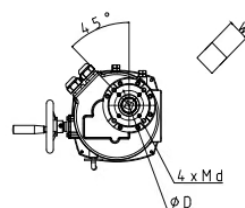
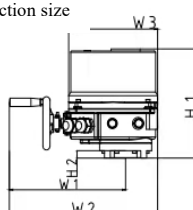
EOE SERIES (AC power supply)

Model	Torque Nm	Fastest Open/ Close time s	Power W	Direct Connection														Flange	Weight Kg
				W1	W2	W3	W4	H1	H2	H3	H4	Φ D		Md					
												ENISO 5211	MSS SP-101	ENISO 5211	MSS SP-101				
																Unit: mm			
EOE50	50	22	20	281	358	215	11x11	256	35	98	151	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	9		
EOE100	100	2	40	281	358	215	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	10		
EOE200	200	22	60	281	358	215	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	10		
EOE400	40	29	90	291	381	239	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	18		
EOE600	600	29	140	291	381	239	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	20		

EOE SERIES (24V DC power supply)

Model	Torque Nm	Fastest Open/ Close time s	Current A	Power W	Direct Connection														Flange	Weight kg
					W1	W2	W3	W4	H1	H2	H3	H4	Φ D		Md					
													ENISO 5211	MSS SP-101	ENISO 5211	MSS SP-101				
																	mm			
EOE50-S	50	11	3.3	40	281	358	215	11x11	256	35	98	151	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	9		
EOE100-S	100	11	7	100	281	358	215	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	10		
EOE100	100	34	3.3	40	281	358	215	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	10		
EOE200	200	34	6.5	100	281	358	215	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F10* (F07)**	10		
EOE400	400	43	10	150	291	381	239	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	18		
EOE600	600	43	12	180	291	381	239	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	20		
EOE800	800	62	10	150	395	485	239	27x27	343	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	23		
EOE1000	1000	62	10	200	395	485	239	27x27	343	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25		

Note: 1.) *, Standard for connection size; 2.) **, Option for connection size



5.3.2 BASIC EXPLOSIVE PROTECTION TYPE OUTLINE DIMENSION DRAWINGS

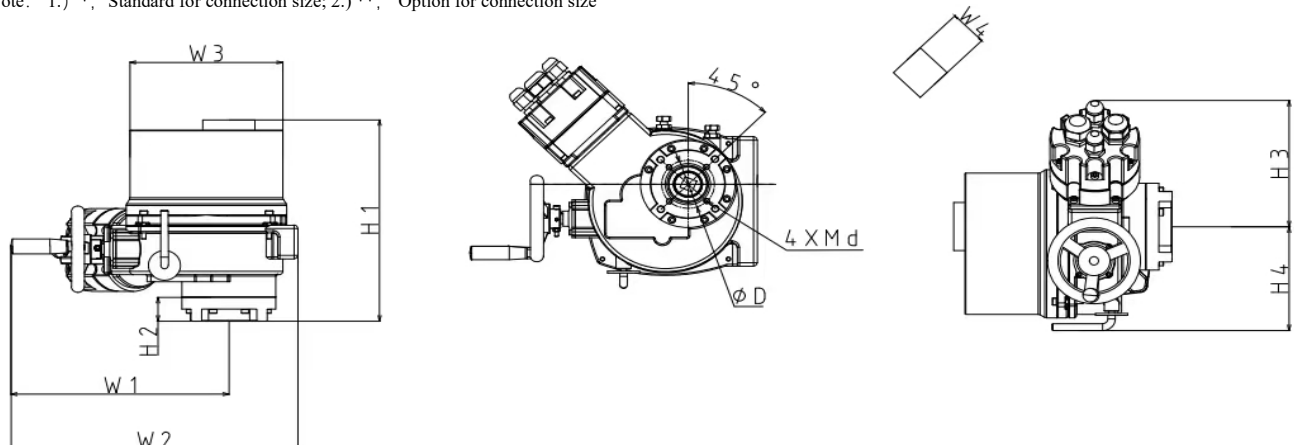
EOE SERIES (AC power supply)

Model	Torque Nm	Fastest Open/Close time s	Power W	Direct Connection													
				W1	W2	W3	W4	H1	H2	H3	H4	φ D		Md		Flange	Weight Kg
												ENISO 5211	MSS SP-101	ENISO 5211	MSS SP-101		
EOE50-S	50	11	40	281	358	215	11x11	256	35	98	151	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	9
EOE100-S	100	11	100	281	358	215	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	10
EOE100	100	34	40	281	358	215	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	10
EOE200	200	34	100	281	358	215	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	10
EOE400	400	43	150	291	381	239	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	18
EOE600	600	43	180	291	381	239	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	20
EOE800	800	62	150	395	485	239	27x27	343	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	23

EOE SERIES (24V DC power supply)

Model	Torque Nm	Fastest Open/ Close time s	Current A	Power W	Direct Connection														Flange	Weight Kg
					W1	W2	W3	W4	H1	H2	H3	H4	φ D		Md					
													ENISO 5211	MSS SP-101	ENISO 5211	MSS SP-101				
																	mm			
EOE50-S	5	11	3.3	40	281	358	215	11x11	256	35	98	151	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	9		
EOE100-S	10	11	7	100	281	358	215	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	10		
EOE100	100	34	3.3	40	281	358	215	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	10		
EOE200	200	34	6.5	100	281	358	215	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	10		
EOE400	400	43	10	150	291	381	239	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	18		
EOE600	600	43	12	180	291	381	239	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	20		
EOE800	800	62	10	150	395	485	239	27x27	343	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	23		
EOE1000	1000	62	10	200	395	485	239	27x27	343	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25		

Note: 1.) *, Standard for connection size; 2.) **, Option for connection size



5.3.3 EASYTRAC INTELLIGENT TYPE OUTLINE DIMENSION DRAWINGS

EME/EOE SERIES (AC power supply)

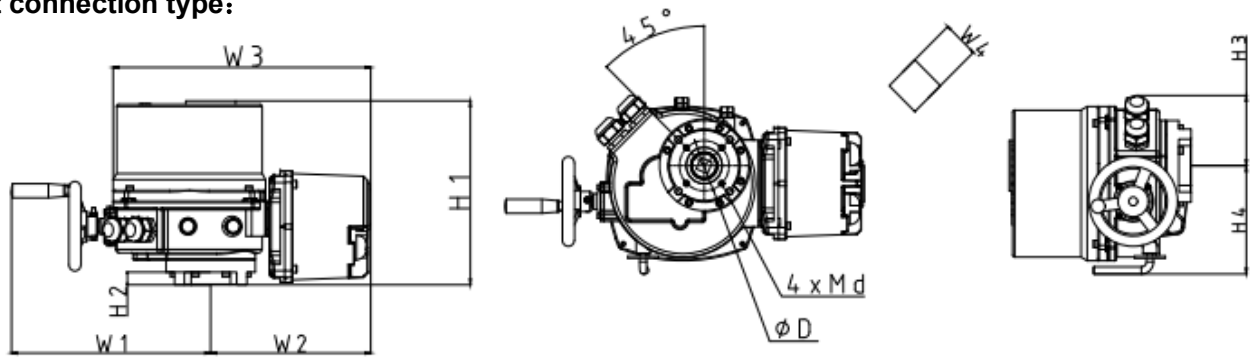
Model	Torque Nm	Fastest Open/ Close time S	Power W	Direct Connection														Base and level			
				W1	W2	W3	W4	H1	H2	H3	H4	Φ D		Md		Flange	Weight Kg	L	W	H	Weight Kg
												ENISO	MSS	ENISO	MSS						
												Unit: mm								5211	
EOE50	50	22	20	281	225	387	11x11	256	35	98	151	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	10	-	-	-	-
EOE100	100	22	40	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	-	-	-	-
EOE200	200	22	66	281	225	387	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	-	-	-	-
EOE400	400	29	90	291	238	387	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20	-	-	-	-
EOE600	600	29	140	291	238	387	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22	-	-	-	-
EME200	200	66	25	281	225	387	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F10* (F07)**	12	371	333	371	16
EME400	400	58	60	291	238	387	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20	381	365	384	24
EME600	600	87	60	291	238	387	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22	381	365	384	26
EME800	800	58	140	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25	485	414	384	29
EME1000	1000	58	180	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27	485	414	384	31

EME/EOE SERIES (24V DC power supply)

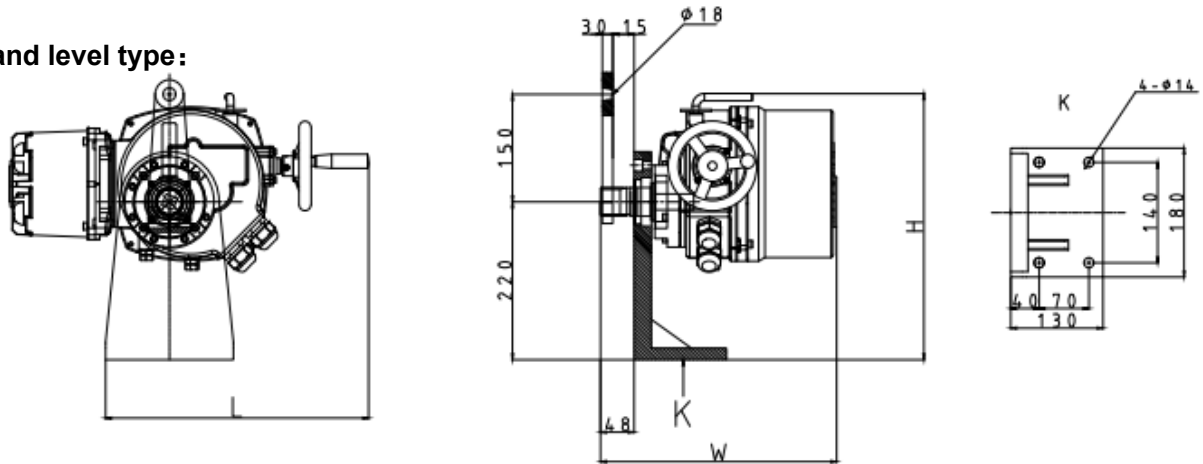
Mode	Torque Nm	Fastest Open/Closes	Current A	Power W	Direct Connection												Base and Level					
					W1	W2	W3	W4	H1	H2	H3	H4	Φ D		Md		Flange	Weight Kg	L	W	H	Weight Kg
													ENISO 5211	MSS SP-101	ENISO 5211	MSS SP-101						
																			Unit: mm			
EOE50-S	50	11	3.3	40	281	225	387	11x11	256	35	98	151	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	10	-	-	-	-
EOE100-S	100	11	7	100	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	-	-	-	-
EOE100	100	34	3.3	40	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	-	-	-	-
EOE200	200	34	6.5	100	281	225	387	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	-	-	-	-
EOE400	400	43	10	150	291	238	387	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20	-	-	-	-
EOE600	600	43	12	180	291	238	387	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22	-	-	-	-
EOE800	800	62	10	150	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25	-	-	-	-
EOE1000	1000	62	10	200	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27	-	-	-	-
EOE2000	2000	102	14	200	397	262	443	46x46	484	85	127	182	Φ140 Φ165	Φ139.7 Φ165.1	M16M20	5/8-11 3/4-10	F14* (F16)**	48	-	-	-	-
EOE3000	3000	102	15	250	397	262	443	46x46	484	85	127	182	Φ165 Φ140	Φ165.1 Φ139.7	M20M16	3/4-10 5/8-11	F16* (F14)**	48	-	-	-	-
EME100	100	34	3.3	40	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	371	333	371	16
EME200	200	34	6.5	100	281	225	387	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	371	333	371	16
EME400	400	43	10	150	291	238	387	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20	381	365	384	24
EME600	600	43	12	180	291	238	387	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22	381	365	384	26
EME800	800	62	10	150	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25	485	414	384	29
EME1000	1000	62	10	200	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27	485	414	384	31

Note: 1.) "-" Means Not available 2.) *, Standard for connection size; 3.) **, Optional for connection size

Direct connection type:



Base and level type:



Crank Arm Position, 360° Adjustable Bracket Type

5.3.4 INTELLIGENT EXPLOSIVE PROTECTION TYPE OUTLINE DIMENSION DRAWINGS

EOE/EME SERIES (AC power supply)

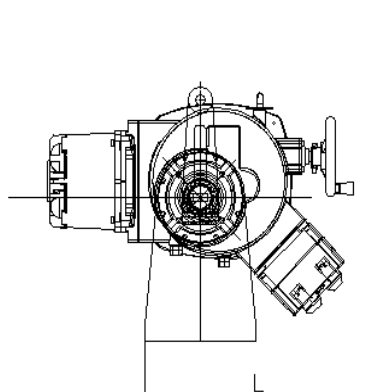
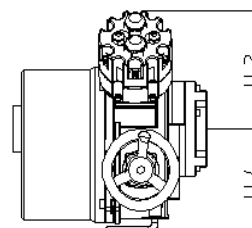
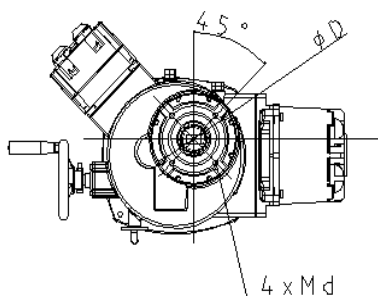
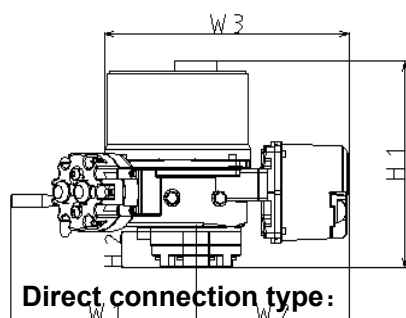
Model	Torque Nm	Fastest Open/Close time s	Power W	Direct Connection												Base and Level					
				W1	W1	W2	W4	H1	H2	H3	H4	W1		Md		Flange	Weight Kg	L	W	H	Weight Kg
												ENISO	MSS	ENISO	MSS						
												mm								5211	
EOE50	50	22	20	281	225	387	11x11	256	35	183	151	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	10	-	-	-	-
EOE100	100	22	40	281	225	387	14x14	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	-	-	-	-
EOE200	200	22	60	281	225	387	17x17	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)8*	12	-	-	-	-
EOE400	400	29	90	291	238	387	22x22	287	55	180	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20	-	-	-	-
EOE600	600	29	140	291	238	387	27x27	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22	-	-	-	-
EME200	200	66	25	281	225	387	17x17	256	35	180	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F10* (F07)**	12	371	333	371	16
EME400	400	58	60	291	238	387	22x22	287	55	180	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20	381	365	384	24
EME600	600	87	60	291	238	387	27x27	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22	381	365	384	26
EME800	800	58	140	388	250	418	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25	485	414	384	29
EME1000	1000	58	180	388	250	418	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27	485	414	384	31

