
User Manual

Thank you for purchasing the VER 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 309 In Lbs (35 Nm) of torque, the appropriate actuator should have 442 In Lbs. (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

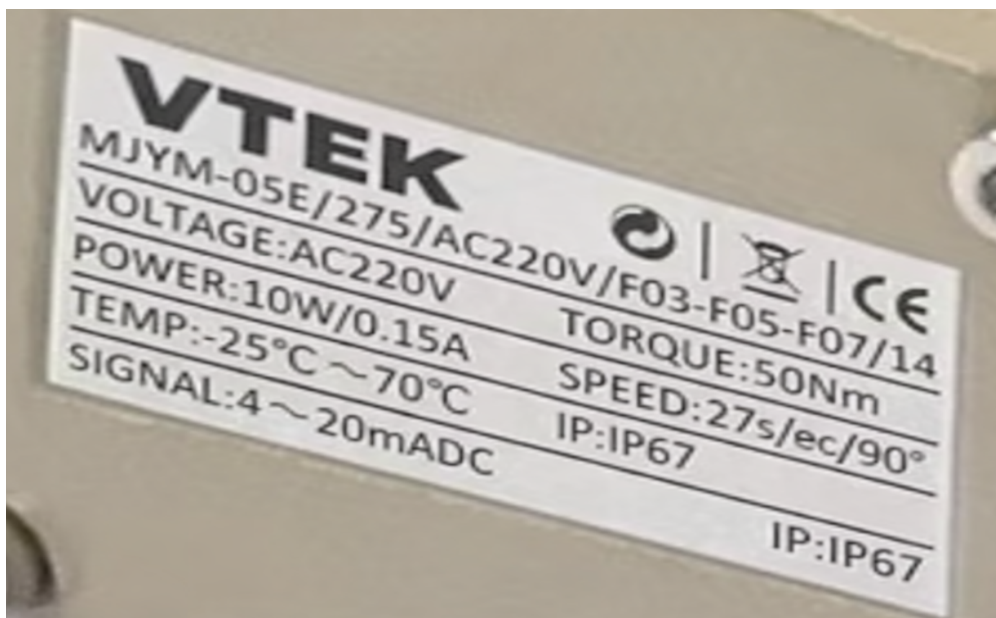
Weather-proof applications.

- Do not open in explosive atmospheres.
- During installation, correct cable glands must be used. Check Local Standards and Codes.
- To maintain weather-proof characteristics, separate cable glands, conduit entry devices, or blanking elements must be applied.
- 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).
- Protective grounding 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.

