ATO Single to Three Phase VFD Single Phase to 3 Phase VFD Variable Frequency Drive User Guide

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Quick setup manual

Note: For detailed parameter explanation, please refer to the full manual.

Group P0

P0.00=0 (V/F control mode, PA group does not need to be set), =1 (Senseless vector control, you need to set the motor parameter group PA)

P0.01=_ channel selection of frequency given.

1. Analog potentiometer on control panel(single display valid)
2. ▲ ▼key on control panel (single display valid) Panel digital potentiometer + ▲ ▼key on control panel(double display valid)
3. Digital setting 1, control panel given
4. Digital setting 2, UP/DOWN terminal given
5. Digital setting 3, serial port given

6. VI analog given (VI-GND)

7. CI analog given (CI-GND)

8. Pulse terminal given (PULSE)

9. Combination given (refer to P3.00)

P0.02=_ _ Running frequency set P0.20 lower limit freq.~P0.19upper limit freq.
P0.03=_ Running command mode selection

0 Control panel mode
1 Terminal control mode
2 Serial port control mode

- **P0.04=0**0 Running direction setting
- **P0.06=_ _** Max output freq.
- **P0.07=_ _** Basic running freq.
- **P0.08= _ _** Max output voltage, rated voltage.
- **P0.19=_ _** Upper limit freq. , Lower limit freq.   Max output freq. P0.06
- **P0.20=_ _** Lower limit freq.

Group P9

P9.13
This parameter does not need to be set when the VFD is a single channel display.
When the VFD is dual channel display.

- **P9.13**=0000 Ordinary three-phase asynchronous motor
- **P9.13**=1000 Single-phase asynchronous motor (removing capacitor)
- **P9.13=**2000 Single-phase asynchronous motor (without removing the capacitor)

Group PA (When P0.00=1)

- **PA.01=_ _** Motor rated voltage
- **PA.02=_ _** Motor rated current
- **PA.03=_ _** Motor rated frequency
- **PA.04=_ _** Motor rated rotating speed
- **PA.05=_ _** Motor poles number 2, 4, 6

Motor pole and speed comparison

- **2P=**3000rpm around,
- **4P**=1450rpm around
- **6P** =960rpm around, /50Hz
- **2P=**3600rpm around,
- **4P** =1750rpm around,
- **6P** =1200rpm around, /60Hz

Press ">>" to view the running status.

- b-00 is output frequency. b-08 is Input/output terminal state.
- b-01 is set frequency. b-07 is running time.
- b-02 is output voltage. b-09 is analog input VI.
- b-03 is output current. b-10 is analog input CI.
- b-04 is bus bar voltage. b-11 is external pulse width input value.
- b-05 is module temperature. b-12 is VFD rated current.
- b-06 is motor speed. b-13 is VFD rated voltage.
- b-14 is water supply control when the set pressure of the pipeline.
- b-15 is water supply control feedback pipeline pressure.

VFD and single phase motor wiring.

1. Keeping the capacitor, Connect the motor to the UW or VW of the VFD. Reverse the motor according to the motor nameplate
2. Remove the capacitor:

