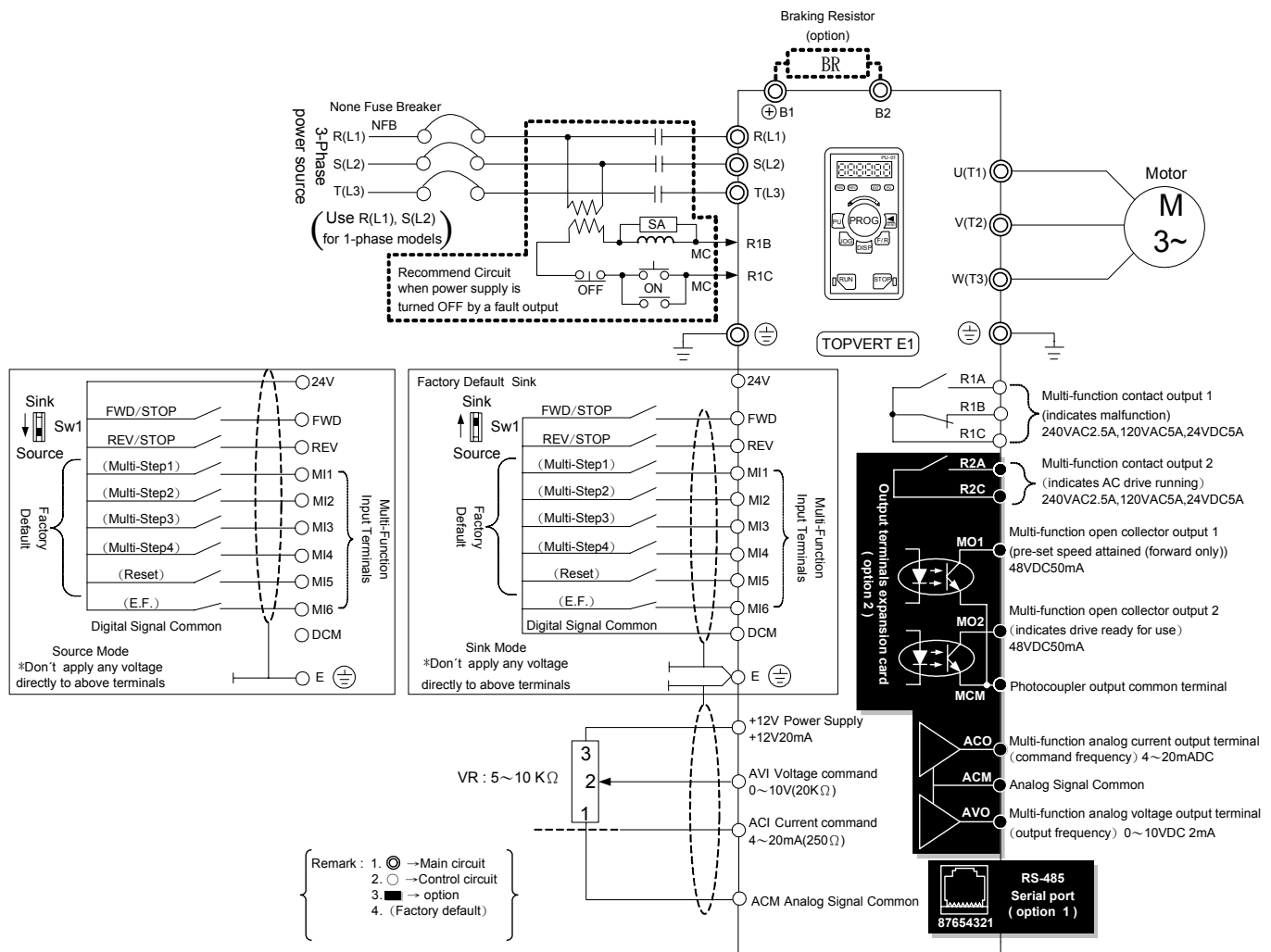


CHAPTER 3 WIRING

3-1 Basic Wiring Diagram


For wiring of the drive, it is divided into the main circuit and the control circuit. Users could open the case cover, and could inspect the main circuit terminal and the control circuit terminal; users connect the circuit in compliance with the following wiring method.

The following diagram is the standard wiring diagram for the TOPVERT E1 series drive.



