

For ITX0050 Installation and Operational manual (Feb.04, 2026)



ITX-0050-EXPLOSION PROOF

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ITX 0050 User Manual

Thank you for purchasing the ITX Series Actuator!

For safe and smooth operation, please make sure to read and understand this manual before use.



Important: The contents of this user manual are subject to change without prior notice for the purpose of improving quality or performance

After receiving the actuator, please make sure to check the following items

- 1) Verify that the individual inspection report and electrical wiring drawings are either attached to the inner cover or enclosed inside.
- 2) Visually inspect the painting, position indicator, and other parts to ensure there are no abnormalities.
- 3) Confirm that the inspection report, nameplate, and electrical wiring drawings comply with the purchase requirements.
- 4) If the product is not of the standard specification, check that the supplied product matches the requested specifications.

1. Precautions

- 1) When selecting a valve and actuator, allow approximately 30% margin in torque. For example, if the valve requires 35 Nm of torque, the appropriate actuator should have 50 Nm.
- 2) Do not fully open or fully close the actuator before the limit switch settings are completed.
- 3) After completing electrical wiring, ensure that the cable entry is properly sealed.
- 4) Consider environmental conditions such as temperature, humidity, vibration, and voltage drop when determining the installation site.
- 5) If the actuator is not installed immediately, store it in a clean and dry location.
- 6) This manual includes solutions for simple problems; however, if difficulties persist, please contact us or our authorized distributor.
- 7) For repair or maintenance, provide us with the model number, electrical specifications, serial number (S/N), and details of the current operating conditions and specifications to ensure prompt service.

2. Safety precautions for explosion-proof equipment

1) Specific Operating Conditions

Explosion-proof joints cannot be repaired.

Fastening components of grade A2-50 must be used.

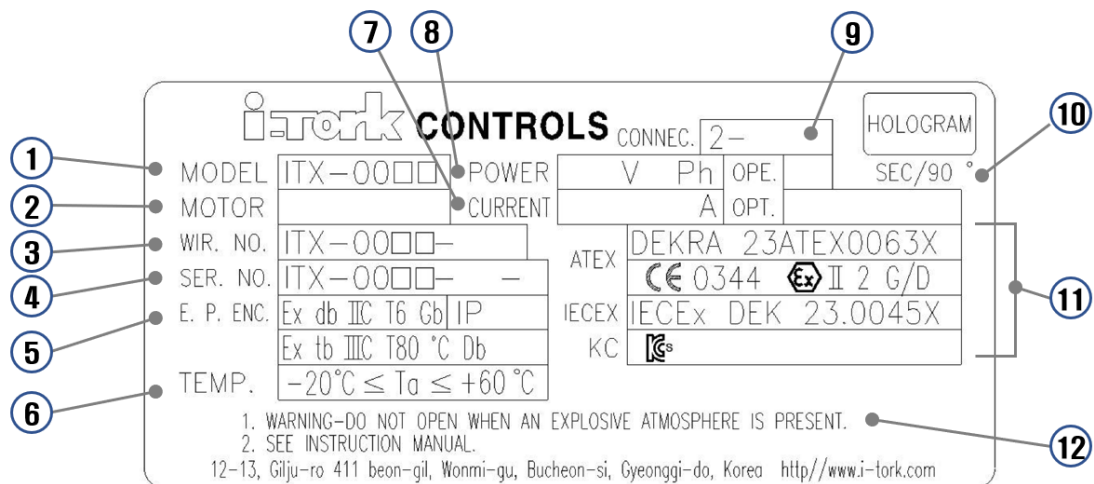
2) General Precautions

- Do not open in explosive atmospheres.
- During installation, certified cable glands must be used.
- To maintain explosion-proof characteristics, separately certified cable glands, conduit entry devices, or blanking elements must be applied (e.g., cable glands certified for Ex db IIC)
- When using adapters at cable entries, only one threaded adapter may be used per entry.
- Unused cable entries must be sealed with blanking elements (blind plugs) certified for Ex db IIC. Blanking elements must not be used together with adapters
- Protective grounding and equipotential bonding must be connected.
- Before operating this equipment, ensure that all electrical and mechanical connections and installation requirements are met.

Refer to this manual and the applicable standards/codes, including the latest edition of EN/IEC 60079-14

3. Technical specification

1) Name Plate



- | | |
|------------------------------------|-----------------------------------|
| ① Model type | ⑦ Rated current |
| ② Motor type | ⑧ Rated power |
| ③ Wiring diagram number | ⑨ Cable entry size |
| ④ Serial number | ⑩ Operating time and option |
| ⑤ Ex protection type and IP rating | ⑪ Ex related certification number |
| ⑥ Ambient temperature | ⑫ Warning for safe use |

2) Explosion-Proof Information

IECEX certification	IECEX DEK 23.0045X (Compliance to IEC 60079-0:2017, IEC 60079-1:2014, and IEC 60079-31:2022)
ATEX certification	DEKRA 23ATEX0063X (Compliance to EN IEC 60079-0:2018, EN 60079-1:2014, and EN IEC 60079-31:2024)
Ex marking (for explosive gas atmosphere)	Ex db IIC T6 Gb
	-Ex: Ex-product
	-db: Equipment protection by flameproof enclosures "d"
	-IIC: Equipment group or gas group, IIC
	-T6: Temperature class (maximum surface temperature ≤ 85 °C)
	-Gb: EPL (Equipment Protection Level, Zone 1)
Ex marking (for explosive dust atmosphere)	Ex tb IIIC T80 °C Db
	-Ex: Ex-product
	-tb: Equipment dust ignition protection by enclosure "t"
	-IIIC: Equipment group or dust group, IIIC
	-T80 °C: Maximum surface temperature (≤ 80 °C)
	-Db: EPL (Equipment Protection Level, Zone 21)
ATEX marking	 0344  II 2 G/D
Ambient temperature	-20 °C ~ +60 °C
Cable entries	2 - M20x1.5 or 2 - NPT 1/2
Material	enclosures: aluminum alloy / window cover: stainless steel

3) Performance

Torque (Nm)	50 Nm
Operating speed (sec)	13 sec
Main power supply	AC 85 ~ 265 V ± 10 % (Universal Voltage), MAX 0.6A AC/DC 24 V ± 10 %, (MAX 2.0A)
Duty cycle (ON/OFF)	S2 30 min, S4 50 % (IEC 60034-1)
Control signal (Modulating)	Input : 4~20mA, 0~20mA 1~5V, 2~10V, 0~5V, 0~10V Output : 4~20mA, 0~20mA 1~5V, 2~10V, 0~5V, 0~10V
Space heater	2 W
Limit switch	2ea Open, Close
AUX. Limit switch	2ea Open, Close
Ambient humidity	90 % R.H. MAX (non-condensing)
Ingress protection	IP 67 (OPTION: IP68)
Weight (kg)	3