EME/EOE SERIES (24V DC power supply)

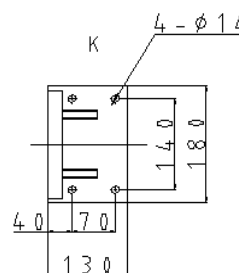
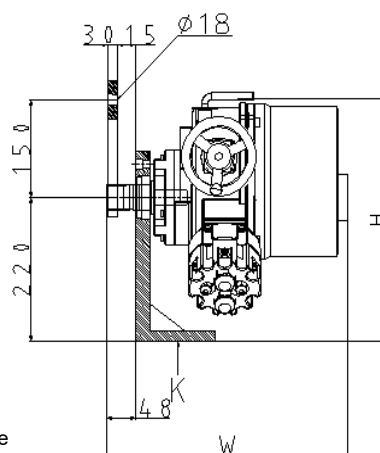
Model	Torque Nm	Fastest Open/Close time s	Current	Power	Direct Connection																	Base and Level				
					W1	W2	W3	W4	H1	W1	W1	H4	Φ D		Md		Flange	Weig ht Kg	L	W	H	Weight Kg				
													ENISO 5211	MSS SP-101	ENISO 5211	MSS SP-101										
																							mm			
EOE50-S	50	11	3.3A	40W	281	225	387	11x11	256	35	98	151	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	10	-	-	-	-				
EOE100-S	100	11	7A	100W	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	-	-	-	-				
EOE100	100	34	3.3A	40W	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)8*	12	-	-	-	-				
EOE200	200	34	6.5A	100W	281	225	387	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	-	-	-	-				
EOE400	400	43	10A	150W	291	238	387	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20	-	-	-	-				
EOE600	600	43	12A	180W	291	238	387	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22	-	-	-	-				
EOE800	800	62	10A	150W	388	250	418	27x27	362	55	107	164	Φ102 Φ125	Φ101.6 Φ139.6	M10 M12	3/8-16 1/2-13	(F10)** F12*	25	-	-	-	-				
EOE1000	1000	62	10A	200W	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27	-	-	-	-				
EOE2000	2000	102	14A	200W	397	262	443	46x46	396	85	127	182	Φ140Φ165	Φ139.7 Φ165.1	M16M20	5/8-11 3/4-10	F14* (F16)**	48	-	-	-	-				
EOE3000	3000	102	15A	250W	397	262	443	46x46	396	85	127	182	Φ165 Φ140	Φ165.1 Φ139.7	M20 M16	3/4-10 5/8-11	F16* (F14)**	48	-	-	-	-				
EME100	100	34	3.3A	40W	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	371	333	371	16				
EME200	200 Nm	34	6.5A	100W	281	225	387	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12	371	333	371	16				
EME400	400	43	10A	150W	291	238	387	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20	381	365	384	24				
EME600	600	43	12A	180W	291	238	387	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22	381	365	384	26				
EME800	800	62	10A	150W	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25	485	414	384	29				
EME1000	1000	62	10A	200W	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27	485	414	384	31				

Note: 1.) "-" Means Not available 2.) *, Standard for connection size; 3.) **, Optional for connection size

Base and level type:



Crank Arm Position, 360° Adjustable Bracket Type

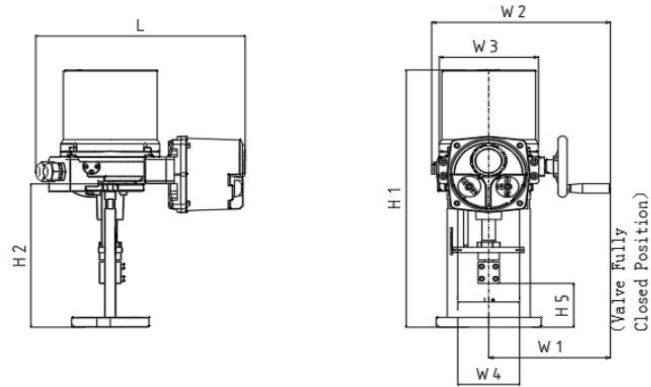


5.2.5 LINEAR OUTLINE DIMENSION DRAWINGS

EME/EOE-L SERIES (24V DC power supply)

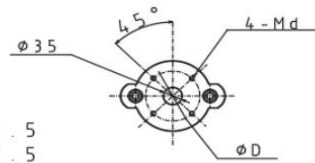
Model	Rated torque	Adjusting torque	Power	Current	Fastest Speed	Maximum travel	Stem Connection	W1	W2	W3	W4	H1	H2	H3	H5 (Stem height when valve is fully closed)	L	Φ D		M d		Flange	Weight
																	ENISO 5210	MSS SP-101	ENISO 5210	MSS SP-101		
Unit: mm																						
EME400-L EOE400-L	4000N	2000	15W	1A	0.4 mm/s	40mm	M10 M12 M14 M16	228	337	176	116	521	273	48	85	392	Φ50 Φ70	Φ50.8 Φ69.9	M6 M8	1/4-20 5/16-18	F05 F07	22kg
EME600-L EME600-L	6000N	3000	30W	1.8A	0.4 mm/s	40mm	M10 M12 M14 M16	228	337	176	116	521	273	48	85	392	Φ50 Φ70	Φ50.8 Φ69.9	M6 M8	1/4-20 5/16-18	F05 F07	22kg

EME/EOE400-L Dimensions Drawing:

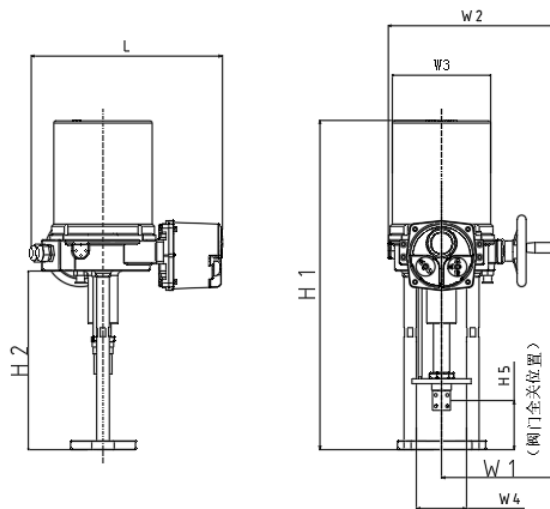


Please select the valve stem connection size M:

M10×1、M10×1.25、M10×1.5
M12×1、M12×1.25、M12×1.5
M14×1、M14×1.25、M14×1.5
M16×1、M16×1.25、M16×1.5

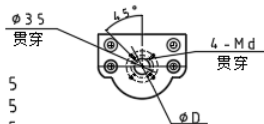


600-L Dimensions Drawing:



阀杆连接尺寸M请选择:

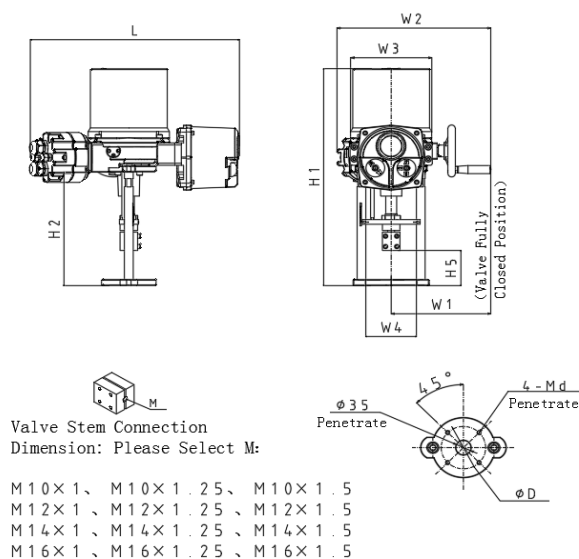
M10×1、M10×1.25、M10×1.5
M12×1、M12×1.25、M12×1.5
M14×1、M14×1.25、M14×1.5
M16×1、M16×1.25、M16×1.5



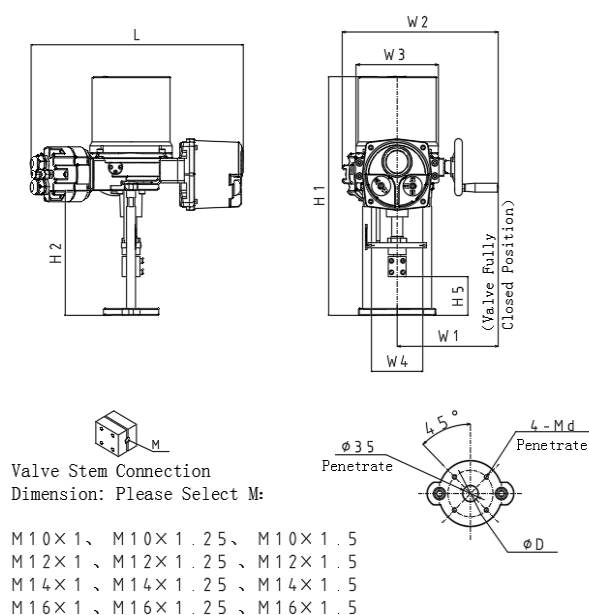
5.3.6 LINEAR EXPLOSIVE PROTECTION OUTLINE DIMENSION DRAWINGS

Model	Rated torque	Adjusting torque	Power	Current	Fastest Speed	Maximum travel	Stem Connection	W1	W2	W3	W4	H1	H2	H3	H5 (Stem height when valve is fully closed)	L	Φ D		M d		Flange	Weight
																	ENISO 5210	MSS SP-101	ENISO 5210	MSS SP-101		
																	mm					
EME400-L EOE400-L	4000N	2000	15W	1A	0.4mm/s	40mm	M10 M12 M14 M16	228	335	186	116	526	278	48	89	480	Φ50 Φ70	Φ50.8 Φ69.9	M6 M8	1/4-20 5/16-18	F05 F07	22kg
EME600-L EME600-L	6000N	3000	30W	1.8A	0.4mm/s	40mm	M10 M12 M14 M16	228	335	186	116	526	278	48	89	480	Φ50 Φ70	Φ50.8 Φ69.9	M6 M8	1/4-20 5/16-18	F05 F07	22kg

EME/EOE400- L Explosive Protection Dimensions Drawing:



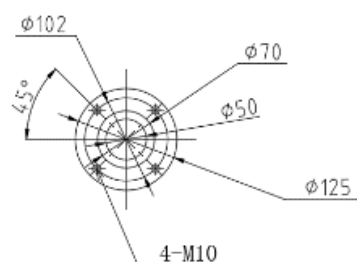
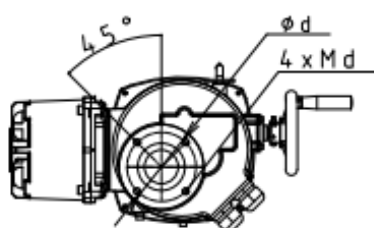
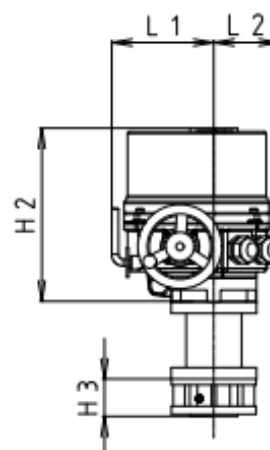
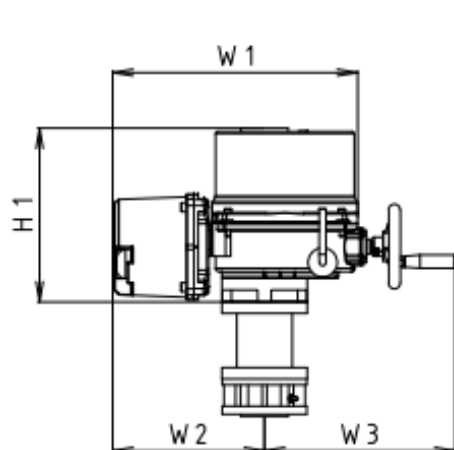
EME/EOE600-L Explosive Protection Dimensions Drawing:



5.3.7 FULL-TURN OUTLINE DIMENSION DRAWINGS

EME/EOE-M SERIES (24V DC power supply)

Model	Maximum Stalling Torque	Adjusting Torque	Fastest Output Speed	Maximum Turns	Flange	Power	Current	W1	W2	W3	H1	H2	H3	L1	L2	Φ D		Md	
								Unit: mm								ISO5210	MSS SP-101	ISO 5210	MSS SP-101
EME50-M EOE50-M	26Nm	13Nm	4	20	F10	40W	3.5A	362	225	282	426	257	72	98	151	Φ102	Φ101.6	M10	3/8-16
EME100-M EOE100-M	50Nm	25Nm	4	20	F10	120W	7A	362	225	282	426	257	72	98	151	Φ102	Φ101.6	M10	3/8-16



Valve connection size is F10 A1 drive bush. Max stem is diameter 38mm

5.3.8 SPLIT TYPE OUTLINE DIMENSION DRAWINGS

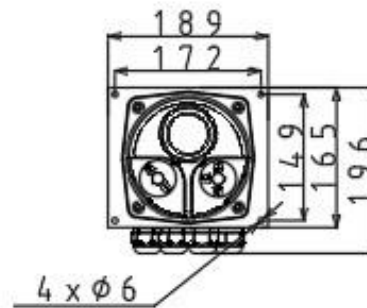
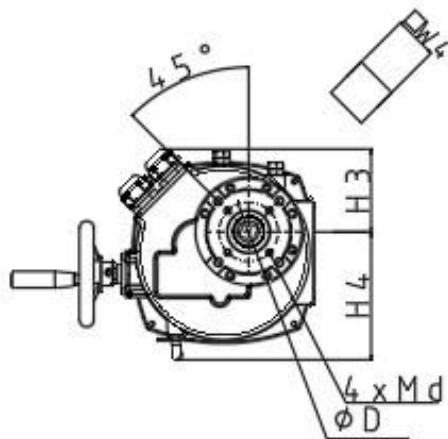
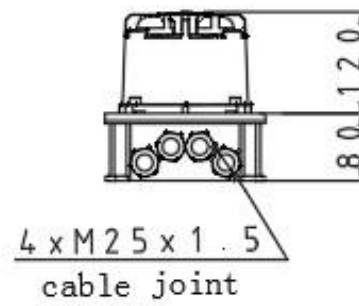
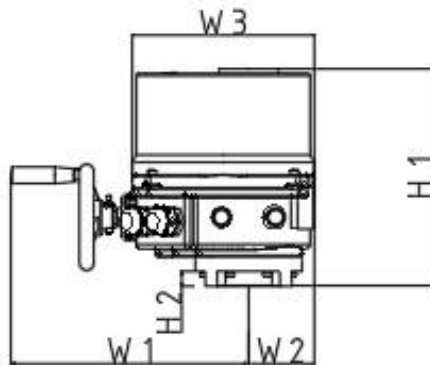
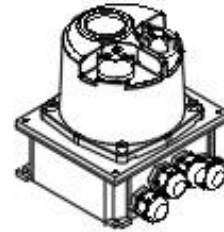
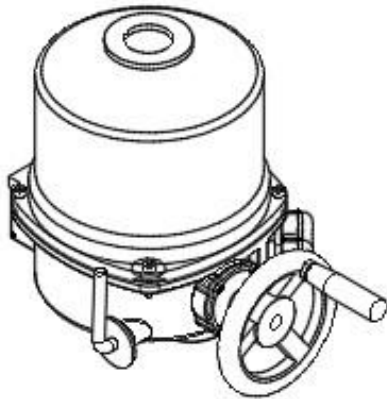
EOE/EME SERIES (AC power supply)