≤0.75kW

>0.75kW
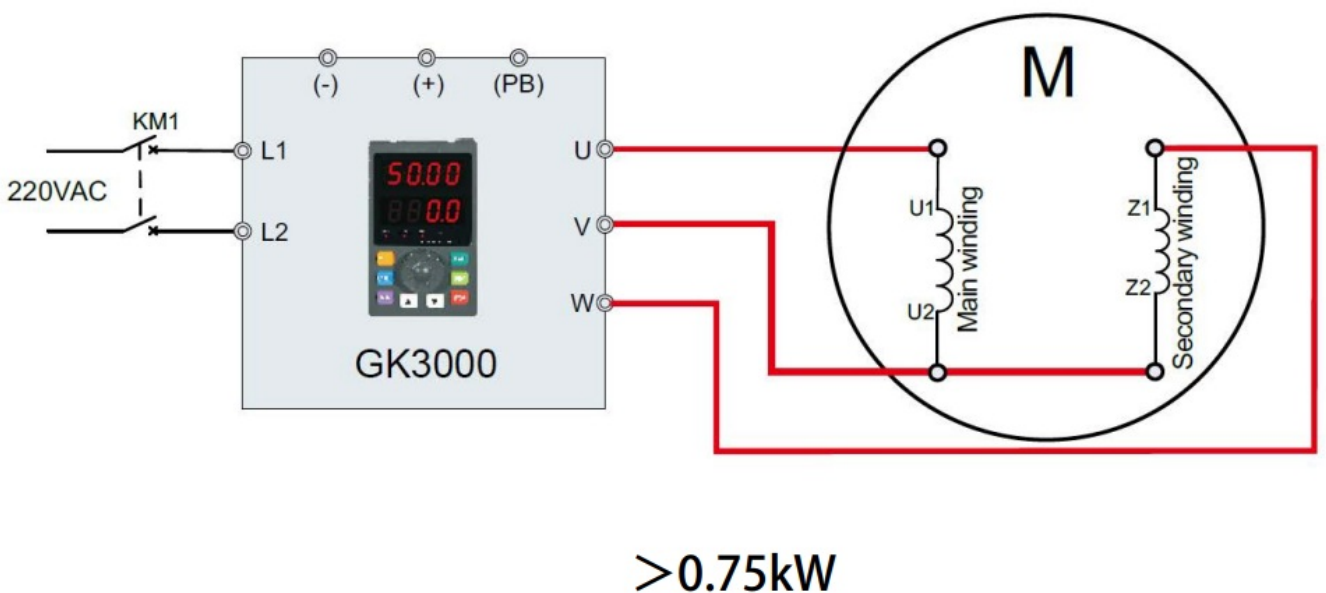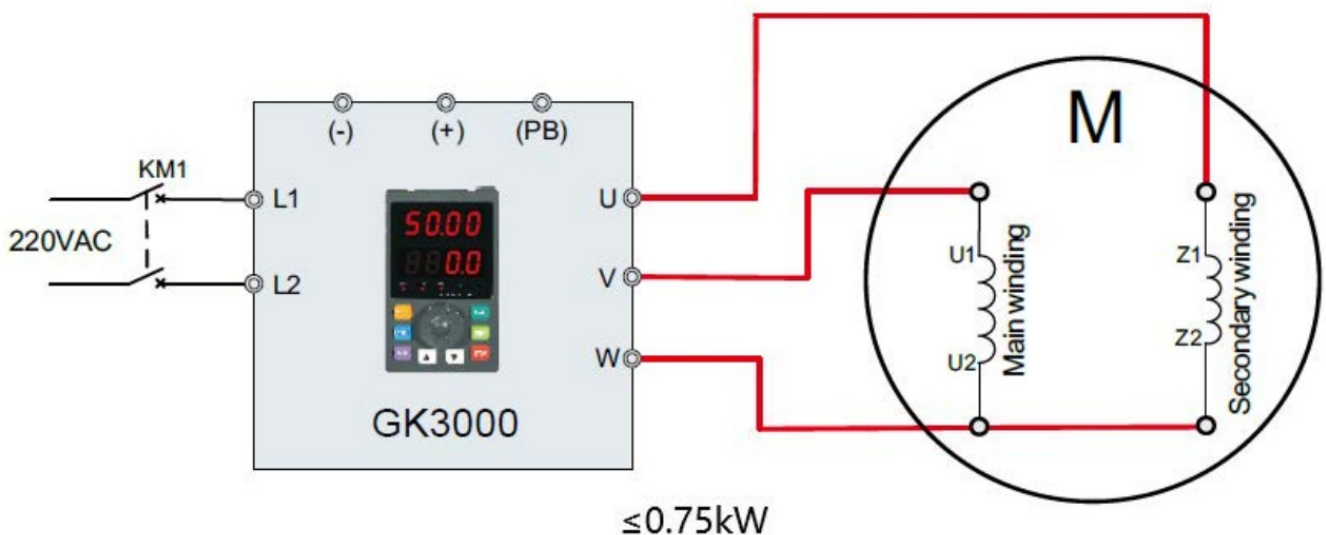
3. If you want a single-phase motor to reverse, you need to connect according to the motor nameplate

instructions.