* Definition on the Communication terminals : pin1:Reserved pin2:Reserved pin3:GND pin4:SG- pin5:SG+ pin6:+5V pin7:Reserved pin8:Reserved

3-2 Main Circuit Terminal Explanations

Terminal Symbol	Content Explanation
R(L1),S(L2),T(L3)	AC line input terminals
U(T1),V(T2),W(T3)	Drive output terminals motor connections
\oplus /B1, B2	Connections for Braking Resistor (optional) Refer to Chapter 9 (the selection chart)
	Ground terminals, please have these terminals grounded following the third-type grounding of 230V series and the special grounding of 460V series within the electrician regulations

3-3 Control Terminal Explanations

Terminal Symbols	Explanation on the Terminal Function	Factory Default
MI1	Multi-function input selection 1 (3-wire STOP-designated terminal)	multi-step speed command 1
MI2	Multi-function input selection 2	multi-step speed command 2
MI3	Multi-function input selection 3	multi-step speed command 3
MI4	Multi-function input selection 4	multi-step speed command 4
MI5	Multi-function input selection 5	Abnormal reset command
MI6	Multi-function input selection 6 (TRG-designated terminal)	EF input
AVO *	Multi-function analog voltage output (0~10VDC, 2mA)	Output frequency
ACO *	Multi-function analog current output (4~20mADC)	Output frequency
R1A	Multi-function relay 1 output contact (NO / a)	Resistive Load 5A(N.O.)/3A(N.C.) 240VAC 5A(N.O.)/3A(N.C.) 24VDC Inductive Load 1.5A(N.O.)/0.5A(N.C.) 240VAC 1.5A(N.O.)/0.5A(N.C.) 24VDC Refer to Pr.2-19, Pr.2-20
R1B	Multi-function relay 1 output contact (NC / b)	
R1C	Multi-function relay 1 output contact – the common end	
R2A *	Multi-function relay 2 output contact (NO / a)	
R2C *	Multi-function relay 2 output contact – the common end	
E	Shield terminal	
24V	Digital control source signal Reference point is DCM	+24V 50mA

FWD	FWD RUN-STOP command	
REV	REV RUN-STOP command	
DCM	Digital control signal - the common end	
+12V	Auxiliary reference power Reference point is ACM	+12V 20mA
ACM	Analog control signal - the common end	
AVI	Multi-Function analog voltage command	The maximum operation frequency corresponding to 0~+10V
ACI	Multi-Function analog current command	The maximum operation frequency corresponding to 4~20mA
MO1 *	Multi-function output terminal 1 (photo coupler)	pre-set speed attained (Max 48VDC 50mA)
MCM *	Multi-function output terminal (photo coupler) – the common end	
MO2 *	Multi-function output terminal 2 (photo coupler)	drive ready for use (Max 48VDC 50mA)

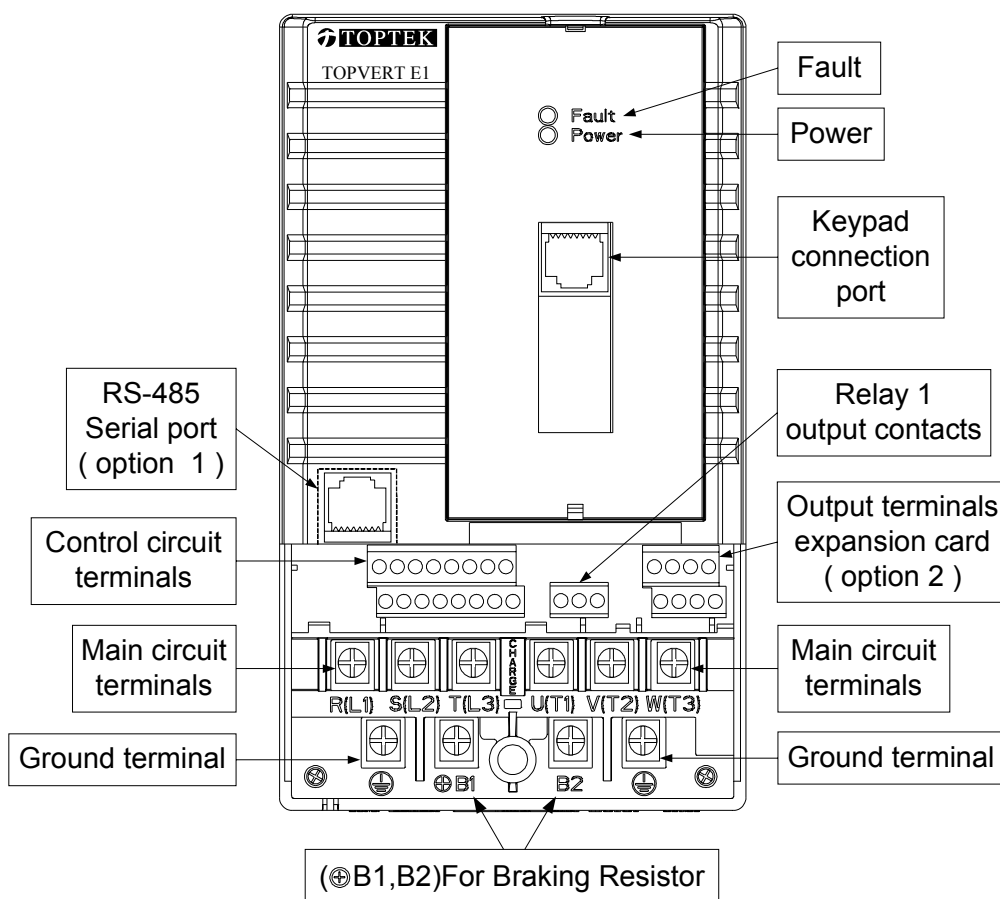
Control signal wiring size: 18 AWG (0.75 mm²)

Analog control signal wire specification: 18 AWG (0.75 mm²), covered with shield twisted net.