Model	Rated torque	Adjusting torque	Power	Direct Connection														Flange	Weight
				W1	W2	W3	W4	H1	H2	H3	H4	Φ D		Md					
												ENISO 5211	MSS SP-101	ENISO 5211	MSS SP-101				
																mm			
EOE50	50Nm	22	20W	281	225	387	11x11	256	35	80	142	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	10kg		
EOE100	100Nm	22	40W	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EOE200	200Nm	22	60W	281	225	387	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EOE400	400Nm	29	90W	291	238	387	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20kg		
EOE600	600Nm	29	140W	291	238	387	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22kg		
EME200	200Nm	66	25W	281	225	387	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EME400	400Nm	58	60W	291	238	387	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20kg		
EME600	600Nm	87	60W	291	238	387	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22kg		
EME800	800Nm	58	140W	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25kg		
EME1000	1000Nm	58	180W	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27kg		

EME/EOE SERIES (24V DC power supply)

Model	Torque	Fastest Open/Close time	Current	Power	Direct Connection														Flange	Weight
					W1	W2	W3	W4	H1	H2	H3	H4	Φ D		Md					
													ENISO 5211	MSS SP-101	ENISO 5211	MSS SP-101				
																	mm			
EOE50-S	50Nm	11s	3.3A	40W	281	225	387	11x11	256	35	98	151	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	10kg		
EOE100-S	100Nm	11s	7A	100W	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EOE100	100Nm	34s	3.3A	40W	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EOE200	200Nm	34s	6.5A	100W	281	225	387	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EOE400	400Nm	43s	10A	150W	291	238	387	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20kg		
EOE600	600Nm	43s	12A	180W	291	238	387	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22kg		
EOE800	800Nm	62s	10A	150W	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25kg		
EOE1000	1000Nm	62s	10A	200W	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27kg		
EME100	100Nm	34s	3.3A	40W	281	225	387	14x14	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EME200	200Nm	34s	6.5A	100W	281	225	387	17x17	256	35	98	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F10* (F07)**	12kg		
EME400	400Nm	43s	10A	150W	291	238	387	22x22	287	55	107	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20kg		
EME600	600Nm	43s	12A	180W	291	238	387	27x27	287	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22kg		
EME800	800Nm	62s	10A	150W	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25kg		
EME1000	1000Nm	62s	10A	200W	388	250	418	27x27	362	55	107	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27kg		

Note: 1.) *, Standard for connection size; 2.) **, Option for connection size



5.3.9 Explosion-proof SPLIT TYPE OUTLINE DIMENSION DRAWINGS

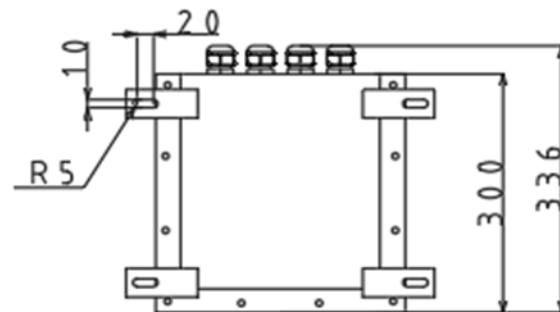
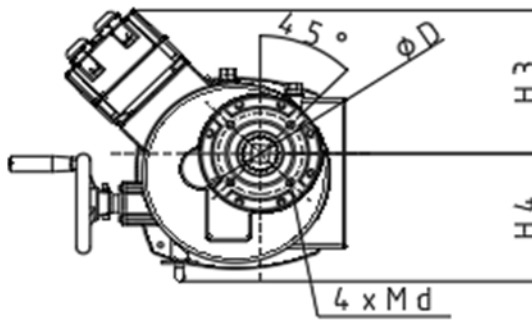
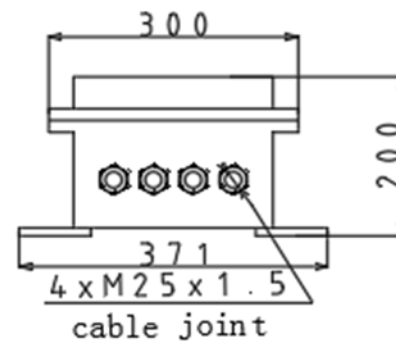
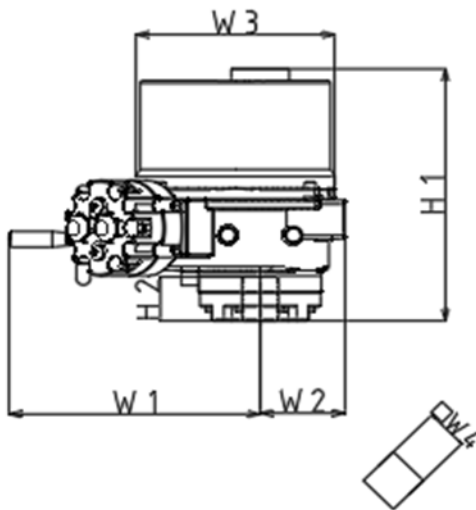
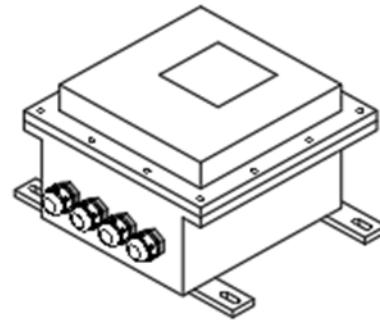
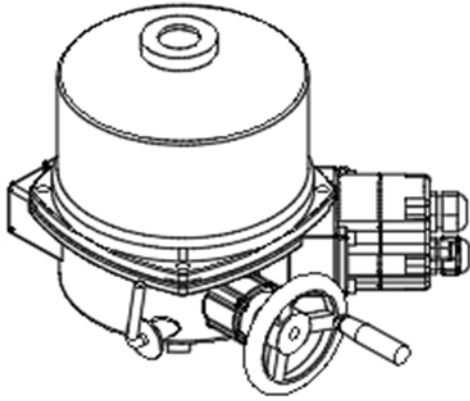
EOE/EME SERIES (AC power supply)

Model	Rated torque Nm	Adjusting torque NM	Power	Direct Connection														Flange	Weight Kg
				W1	W2	W3	W4	H1	H2	H3	H4	Φ D		Md					
												ENISO 5211	MSS SP-101	ENISO 5211	MSS SP-101				
																mm			
EOE50	50	22	20W	266	69	190	11x11	230	35	183	142	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	10kg		
EOE100	10	22	40W	281	77	216	14x14	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EOE200	200	22	60W	281	77	215	17x17	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F10* (F07)**	12kg		
EOE400	40	29	90W	291	90	339	22x22	287	55	180	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20kg		
EOE600	60	29	140W	291	90	387	27x27	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22kg		
EME200	200	66	25W	281	77	215	17x17	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EME400	400	58	60W	291	90	339	22x22	287	55	180	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20kg		
EME600	600	87	60W	291	90	387	27x27	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22kg		
EME800	800	58	140W	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25kg		
EME1000	1000	58	180W	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27kg		

EME/EOE SERIES (24V DC power supply)

Mode	Torqu e Nm	Fastest Open/ Close time s	Cur ren t A	Po wer W W1	Direct Connection														Flang e	We igh t Kg
					W1	W2	W3	W4	H1	H2	H3	H4	Φ D		Md					
													ENISO 5211	MSS SP-101	ENISO 5211	MSS SP-101				
																	mm			
EOE50-S	50	11	3.3	40	266	69	190	11x11	230	35	183	142	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	10		
EOE100-S	100	11	7	100	281	77	216	14x14	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12		
EOE100	100	34	3.3	40	281	77	216	14x14	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12		
EOE200	200	34	6.5	100	281	77	215	17x17	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12		
EOE400	400	43	10	150	291	90	339	22x22	287	55	180	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20		
EOE600	600	43	12	180	291	90	387	27x27	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22		
EOE800	800	62	10	150	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25		
EOE1000	1000	62	10	200	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27		
EME100	100	34	3.3	40	281	77	216	14x14	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12		
EME200	200	34	6.5	100	281	77	215	17x17	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12		
EME400	400	43	10	150	291	90	339	22x22	287	55	180	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20		
EME600	600	43	12	180	291	90	387	27x27	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22		
EME800	800	62	10	150	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25		
EME1000	1000	62	10	200	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27		

Note: 1.) *, Standard for connection size; 2.) **, Option for connection size



5.3.10 IP68 SPLIT TYPE OUTLINE DIMENSION DRAWINGS

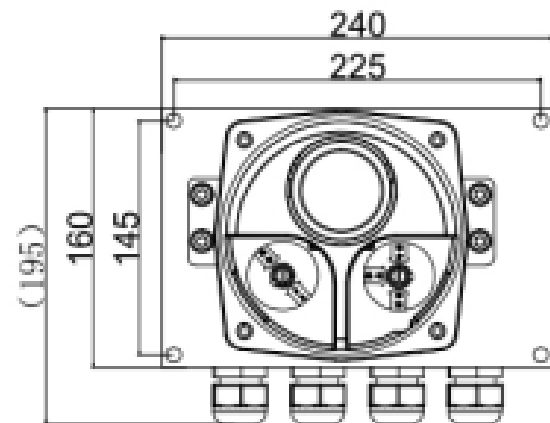
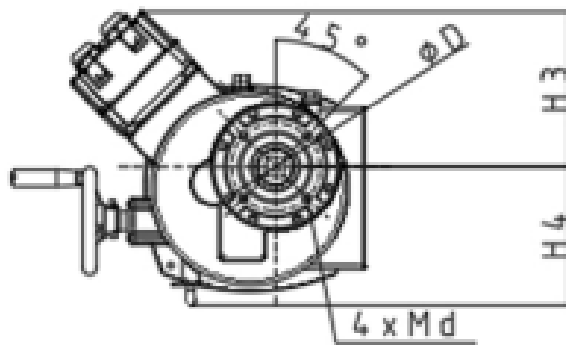
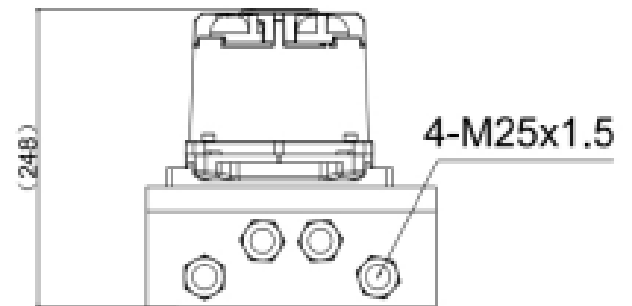
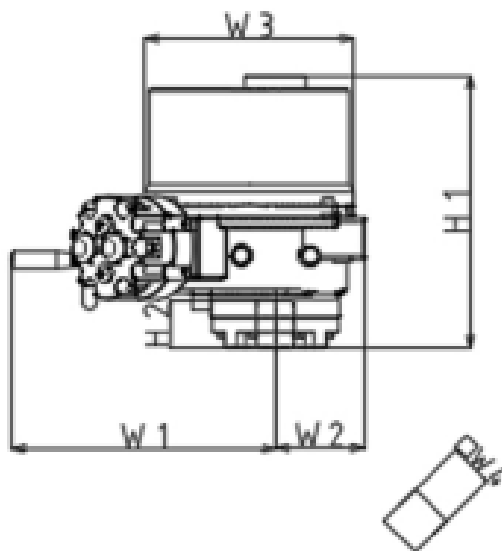
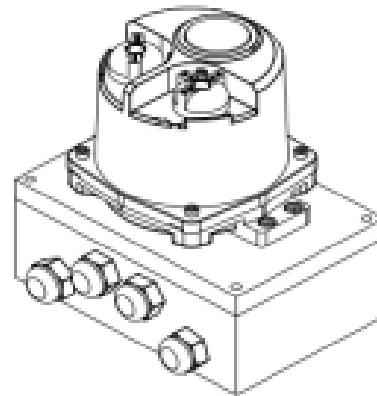
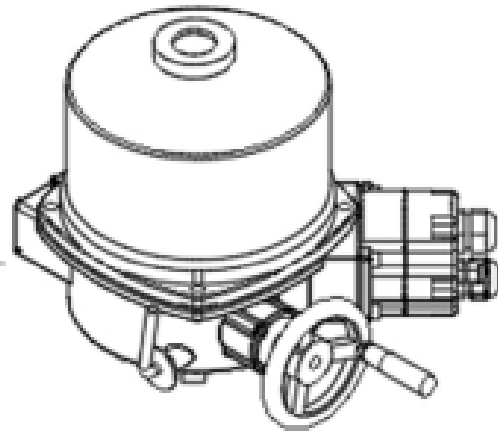
EOE/EME SERIES (AC power supply)

Model	Rated torque	Adjusting torque	Power	Direct Connection														Flange	Weight
				W1	W2	W3	W4	H1	H2	H3	H4	Φ D		Md					
												ENISO	MSS	ENISO	MSS				
																5211	SP-101		
mm												Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	10kg		
EOE50	50Nm	22	20W	266	69	190	11x11	230	35	183	142	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EOE100	100Nm	22	40W	281	77	216	14x14	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F10* (F07)**	12kg		
EOE200	200Nm	22	60W	281	77	215	17x17	256	35	183	151	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20kg		
EOE400	400Nm	29	90W	291	90	339	22x22	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22kg		
EOE600	600Nm	29	140W	291	90	387	27x27	287	55	180	164	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EME200	200Nm	66	25W	281	77	215	17x17	256	35	183	151	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20kg		
EME400	400Nm	58	60W	291	90	339	22x22	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22kg		
EME600	600Nm	87	60W	291	90	387	27x27	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25kg		
EME800	800Nm	58	140W	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27kg		
EME1000	1000Nm	58	180W	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27kg		