Application

Note: For detailed parameter explanation, please refer to the full manual.
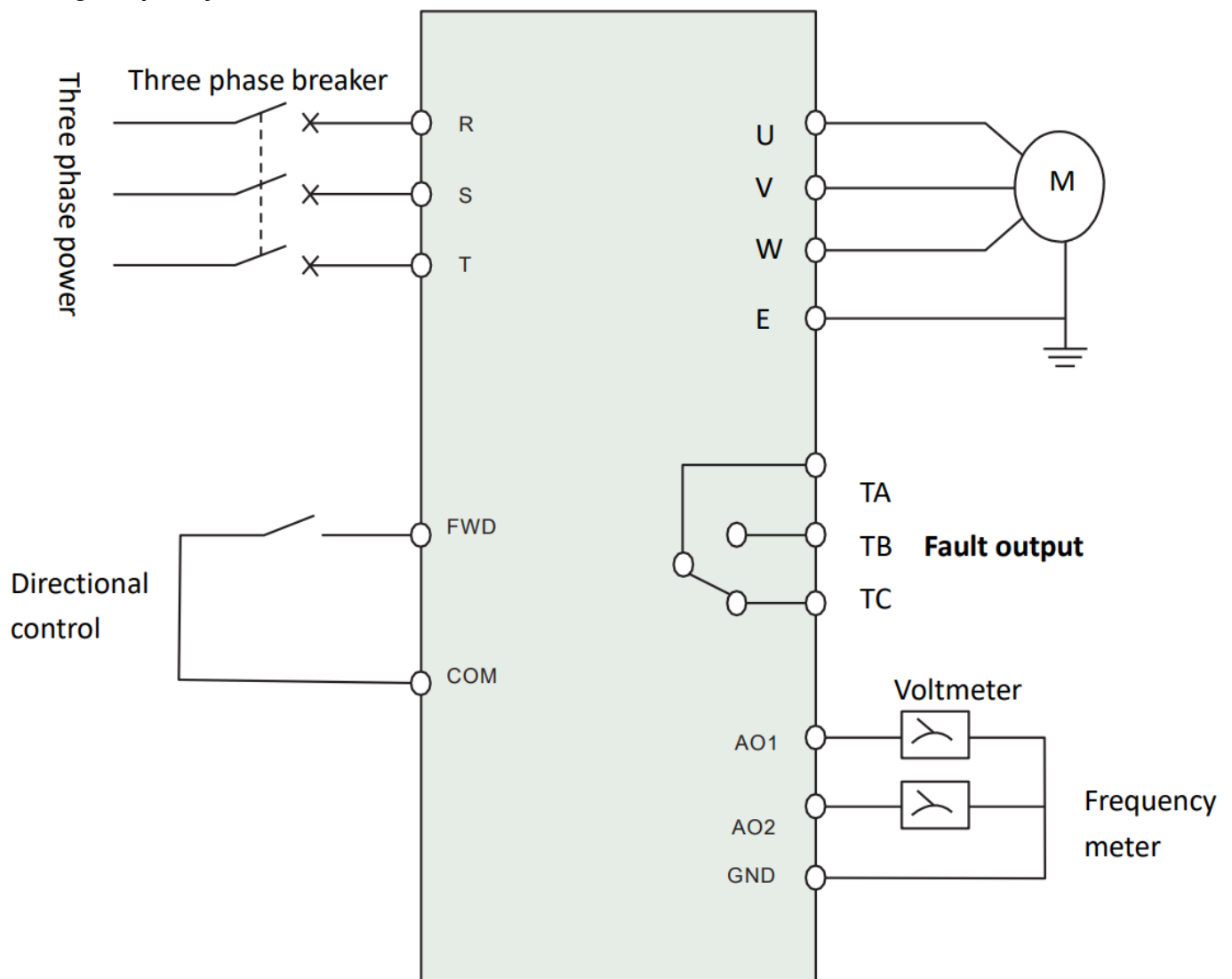
10.1 Start and stop of panel control, and panel potentiometer setting frequency
10.1.1 Parameter setting:

According to transducer, drag the motor's rated nameplate data and conduct parameter setting for parameters

- P0.07 and P0.08. The parameters that must be set up are stated as follows:
- **[P0.01]=0:** parameter P0.01 is set up as 0; select the panel potentiometer setting frequency,
- **[P0.03]=0:** parameter P0.03 is set up as 0; select panel to start and stop control.