3. Technical specification

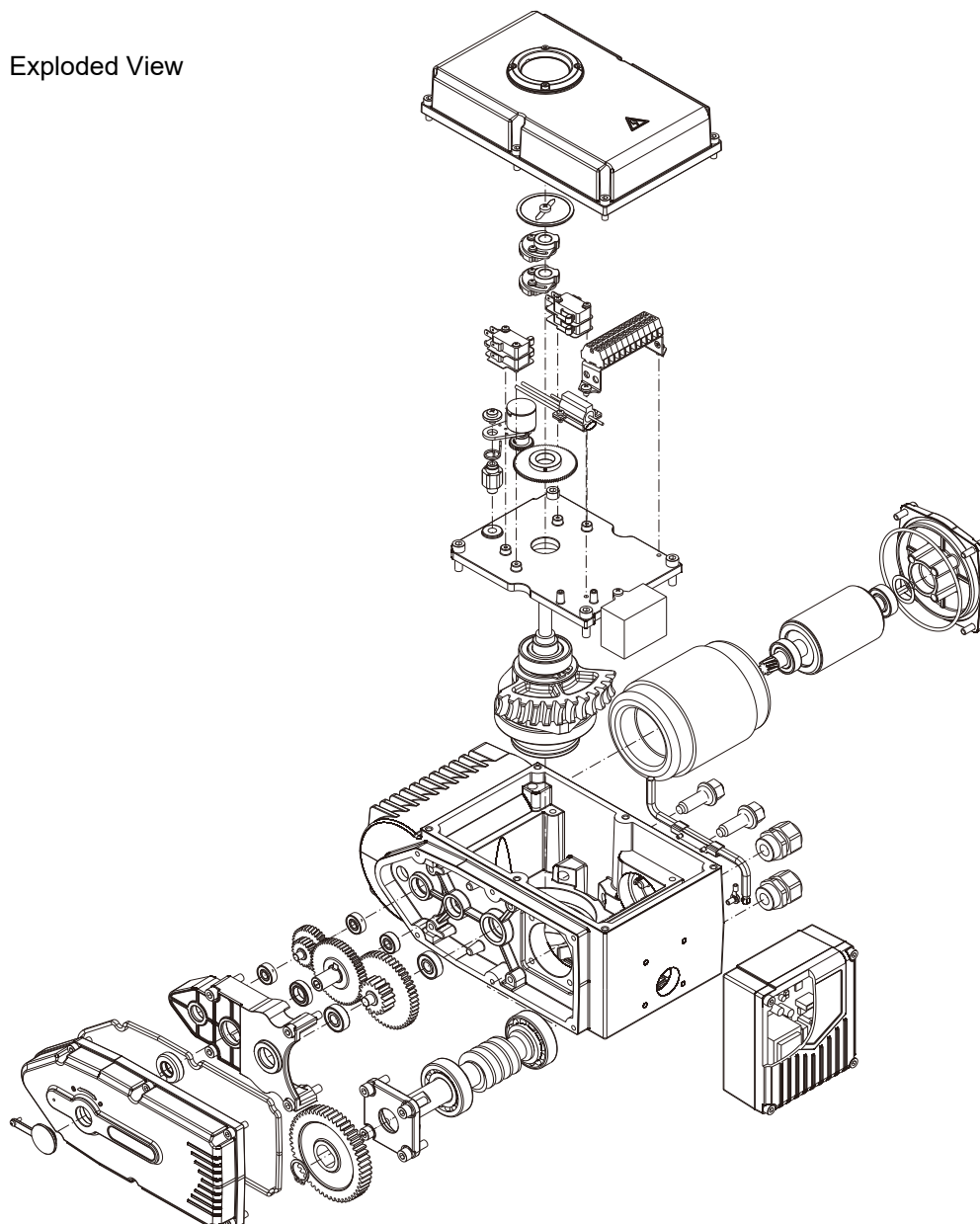
Refer to the Information Tag on the Actuator.



Parts List

Housing Shell	IP67 NEMA 4 / 6
Ambient Temperature	-25C to +70C (-30C to +40C Option)
Ambient Humidity	<90% RH
Torque Range	50 Nm to 8000 Nm
Power Supply	Single Phase: 24 VAC, 110 VAC, 220VAC, 240VAC DC: 24 VDC
Limit Switch	ON/ OFF, SPDT 250 V AC, 10 A
Motor Overheat Protection	Built-in Thermal Protection 120C +/- 5C
Stroke	90 Deg +/- 5 Deg (270 Deg Rotation Optional)
Indicator	Continuous Position Indication (360 Deg View Indicator Optional)
Mechanical Operation	Mechanical Hand Key (Handwheel Optional)
Self Locking	Worm Gear Design
Wiring Connection	(2) 1/2" FNPT (M20 X 1.5 Available)
Lubrication	Molybdenum Disulfide Grease (EP Type)
Main Materials	Aluminum, Steel, Aluminum Green Steel, 304SS
Exterior Coating	Cyclic Polyester Powder Coating
Anti-Seismic	Direction: x, z, y ; Max Acceleration : 12g ; Sweep frequency : 10-55Hz, Amplitude: 0.15mm, Time 30 Minutes

Exploded View



Model Specification:

