

CB-005N Circuit Board

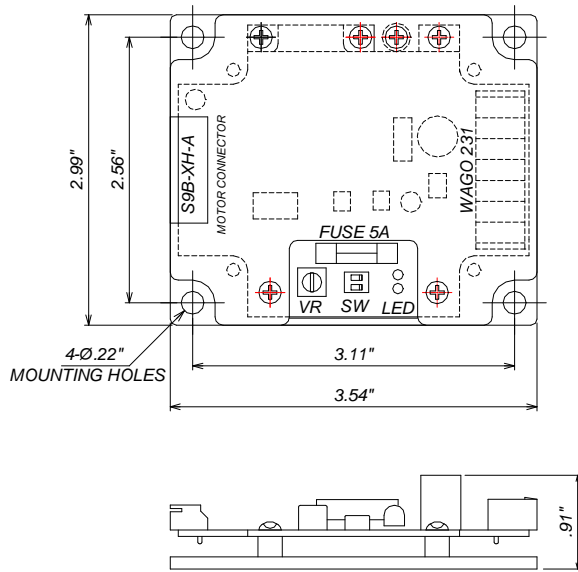


- Provides Thermal Protection for board and motor
- Built-in current limiter
- Error Output signal for self diagnosis
- Dynamic brake control
- Variable speed (0% - 100%) by onboard potentiometer or 0 to 5 volt signal
- Pulse Signal Output for sensing motor rotation

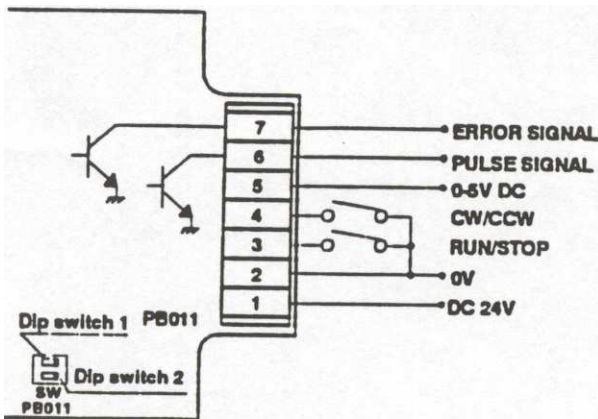
Used with models that incorporate a mechanical brake (PM486FS-BR) and controls both the dynamic and mechanical brakes for extended brake life

CB-005N SPECIFICATIONS

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|---------------------------|--|
| Input Voltage | 14-26VDC |
| Nominal Operating Voltage | 24VDC: Battery or fullwave rectified and smoothed current <10% Ripple |
| Overload Protection | <p>Built-in Current Limiter: 2.3 – 3.2A depending on the nominal speed (current) of the unit</p> <p>Thermal Overload Protector: Reacts at critical temperature either at 70° C (158° F) on the PCB, or at 105° C (221° F) in the motor, and will reduce the motor output torque to prevent motor burnout. The motor torque will recover after cool off.</p> <p>5A fuse to power supply, power supply protection</p> <p>Diode: protects the PCB from incorrect wiring</p> <p>Resistance to surge</p> <p>Peak current protection (6A)</p> |
| Speed Variation | 0 – 100% of the peripheral velocity |
| Control Terminals | <p>Power: 24VDC is supplied between #1 and #2</p> <p>Start/Stop: Place ON/OFF switch between #2 and #3</p> <p>CW/CCW (Dip Switch 2 ON): CW – open between #2 and #4 CCW – closed between #2 and #4</p> <p>Remote speed control (Dip Switch 1 ON): Input Voltage between 0 and 5VDC to #5 with integrated potentiometer set to Max.</p> <p>Pulse signal output (#6): 1 motor rotation (before gear reduction) corresponds to 2 pulses (25mA Max. output)</p> <p>Error (overload) signal output (#7): LOW output incase Thermal Overload Protection or current limiter reacts (NPN transistor open connector output 25mA Max.)</p> <p>*0V to #2 and #5 must be common (output 20mA @ 5V)</p> |
| Dip Switches | <p>SW1: ON – External; OFF – Internal</p> <p>SW2: ON – CW; OFF – CCW</p> <p>Normally shipped with 1 – OFF and 2 – ON</p> |
| Mechanical Brake | <p>With the stop signal, the dynamic brake is applied until the motor speed becomes 300rpm or less, then the mechanical brake is applied for a holding effect</p> <p>Mechanical brake torque is designed to be less than the motor torque</p> |
| Error Indication | LED (Green – Powered; Red – Overload) |
| Applicable Environment | <p>Temperature: 0 – 40° C (32 – 104° F) Thermal Overload Protection may react depending on the operating conditions.</p> <p>Humidity: <90% Relative Humidity (no condensation)</p> <p>Atmosphere: No corrosive gas</p> <p>Vibration: 0.5G</p> |