* : Available when an Output terminals expansion card TMCA-E20 is installed.


3-4 Component Explanations

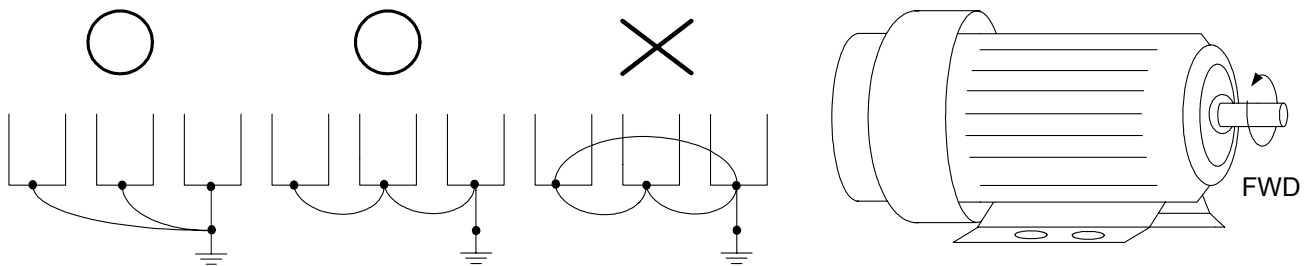
E1-A:



3-5 Wiring Notice:

PLEASE READ PRIOR TO INSTALLATION.

1. When wiring up, and that the wiring route specifications are settled, please conduct the wiring following the electrician regulations.
2. The connection between the three-phase AC input power and the main circuit terminal R/L1, S/L2, T/L3 has to set up a none-fusing switch in between. The best is to series connect with an electro-magnetic contactor (MC) so as to cut off the power supply at the same time when the drive protection function acts.
(The two ends of the electro-magnetic contactor should have the R-C Varistor).
3. There is no phase-order differentiation in the input power R/L1, S/L2, T/L3 and users could connect with either one of use.
4. The ground terminal  is grounded with the third-type grounding method (with the grounding impedance under 100Ω).
5. The grounding wire of the drive could not be grounded at the same time with machinery with grand current loading, like that of the electric soldering machine and of the motor with grand horsepower; they have to be grounded individually.
6. The shorter the ground wire, the better it is.
7. When several drives are grounded at the same time, be sure not to make it into a ground circuit.
Please refer to the following diagram:



8. If the output terminals U/T1, V/T2 and W/T3 of the drive are connecting relatively to the U, V, and W terminals of the motor, the FWD indicator located on the digital control panel of the drive will be lit, and that means the drive is running forward, and the rotation direction of the motor will be shown as the right hand side diagram above; if the REV indicator is lit, it means that the drive is running in reverse direction, and the rotation direction will be of the opposite direction compared with the above diagram. If users are not sure of whether the connection between output terminals U/T1, V/T2 and W/T3 of the drive is of one-to-one connection with U, V, and W terminals of the motor, simply swap either two wires among the U, V, and W terminals of the motor for correction if the drive is running forward while the motor is running at reverse direction.
9. Ensuring the power voltage and the maximum current possible supplied.
10. When the "Digital Programming Unit" is displayed, please do not disconnect or disassemble any wiring.
11. No braking resistor is installed within the drive (option item), therefore, be sure to purchase and install the braking resistor if to be used on occasions when the loading inertia is great or that it is of frequent start/stop.
12. Be sure not to connect the AC power with the terminals U/T1, V/T2 and W/T3 of the drive.
13. Please tightly fasten the screws of the main circuit terminals so as to prevent sparks generated due to the vibration and loosening of the screws.
14. Wiring of the main circuit and of the control circuit should be separated so as to prevent erroneous actions. If the interlock connection is needed, please make it an intersection of 90°.

15. If terminals U/T1, V/T2 and W/T3 on the output side of the drive is in need of the noise wave-filter, it is then necessary to use the induction-type L-Varistor, but be sure not to add in the phase-carrying capacitor or the L-C- and R-C-type wave filters.
16. Please use the separating wire as much as possible during control wiring, and be sure not to expose the peeled-off separation net in front of the terminal to the external.
17. Please use the separating wire or tube as much as possible during power wiring, and ground these two ends of the separating layer or tube to the Ground.
18. If the installation site of the drive is sensitive to interferences, please have the RFI filters installed, and the closer the drive to the installation site, the better. In addition, the lower the carrier frequency is, the less the interferences will be.
19. If the electric-leakage circuit breaker is installed in the drive, it could serve as the protection for the electric-leakage error, and as the prevention on the erroneous actions of the electric-leakage circuit breaker; please select the sensor current above 200ma with the action time of more than 0.1 second to have these actions accessible.