Installation & Maintenance Manual

Model	Output Torque	Open/Close time 90°/sec		Installation Dimension	Output shaft size	Output shaft depth	Weight
	N.m	AC	DC	ISO5211	mm	mm	Lb.
VER-05	50	27	10	F03/F05/F07	□ 9/□11/□14	9≤15/11≤18/14≤20	7.0
VER-10	100	27	10	F05/F07/F10	□ 11/□14/□17	11≤18/14≤20/17≤29	9.9
VER-15	150	32	13	F05/F07/F10	□ 11/□14/□17	11≤18/14≤20/17≤29	10.1
VER-20	200	27	15	F07/F10	□ 14/□17/□22/□27	14≤20/17≤29/22≤32/27≤32	15
VER-50	500	27	10	F07/F10	□ 14/□17/□22/□27	14≤20/17≤29/22≤32/27≤32	16.5
VER-70	700	33	15	F07/F10/F12	□ 17/□22/□27	17≤29/22≤35/27≤39	22
VER-100	1000	33	15	F07/F10/F12	□ 17/□22/□27	17≤29/22≤35/27≤39	23.1
VER-170	1700	38	30	F10/F12/F14/F16	□ 22/□27/□36	22≤40/27≤40/36≤40(F10-F12)	42.3
VER-230	2300	38	30	F10/F12/F14/F16	□ 27/□36	27≤60/36≤60(F14)	44
VER-280	2800	45	30	F10/F12/F14/F16	□ 27/□36	27≤60/36≤60(F16)	44
VER-400	4000	88	70	F14/F16	□ 36/□46(customizable)	≤145	124
VER-600	6000	105	70	F14/F16	□ 36/□46(customizable)	≤145	125.6
VER-800	8000	135	90	F16/F25	□ 46/□55(customizable)	≤150	189.5

Note: 1. Optional Speeds available, please contact Vtek Controls
2. The weight in the table is VER series on/off type (ordinary)
* Consult Vtek Controls

Voltage Selection:

Model	Motor Power	Rate Current (A)				DC Motor Power	Rate Current (A)
	W	AC380V/50Hz	AC220V/50Hz	AC110V/50Hz	AC24V/50Hz	W	DC24V
VER-05	10	0.15	0.2	0.4	1.82	23	2
VER-10	18	0.2	0.28	0.56	2.55	30	2.2
VER-15	20	0.2	0.3	0.6	2.73	38	2.4
VER-20	45	0.45	0.55	1.1	5	70	4
VER-50	90	0.53	0.72	1.44	6.6	130	10
VER-70	100	0.55	0.8	1.6	7.3	150	12
VER-100	130	0.6	0.96	1.92	8.8	200	20
VER-170	170	0.9	1.3	2.6	11.8	300	27
VER-230	230	1.2	1.7	3.4	15.5	300	27
VER-280	230	1.2	1.7	3.4	15.5	300	27
VER-400	170	0.9	1.3	2.6	11.8	300	27
VER-600	230	1.2	1.7	3.4	15.5	300	27
VER-800	230	1.2	1.7	3.4	15.5	300	27

1. On-Site Installation

1.1 Installation Notes:

For installation in hazardous or explosive environments, an explosion-proof actuator must be specified and supplied.

If there is a risk of water flooding, please state at order placement.

When installing cables on-site, ensure the outer diameter matches the waterproof connector and the inner diameter is appropriate for the cable. Improper sizing may allow water ingress through the cable connection, potentially damaging internal components.

Allow sufficient space for wiring and manual operation to facilitate maintenance and inspection.

1.2 Ambient Temperature

Standard ambient temperature range: -13 to 158F (-25°C to +70°C) (custom temperature ranges available upon request). For applications below -13F or above 158 F (-25°C or above +70°C), please contact our technical department for a suitable solution.

1.3 Pipeline Fluid Temperature

When installed on a valve, temperatures from the process fluid may transfer to the actuator, increasing the housing temperature.

If the process fluid temperature exceeds 176F (80°C), please consult our technical department in advance for recommended solutions.

Thermal isolation or increased mounting height between the valve and actuator may be required.

1.4 High Vibration Conditions

In applications with high-frequency pipeline vibration, actuators should be installed with appropriate vibration isolation or support.

2. Actuator Output Connection

The actuator bottom flange mounting interface conforms to ISO 5211 standards.

If the valve connection does not match ISO 5211, please contact our technical department. Custom adapters or re-machined connection sleeves can be provided per customer requirements prior to delivery.

3. Commissioning & Debugging

After the valve and actuator are installed, if the actuator cannot be commissioned or operated correctly, please contact our technical department. Installation and commissioning videos can be provided upon request.
For both standard and intelligent actuators, detailed setup and adjustment instructions are included with the product.