EME/EOE SERIES (24V DC power supply)

Model	Torque	Fastest Open/Close time	Current	Power	Direct Connection														Flange	Weight
					W1	W2	W3	W4	H1	H2	H3	H4	Φ D		Md					
													ENISO	MSS	ENISO	MSS				
																	5211	SP-101		
mm																				
EOE50-S	50Nm	11s	3.3A	40W	266	69	190	11x11	230	35	183	142	Φ50 Φ102	Φ50.8 Φ101.6	M6 M10	1/4-20 3/8-16	F05* (F10)**	10kg		
EOE100-S	100Nm	11s	7A	100W	281	77	216	14x14	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EOE100	100Nm	34s	3.3A	40W	281	77	216	14x14	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EOE200	200Nm	34s	6.5A	100W	281	77	215	17x17	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EOE400	400Nm	43s	10A	150W	291	90	339	22x22	287	55	180	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20kg		
EOE600	600Nm	43s	12A	180W	291	90	387	27x27	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22kg		
EOE800	800Nm	62s	10A	150W	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25kg		
EOE1000	1000Nm	62s	10A	200W	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27kg		
EME100	100Nm	34s	3.3A	40W	281	77	216	14x14	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EME200	200Nm	34s	6.5A	100W	281	77	215	17x17	256	35	183	151	Φ70 Φ102	Φ69.9 Φ101.6	M8 M10	5/16-18 3/8-16	F07* (F10)**	12kg		
EME400	400Nm	43s	10A	150W	291	90	339	22x22	287	55	180	164	Φ102 Φ125	Φ101.6 Φ125.7	M10 M12	3/8-16 1/2-13	F10* (F12)**	20kg		
EME600	600Nm	43s	12A	180W	291	90	387	27x27	287	55	180	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	22kg		
EME800	800Nm	62s	10A	150W	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	25kg		
EME1000	1000Nm	62s	10A	200W	388	102	239	27x27	362	55	193	164	Φ125 Φ102	Φ139.6 Φ101.6	M12 M10	1/2-13 3/8-16	F12* (F10)**	27kg		

Note: 1.) *, Standard for connection size; 2.) **, Option for connection size



5.4 Key Features

● For Intelligent Model:

- ✓ Password protection
- ✓ Auto phase correction, Phase lost detection
- ✓ ESD
- ✓ PST
- ✓ Input/output user programable
- ✓ Reverse protection
- ✓ Jam valve/Blockage, 1.5 torque of nominal max torque
- ✓ Absolute encoder for sensing with high Resolution
- ✓ Deadband, user adjustable
- ✓ PC based Smartrac
- ✓ Serial communication

● For Base Model:

- ✓ Rugged, reliable design
- ✓ Manual switch handle
- ✓ IP67, IP68 optional
- ✓ Vibration endurance
- ✓ Mechanical position indicator

5.5 Partial Stroke Test (PST)

Partial stroke test, PST, a very useful method for avoiding the complete failure of on/off valves is the partial stroke test (PST). Many valves are used very rarely in practice, such as safety valves which only have to open or close in an emergency. Their friction may increase in the course of time, especially the initial break-off force or torque of linear and rotary actuators respectively as a result of corrosion or increasing encrustation of the plug stem. Normally a short, small movement of the valve in the closing direction is not disturbing the system process. The PST can be triggered by the control system (remote).

PST remote triggering: PST can be triggered through digital inputs or optional fieldbus signals.

PST operation process:

1. The actuator must be in the open or close position.
2. The actuator must be in remote mode and ready state.
3. Publish PST (remote).
4. The status of 'PST' is set to 'PST is in a ready state'
5. The actuator moves from its starting position to a predefined testing range.
6. After reaching the testing position, the actuator remains at that position for a specific time (predefined), and then moves back to the starting position.
7. If PST is successful, the status will be set to PST - successful, otherwise it is a PST error.
8. The status of the PST can be continuously monitored through digital outputs or through optional digital communication (such as fieldbus).

To achieve a successful PST, the following terms must be met:

1. The actuator must be in the open or close position. The starting position of the travel test is 0-100% PST. This value must be 0% or 100%. If the actuator is not in this position when PST starts, the test will not be executed and will not successfully end.
2. Throughout the entire PST period, the actuator must be in remote mode and ready state (error free).
3. PST must not be interrupted by other commands (on/off inputs, commands from optional fieldbus).
4. Do not exceed the shut-off torque during PST.
5. The total time of PST must be lower than the preset maximum time.

Note: If one or more of the above terms are violated, the PST will not be successful.

PST Menu Settings:

This function is a partial stroke testing function, which can set the PST dwell time (0-10 seconds) and PST motion range (0%~30%);

The PST function can be activated in the fully open or fully closed position through remote digital input;

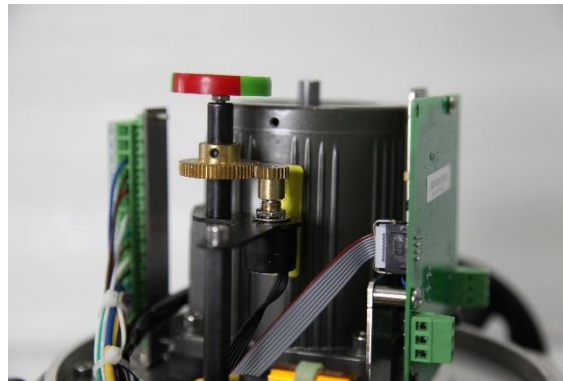
If the PST dwell time is set to 5 seconds and the PST range of motion is set to 30%,

In the fully open position, after receiving the PST digital signal, the equipment runs from the fully open position to 70%, stays for 5 seconds, and automatically returns to the fully open position;

If the PST function cannot be completed due to valve blockage or other reasons during this process, the equipment outputs a PST fault digital output signal;

5.6 Position Sensing

With Absolute encoder, resolution: 90 degrees with sensor/encoder output 0-2000, for full cycle, the resolution is 0.11 degree.



5.7 Sensitivity Control

- Response time: Responding to control signal, to determine how fast actuator should respond to the external control command, can choose up to 5%, rate of change, can choose with 0.5% rate of change as a step.
- Dead band: Actuator position accuracy, to determine how accurate actuator should be, there is a balance, if it is too accurate, it's hard for actuator to settle, can choose with 0.5% rate of change as a step

5.8 Remote Controller

User friend local menu operation

- With infra red communication, recommend to use within 1m from actuator
- Only for general purpose use



5.9 Serial Communication

- Profibus: Profibus DP (Decentralized Peripherals) up to a baud rate of 1.5Mbit/s. Our actuators are supplied with active bus termination. The electrical connections are via RS485 type A. Double channel profibus to give redundancy available as option.
- Modbus: RTU protocol communications at a baud rate up to 38.4kbits/s. Our factory default speed is 9.6kbits/s giving a 1.5km maximum distance between nodes. We use a master / slave query response polling cycle with CRC (Cyclic Redundancy Check).
- Hart: HART Communication Protocol (Highway Addressable Remote Transducer) connectivity. HART allows use of conventional 4 – 20 mA wiring.

5.10 Smartrac for Asset Management

- Actuator setup
- Online simulation



5.11 QR Code

For easily track factory set data and direct connect to company website for require request or operational manual download



Manufacturing data authentication



Basic Information

Product Type	EME50-A
Serial Number	765211105T2419922
Power Supply	100-600V,1/3PHASE
Manufacturing Date	2024-03-29
Duty Mode	Modulating
Speed	22s/90°
Max. Switch-off Torque	50Nm

Electrical control

Input Signal	Optocoupler
Output Signal	Isolated Contact
Digital Communication	Hart
Failsafe	No

Option

Enclosure Protection	IP67
Explosion Protection	No
Split Type	No
Anti Condensation Heater	No
Documents	Instruction Manual

Thank you for using Ontrac Intelligent Electric Actuators. If you need more information, please tap on the links below.

[Ontrac Brochure](#)

[Wiring Diagram](#)

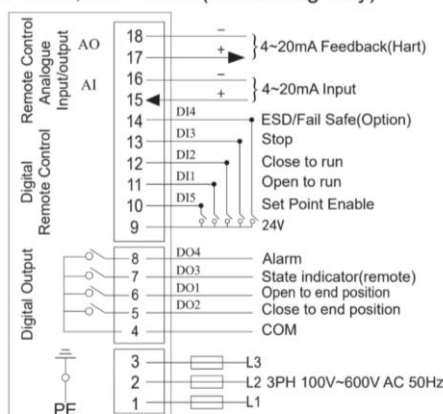
[Operation Manual](#)

[Services Request](#)



Service request linked to Ontrac website

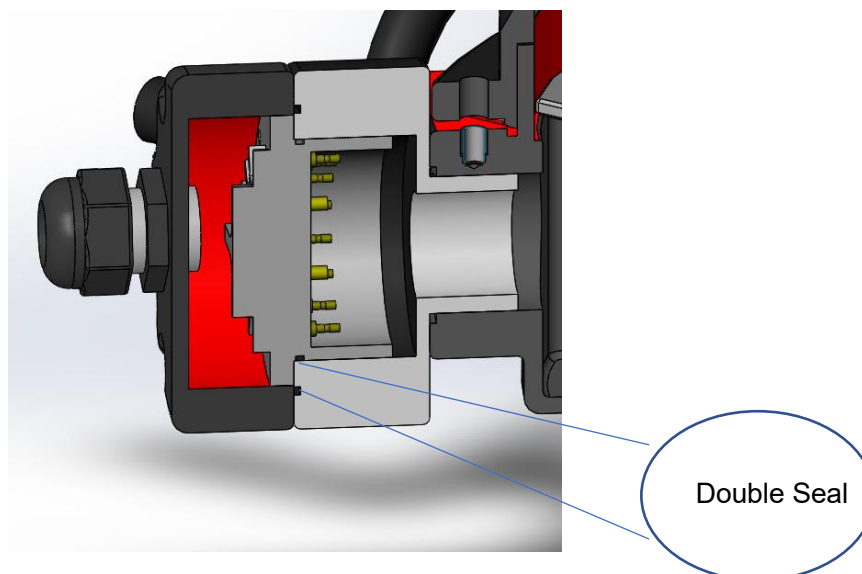
3PH AC,100V~600V(Modulating duty)



5.12 Actuator Protection

Easytrac provides an option for double sealing for Explosion proof, or IP68 version, for even more protection against ingress. Two seals are provided which gives additional protection when the actuator terminal compartment is open. Easytrac IP68 to mee the following requirements:

- Depth of water: maximum 10 m head of water
- Duration of continuous immersion in water: Max. 72 hours
- During continuous immersion, Up to 10 operations



5.13 Cable Entries

For standard Easytrac, we offer 2 entries, 1xM25 for power supply, 1x M25 for signals in/out and serial communication. (Refer to Fig1)

For Ex type of Easytrac, we offer 4 entries, 1xM25 and 1xM32 for power supply, 2x M16 for signals in/out and serial communication or bus routing. (Refer to Fig 2)



Fig 1.

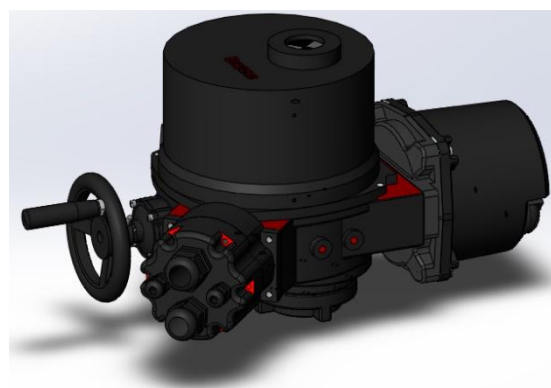


Fig 2.

6. Installation

6.1 Actuator Check for pre-condition

- Does the actuator fit to the valve?

Fitting to a valve:

- Ontrac actuators are supplied in closed position.
- The units are standard configured to give clockwise output on a close command.
- The Handwheel can be supplied to give clockwise or anticlockwise output, this needs to be verified at ordering stage, it can not easily be changed on site!
- For setting up on a quarter turn valve it is recommended to put the valve also in closed position and then fit the actuator. Note that the splined adaptor between actuator and valve adaptor allows easy repositioning.

6.2 Installation Hints



- Actuators can only be installed with solid mounted valves, in special case, it is necessary to reinforce the valves and pipelines.
- Actuator weight is listed in the table (Refer to 5.2). Lifting equipment shall be used when site conditions require this.
- If actuators are assembled to the valves or heavier components, lifting actuator is prohibited, only lifting valves and gearing is allowed.
- Ensure the actuator weight is fully supported by the valve mounting flange not by the valve stem.
- After the actuator is installed, if it cannot be connected immediately, please do not open the terminal cover or unscrew the sealing cover at the cable inlet, otherwise the protection grade of the actuator may be reduced to IP43
- When lifting the equipment, use ropes around the assembly of the unit, avoiding collision with the handwheel and/or hand lever.
- During hoisting, please do not lift the actuator by using a hook at the position of hand wheel or manual switch handle

6.3 Hand Crank Force

A hand crank with lever is provided for manual operation.



Exceeding the permissible hand crank force, required for the max. on-off torque, can damage the actuator and / or the valve.

The following hand crank forces are required to provide the max. on-off torque:

Reduction ratio for part turn:

- For EOE/EME 200: 39:1, $200/39 \approx 5\text{Nm}$

That is the force received at a distance of 1m is 5N. Because the diameter of the hand crank is 0.1M,

the force received on the hand crank is 50N

- For EOE/EME 400: 50:1, $400/50=8\text{Nm}$

That is the force received at a distance of 1m is 8N. Because the diameter of the hand crank is 0.1M, the force received on the hand crank is 80N

- For EOE/EME 600: 50:1, $600/50=12\text{Nm}$

That is the force received at a distance of 1m is 12N. Because the diameter of the hand crank is 0.1M, the force received on the hand crank is 120N

Note: The planetary gear reducer (4:1) is optional. With the reducer, the force received on the hand crank is converted to $120/4=30\text{N}$.