4. Model code designation

ITX0050 - a b c d

a = Enclosure

1. IP67
2. IP68
3. Ex db IIC T6 Gb IP67
4. Ex db IIC T6 Gb IP68

b = Input voltage

1. AC 85 ~ 265V 1Ph (Universal Voltage)
2. AC/DC 24V

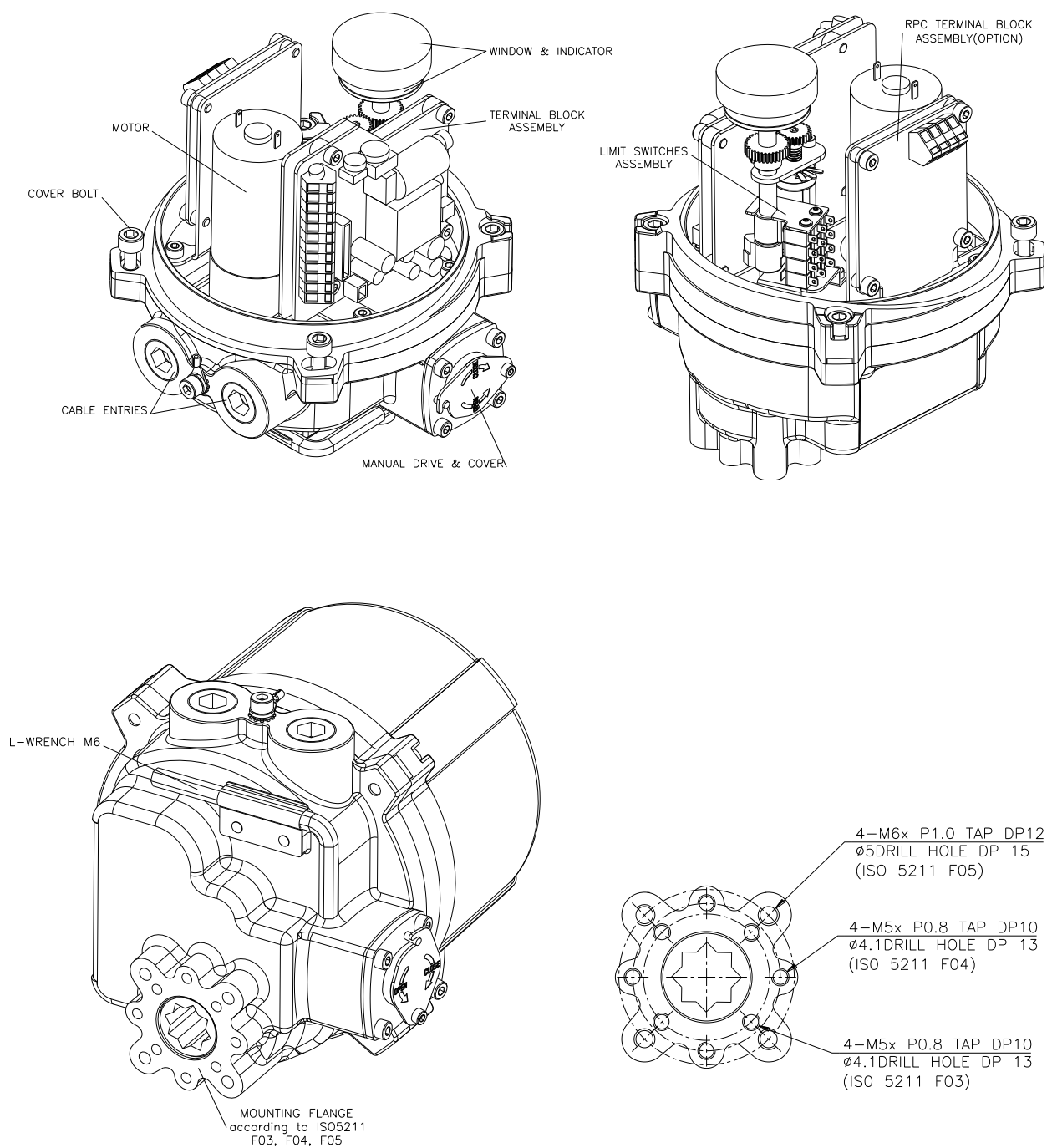
c = Type of operation

1. ON/OFF
2. RPC(Remote Position Controller)
3. CT(Current Transmitter)
4. PK (Potentiometer Unit, 0 ~ 1KΩ)

d = Fieldbus

1. Modbus
2. Profibus
3. Can open
4. HART
5. Foundation Fieldbus

5. Actuator components



6. Actuator valve selection and installation

The ITX actuator is suitable for direct mounting on ISO standard flange valves and dampers. By using appropriate mounting brackets and adapters, the ITX can be installed on all types of quarter-turn equipment. The following table provides a simplified reference for valve selection.

1) Actuator valve selection

Valve Actuator	Rated Torque (Nm)	Butterfly Valve 10K (ANSI 150#)	2-WAY Ball Valve 10K (ANSI 150#)	3-WAY Ball Valve 10K (ANSI 150#)
ITX-0050	50	50A	32A	25A

Precautions

- The table is intended as a guideline to assist with quick selection.
- The valve size must be determined by considering the valve manufacturer's specifications, operating temperature, and the characteristics of the fluid.
- For applications under abnormal conditions (such as high temperature, low temperature, seawater exposure, severe corrosion, or heavy vibration), please consult our technical department before selecting an actuator.
- The company assumes no responsibility for selections made without prior consultation or for any selections that deviate from the reference valve selection table provided.

2) Installation

As a general rule, the actuator should be installed with the window facing upward whenever possible. For vertical piping, the actuator's cable entry should be oriented downward toward the ground.

If sealing measures after electrical connection are not properly ensured, water ingress may occur, leading to malfunction or failure.

When installing the actuator onto a valve, proceed as follows:

- Operate the actuator manually until it is fully in the Close position (rotate clockwise.).
- The valve stem must be machined to match our drive shaft specification (14 mm double square)
- Place the valve in the Close (shut) position before installation. A small amount of lubricant may be applied to the valve stem if necessary to facilitate smooth assembly
- The bolt holes (BCD) of the valve flange and the actuator mounting surface must be aligned.
- If alignment is not achieved, operate the actuator manually to adjust until proper fit is obtained.

7. Set up

1) Tools Required for Setup

L-Wrench 2 set (M3, M6 Metric)

2) Manual operation



Important

Do not touch the manual operating lever while the actuator is in operation.

- The manual operating section is located to the right of the main body cable entry.
- Lower the cover downward into position.
- Remove the M6 wrench from beneath the actuator body.
Insert the wrench into the hexagonal section shown in Figure A
- Clockwise rotation corresponds to the Close (shut) direction
Counter-clockwise rotation corresponds to the Open direction.
- From the fully closed position to the fully open position, approximately seven rotations are required.
- During manual operation, take care not to exceed the limit switch settings.

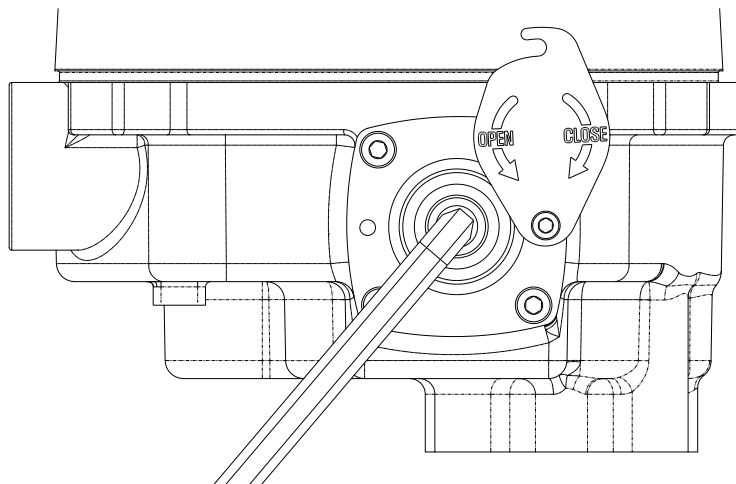


FIGURE A

3) Limit switch set up

- While observing the position indicator, set the actuator to the Fully Closed position.
- Loosen the CAM bolt using an M2 wrench.
Slowly rotate the CAM toward the Closed position until two distinct “click” sounds are heard from the limit switch lever.
- Tighten the CAM bolt using an M2 wrench to fix the CAM securely in place.