4. Mechanical Limit Adjustment

4.1 Closed Position Adjustment

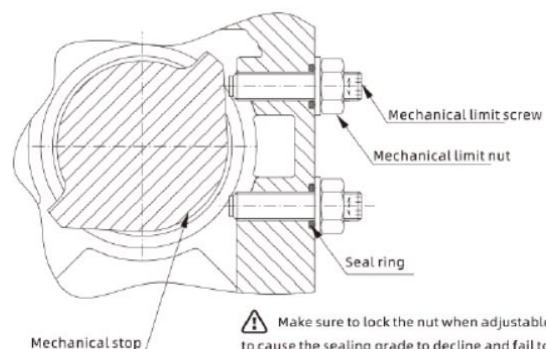
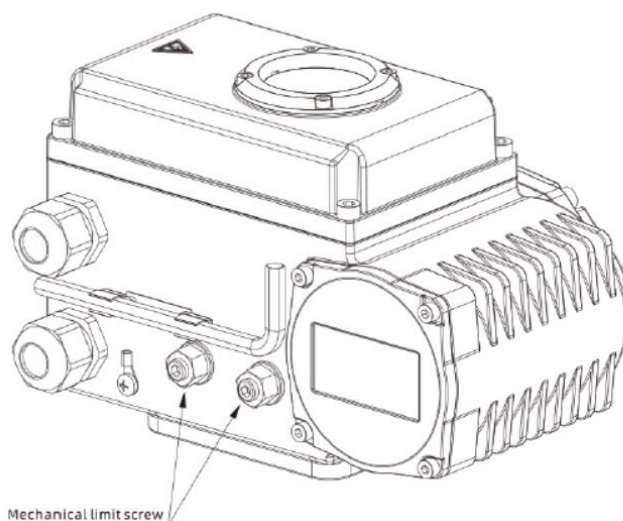
Use the manual override handle to drive the actuator to the fully closed position.
(A “click” sound from the limit switch indicates the electrical limit has been reached.) Loosen the lock nut and turn the adjustment screw clockwise until it contacts the mechanical stop.
Then turn the screw counterclockwise slightly so that the mechanical limit lags behind the electrical limit at the fully closed position by approximately 2–3 degrees.
Tighten the lock nut to secure the setting.

4.2 Open Position Adjustment

Repeat the same procedure above to adjust the mechanical stop for the fully open position.

⚠ Important Note

The mechanical limit must always be set slightly behind the electrical limit. If the mechanical limit is set ahead of or equal to the electrical limit, it may cause the actuator motor to stall, overheat, and potentially burn out.



⚠ Make sure to lock the nut when adjustable, so as not to cause the sealing grade to decline and fail to meet the protection requirements.

5. Valve & Actuator Re-Adjustment Procedure

After installation, improper coupling or alignment between the valve and actuator may prevent the valve from fully opening or closing.

If this occurs, follow the steps below to inspect and re-adjust the system.

5.1 Installation Verification

Ensure the actuator and valve are properly installed and aligned.

Confirm that the coupling and mounting interface are correctly fitted and secured.

5.2 Manual Operation Test

Remove the dust plug from the front cover.

Insert the supplied manual override handle into the hexagonal drive.

Turn the handle clockwise to operate the actuator.

Verify that the valve moves smoothly through its full range of travel.

As the valve approaches the fully closed position, confirm proper seating without binding or obstruction.

5.3 Electrical Operation Test

Remove the actuator cover and verify wiring connections according to the provided circuit diagram.

Apply power and perform a test run.

Observe actuator operation to ensure:

Smooth opening and closing of the valve

Proper response to control signals

No abnormal noise, vibration, or obstruction

Note:

Minor adjustment of the actuator limits or coupling may be required to achieve full valve travel and proper operation (When installed separately, and not as an assembly from Vtek Controls.).

6. Care and Maintenance

This actuator is designed for long service life. It is pre-lubricated with high-performance grease (molybdenum disulfide). Periodic inspection is recommended to ensure proper operation.

If the actuator is not operated for extended periods, cycle the actuator periodically to prevent internal components from seizing and to ensure proper functionality.