- For EOE/EME 800: 50:1, $800/50=16\text{Nm}$

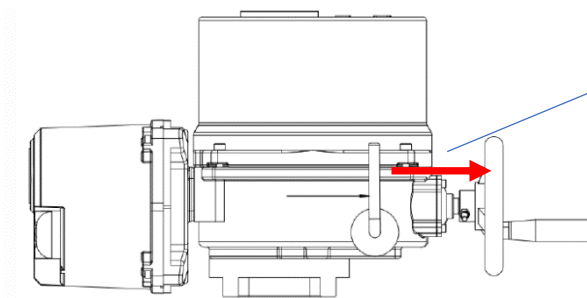
That is the force received at a distance of 1m is 16N. Because the diameter of the hand crank is 0.1M, the force received on the hand crank is 160N

Note: The planetary reducer (4:1) is optional. With the reducer, the force received on the hand crank is converted to $160/4=40\text{N}$.

- For EOE/EME 1000: 50:1, $1000/50=20\text{Nm}$

That is the force received at a distance of 1m is 20N. Because the diameter of the hand crank is 0.1M, the force received on the hand crank is 200N

Note: The planetary gear reducer (4:1) is optional. With the reducer, the force received on the hand crank is converted to $200/4=50\text{N}$.



Operation:

When an actuator is in full stop, press manual override level in the direction as showing in the figure, clockwise will manually operate the actuator.

When the automatic operation of the actuator ends, the manual override level will reset anticlockwise.



Please do not try to use hand crank when actuator is in motor driven operation mode

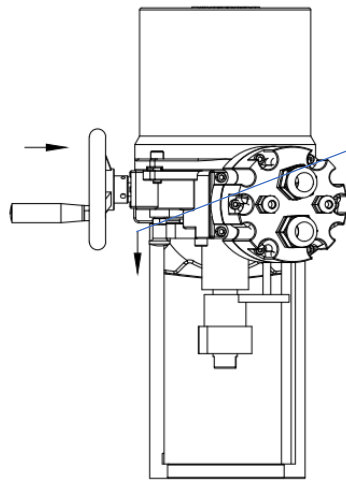
Reduction ratio for linear:

- For EOE/EME 400L, $4000/4/35 \approx 28.6\text{Nm}$

That is the force received at a distance of 1m is 28.6N. Because the diameter of the hand crank is 0.1M, the force received on the hand crank is 286N

- For EOE/EME 600L, $6000/4/35 \approx 42.9\text{Nm}$

That is the force received at a distance of 1m is 42.9N. Because the diameter of the hand crank is 0.1M, the force received on the hand crank is 429N



Operation:

When the actuator stops completely, pull the limiter down according to the direction shown, so that the limiter is stuck in the second keyway of the hand wheel rod, then the actuator can be operated manually.

When the manual operation stops completely, pull down the limiter, push the handwheel rod into the first keyway in the direction shown, then the actuator can be operated automatically.



Please do not try to use hand crank when actuator is in power on and in running mode

6.4 Stop Bolts

Adjust end stop only for factory setting. (for angle adjustment. Max. at 115°).



Consult factory before use these two bolts

6.5 Mounting with Base and Lever



Prior to mounting, check whether there is sufficient space. Ensure that the actuator or other parts are not in the swivel range of the lever. The mounting support of the part-turn actuator must be solid, rigid and low in vibration. The corrosion protection for the weld nut and the tube must be provided by the customer.

Installation procedure:

1. Make sure the installation space and platform are proper for actuator. The size of actuator and its base, please to refer fig. 1

For indications to the holes in the base flange, refer to the following illustration.

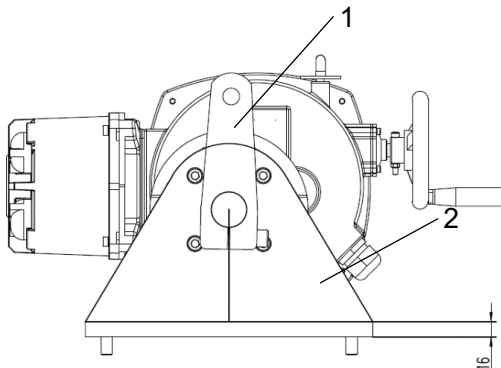


Fig.1

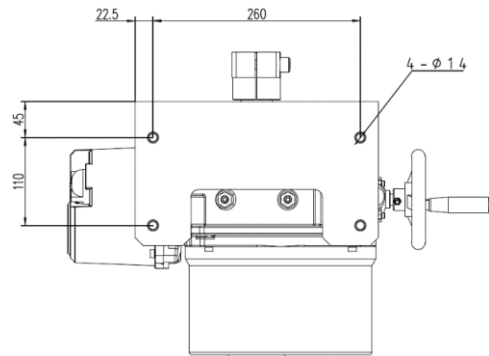


Fig.2

2. Align actuator arm with the customer crank arm in parallel



Fig.3

1. Customer crank arm

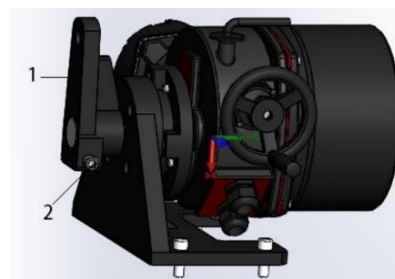
2. Actuator arm

3. Change the lever position

If necessary, the position of the lever arm can be changed. Adjustment of the lever by one spline corresponds to 20° at the output drive shaft.

Procedure:

- 1) Loosen the fastening screw (item 2)
- 2) Remove the crank arm (item 1)



4. Installation of Damp Rod (Provided by Customer)

The following table shows the dimensions

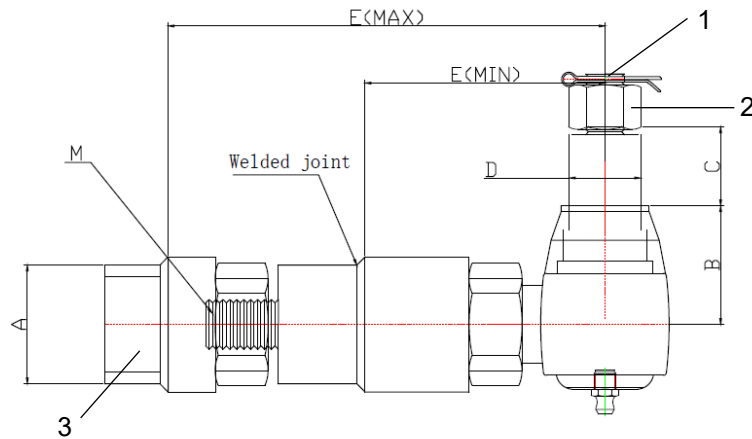


Fig.4

Selection and dimension table of ball joint						Adjust parameters			
Model	Hinge torque	Inner diameter and wall thickness of welded pipe A	B	Pin length	Diameter of direct pin shaft D	Screw thread M	Maximum adjustment E(MAX)	Minimum adjustment E(MIN)	Adjustment range
	Nm			C					
QJ60	600	Ø24x5	31	20	Ø18	M20x1.5	140	70	0-70

* For damper rod (provided by customer)

1. Insert ball joint (fig. 4) into straight hole at the customer crank arm (fig.3, item 1), tighten with castellated nut (fig.4, item 1) and secure castellated nut against loosening by means of a split pin (fig.4, item 2).
2. Insert the other ball joint into the hole of customer's crank arm and fasten using a castellated nut. Use a splint to secure castellated nut against loosening.
3. Align the customer crank arm (fig.3, item 1) with the actuator arm (fig.3, item 2) until they are in parallel.
4. Screw both weld nuts (fig.4, item 3) on the spherical hinge up to the middle of the internal thread of the nut.

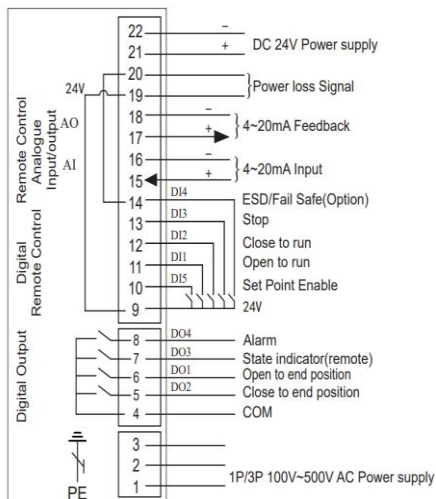
Heed minimum thread engagement: $x_{min.} = 1 \times \text{thread diameter}$

7. Electrical Connection

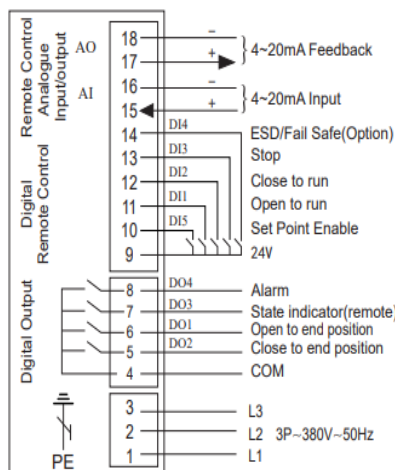
7.1 Electrical Wiring Diagram

7.1.1 Wiring Diagrams of Intelligent Mode :

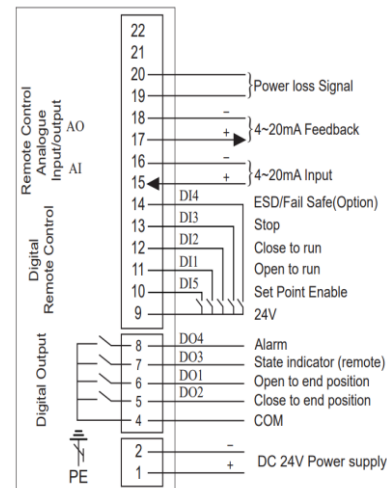
1-phase/3-phase- AC,100V ~500V(Modulating duty)



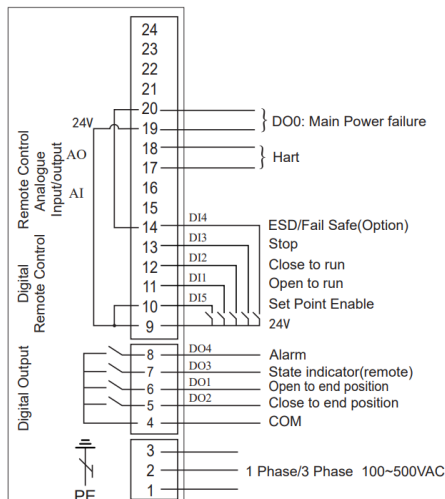
3-phase AC,380V(Modulating duty)



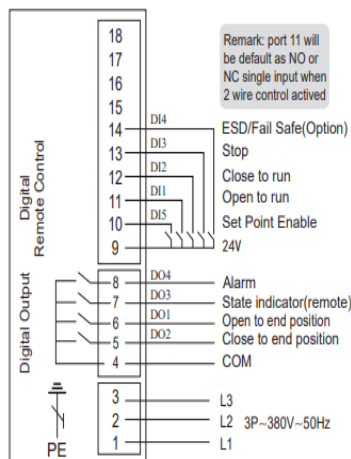
DC,24V(Modulating duty)



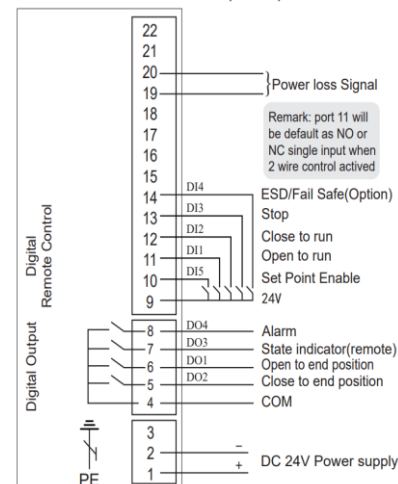
1 Phase/3 Phase 100~500VAC (on-off)



3-phase AC,380V(on-off)

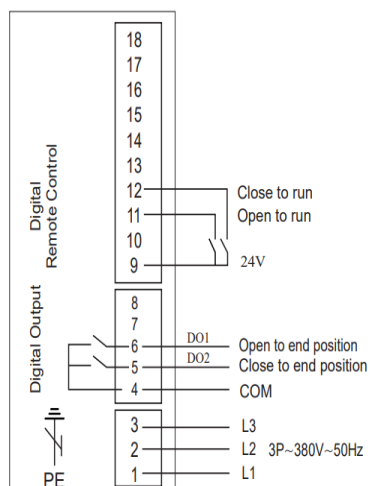


DC 24V(on-off)

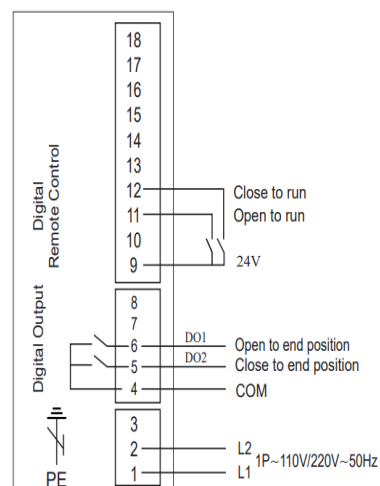


7.1.2 Wiring Diagrams of Basic Type:

1-phase AC, 110V/220V

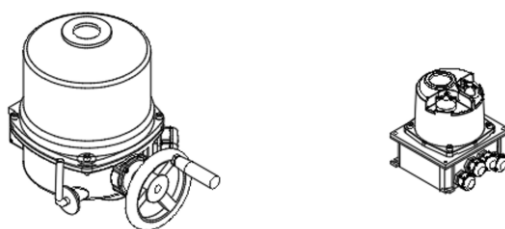


3-phase AC, 380V

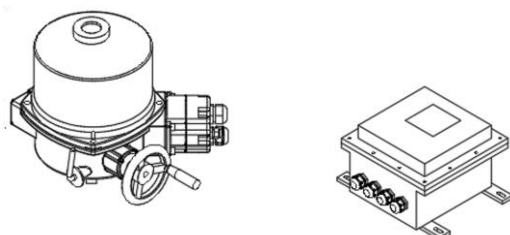


7.1.3 Wiring Diagrams of Split-Type:

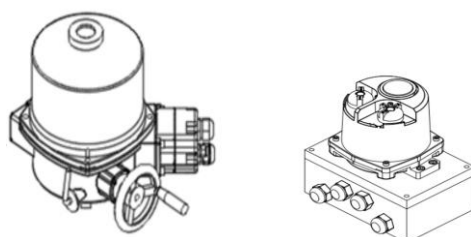
Split Type

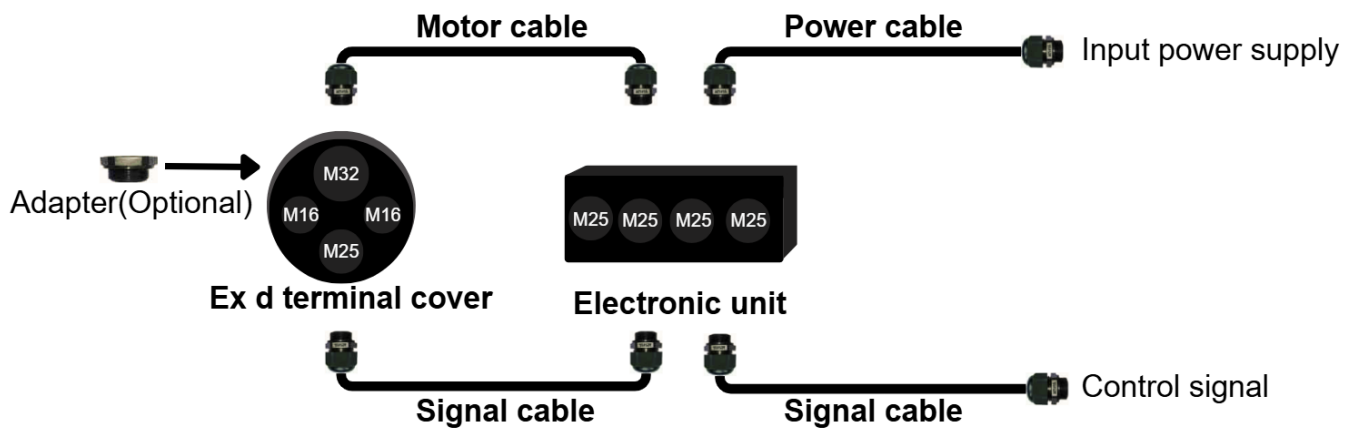


Explosion-proof Split Type



IP68 Split Type





Cables between are generally provided by customer, following below recommendations.