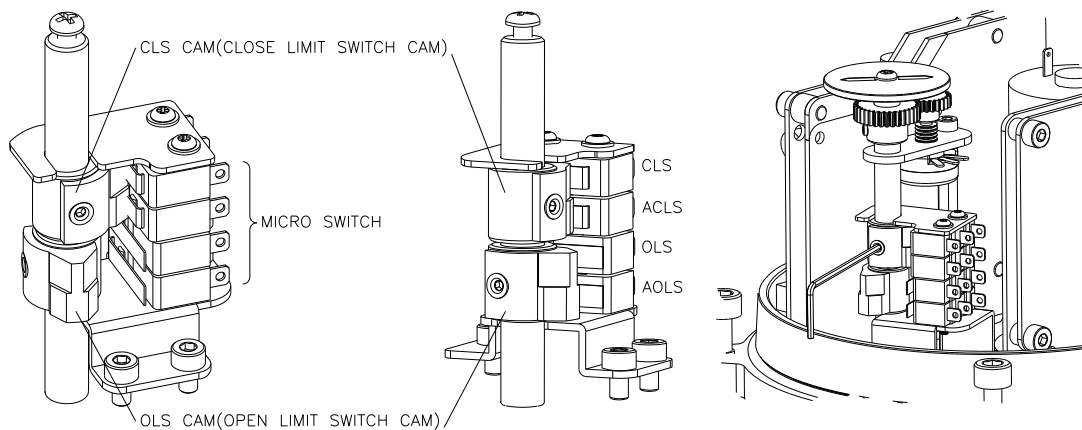


FIGURE B

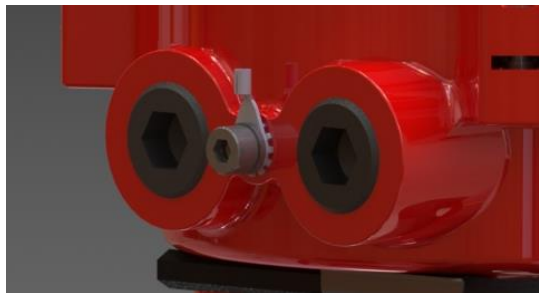
8. Electric Wiring

1) Pre-Wiring Checklist

-As shown in the figure, two optional cable entries are provided: **M20×1.5** or **NPT 1/2**.

Prior to shipment, these entries are sealed with plugs

To maintain flameproof characteristics, a separately certified cable gland must be installed. Use only cable glands certified for Ex db IIC applications



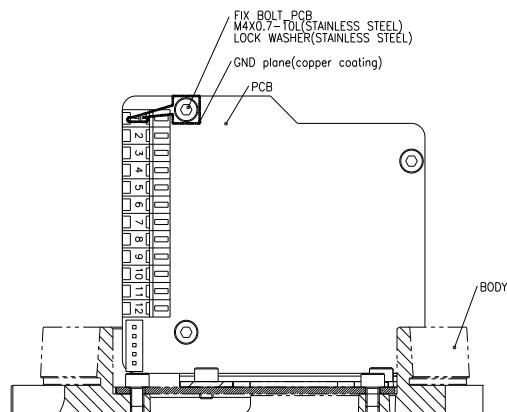
- Do not remove the plugs from unused cable entries until they are required.
- After wiring work is completed, seal the cable entries using rubber or metal packing to prevent the ingress of water or other foreign substances.
- If improper cable connections are used for wiring, the manufacturer shall not be held responsible for any performance degradation.

2) Electrical Wiring

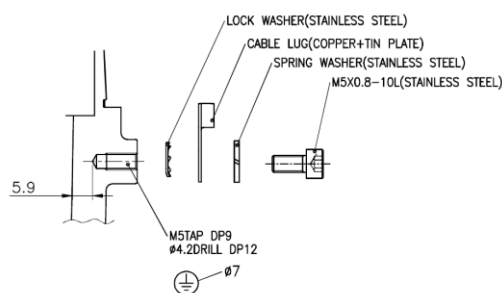
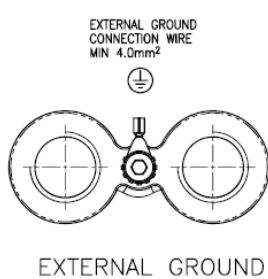
- Check the power supply, wiring, and all electrical specifications before operation.
- A wiring diagram is provided with the actuator (enclosed in a vinyl pack or located inside the top cover. Keep the inside of the actuator clean and dry. Supply power to the heater to prevent condensation.
- Ensure that all wiring at the terminals is securely tightened.
- Configure the system so that only one actuator operates per relay.
- Foreign substances must never be allowed to enter the actuator at any time.

3) Protective Grounding and Equipotential Bonding

- The protective grounding connection must be made inside the enclosure.
- For connection to the power terminals, use power supply wires in the range of AWG18 to AWG22. The protective grounding cable must be of the same size or larger than the power supply wires



- An equipotential connection is provided on the enclosure. This connection must be used to connect the enclosure's metalwork to the equipotential bonding system/ground. It is provided in addition to the protective earth terminal inside the enclosure.
- The size must be adjusted according to local electrical installation regulations and must not be less than 4 mm².
- When connecting the wire to the terminal, use a hand crimping tool to press and secure wires in the range of 1.5–10 mm² into the lug.
- If grounding parts (such as lugs or bolts) are lost, use replacement parts of the same specification.



4) LED status (on/off PCB)

	LED	SIGNAL
Main power LED (WHITE)	ON	POWER ON
Operation LED (GREEN)	FLICKERING (0.5s)	NORMAL
	FLICKERING (0.25s)	Over torque
	FLICKERING (0.1s)	Over Time

(Over Time – Occurs if the limit switch does not operate within 1 minute after actuation)

9. RPC Configuration, Key Functions, and Usage

9.1. Configuration

- MODEL: ITX0050-RPC
- Connect the 5-pin cable to the ON/OFF PCB
- INPUT SIGNAL: DC 4-20mA / DC 1-5V / DC 2-10V / DC 0-5V / DC 0-10V
- OUTPUT SIGNAL: DC 4-20mA / DC 1-5V / DC 2-10V / DC 0-5V / DC 0-10V
- INPUT RESISTANCE: 250 Ω
- FEED BACK POTENTIOMETER: 1K Ω
- LOAD RESISTANCE: Max. 750 Ω
- DELAY TIME: 1.0sec (fixed). (Delay Time modification needed, consult with our company)
- DEAD BAND ADJUSTMENT: 0.1~4.6% (0.3%/1step, 0~15 Step)
- SIGNAL FAIL SAFE POSITION: CLOSE / OPEN / STOP
- Operating Temp: -10°C~60°C (RPC PCB surface temp. based)

9.2. LED [RUN(White) , POWER(Blue) , FAULT(Yellow) , CLOSE(Green) , OPEN(Red) (5 units)]



9.3. TACT Switch [ZERO , SPAN , A-SCAN]



9.4. Manual control using a TACT switch

1. The RPC PCB is equipped with a function that allows manual operation via a tact switch.
2. Press and hold the ZERO and SPAN tact switches simultaneously for 2 seconds to enter manual operation mode
3. When the ZERO tact switch is pressed, the unit operates in the CLOSE direction.
(It operates only while the switch is being held down)
4. When the SPAN tact switch is pressed, the unit operates in the OPEN direction.
(It operates only while the switch is being held down.)
5. If no operation command is given for 15 seconds, the system returns to RPC standby mode.
(Note: After removing jumper wires 3-7-8 and disconnecting the RPC communication cable (5-pin), ON/OFF local operation is possible.)