Figure 10-1 Panel Control Starting and Stopping, and Basic Wiring Diagram of Panel Potentiometer Setting Frequency

10.1.3 Operating instructions

Press FWD to start the transducer; rotate the panel potentiometer button in clockwise, set up the frequency gradually, rotate the panel potentiometer button in anticlockwise, set up frequency to reduce gradually, and press

STOP to close down the transducer.

Tips:
External control terminal FWD determines the operation direction of the motor; if FWD-COM is disconnected, the motor is forward; if FWD-COM is closed, the motor is reverse.

10.2 Three-wire system control mode
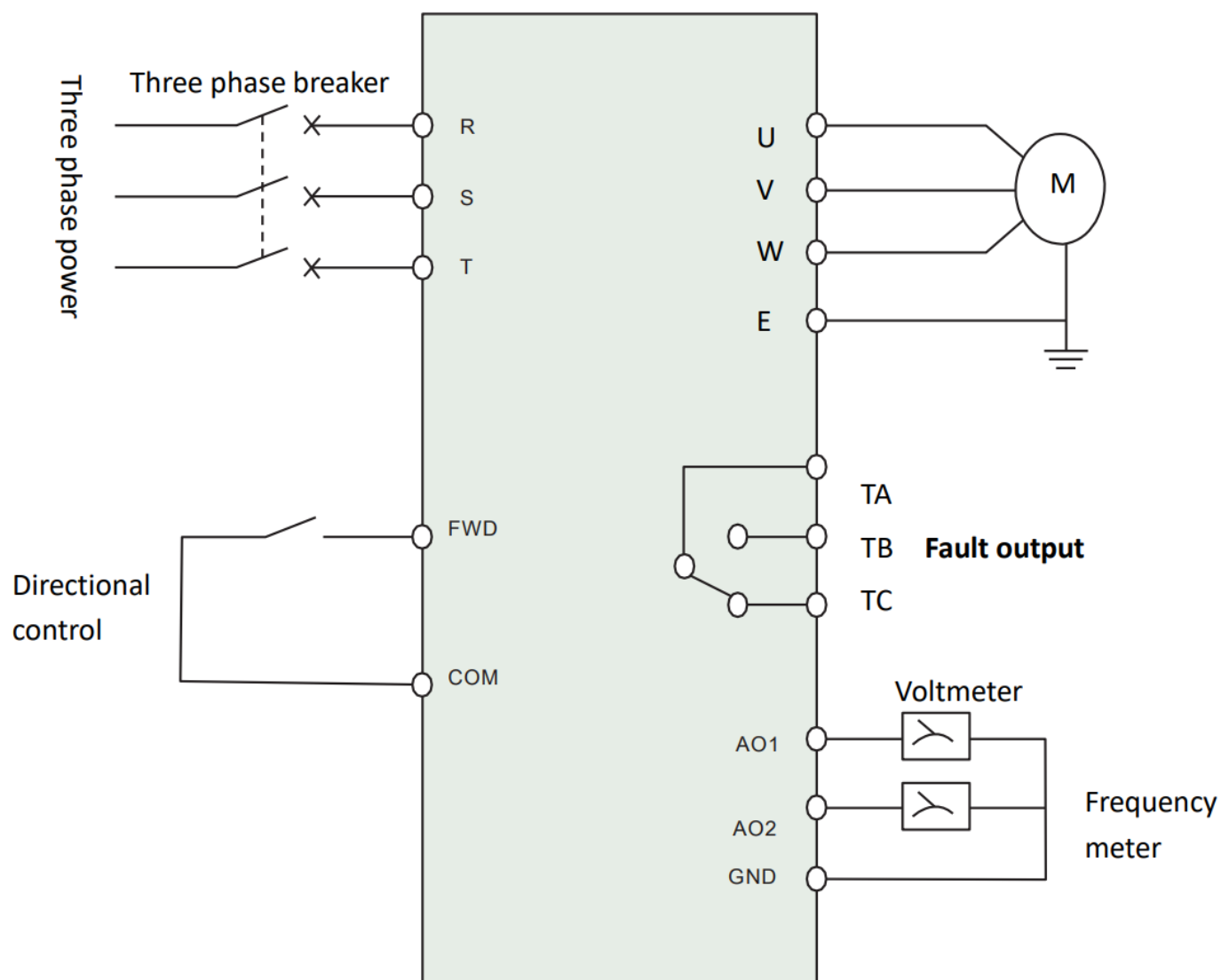**10.2.1 Parameter setting**

According to the transducer, drag the motor's rated nameplate data and conduct parameter setting for parameters P0.07 and P0.08.