1. The sensor signal cable shall be 5-core cable with shield; The sectional area of the line shall be minimum 0.5mm^2 , and the length of the line shall be within 5m, not exceeding 10m, otherwise please contact factory;
2. The motor cable shall be 4-core cable with shield; The sectional area of the line shall be minimum 2.5mm^2 , and the length of the line shall be within 5m, not exceeding 10m, otherwise please contact factory
3. For cable selection, we recommend you to choose the size that fit glands provided as your power and signal cables. Using gland adopter to fit different size of each side where applies. Please make sure the glands are fully tightened after wiring to ensure IP68 sealing.
4. Cable conforming to the national standard IEC 60227 and IEC 60245 shall be preferred.
5. If used in high temperature environment, please choose right temperature rating cable, cable protection shell, etc. that meet the requirements;

7.1.4 Optional functions of DI&DO channel:

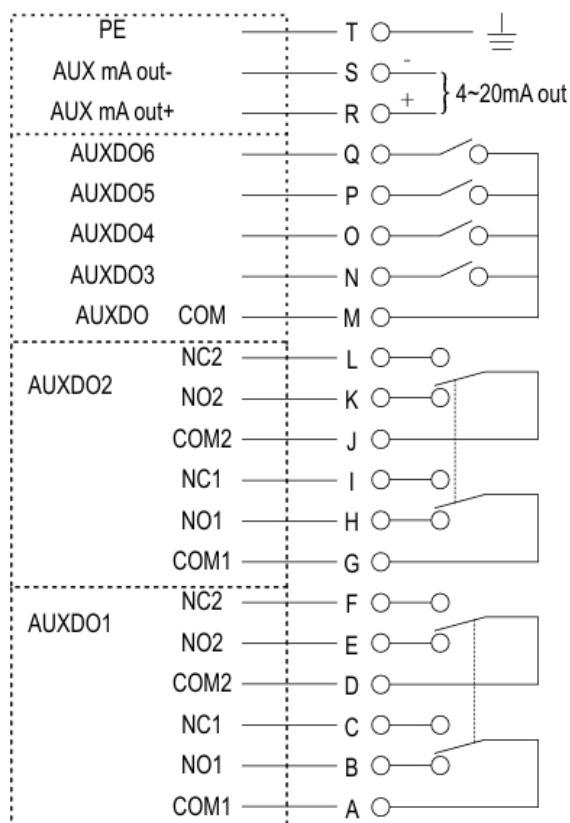
DI Input channel functions as optional

Value	Clarification
SetPointEnable	Analog Control Enable
OpenDirection	Open Direction Command
CloseDirection	Turn-off command (computing)
StopDirection	Shutdown command
AlarmReset	Alarm reset
ESD/Failsafe	ESD/Failsafe Directive
PSTDiretion	PST instruction
LimSwitchStop	Limit switch
TwoWireCtrl	Two Wire Ctrl

DO Output channel functions as optional

Value	Clarification
FullopenIndi	Fully open indicator
FullCloseIndi	All-off instructions
RemoteIndicat	Remote indication
Failure&Alarm	malfunction alarm
AI_Loss	AI_Loss
OpenoverTorq	Open over Torque
CloseOverTorq	Close over Torque
Valve1ToEnd	Valve1To End
Valve2ToEnd	Valve2 To End
LocalControl	Local Control
RunHoldSignal	Run Hold Signal
RunPulseSignal	Run Pulse Signal
OpnPulseEndHold	Open Pulse End Hold
CloPulseEndHold	Close Pulse End Hold
OpenRunHold	Open Run Hold
CloseRunHold	Close Run Hold
ESDRunHold	ESD Run Hold
PSTRunHold	PST Run Hold
BluetoothC.	Blue tooth C.
HandleSignal	Handle Signal

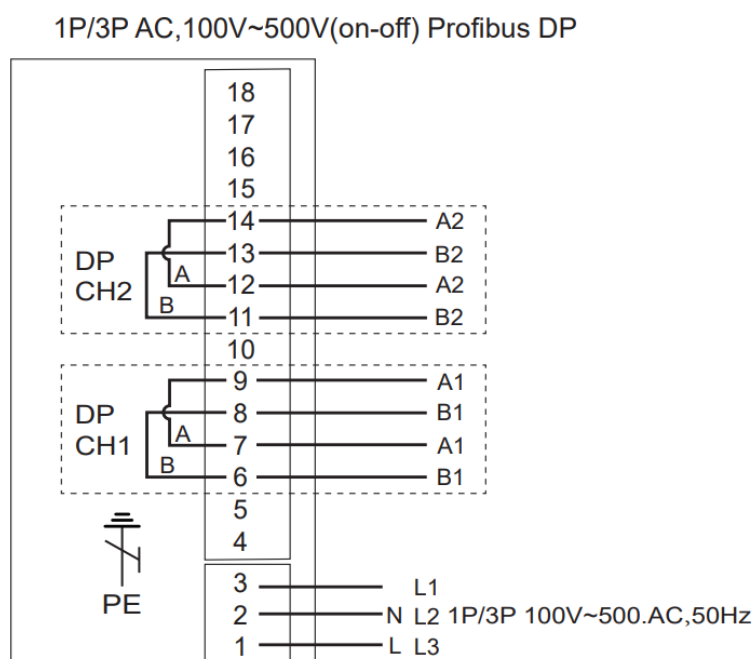
7.15 Wiring diagram and optional functions of additional channel:



	Default	Min	Max
AUXDO1	Valve1ToEnd	FullOpenIndi	HandleSignal
AUXDO2	Valve2ToEnd	FullOpenIndi	HandleSignal
AUXDO3	LocalControl	FullOpenIndi	HandleSignal
AUXDO4	ESDRunHold	FullOpenIndi	HandleSignal
AUXDO5	PSTRunHold	FullOpenIndi	HandleSignal
AUXDO6	BluetoothC	FullOpenIndi	HandleSignal

options	
OPEN_END	RUN_HOLD_SIGNAL
CLOSE_END	RUN_PULSE_SIGNAL
REMOTE_CONTROL	OPEN_PULSE_END_HOLD
FAULT_MESSAGE	CLOSE_PULSE_END_HOLD
ANALOG_IN_LOSS	OPEN_RUN_HOLD
OPEN_OVER_TORQUE	CLOSE_RUN_HOLD
CLOSE_OVER_TORQUE	ESD_RUN_HOLD
VALUE1_TO_END	PST_RUN_HOLD
VALUE2_TO_END	BLUETOOTH_CONNECTED
LOCAL_CONTROL	HANDLE_OPERATION_OUT

7.1.5 Profibus DP Wiring Diagram:



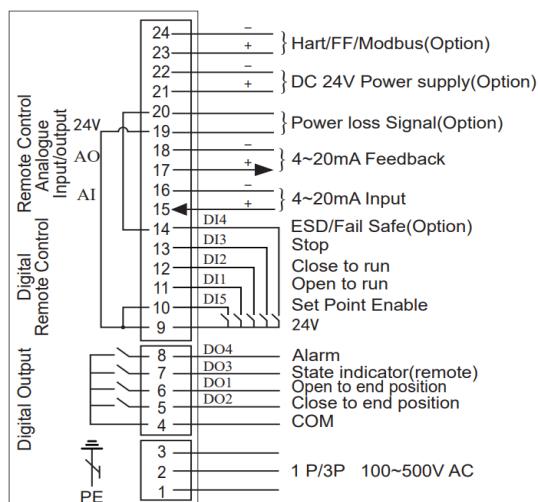
Ontrac electric actuators can support Profibus DP protocol with additional code of "286". A Profibus network segment can connect up to 32 Ontrac electric actuators. The transmission speed of Ontrac electric actuators can be 9.6kbps ~ 1500kbps

Transmission rate and cable length	Baud rate (kbps)	Maximum cable length without repeater	Maximum cable length with repeater
	9.6	1200m	About 10km
	19.2	1200m	About 10km
	45.45	1200m	About 10km
	93.75	1200m	About 10km
	187.5	1000m	About 8km
	500	400m	About 4km
	1500	200m	About 2km

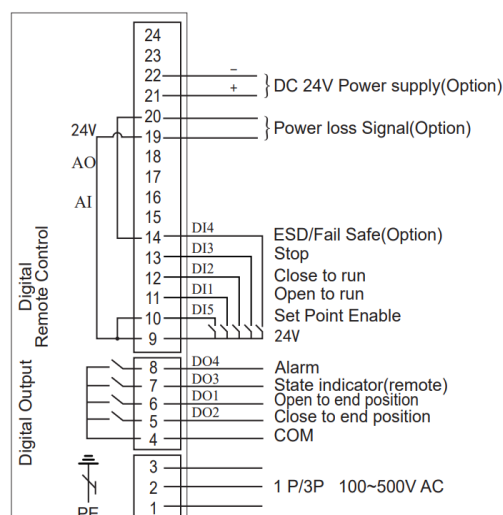
Number of bus type mechanism stations	Baud rate (kbps)	Maximum number of actuators
	9.6	32
	19.2	32
	45.45	32
	93.75	32
	187.5	16
	500	6
	1500	2

7.1.6 Modbus/Hart Wiring Diagram:

1P/3P 100~500V AC (Modulating duty)

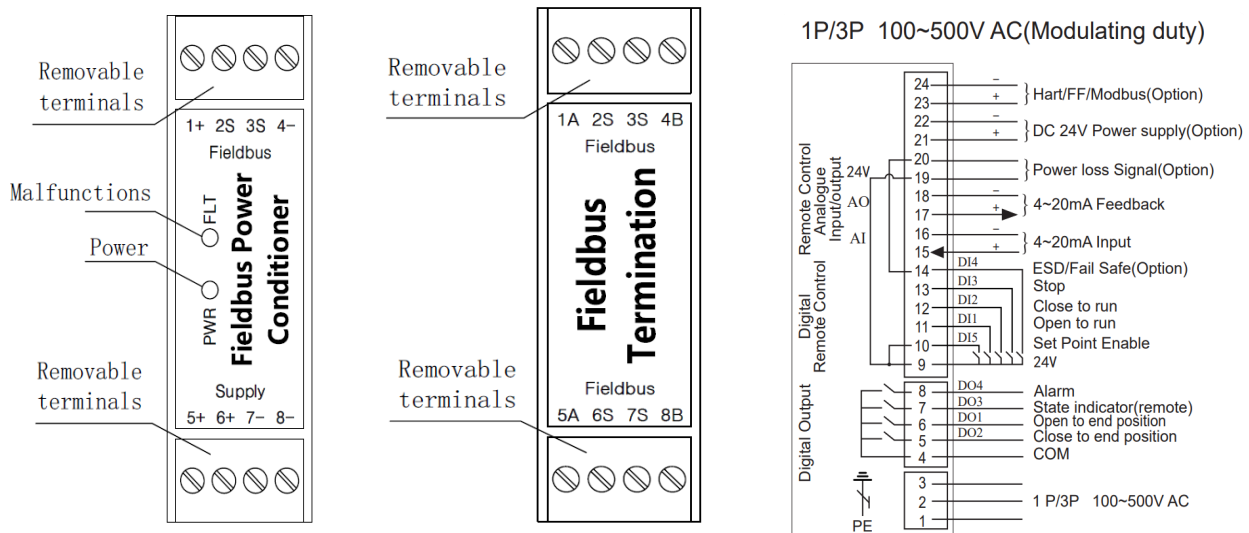


1P/3P 100~500V AC (on-off)



Ontrac electric actuators can support Modbus protocol with additional code of "288".

7.1.7 Foundation Fieldbus Wiring Diagram:



7.2 Wiring Steps

7.2.1 Electrical Wiring:



1. Use an Allen wrench remove the top cover of actuator.
2. Thread wiring cable through the waterproof connectors, for plug-in end cover, remove connector before wiring, and restore it after wiring.
3. Tighten waterproof screw to seal all the cable entrance.
4. After check-up, put end cover back, please do not forget the O- ring to ensure proper sealing.



5. Spring type crimping segments:

During operation, please insert a straight screwdriver for electrician into the hole of the wiring terminal as shown in the figure, press down the internal metal reed, then insert the bare end of the power line or signal line into the wiring hole, and loosen the screwdriver.