No	Status and operation	LED status				
		RUN(WH)	POW(BL)	FLT(YL)	CL(GR)	OP(RD)
1	When stopped during manual operation	0.5s Flickering	1.0s Flickering			
2	When operating in manual mode with the CLOSE command	0.5s Flickering	1.0s Flickering		1.0s Flickering	
3	When operating in manual mode with the OPEN command	0.5s Flickering	1.0s Flickering			1.0s Flickering
4	When operating in manual mode with the CLS command	0.5s Flickering	1.0s Flickering		ON	
5	When operating in manual mode with the OLS command	0.5s Flickering	1.0s Flickering			ON
6	When operating in manual mode with the CTS command	0.5s Flickering	1.0s Flickering	ON	ON	
7	When operating in manual mode with the OTS command	0.5s Flickering	1.0s Flickering	ON		ON

9.5. AUTO SCAN

- A feature that allows the RPC PCB to check and set the PK values corresponding to the mechanical FULL CLOSE and FULL OPEN positions, which are determined when the actuator's cam makes contact with the limit switches.

1. When the A-SCAN tact switch is pressed for 2 seconds, Auto Scan starts..
2. Move first toward the CAM position that is farther from either FULL CLOSE or FULL OPEN. After confirming both the FULL CLOSE and FULL OPEN positions, return to RPC mode once the setting is completed.
3. Apply the input signal to operate and check the output signal.
4. When Auto Scan is executed, the currently stored range values are deleted and new range values are saved, so caution is required during execution. (Perform this operation during initial installation, when adjusting the LIMIT switch CAM, when replacing the potentiometer or RPC, or after valve coupling

No	Status and operation	LED status				
		RUN(WH)	POW(BL)	FLT(YL)	CL(GR)	OP(RD)
1	Communication error	0.2s Flickering	0.2s Flickering	0.2s Flickering	0.2s Flickering	0.2s Flickering
2	When Auto Scan is needed	0.5s Flickering	0.5s Flickering	0.5s Flickering	0.5s Flickering	0.5s Flickering

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3	Normal operation	0.5s Flickering				
4	Auto Scan in progress	0.5s Flickering	0.5s Flickering			
5	During Auto Scan, when performing the Close operation	0.5s Flickering	0.5s Flickering		0.5s Flickering	
6	During Auto Scan, when performing the Open operation	0.5s Flickering	0.5s Flickering			0.5s Flickering
7	During Auto Scan, when performing the CTS operation	0.5s Flickering	0.5s Flickering	ON	0.5s Flickering	
8	During Auto Scan, when performing the OTS operation	0.5s Flickering	0.5s Flickering	ON		0.5s Flickering
9	PK recognition not possible during Auto Scan.	0.5s Flickering	0.2s Flickering			
10	When PK is reversed during Auto Scan	0.5s Flickering	0.2s Flickering		0.2s Flickering	0.2s Flickering
11	CLS recognition failed during Auto Scan	0.5s Flickering	0.5s Flickering		0.5s Flickering	
12	OLS recognition failed during Auto Scan	0.5s Flickering	0.2s Flickering			0.5s Flickering

9.6. Dip switch setting



SW1 (SET/CAL) SW3 (AO) SW2 (AI)

(When the DIP switch is pushed down toward the number side – OFF, when pushed up – ON)

9.7. Operation direction setting

- DIP switch SW1 – Switch 1 is used to set the operating direction
- DIP switch SW1 – When switch 1 is set to OFF (down), CW = CLOSE and CCW = OPEN
- DIP switch SW1 – When switch 1 is set to ON (up), CW = OPEN and CCW = CLOSE (REV)

DIP switch SW1	No.1	Detail
Operation direction setting	OFF	Forward direction (based on output))
	ON	Reverse direction (Rev)

9.8. SIGNAL FAIL SAFE POSITION set up

- When no input signal is applied, the actuator operates to the preset position.

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(This function is applicable only for input signals of 4–20 mA, 1–5 V, or 2–10 V.)"

DIP switch SW1	No.2	No.3	Detail
SIGNAL FAIL SAFE POSITION setting	OFF	OFF	STOP
	ON	OFF	OPEN
	OFF	ON	CLOSE
	ON	ON	STOP

No	Status and operation	LED Status				
		RUN(WH)	POW(BL)	FLT(YL)	CL(GR)	OP(RD)
1	When a signal failure occurs, the actuator stops	0.5s Flickering	0.2s Flickering			
2	When a signal failure occurs, the actuator performs the Close operation	0.5s Flickering	0.2s Flickering		0.2s Flickering	
3	When a signal failure occurs, the actuator performs the Open operation	0.5s Flickering	0.2s Flickering			0.2s Flickering
4	When a signal failure occurs, the actuator executes the CLS operation	0.5s Flickering	0.2s Flickering		ON	
5	When a signal failure occurs, the actuator executes the OLS operation	0.5s Flickering	0.2s Flickering			ON
6	When a signal failure occurs, the actuator executes the CTS operation	0.5s Flickering	0.2s Flickering	ON	0.2s Flickering	
7	When a signal failure occurs, the actuator executes the OTS operation	0.5s Flickering	0.2s Flickering	ON		0.2s Flickering

9.9. AI input signal selection

- Use switches 1, 2, and 3 on DIP switch SW2 to select the desired input signal

The input signal can be selected by operating SW2 switches as shown in the table below.

DIP Switch SW2	No.1	No.2	No.3	Input signal
AI Input signal selection	OFF	OFF	OFF	4~20mA
	ON	OFF	OFF	0~20mA
	OFF	ON	OFF	1~5V
	ON	ON	OFF	2~10V
	OFF	OFF	ON	0~5V
	ON	OFF	ON	0~10V

9.10. Arbitrary setting of AI input signals

- This function allows the input signal value to be arbitrarily set within the configurable range

1. DIP Switch SW2 - Set switches 1, 2, and 3 all to OFF when configuring for 4–20 mA input signal
2. DIP Switch SW1 - Set switch 4 to ON, and switches 5 and 6 to OFF (Blinking).
3. Apply the AI CL input signal to be set (refer to the table below for the configurable range)
4. If the AI CL input signal goes out of range, the Fault LED (Yellow) will blink at 0.2-second.
Press the ZERO TACT switch while the AI CL input signal is within the allowable range.
5. LED Status Check (WH-1.0s Blinking, RD-0.2s Blinking)
6. Apply the AI OP input signal to be set (refer to the table below for the configurable range)
7. If the AI OP input signal goes out of range, the Fault LED (Yellow) will blink at 0.2-second
8. AI While the AI OP input signal is within the allowable range, press the SPAN TACT switch.
Press and hold the A-SCAN TACT switch for 2 seconds. When the POW LED (Blue) starts blinking, the setting is completed. In this state, the White LED blinks at 1.0-second and the Blue LED blinks at 1.0-second
9. DIP Switch SW1 - Set switches 4, 5, and 6 to OFF → The setting value is saved and calibration is completed.
Caution: The setting value is saved only after completing Step 10 of the procedure.
10. For calibration of other AI signals (0–20 mA, 1–5 V, 2–10 V, 0–5 V, 0–10 V), set DIP switch SW2 to the desired signal and proceed in the same manner as the 4–20 mA calibration method.

To delete the AI Cal setting, perform up to Step 5, then execute Step 10.