- [P0.01]=0: Parameter P0.01 is set up as 0. Select the panel potentiometer to confirm the frequency input.
- [P0.03]=1: Parameter P0.03 is set up as 1; select the external terminal control.
- [P4.17]=2: parameter P4.17 is set up as 2; select AO1 output as the voltage output.
- [P4.19]=0: parameter P4.19 is set up as 0, select AO2 output as frequency output.
- [P4.08]=3: parameter P4.08 is set up as 3, select external command mode as the three-wire mode 1.
- [P4.00]=9: parameter P4.00 is set up as 9, select input terminal 1 as three-wire operation control. Other parameters are set up in accordance with the specific circumstance.

10.2.2 Basic wiring diagram

The basic wiring diagram of three-wire control mode is shown in Figure 10-2(for reference only)

Figure 10-2 The Basic Wiring Diagram of Three-wire Control Mode

10.2.3 Operating instructions

Close FWD, X1 and COM, forward motor(forward command); close REV, X1 and COM, reverse motor(reverse command); disconnect FWD, X1 and COM simultaneously or disconnect one of them or close REV; close down the transducer; disconnect FWD, X1 and COM simultaneously or disconnect one of them or close FWD, and close down the transducer.

10.3 External control mode and external voltage setting frequency
10.3.1 Parameter setting:

According to transducer, drag the motor's rated nameplate data and conduct parameter setting for parameters

- P0.07 and P0.08 the parameters that must be set up are stated as follows:
- [P0.01]=5, select VI as the given signal of frequency; 0-10V voltage is the given frequency source;
- [P0.03]=1, select external terminal command channel;

10.3.2 Basic wiring diagram
The basic wiring diagram of external control mode and external voltage setting frequency is shown in Figure 10-3(for reference only).

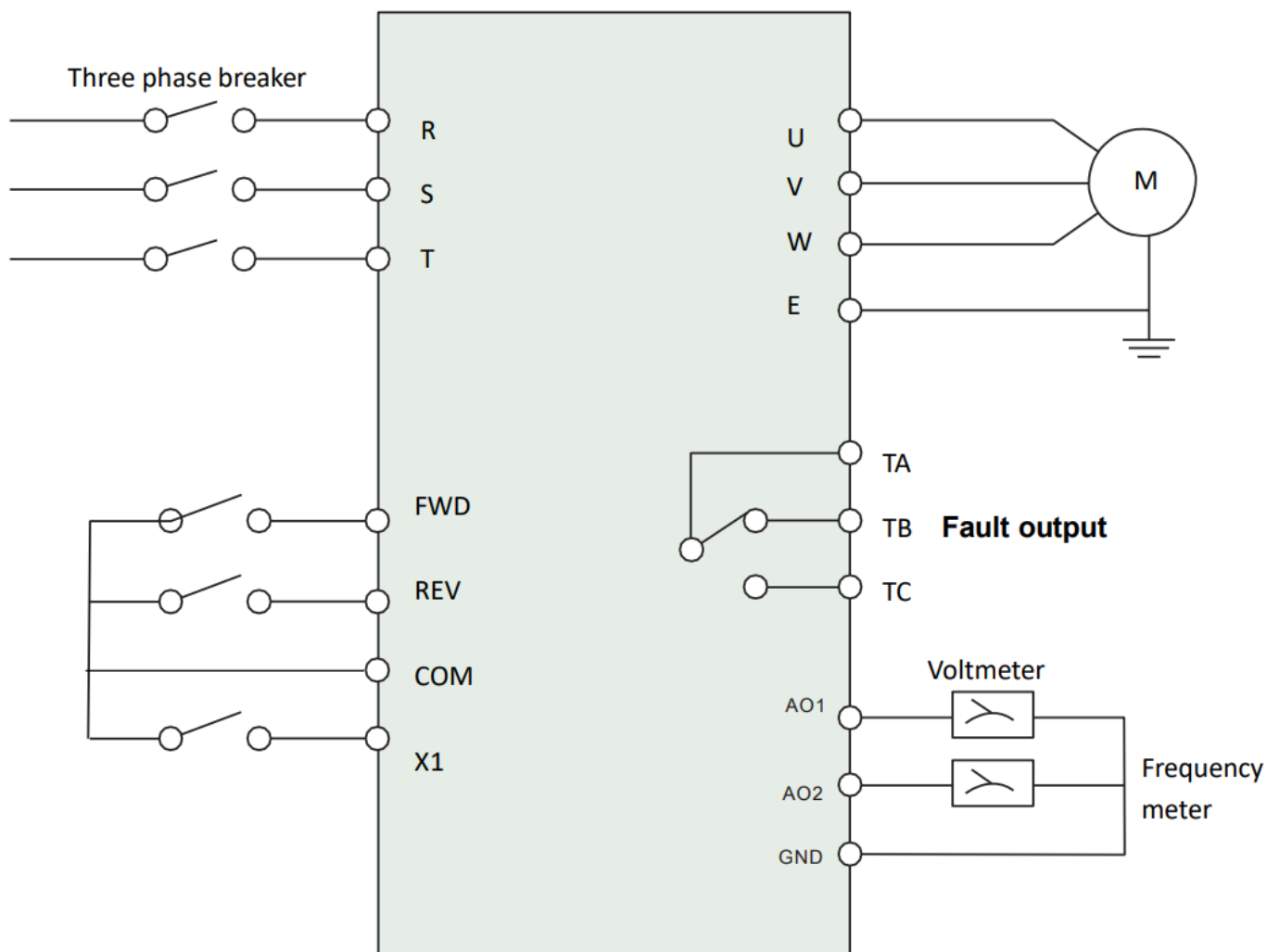**Figure10-3 Basic Wiring Diagram of External Control Mode and External Voltage Setting Frequency**