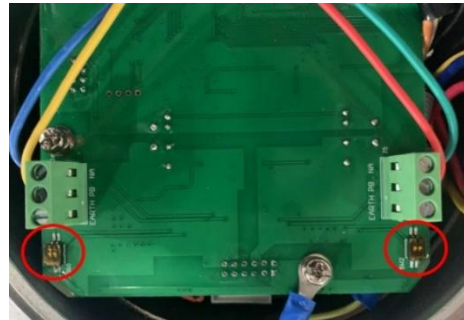


6. Screw connection terminal:

During operation, please use a small electrician's slotted screwdriver to loosen the screws on the terminal as shown in the figure. Then insert the treated bare end of Profibus DP communication line into the wiring hole and tighten the screws on the terminal. And connect the shielding layer to the grounding terminal.



Profibus DP line shield grounding terminal resistance



Terminal resistance switch located in the electrical control unit

7.2 Anti-condensation heater

Switch-on the mains supply in order to avoid condensation.

7.3 Wire cross section

Power cable	2.5 mm ²
Signal cable	0.5 mm ²

7.4 Thread size for cable glands

Waterproof cable glands are provided in the attached zipper bag, protection class is IP68.

- When the actuator is installed in a hazardous area, ensure all equipment and cabling practices follow the rules for that area.
- When in doubt please contact your Ontrac local representative

	Gland (Standard)	Gland (Ex Type)						Converter (optional)	
Metric	2 x M25 X 1.5	2 x M16 X 1.5		1 x M25 X 1.5		1 x M32 X 1.5		M32→M25	M25→M16
Applicable Cable Diameter	Ø10~ Ø13 Ø13~ Ø18(Optional)	Ø4~ Ø8		Ø10~ Ø13 Ø13~ Ø18(Optional)		Ø16~ Ø21		Ø10~ Ø13 Ø13~ Ø18(Optional)	Ø4~ Ø8
Actual Product Image		standard 	optional 	standard 	optional 	standard 	optional 		
Approx. AWG Range*	AWG 12– AWG 6 (optional AWG 6– AWG 4)	AWG 20–AWG 14		AWG 12–AWG 6 (optional AWG 6– AWG 4)		AWG 6–AWG 3 / up to AWG 2		AWG 12– AWG 6 (optional AWG 6– AWG 4)	AWG 20– AWG 14

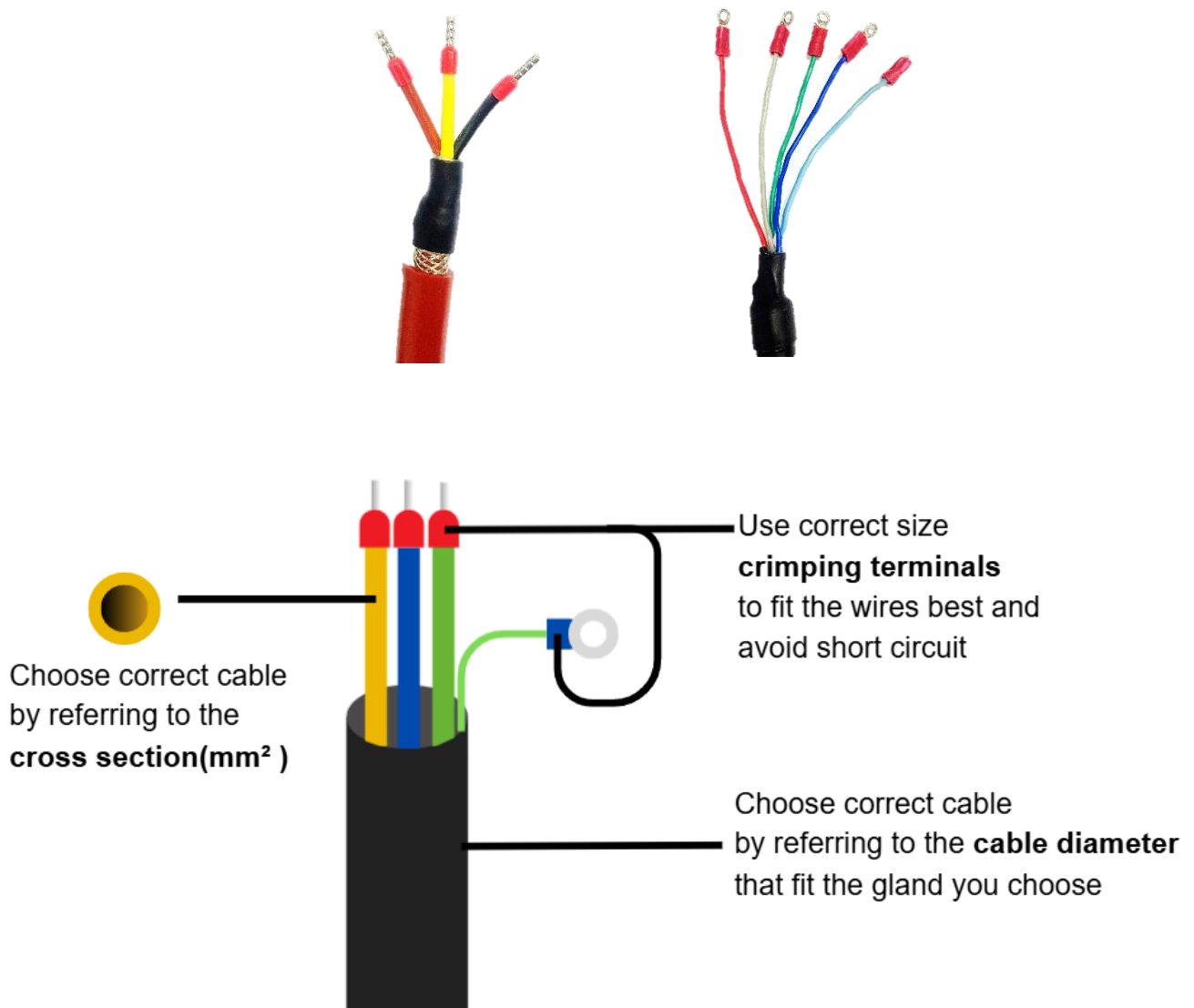
* **Note:** AWG conversion is approximate. Always refer to actual cable outer diameter from the cable manufacturer.

- Ensure to use same protection level of the connector cable with Easytrac in order to ensure stated protection level.
- All of the signal cable must be shielded.
- Length of connecting cable between the remotely located control head and the physical actuator

should not exceed 10 meters

- After wiring, ensure that all unused cable holes are plugged off with sealed plugs.
- Final sealing performance and IP68 protection level depend on the actual cable outer diameter, cable jacket material, and installation torque. Always confirm compatibility with the cable gland manufacturer datasheet.
- Cable entries are separated by function to ensure EMC protection, safety and ease of wiring.
 - ◆ **Power / Motor cables** carry higher current and require larger cable diameters
 - ◆ **Signal cables** are typically low-level communication or analog signals and may require shielding.

7.5 Example of power and signal cables



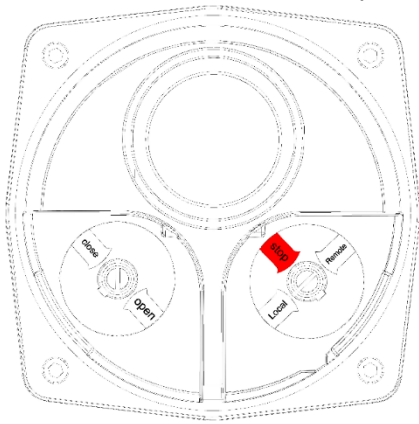
8. Adjustment

8.1 Mode Selector Switch Instruction

The actuator is equipped with a local control panel with various elements for operation and display. Switch the mode selector switch to LOCAL in order to drive the actuator with the operating switch open/close. for parameter setting via local control panel.

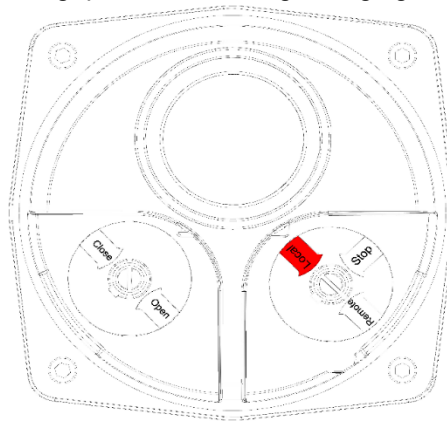
Onsite operation determined by MODE selection:

- Switch to REMOTE: read-only, remote control normal
- O/S (Out of Service): read-only, remote control signal ignored
- Local: on/close position setting, parameter setting/changing, alarm/failure reset, online diagnosis, etc.).



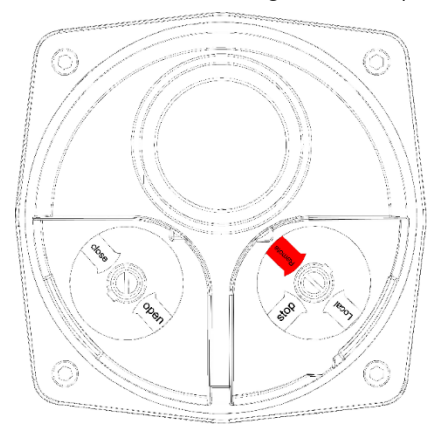
Stop Mode

Actuator does not accept any local or remote commands.



Local Control Mode

Only local open and close commands. Also menu operations.



Remote Control Mode

Only accepting remote control.
Also enter menu to view actuator's parameter and setting.

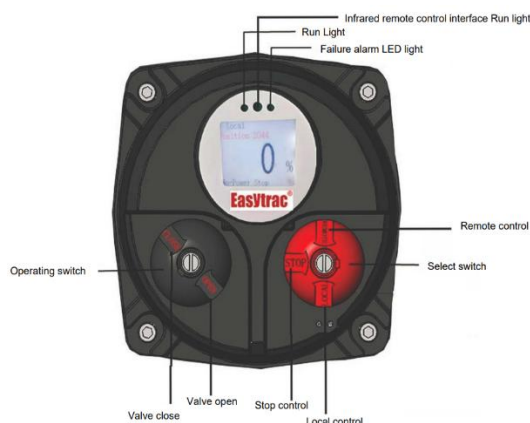
ESD signal override all above

If user password enabled, read-only at local

8.2 Panel Instruction

LEDs: 1 green for operation, and communication/blinking

Red: alarm/failure



How to work with the menu of the Easytrac actuator using local buttons

Red selector **REMOTE/** accept menu changes and exit

Red selector **STOP** /allow into menu and changes in menu-lines

Red selector **LOCAL/** select a chosen menu-line

Black selector **CLOSE/** Initial position (hold) to enter in menu (only in **STOP**)

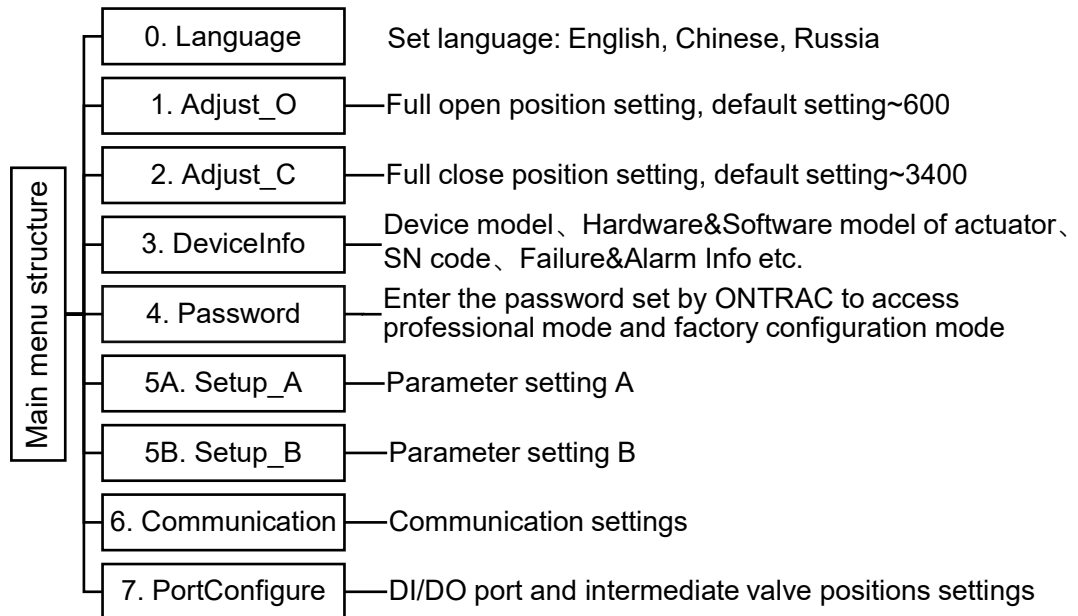
Black selector **OPEN & CLOSE/**selection the options in a menu-line (only in **STOP**)

In Detail

1. To enter the menu put red selector in **STOP** position
2. Turn black selector to **CLOSE** and hold until menu appears
3. Turn black selector again (**OPEN / CLOSE**) to move the required menu line)
4. Move red selector to **LOCAL** to select the submenu
5. Move red selector to **STOP** to get overview of options in this submenu
6. Turn black selector again (**OPEN / CLOSE**) to move the required submenu line)
7. Move red selector to **LOCAL** to select the line of the submenu
8. Move red selector to **STOP** to get overview of options in this line
9. Move black selector again (**OPEN / CLOSE**) to select the required entry or value)
10. Move red selector to **REMOTE** to go to the menu to save of cancel the change in this line
11. Move red selector to **STOP** to enable to choose the options in this line
12. Move black selector again (**OPEN / CLOSE**) to select the required entry or value)
13. Move red selector to **REMOTE** to save the change in this line

8.3 Operation Menu

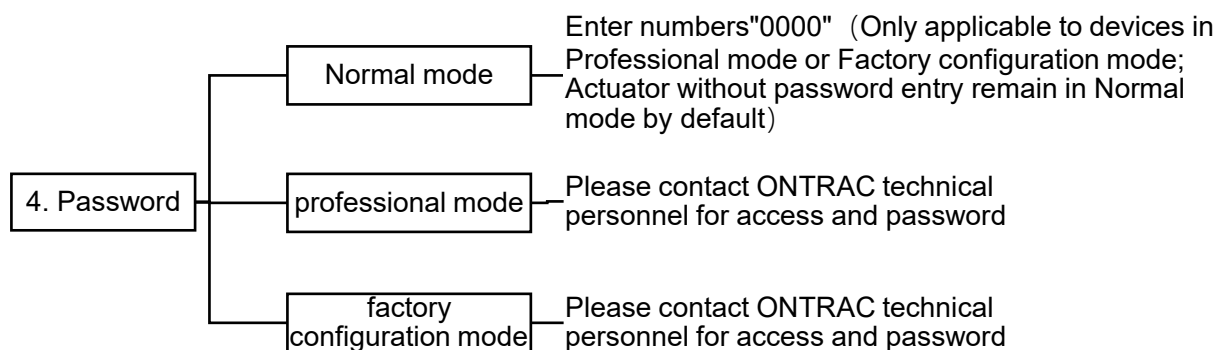
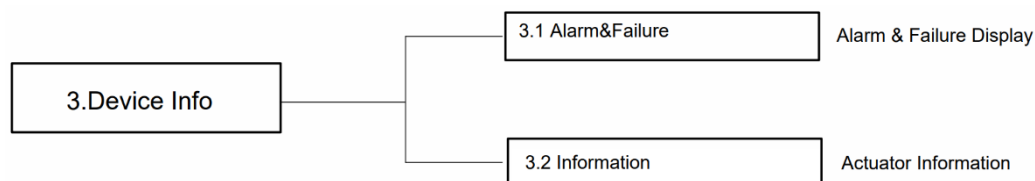
Main Menu Structure



- Almost all of actuators' function can be set or adjusted (position setting, parameter setting, configuration, diagnosis, etc.) via control panel.
- Using smartrac can also set parameters, please refer to Smartrac manual.
- End position of the Easytrac is preset by factory. No need to enter menu 1. Adjust_O or 2. Adjust_C for checking or changing. If you need any instructions about end position issues, please contact ONTRAC Representative or factory support.