(Caution: If an AI Cal arbitrary setting has been applied and you wish to change the input signal, you must first delete the arbitrary setting before changing the input signal.)

DIP Switch SW2	No 1	No 2	No 3	Input Signal	SW1 Cali. selectable range of Input signal			
					CL Low	CL Hi	OP Low	OP Hi
AI Input signal selection	OFF	OFF	OFF	4~20mA	2.1mA	9.1mA	15.7mA	23.3mA
	ON	OFF	OFF	0~20mA	0mA	9.1mA	15.7mA	23.3mA
	OFF	ON	OFF	1~5V	0.53V	3.24V	3.9V	5.8V
	ON	ON	OFF	2~10V	0.53V	3.24V	8.1V	12.6V
	OFF	OFF	ON	0~5V	0V	3.24V	3.9V	5.8V
	ON	OFF	ON	0~10V	0V	3.24V	8.1V	12.6V

No	Status and operation	LED Status				
		RUN(WH)	POW(BL)	FLT(YL)	CL(GR)	OP(RD)
1	AI Cal – CL selectable range	1.0s Flickering			0.2s Flickering	

2	AI Cal – CL out of range	1.0s Flickering		0.2s Flickering	0.2s Flickering	
3	AI Cal – OP selectable range	1.0s Flickering				0.2s Flickering
4	AI Cal - OP out of range	1.0s Flickering		0.2s Flickering		0.2s Flickering
5	AI Cal - When saving the OP value	1.0s Flickering	1.0s Flickering			
6	Upon completion of the setup	1.0s Flickering				

9.11. Arbitrary setting of AO output signals

- This device provides a function that allows the output signal value to be arbitrarily set within the allowable rang.

1. Move the actuator to the full close position

2. Set DIP switch SW3 positions 1, 2, and 3 all to OFF (when the output signal is 4–20 mA).

3. Set DIP switch SW1: position 4 = OFF, position 5 = ON, position 6 = OFF

(WH – 1.0s flashing, GR – 0.2s flashing)

4. Measure the AO CL value (refer to the table below for the selectable range)

5. To increase the AO CL value, press the SPAN TACT switch while checking the output value

6. To decrease the AO CL value, press the ZERO TACT switch while checking the output value

7. When desired AO CL value is reached, Press A-SCAN TACT switch for 2 seconds.

(WH-1.0s flashing, BL-1.0s flashing)

8. Measure the AO OP value.

(Refer to the table above DIP SW3 for the adjustable range)

(WH – blinking at 1.0s, RD – blinking at 0.5s)

9. To increase the AO OP value, press the SPAN TACT switch while checking the output value.

10. To decrease the AO OP value, press the ZERO TACT switch while checking the output value.

11. When the desired AO OP value is reached, press and hold the A-SCAN TACT switch for 2 seconds. (WH – blinking at 1.0s, BL – blinking at 1.0s)

12. Turn DIP switch SW1 positions 4/5/6 OFF to save the setting and complete the calibration.

13. When calibrating other AO signals (0–20mA, 1–5V, 2–10V, 0–5V, 0–10V), set AO DIP switch SW3 to the desired signal and proceed in the same way as the 4–20mA calibration method.

DIP Switch SW3	No 1	No 2	No 3	Output Signal	SW1 Cali. selectable range of output signal			
					CL Low	CL Hi	OP Low	OP Hi
AO	OFF	OFF	OFF	4~20mA	2.4	9.3	17.5	23.0
Output signal	ON	OFF	OFF	0~20mA	0.0	9.3	17.5	23.0
selection	OFF	ON	OFF	1~5V	0.4	2.3	4.4	6.6

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	ON	ON	OFF	2~10V	1.2	4.6	8.7	11.4
	OFF	OFF	ON	0~5V	0.0	2.3	4.4	6.6
	ON	OFF	ON	0~10V	0.0	2.3	8.7	11.4

No	Status and operation	LED Status				
		RUN(WH)	POW(BL)	FLT(YL)	CL(GR)	OP(RD)
1	AO Cal – CL selectable range	1.0s Flickering			0.5s Flickering	
2	AO Cal - CL Low Over	1.0s Flickering		0.2s Flickering	0.5s Flickering	
3	AO Cal - CL Hi Over	1.0s Flickering	0.2s Flickering		0.5s Flickering	
4	AO Cal – When CL value saved	1.0s Flickering	1.0s Flickering			
5	AO Cal – OP selectable range	1.0s Flickering				0.5s Flickering
6	AO Cal - OP Low Over	1.0s Flickering		0.2s Flickering		0.5s Flickering
7	AO Cal - OP Hi Over	1.0s Flickering	0.2s Flickering			0.5s Flickering
8	AO Cal – When saving OP value	1.0s Flickering	1.0s Flickering			
9	Upon completion of the setup	1.0s Flickering				

9.12. Arbitrary range setting

- A function that allows setting the operating range of the actuator without changing the Limit CAM setting position

1. Set DIP switch SW1 with No.4 and No.5 to ON, and No.6 to OFF.

(WH blinks at 1.0s , GR blinks at 1.0s)

2. Move the actuator to the desired CLOSE position using the handle or the ZERO/SPAN TACT switch.

3. Refer to the manual setting range table below for the CLOSE value range..

	Arbitrary range setting			
	CL Low	CL Hi	OP Low	OP Hi
PK(%)	5%	40%	60%	95%

4. When the PK value goes outside the range of 5% to 40%, the Fault LED (YL-0.2s) blinks.

5. Within the CLOSE value range, press and hold the A-SCAN TACT switch for 2 seconds..
6. Move the actuator to the desired OPEN position using the handle or the ZERO/SPAN TACT switch.
7. Refer to the manual setting range table above for the OPEN value range.
8. When the PK value goes outside the range of 60% to 95%, the Fault LED (YL-0.2s) blinks..
9. Within the OPEN value range, press and hold the A-SCAN TACT switch for 2 seconds.
10. When DIP switch SW1 Nos. 4, 5, and 6 are set to OFF, the setting values are saved and cal ends.
11. To delete the arbitrary range setting, execute up to step 6, then perform step 11, or run Auto Scan

No	Status and operation	LED status				
		RUN(WH)	POW(BL)	FLT(YL)	CL(GR)	OP(RD)
1	Arbitrary range – CL selectable	1.0s Flickering			1.0s Flickering	
2	Arbitrary range - CL out of range	1.0s Flickering		0.2s Flickering	1.0s Flickering	
3	Arbitrary range - CL range saved	1.0s Flickering	1.0s Flickering			
4	Arbitrary range - OP selectable range	1.0s Flickering				1.0s Flickering
5	Arbitrary range - OP out of range	1.0s Flickering		0.2s Flickering		1.0s Flickering
6	Arbitrary range - OP range saved	1.0s Flickering	1.0s Flickering			
7	Upon completion of the setup	1.0s Flickering				

9.13. DEAD BAND (DB, tolerance range) setting.

- A function that sets a zone in which the output signal does not change, even if the input signal varies within a certain range.