7. Troubleshooting and Corrective Actions

<u>Issue</u>	<u>Possible Cause</u>	<u>Corrective Action</u>
Actuator does not operate	No power supply	Verify and connect power supply
	Supply voltage incorrect or too low	Check and correct supply voltage
	Wiring loose or disconnected	Inspect wiring and tighten all terminals
	Thermal protection activated (high ambient temperature)	Reduce ambient temperature and verify valve is not jammed
	Overload condition	Reduce load or check valve operation
	Limit switch activated	Adjust stroke/limit settings
	Motor capacitor damaged	Replace capacitor (contact Vtek Controls)
	Diode failure (DC actuator)	Replace diode (contact VTek Controls)

<u>Issue</u>	<u>Possible Cause</u>	<u>Corrective Action</u>
Indicator light is off	Indicator light failure	Replace indicator light
	Limit switch malfunction	Replace or adjust limit switch

<u>Issue</u>	<u>Possible Cause</u>	<u>Corrective Action</u>
Motor does not stop at limit position	Incorrect phase sequence (3-phase units)	Correct phase rotation
	Control circuit wiring error	Inspect and correct wiring
	Mechanical limit set ahead of electrical limit	Re-adjust mechanical stops per instructions
	Diode failure (DC actuator)	Replace diode

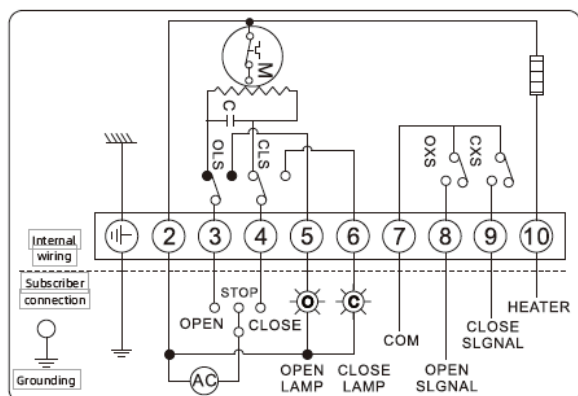
<u>Issue</u>	<u>Possible Cause</u>	<u>Corrective Action</u>
Water ingress inside actuator	Covers or fasteners not properly sealed	Inspect and tighten all covers and seals
	Improper cable entry or sealing	Ensure correct cable size and proper waterproof sealing
	Missing or inadequate sealing treatment	Reapply sealing per installation guidelines

Note

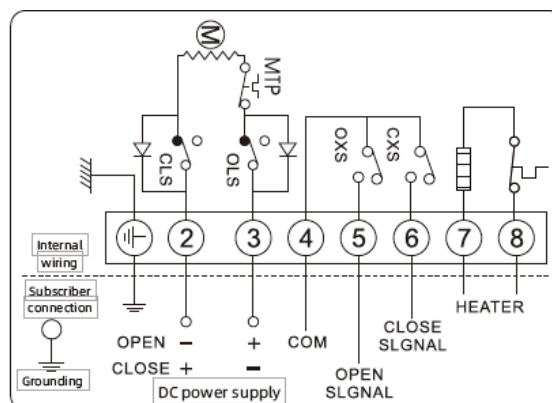
For issues that cannot be resolved using the above steps, please contact the manufacturer or authorized technical support.

Installation & Maintenance Manual

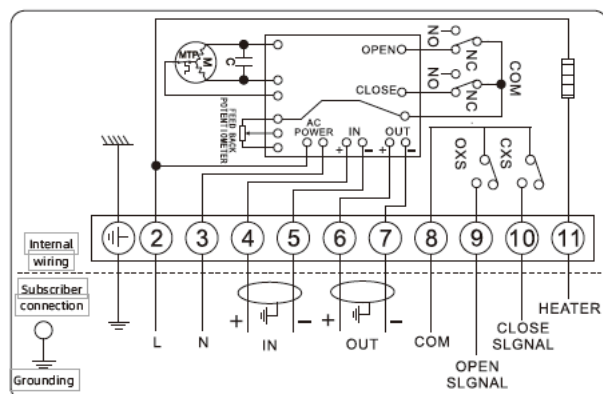
VER-05B - VER280 AC24V, AC110V,
AC220V-50Hz/60Hz (Common Switch Type), On-Off



