User Manual for PROFIBUS Active Terminal Resistance PB-TR485

Top and bottom of PROFIBUS network section are called as terminals. In order to restrain signal reflex and distortion of RS485 signal, terminal cable shall be connected to A1 and B1 terminals of bus connector, and terminal resistance on bus connector socket of terminal interface shall be set ON, so that, one 220Ωterminal resistance shall be connected to the terminal interface, moreover, one 390Ω up resistor and one 390Ω down resistor is equipped to ensure smooth operation of the network. Both resistors need 6 pins and 5 pins on DP socket to provide 5VDC working power supply. When power-off occurs on terminal station, no 5VDC working power supply can be provided for both up and down resistors, which shall cause abnormal network communication or communication failure.

If terminal station is required to cut power due to station condition, active terminal resistance (ensure no power-off) is needed to act as terminal for network section in order to ensure normal network communication. Product model of active terminal resistance of Siemens Company is 6ES7 972-0DA00-0AA0, and model of active terminal resistance of FOURSTAR is PB-TR485.

After PROFIBUS network section terminal is connected with active terminal resistance, it can have bus voltage remained at a standard level. Therefore, any station disconnected from network shall not cause network breakdown. Power failure on any network section terminal shall influence other network section's communication, as a result, any terminals which may occur power failure is required to be replaced by active terminal resistance, and ensure no power failure occurrence on such resistance.

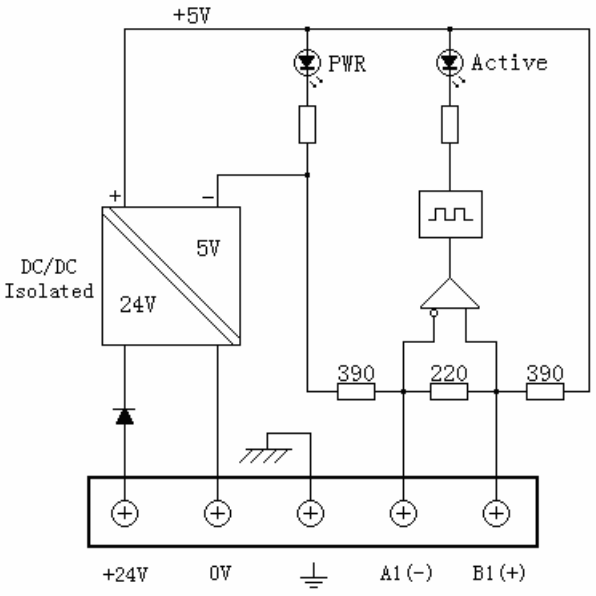
Technical specification

- Isolation voltage：1000VDC，power supply isolating against RS485
- Power supply：voltage of 24VDC±10%，approximately 0.2W，with polarity reversed protection and surge protection
- Communication rate：0～12Mbps self-adaption without any delay，supporting PROFIBUS/MPI/PPI and other RS485 network
- Interface: Screw type terminal block
- With power indicator light and bus communication indicator light
- Operating temperature：-40～+85℃
- Overall dimension：65mm×51mm×26mm（length × width × height），weight：40g
- Installation mode：35mm standard lead rail installation

External structure and terminal signal definition

Terminal Name	Functions	Signal Direction
+24V	24VDC power supply input positive	Input
0V	24VDC power supply input negative	Input
FG	Shield earthing（Chassis ground）	-
A1	RS485 signal -	Input /Output
B1	RS485 signal +	Input /Output

Internal functional block diagram



Functional Block Diagram of FOURSTAR Active Terminal Resistance PB-TR485

Operating Instruction

Active terminal resistance PB-TR485 equipped on network section terminal shall avoid any abnormalities of network communication caused by power-off of equipment which acting as terminal, the active terminal resistance shall keep uninterrupted power supply. When transmitting data through bus, Active indicator light on active terminal resistance PB-TR485 shall blink at the frequency of about 5Hz.