1. Set DIP switch SW1 with No.4 and No.5 to OFF, and No.6 to ON.
2. In the WH-1.0s blinking state, the currently set DB value is indicated in binary by four LEDs (BL/YL/GR/RD) being ON.
3. To change the DB value, adjust it by pressing the TACT switch: SPAN (+1) or ZERO (-1)..
4. Each time an adjustment is made, the corresponding DB value is displayed in hexadecimal by the LEDs turning ON. (Refer to the LED status table below))
5. When the desired DB value is reached, press and hold the A-SCAN TACT switch for 2 seconds. (Refer to the Dead Band % value table below)
6. When DIP switch SW1 Nos. 4, 5, and 6 are set to OFF, the setting values are saved and cal ends. (Factory setting value: 4 (1.3%))

No	Status and operation	LED Status(4-digit hexadecimal)				
		RUN(WH)	POW(BL)	FLT(YL)	CL(GR)	OP(RD)
1	Dead Band - 0.1%	1.0s Flickering				
2	Dead Band - 0.4%	1.0s Flickering				ON
3	Dead Band - 0.7%	1.0s Flickering			ON	
4	Dead Band - 1.0%	1.0s Flickering			ON	ON
5	Dead Band - 1.3% (factory setting)	1.0s Flickering		ON		
6	Dead Band - 1.6%	1.0s Flickering		ON		ON
7	Dead Band - 1.9%	1.0s Flickering		ON	ON	
8	Dead Band - 2.2%	1.0s Flickering		ON	ON	ON
9	Dead Band - 2.5%	1.0s Flickering	ON			
10	Dead Band - 2.8%	1.0s Flickering	ON			ON
11	Dead Band - 3.1%	1.0s Flickering	ON		ON	
12	Dead Band - 3.4%	1.0s Flickering	ON		ON	ON
13	Dead Band - 3.7%	1.0s Flickering	ON	ON		
14	Dead Band - 4.0%	1.0s Flickering	ON	ON		ON
15	Dead Band - 4.3%	1.0s Flickering	ON	ON	ON	
16	Dead Band - 4.6%	1.0s Flickering	ON	ON	ON	ON
17	When saving the Dead Band setting	1.0s Flickering	1.0s Flickering			
18	Upon completion of the setup	1.0s Flickering				

9.14. AUTO FULL

- When an input signal of 2% (DC 4.3 mA) or less is applied, the actuator operates in FULL CLOSE mode. When an input signal of 98% (DC 19.7 mA) or more is applied, the actuator operates in FULL OPEN mode.(The AUTO-FULL function is applicable only to input signals of 4–20 mA, 1–5 or 2–10 V.)

1. Set DIP switch SW1 with No.4 OFF, and Nos.5 and 6 ON (AUTO-FULL).
2. Pressing the SPAN or ZERO TACT switch toggles between activation and deactivation.
3. When the AUTO-FULL function is activated, the LED status is as follows:
(WH – blinking at 1.0s ,BL – blinking at 0.5s,YL – blinking at 0.5s)
4. When the AUTO-FULL function is deactivated, the LED status is as follows:
(WH – blinking at 1.0s,BL – blinking at 0.5s)
5. After selecting the desired setting, press and hold the A-SCAN TACT switch for 2 seconds.
(WH – blinking at 1.0s I, BL – blinking at 1.0s)
6. When DIP switch SW1 Nos. 4, 5, and 6 are set to OFF, the setting values are saved and the

selection process ends

No	Status and operation	LED status				
		RUN(WH)	POW(BL)	FLT(YL)	CL(GR)	OP(RD)
1	AUTO-FULL – activation On	1.0s Flickering	0.5s Flickering	0.5s Flickering		
2	AUTO-FULL – deactivation off	1.0s Flickering	0.5s Flickering			
3	Auto-Full saved	1.0s Flickering	1.0s Flickering			
4	Upon completion of the setup	1.0s Flickering				

9.15. NOISE SKIP (NOISE SKIP is activated only for input signals of 0–20 mA, 0–10 V, and 0–5 V)

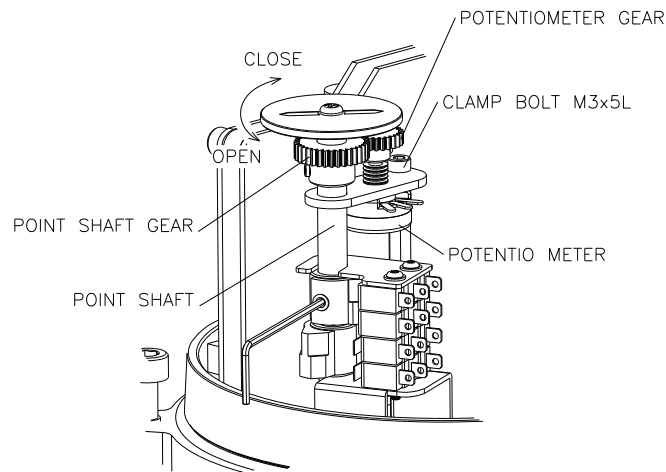
- For input signals:

- 0–20 mA [≤ 0.3 mA → recognized as 0 mA]. 0–10 V [≤ 0.4 V → recognized as 0 V]
- 0–5 V [≤ 0.2 V → recognized as 0 V]

9.16. LED status indication during operation

No	Status and operation	LED status				
		RUN(WH)	POW(BL)	FLT(YL)	CL(GR)	OP(RD)
1	Closing (When Close operated)	0.5s Blinking			0.5s Blinking	
2	Opening (When Open operated)	0.5s Blinking				0.5s Blinking
3	CLS (When Close Limit Switch operated)	0.5s Blinking			ON	
4	OLS (When Open Limit Switch operated)	0.5s Blinking				ON
5	CTS (When Close Torque Switch operated)	0.5s Blinking		ON	ON	
6	OTS (When Open Torque Switch operated)	0.5s Blinking		ON		ON

10. POTENTIOMETER Setting



- Set the actuator to FULL CLOSE. [P1=GRAY, P2=PURPLE, P3=ORANGE]
- Measure resistance between P1 (GRAY) and P2 (PURPLE) using a digital multimeter (DMM). If the measured value is not within the specified range, use tools to adjust the P.K measurement until it falls within the range
- Set the actuator to FULL OPEN

Using a digital multimeter(DMM), measure the resistance between P1 (GRAY) and P2 (PURPLE) of the P.K.

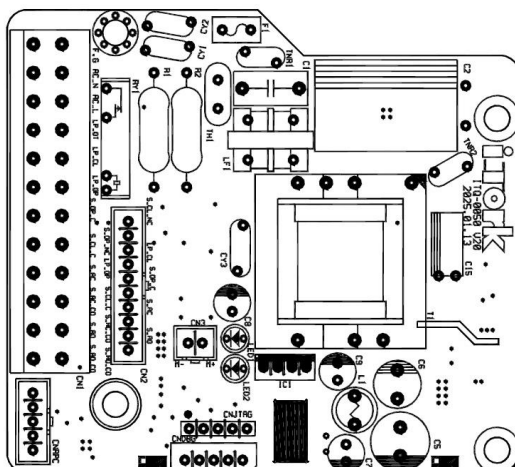
The resistance value should be within $150\ \Omega$ (0.15 k Ω).

If, at the FULL OPEN position, the measured resistance between P1 (GRAY) and P2 (PURPLE) is $150\ \Omega$ or lower, there is a risk of equipment malfunction.

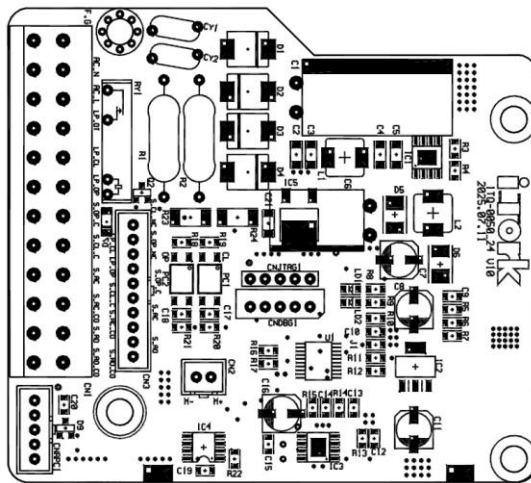
In such a case, the OPEN CAM must be adjusted.