Figure 10-2 The Basic Wiring Diagram of Three-wire Control Mode

10.3.3 Operating instructions

If FWD-COM is closed, the motor is forward (forward command); if REV-COM is closed, the motor is reverse (reverse command). If FWD-COM and REV-COM is closed or disconnected simultaneously, the transducer will close down. The setting frequency is confirmed by external voltage signals (VI).

Tips:
Parameter P0.01 setting; select any line in external input VI and CI as the frequency setting signal.

10.4 Multi-stage operation and external control mode
### 10.4.1 Parameter setting:

According to the transducer, drag the motor's rated nameplate data and conduct parameter setting for parameters P0.07 and P0.08. [P0.03]1: Select external terminal command channel.

- [P3.26]- [P3.32]: Select multi-stage frequency setting.
- [P4.00]=1: External terminal X1 selects multi-stage control terminal 1.
- [P4.01]=2: External terminal X2 selects multi-stage control terminal 2.
- [P4.02]=3: External terminal X3 selects multi-stage control terminal 3.
- [P4.03]=11: External terminal X4 selects external stop instruction.

Basic wiring diagram

The basic wiring diagram of multi-stage operation and external control mode is shown in Figure 10-4(for reference only).

Figure 10-4 Basic Wiring Diagram of Multi-stage Operation and External Control Mode
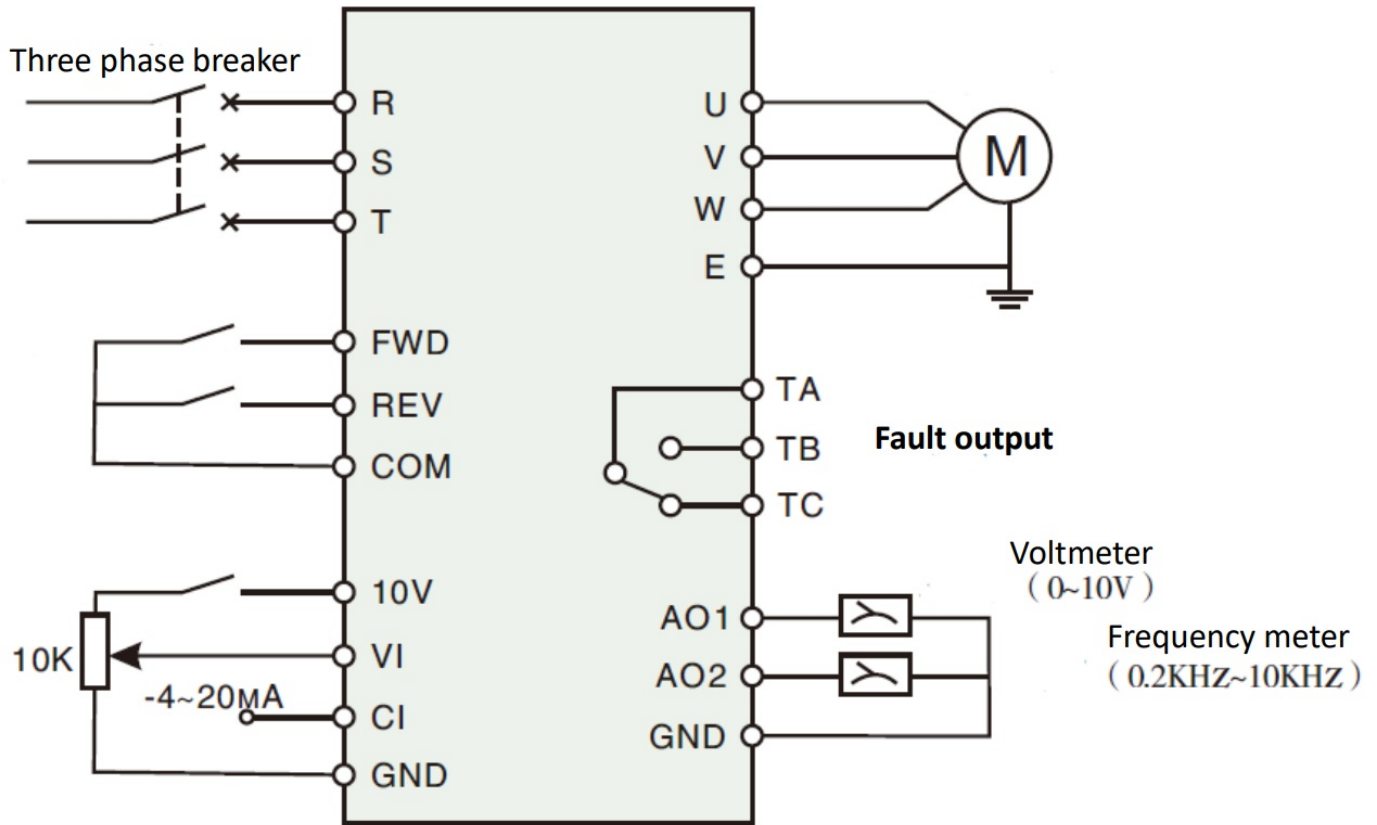
10.4.3 Operating instructions

If FWD-COM is closed, the motor is forward (forward command); if REV-COM is closed, the motor is reverse (reverse command). If FWD-COM and REV-COM are closed or disconnected simultaneously, the transducer will close down. X1, X2 and X3 are disconnected with COM. Multi-stage operation is invalid. The transducer is operated according to the established command frequency (frequency setting channel is selected by parameter P0.01).

If one or multiple terminals in X1, X2 and X3 is closed with COM terminal (seven combinations), the transducer is operated by the multi-stage frequency of X1, X2 and X3(multi-stage frequency setting value is confirmed by parameters P3.26-P3.32)