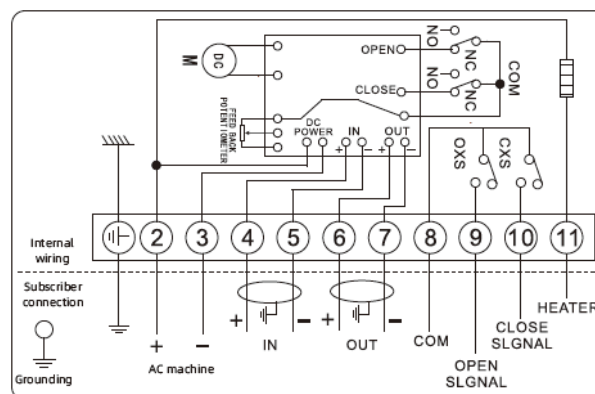
VER-05B - VER280 DC24V-50Hz/60Hz
(Common Switch Type - On/Off)



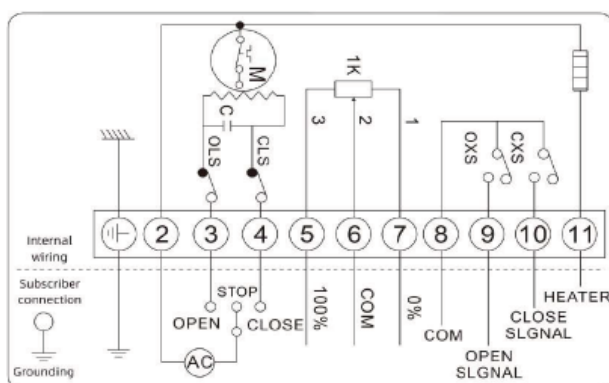
VER-05E - VER280E AC24V, AC110V,
AC220V-50Hz/60Hz (Modulating 4-20mA)



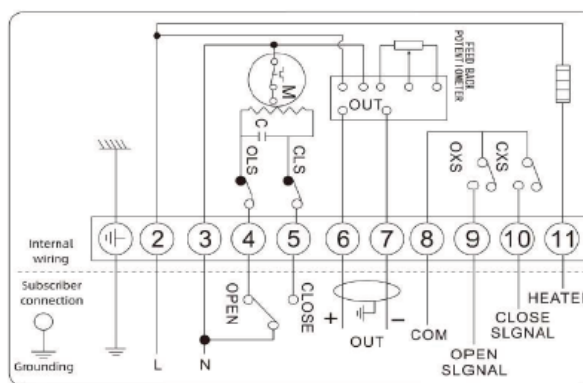
VER-05E - VER280E DC24V-50Hz/60Hz
(Modulating 4-20 mA)



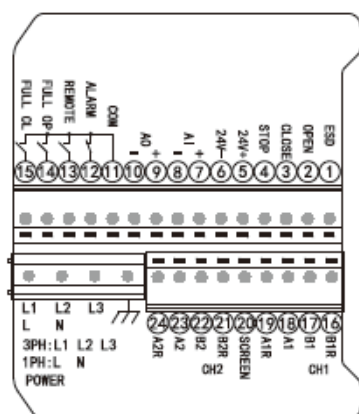
VER-05C - VER280C AC24V, AC110V, AC220V-50Hz/60Hz
(Poteiometer Type)



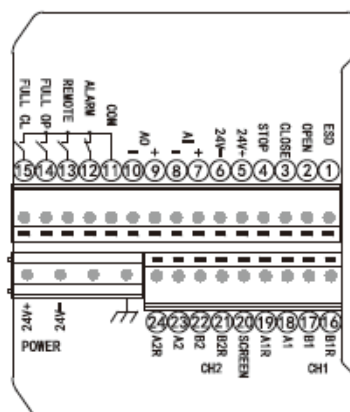
VER-05D - VER100 AC24V, AC110V, AC220V-50Hz/60Hz
(On-Off Output - 4-20mA)



VER-05J - VER280J AC24V, AC110 /
AC220V-50Hz/60Hz (Intelligent type w/ Digital Display)



VER-05J - VER50J DC24V-50Hz/60Hz (Intelligent
type w/ Digital Display)



NOTES:



While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only. Because Vtek Controls is continually improving and upgrading its product design, the specifications, dimensions and information contained in this literature are subject to change without notice. Should any question arise concerning these specifications, the purchaser/user should contact Vtek Controls.

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