11. PCB LAY-OUT

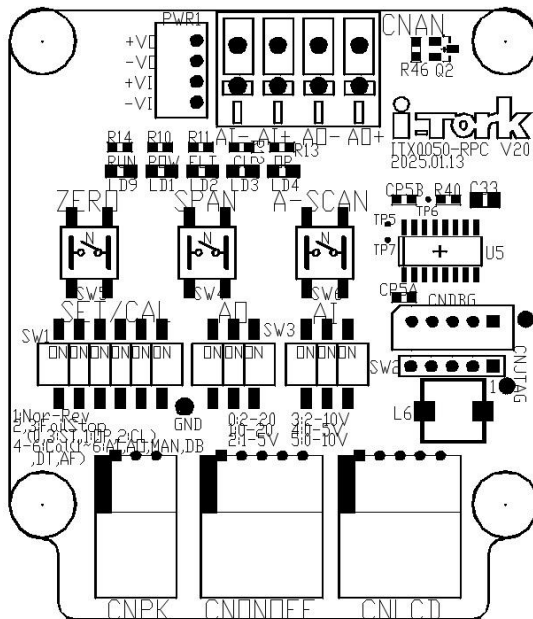
1) AC Universal voltage PCB (STANDARD)



2) AC/DC 24V PCB (STANDARD)



3) RPC PCB



12. After Sales Service

1) In the following cases, service is provided free of charge.

- When the delivered product differs from the ordered specifications
- When the product does not match the QC documents issued by the manufacturer
- When defects (in parts and/or assembly) are found
- A manufacturer's warranty is guaranteed for one year from the delivery date.

2) Paid Service Conditions.

- When failures occur due to excessive use beyond the product specification

- When failures are caused by the user's intentional acts or negligence (e.g., unauthorized modification, disassembly/reassembly)
- When failures result from altering the company's standard electrical wiring.
- When problems occur because waterproofing was not secured at the cable entry point.
- When issues arise due to not keeping the internal heater power ON continuously (24 hours)
- When failures are caused by fire, flood, or natural disaster.
- When, by common sense, the fault is recognized as the user's responsibility.
- When performance defects or failures occur after the warranty period of one year from the shipment date has expired

13.Maintenance

1) Lubricant

- At the time of shipment, sufficient lubricant is applied, so normally recharging is not required. However, if deemed necessary, lubricant should be re-applied approximately once every two years. .

2) Regular Inspection and Operation

- The actuator must be supplied with power at all times.

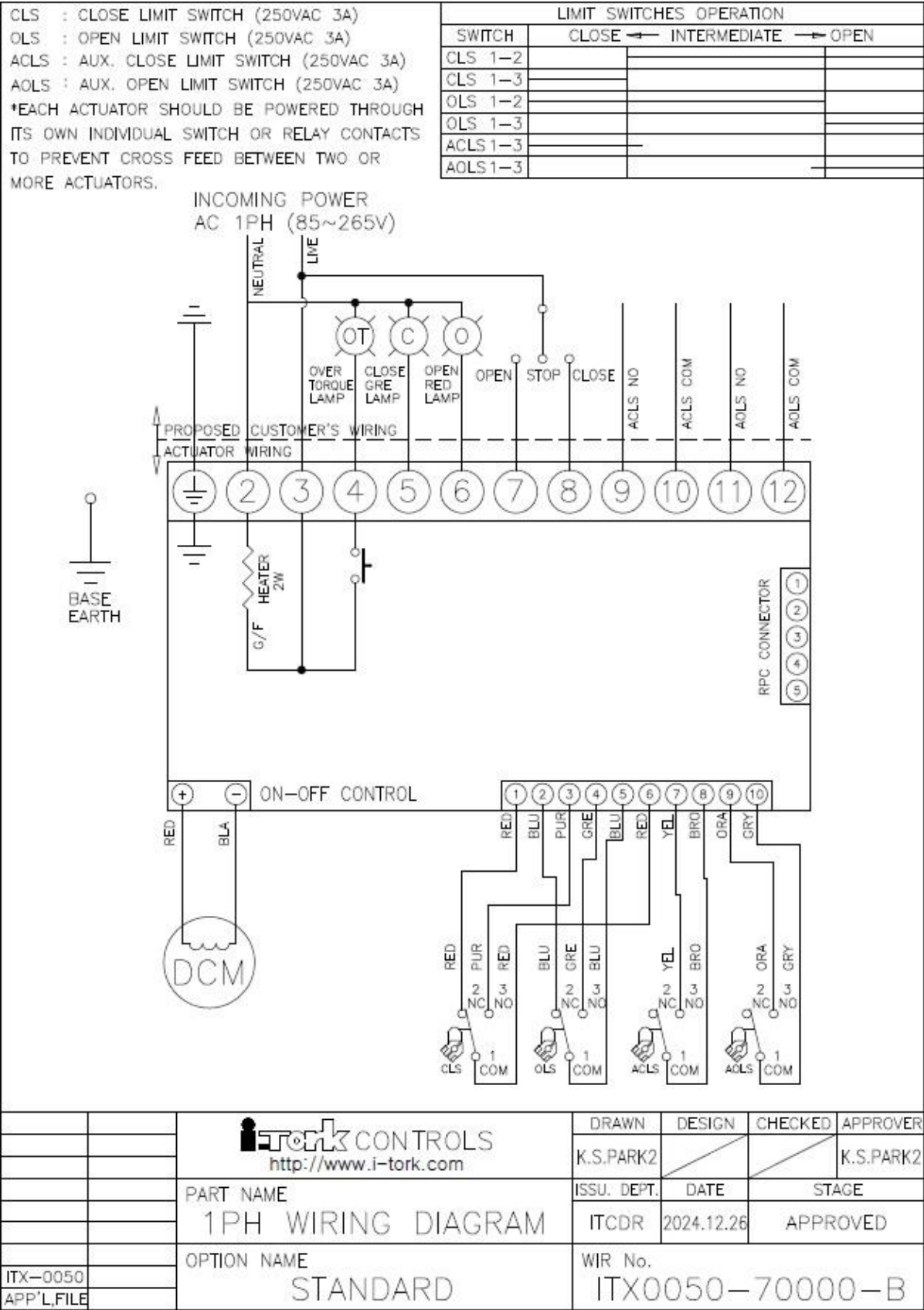
It is recommended to operate the actuator once a week.

To ensure long service life, a regular maintenance inspection once a year is required, covering operating condition, corrosion, and painting.