Submenu Structure





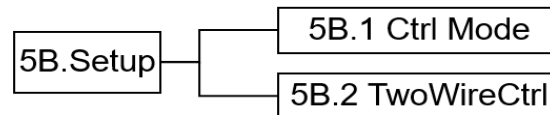
		Default Value
5A.Setup	5A.1.Key_Mode	-Local Control Mode
		InchingMode
	5A.2.DI_Mode	-Digital input Control Mode
		InchingMode
	5A.3 FailReset	-Failure & Alarm Reset

	5A.4 In4mA	-Input 4mA calibration

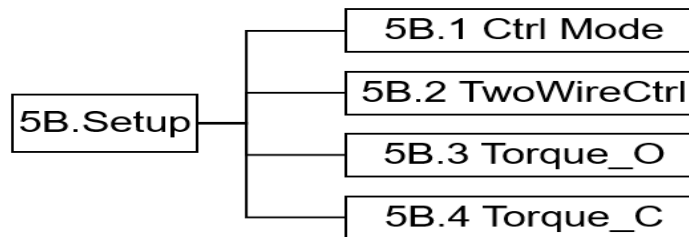
	5A.5 In20mA	-Input 20mA calibration

	5A.6 Out4mA	-Output 4mA calibration
		100
	5A.7 Out20mA	-Output 20mA calibrator
		100
	5A.8 ExternResolut	-External deadzone setting
		5
	5A.9 InnerResolut	-Internal deadzone setting
		20
	5A.A ESD/FailSafeMode	-ESD/FailSafe mode setting, hold current position or run to target position
		NoResponse
	5A.B ESD/FailSafeValveSet	-Target Position setting while ESD is activated.This submenu is active when ESD Mode is "Target"
		50
	5A.C AILostMode	-Analog in Lost mode setting, hold current position or run to target position
		NOW
	5A.D AILostValveSet	-Target Position setting, while Analog in Lost.This submenu is active when AI Lost Mode is "Target"
		50
	5A.E AuxOut4mA	-Addition board output 4mA calibration
		110
	5A.F AuxOut20mA	-Addition board output 20mA calibration
		110
	5A.G PST_Range	-Partial Stroke Test (PST) operation range setting
		3%
	5A.H PST_Holdtime	-Hold time setting after partial stroke test function PST(Partial Stroke Test) is in place
		5s

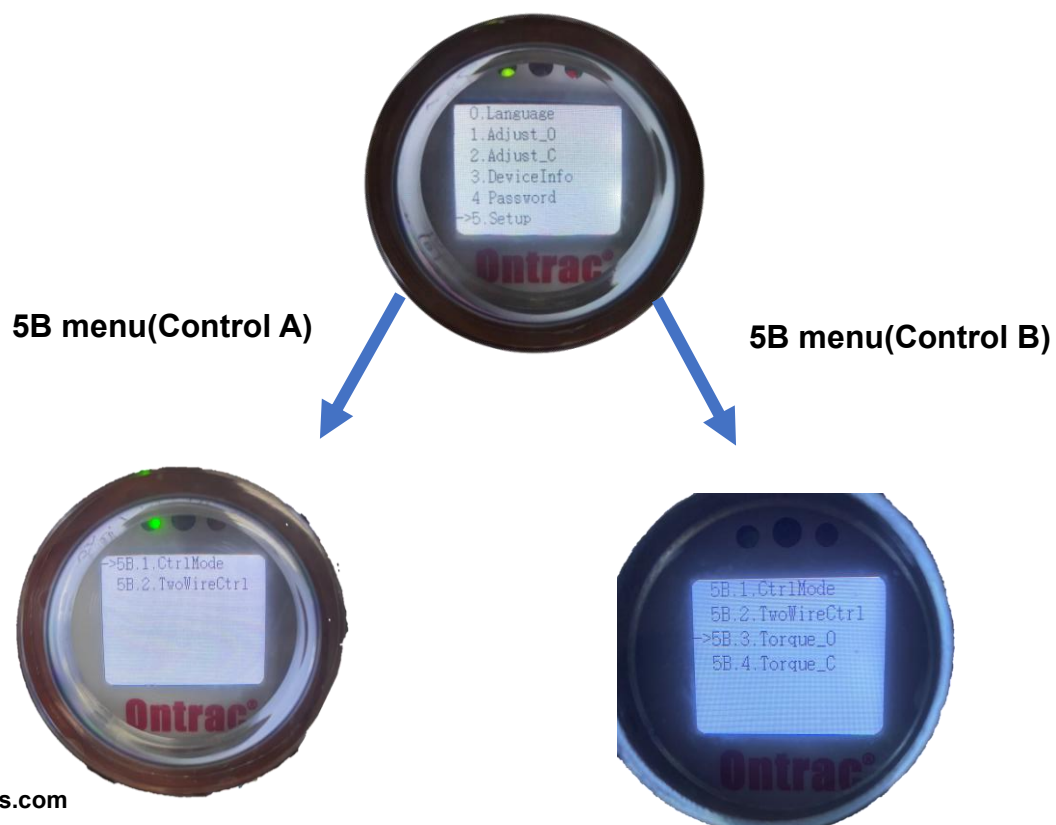
5B menu (Control A)



5B menu (Control B)



- Torque_O (Opening Torque) and Torque_C (Closing Torque) are used to set the target torque (or torque limit) for the opening and closing directions respectively. These parameters take effect only in ControlB.
- Torque Detection and Protection
- **The device includes an internal torque detection function (via torque sensing or equivalent torque estimation) to monitor motor torque in real time, used for:**
 - 1) **Torque closed-loop control (ControlB):** Torque output follows the Torque_O / Torque_C settings to improve operation consistency.
 - 2) **Over-torque protection / obstruction detection:** When actual torque exceeds the set threshold or remains abnormal, the device will limit torque, decelerate, or stop to prevent mechanical damage and improve safety.



			Default Value
6.Communication	6.1 Mds Address	Modbus Address Setting	1
	6.2 Mds Bps	Modbus baud rate Setting	9600
	6.3 Dp Address	Dp Address Setting	1
	6.4 Dp Mode	Dp Redundancy Mode Setting	SR

(Note: 6.3 & 6.4 for option.)



9. Alarms and Failures

9.1 Alarm and Failure Messages

No	Display Text	Error Description	Reason/Measure
1	Motor Lin	Wrong output wiring of motor	Need Ontrac technical personnel instruction or on-site service
2	Block_O	Blocking in Open direction	Try operate the actuator in opposite direction, if the alarm is still on, please increase the setting value, but make sure value within limited working condition
3	Block_C	Blocking in Close direction	Try operate the actuator in opposite direction, if the alarm is still on, please increase the setting value, but make sure value within limited working condition
4	Torque_O	Open torque is faulty	Adjust the actuator torque alarm value in the menu (do not exceed the valve torque limit) And check whether the valve is mechanically stuck
5	Torque_C	Close torque is faulty	Adjust the actuator torque alarm value in the menu (do not exceed the valve torque limit) And check whether the valve is mechanically stuck
6	Phase Los	Phase of main power supply missing	Check main power supply
7	End_Pos	Out of adjustable travel range	Manually shake the handle to move the mechanical position to the operable position
8	Coder Los	Encoder not match or error	Change the encoder
9	Electr Temp	Temperature limit for motor exceeded	Actuator will stop working until motor cools down

No	Display Text	Alarm Description	Reason/Measure
1	Set Point	Input exceeds the limit	Please check current supply, make sure the current is within 4mA – 20mA
2	Hand wheel	Abnormal operation status of hand wheel	Push the handwheel back to the original electric operation position
3	Limit AllOp	Open to end position alarm	Use the hand crank to roll the device to an unlimited

			position to eliminate the alarm
4	Limit AllCIs	Close to end position alarm	Use the hand crank to roll the device to an unlimited position to eliminate the alarm
5	Electr Temp	Temperature limit for motor exceeded	It will alarm if it's exceed limit temp, but the actuator can still run, only the alarm prompt

10. Product Maintenance

10.1 General

- After commissioning, check actuator for damage may have due installation for the paint finish. Thoroughly touch up with right tool and paint to recover damaged spots to prevent corrosion.
- To ensure long term operability, we recommend the following measures:
Every six months after commissioning and or after once a year of operation, check fixing screws between actuator and valve, for tightness. If required, tighten the screws.
Every 2 years, check each actuator visually for leakage of oil/grease.

11. Service

- Ontrac and its partners provides comprehensive services upon request.
Please visit us at www.ontracactuators.com

Appendix A – Requirements for User-Supplied Signal Cables for IP68 and Ex Versions

This appendix supplements sections 5.12 Actuator Protection, 5.13 Cable Entries, 7.4 Wire Cross Section (plug) and 7.5 Thread Size for Cable Glands of this manual. It does not change any information given in the preceding chapters.

It applies to Easytrac actuators ordered with:

- **IP68 enclosure protection** (up to 10 m water head, 72 h, with up to 10 operations during immersion), and/or
- **Ex db eb IIC T4 Gb explosion-proof versions.**

In all cases, the signal and communication cables are supplied by the end user. Correct selection and installation of these cables are essential to maintain the declared IP68 / Ex protection.

A.1 Reference standards

The enclosure protection of the actuator and cable glands is designed and tested in accordance with **IEC 60529 (IP Code)**.

For Ex versions, the cable glands used must also comply with the relevant **IEC/EN 60079** explosion-protection standards, with a protection level not lower than the actuator rating.

Note: The IP rating of the actuator can only be maintained if the cable glands, blanking elements and user-supplied cables are installed and tightened within the specified ranges.

A.2 Cable entries and compatible cable diameters (summary)

According to the technical data of this manual:

- Standard version
 - 2 × M25 × 1.5 cable entries
 - Suitable for power and signal cables with outer diameter approximately **10–16 mm**, depending on the cable gland selected.
- Ex version
 - 1 × M25 × 1.5 and 1 × M32 × 1.5 for power supply
 - 2 × M16 × 1.5 for signal I/O and communication/bus routing

The exact usable cable diameter range depends on the specific certified cable gland used (standard or optional). The diameter of the user-supplied cable must fall within the clamping range of that gland. If the outer diameter is too small, the sealing insert cannot compress the jacket properly and **the IP68 / Ex protection will be lost.**

A.3 Requirements for user-supplied signal cables

To maintain the enclosure rating and ensure reliable operation, user-supplied signal and communication cables shall meet at least the following requirements:

1. Outer diameter and roundness

- The cable outer diameter must be within the minimum and maximum clamping range of the selected cable gland (M16 / M25 / M32 as applicable).
- Cables with significantly smaller diameter than specified, non-round shapes, or soft/uneven jackets cannot be sealed reliably and may compromise the IP68 and Ex rating at the cable entry.

2. Cable construction and standards

- Use industrial cables with a round overall sheath and suitable mechanical robustness for the installation (UV, oil, abrasion as required).
- For signal and sensor/communication wiring, cables in accordance with IEC 60227 / IEC 60245 or equivalent national standards are recommended.
- For high-temperature environments, select cables, connectors and protective conduits with a temperature rating at least equal to or higher than the maximum ambient temperature specified for the actuator.

3. Shielding

- All low-level signal and communication cables (e.g. position feedback, analog 4–20 mA, fieldbus) shall be **overall shielded** to minimize electromagnetic interference.
- The cable shield must be terminated in accordance with the wiring diagrams in Chapter 7 (for example, connected to the dedicated grounding terminal for bus shielding where provided).

4. Conductor size

- For plug-in connections inside the actuator, typical cross-section values are:
 - Power cable: approx. 1.5 mm² (rigid or flexible).
 - Signal cable: approx. 0.75 mm² (rigid or flexible).
- When the actuator is installed with a remotely located control head (split type), ensure that conductor size and cable length are selected such that voltage drop and signal quality remain within limits. As a guideline, the distance between the remote-control head and the actuator should not exceed 10 m unless otherwise agreed with Ontrac.

5. Compatibility with IP68 / Ex glands

- Only use cable glands and blanking plugs that are certified for the same or higher IP and Ex rating as the actuator.
- Do not mix uncertified or lower-rated glands with IP68 / Ex actuators.

A.4 Installation notes for maintaining IP68 / Ex rating

When installing user-supplied signal cables:

1. Route each cable through the corresponding cable gland or conduit entry supplied or approved by Ontrac.
2. Strip insulation carefully to avoid damaging the outer jacket in the sealing area.
3. Tighten the gland nut to the torque specified by the gland manufacturer so that the sealing

element fully grips the cable jacket.

4. Ensure all unused entries are closed with suitable certified sealing plugs.
5. After wiring, visually check that:
 - the cable is straight in the gland, without eccentric bending at the entry;
 - the outer jacket is not cut or nicked under the sealing element;
 - the O-ring and cover gasket are present and clean before closing the actuator cover, in line with the double-sealing concept described in section 5.12.

Failure to meet these requirements can reduce the protection level below IP68 and may invalidate the explosion-protection certification.

A.5 Responsibilities

Selection of the external cabling (type, size, jacket material, routing and mechanical protection) is the responsibility of the end user or plant designer. Ontrac guarantees the IP and Ex ratings of the actuator only if:

- the actuator is installed according to this manual,
- all cable entries use properly certified glands and plugs, and
- user-supplied cables comply with the dimensional and construction requirements described above.

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