

Programmable Logic Controller-TBK1901

The TBK-19 series controller is designed for detection, control, and automation tasks across various industries. It can operate independently or be networked with multiple units to handle complex program control, centralized monitoring, and decentralized management. It is suitable for rail transit systems and a wide range of industrial automation applications.

Parameters

Hardware

- Program memory: 32K
- Data memory: 10K
- Data retention after power-off: Non-volatile
- Communication protocols: PPI master/slave, MODBUS, Free protocol
- Digital inputs: 14
- Digital outputs: 10
- Supported expansion modules: Up to 7
- Pulse capture inputs: 17
- High-speed counters:
 - Total: 6
 - Single-phase counters: 6 (50kHz)
 - Quadrature counters: 4 (50kHz), 4× mode up to 200KHz
- Total Timers: 256
 - 1ms: 4
 - 10ms: 16
 - 100ms: 236
- Total Counters: 256
- Internal memory bits: 256
- Time interrupts: 2 channels at 1ms resolution
- Edge interrupts: 4 rising edge and/or 4 falling edge
- Analog potentiometer input: 2 channels, 8-bit resolution
- Real-time clock: Built-in (requires battery)

Communication

- PPI Baud Rates:
 - Port 0: 9.6/19.2/187.5 kbps
 - Port 1: 9.6 kbps (DC version only)
 - Port 2: N/A
- Free protocol baud rate: 1.2~115.2 kbps
- Max number of stations: 32 per segment, 126 per network
- P2P: Supports PPI master/slave mode

Digital Inputs

- Input type: Sinking/Sourcing
- Rated voltage: 24VDC (typical 4mA)
- Max sustained voltage: 30VDC
- Surge voltage: 35VDC for 0.5s
- Logic "1" signal (min): 12VDC/2.5 mA
- Logic "0" signal (max): 5VDC/1mA
- Input delay: Selectable 0.2~12.8ms
- Opto-isolation: 500VAC for 1 minute

Digital Outputs

- Output type: Relay/Transistor (customizable)
- Rated voltage: 10~280 VDC/AC
- Voltage range: Up to 350 VDC/AC
- Rated current per point (max): 0.12A
- Rated current for common terminal: 0.36A
- Leakage current (max): 1μA
- Max lamp load: 500mW
- Contact resistance: $\leq 25\Omega$ (typical 20 Ω)
- Isolation method: Opto-isolation
- Isolation voltage: 5000Vrms
- Max pulse frequency: 1.7 kHz

Power

- Input voltage: 110VDC
- Output voltage: 24VDC ($\pm 10\%$)
- Hold-up time:
 - 5 V: 1000ms
 - 24 V: 10ms
- Sensor output voltage: 24VDC ($\pm 15\%$)
- Current limit: 500mA
- Isolation: Transformer-isolated

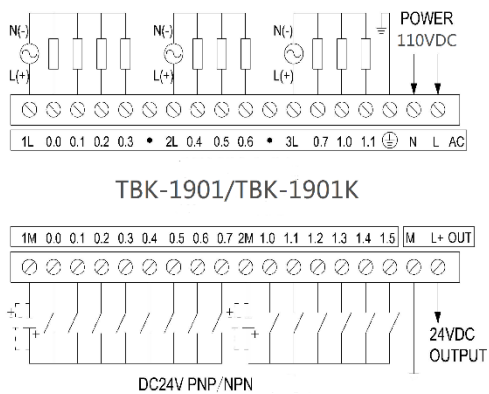
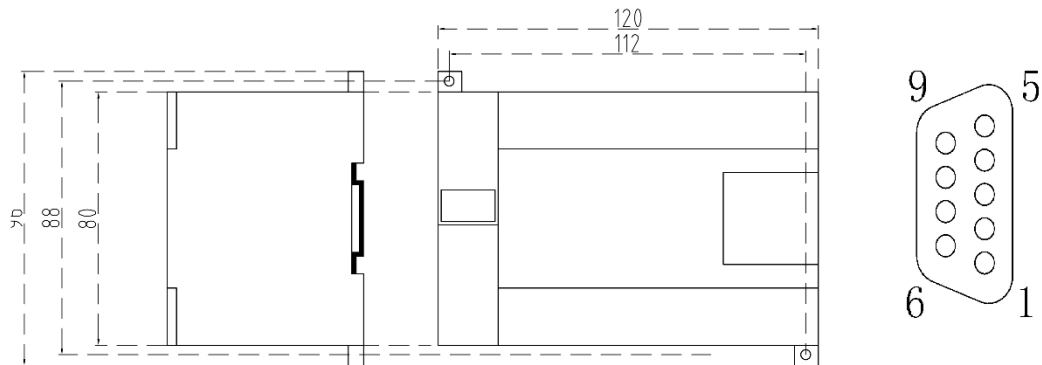
General Data

- Power consumption: 7W
- Operating temperature: -40°C to $+75^{\circ}\text{C}$
- Altitude: ≤ 3600 m
- Relative humidity: $\leq 100\%$ (marine atmosphere)
- Enclosure material: Flame-retardant ABS & PC
- Software support:
 - V4.0 STEP 7 / MicroWIN-SP6 & SP9
 - CX-Programmer
 - SIMATIC & IEC 1131-3
- Programming languages: LAD / STL / FBD
- EMC compliance: EN 50121-3-2
- Shock and vibration resistance: IEC 61373, Class 1, Category B
- Environmental testing: GB/T 25119
- Safety compliance: GB/T 21562

Functions

- Capable of monitoring digital I/O signals for basic logic control tasks.
- Supports 12 counting modes including simple count, pulse+direction, and AB phase, compatible with rotary encoders for real-time feedback. In AB phase 4 $\times$ mode, supports up to 200 kHz resolution for high-speed interrupt triggering.
- Equipped with RS485 and dedicated PPI interface (9.6 Kbps / 19.2 Kbps / 187.5 Kbps) for programming, HMI connection, and controller interlinking.

Outline & Interface



Port0/Port1

- 1: PE
- 2: GND
- 3: TX+ (485A)
- 4: NC
- 5: GND
- 6: 5V
- 7: 24V
- 8: TX- (485B)
- 9: NC

Port2

- 1: PE
- 2: GND
- 3: TX+ (485A)
- 4: NC
- 5: GND
- 6: 5V
- 7: NC
- 8: TX- (485B)
- 9: NC

Note

- The operating environment should be protected from wind, sand, rain, and snow to avoid direct exposure to harsh conditions.