For further inquiries, please contact our company or an authorized distributor

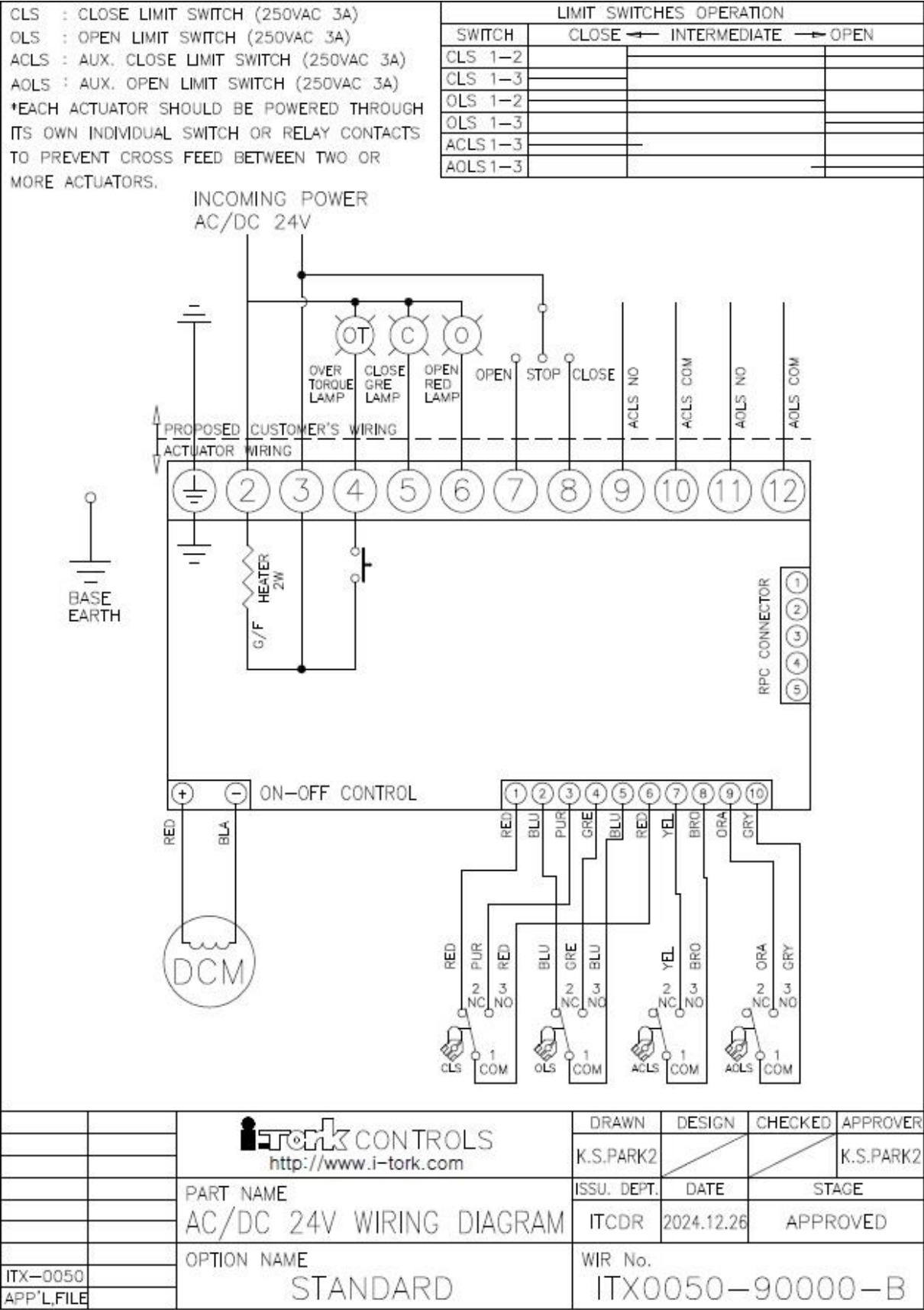
14. Electric Wiring

ITX0050-70000-B [1PH+STANDARD], INCOMING POWER: AC 85~265V ±10%



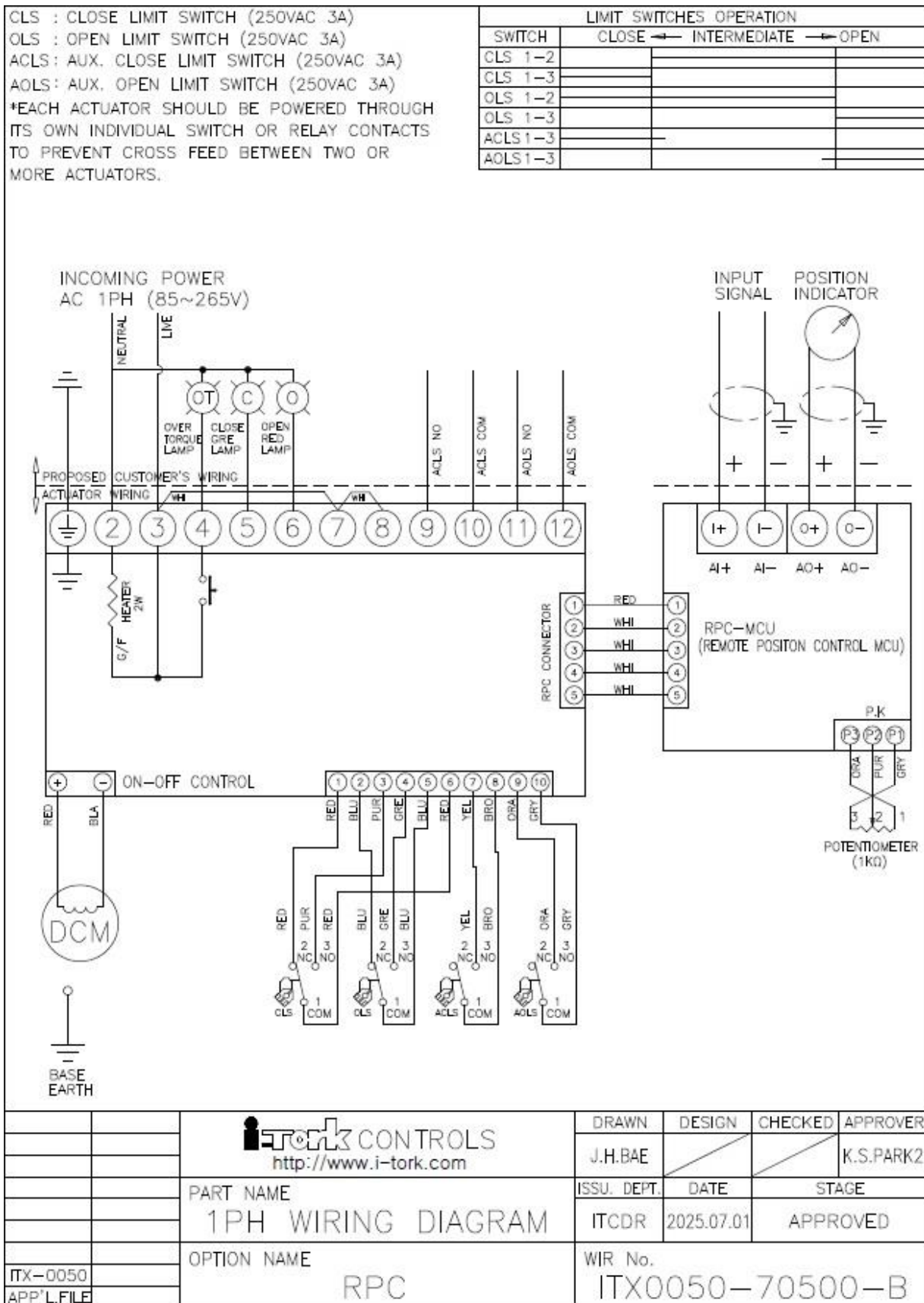
ITX ELECTRIC QUARTER TURN ACTUATOR

ITX0050-90000-B [ACDC24V+STANDARD], INCOMING POWER: AC/DC 24V ±10%



ITX ELECTRIC QUARTER TURN ACTUATOR

3) ITX0050-70500-B [1PH+RPC] , INCOMING POWER: AC 85~265V $\pm$ 10%



ITX ELECTRIC QUARTER TURN ACTUATOR

4) ITX0050-90500-B [ACDC24V+RPC] , INCOMING POWER : AC/DC 24V ±10%