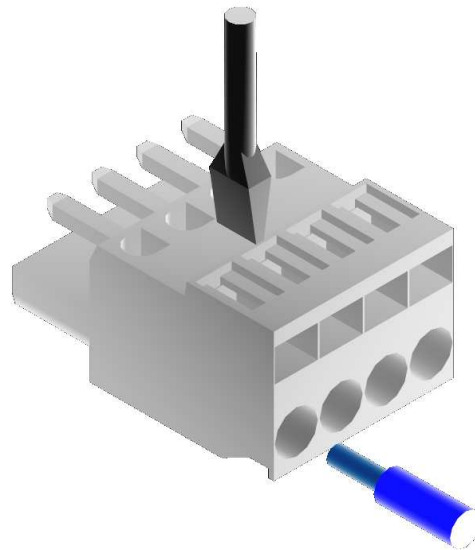
Dimensions of CB-005 Driver Card with locations shown for:
 Internal Potentiometer (on-board speed control)
 DIP switches
 LEDs
 Fuse
 Connectors



WAGO connector wiring diagram

Terminal 5 is used only when PM speed is to be controlled by an external DC voltage

WAGO connector # 231-107/026-000
 Minimum wire gauge – 28 AWG
 Maximum wire gauge – 14 AWG



Press down spring clamp in connector with screwdriver.
 Insert leads in proper order.
 Lead should be stripped approx: .31-.35"
 WAGO connector (included) must be inserted and/or pulled out carefully, so as not to damage other parts.



Installation Precautions – IMPORTANT, PLEASE READ BEFORE INSTALLATION

| Precaution | Action | Reason |
|--|---|--|
| Multiple power supplies | 0V line of all power supplies on the same conveyor line (powering the card/rollers, & controls) need to be physically linked together. | This completes the signal path from one section of the conveyor (powered by a power supply) to the adjacent section of conveyor (powered by another power supply) and allows for proper communication through the cable and external interfaces. |
| Voltage drop across the power bus | Use suitable gauge wire in relation to distance and current draw to prevent voltage drop. <u>Operating</u> DC voltage is 24V ±10% | When running long distances from a DC power supply, the voltage drop during motor operation across the power bus may be significant (may drop below 15V!). If there is a large enough drop in voltage, the roller(s) may behave in a strange manner. In order to prevent this, a larger gauge wire must be used. |
| Grounding | Ensure the control card is securely grounded to the conveyor frame. The conveyor frame should also be at the same potential reference as earth ground. Standard grounding practices should be followed. | Static discharge may interfere and damage internal components. |
| Electrical | 24V DC ±10% 4A maximum current limiter (motor lock is 4A) Diode protection for miswiring Sensor power short circuit protection 5A fuse for power supply protection | Improper power will damage the card. The motor/card should not be subject to locked conditions repeatedly. Internal fuse is not replaceable. If the fuse has blown, more serious damage has occurred within the card/motor. |
| Environment | Ambient temperature is 32~104F Ambient humidity is < 90%RH Atmosphere has no corrosive gas Vibration is < 0.5G Indoor use only | Extreme environmental variables may cause poor or no performance and damage the card. |
| Over-speeding | Over-speeding of the roller's no-load speed by more than 50% may cause damage. | Back EMF will be generated. |

Revision History

| Revision Number | Change |
|-----------------|----------------------------|
| 072301 | Initial document |
| revB121703 | Changed P/N, added drawing |
| 09-0423 | Added precautions |
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