10.5 Use a transducer to constitute in one-drag and one-constant pressure water supply control system.
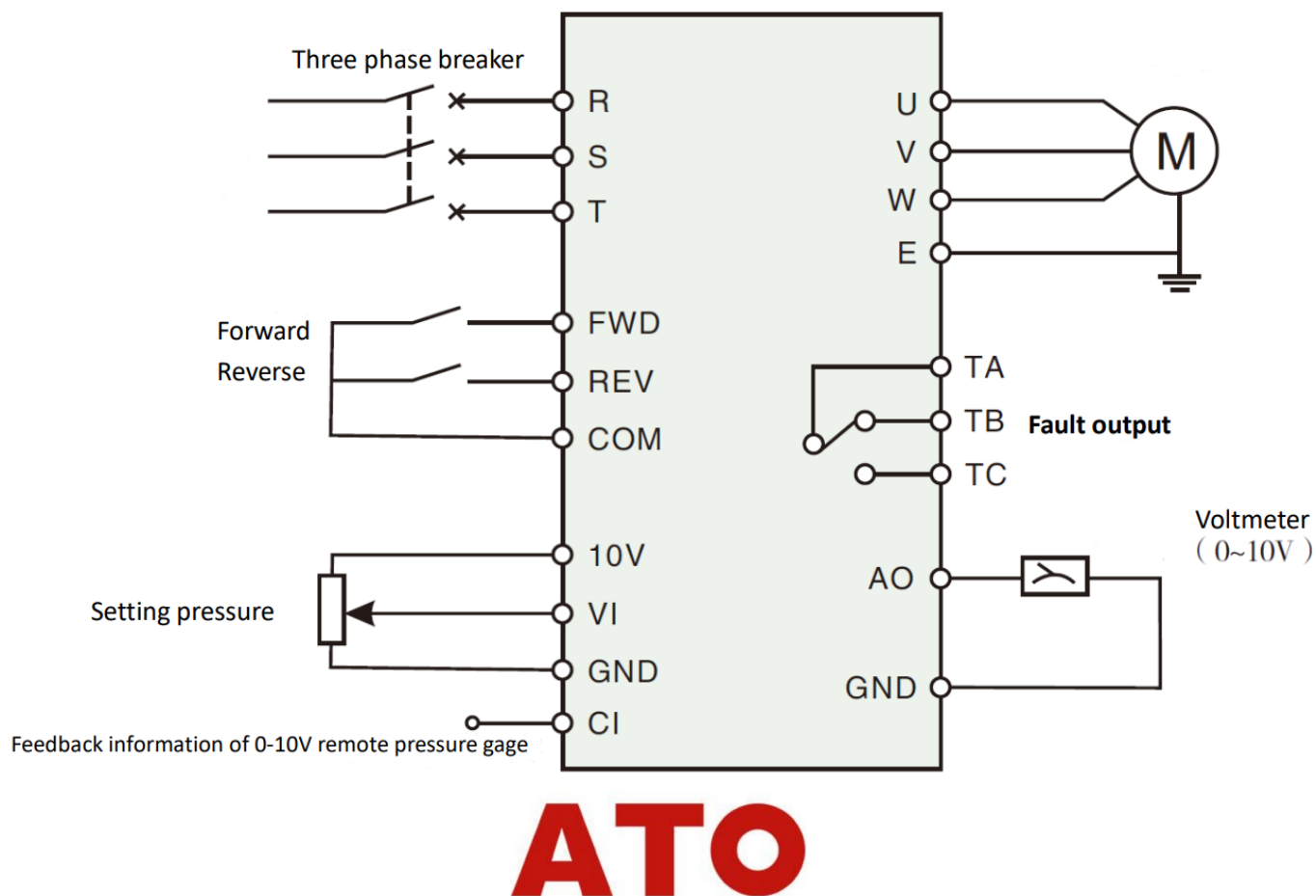### 10.5.1 Parameter settings

Parameters that must be set up are shown as follows:

- [P7.00]=1: Parameter P7.00 is set up as 1, select the closed-loop control mode.
- [P7.05]=constant value: Parameter P7.05 is set up for the given digital quantity—the setting value of constant.
- [P7.19]=revival pressure: Parameter P7.19 is the revival pressure setting.
- [P7.20]=Sleep pressure: parameter P7.20 is the survival pressure setting.
- [P7.26]=1: Parameter P7.26 is set up as 1, select one-drag and one-constant water supply.
- [P7.27]=1.000: remote pressure gage range; modify according to the actual pressure gage.

10.5.2 Basic wiring diagram

The transducer constitutes in the closed-loop control system with the wiring diagram as Figure 10-5(for reference only).

Figure 10-5 The Wiring Diagram of Closed-loop Control System Constituted by the Transducer

Documents / Resources

[ATO Single to Three Phase VFD Single Phase to 3 Phase VFD Variable Frequency Drive](#) [pdf] User Guide
Single to Three Phase VFD Single Phase to 3 Phase VFD Variable Frequency Drive, Single, to Three Phase VFD Single Phase to 3 Phase VFD Variable Frequency Drive, Single Phase to 3 Phase VFD Variable Frequency Drive, Phase VFD Variable Frequency Drive, VFD Variable Frequency Drive, Variable Frequency Drive, Frequency Drive, Drive

References

- **User Manual**