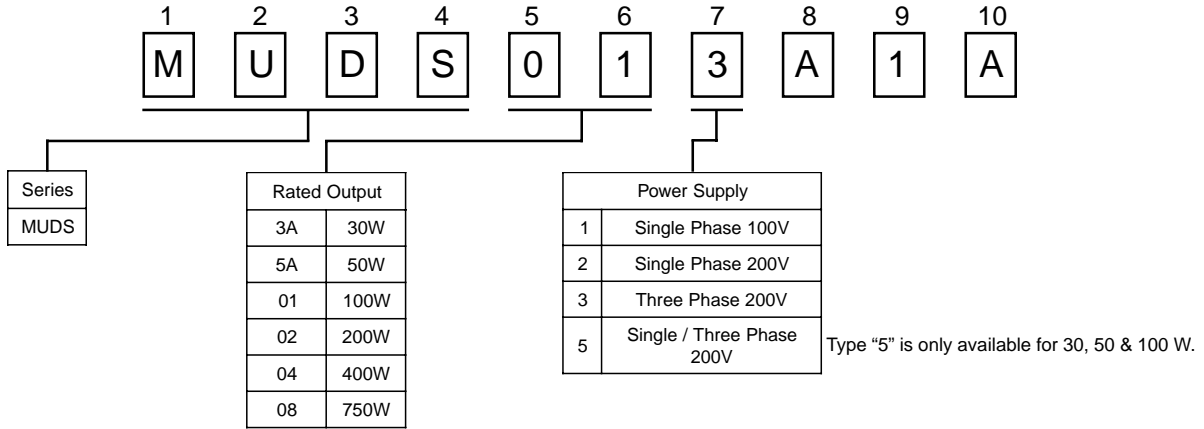


Explanation of Part Numbers



Driver Series Output

Series	Voltage	30W	50W	100W	200W	400W	750W
MUDS	Single Phase 100 - 115 V	❖	❖	❖	❖	❖	
	Single Phase 200 - 230 V	❖	❖	❖	❖	❖	
	Three Phase 200 - 230 V	❖	❖	❖	❖	❖	❖

30, 50, 100W: Driver can be used with both single phase 100V and 200V.

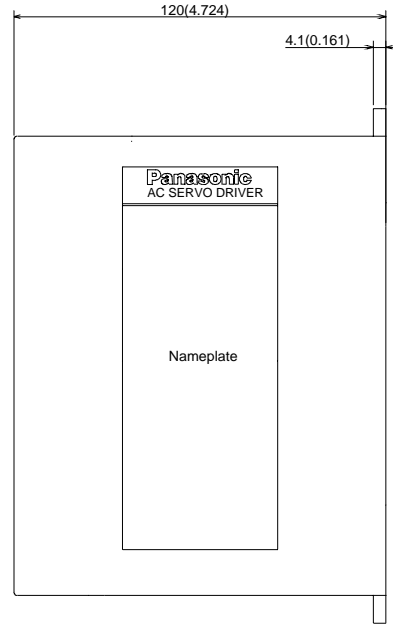
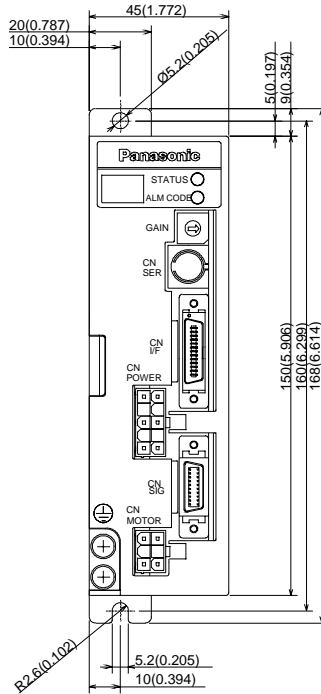
200, 400W: Separate drivers required for single and three phase 200V

Dimensions

Units: mm(in)

Model Number	Output / Power
MUDS	3A1 30W Single phase 100V
	3A5 30W Single, Three phase 100V, 200V
	5A1 50W Single phase 100V
	5A5 50W Single, Three phase 100V, 200V
	011 100W Single phase 100V
	015 100W Single, Three phase 100V, 200V
	023 200W Three phase 200V

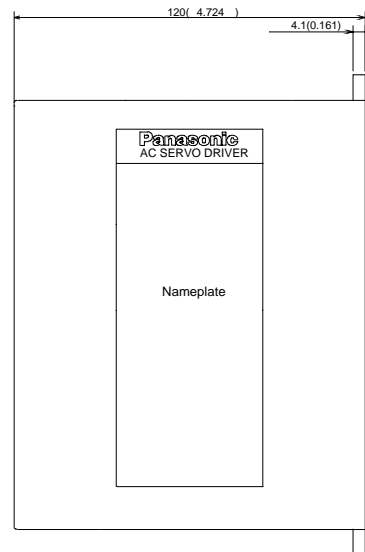
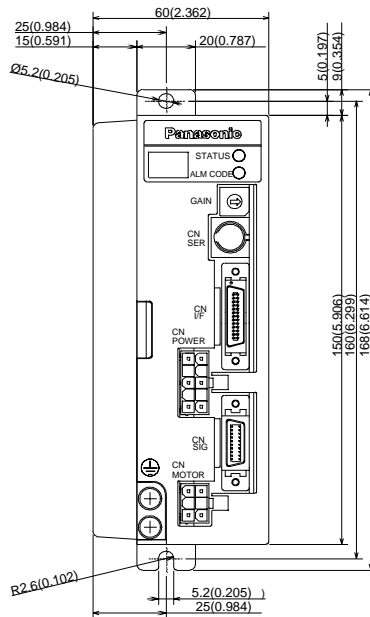
Weight: 0.7 kg / 1.54 lb.



Units: mm(in)

Model Number	Output / Power
MUDS	021 200W Single phase 100V
	022 200W Single phase 200V
	043 400W Three phase 200V

Weight: 0.9 kg / 1.99 lb.

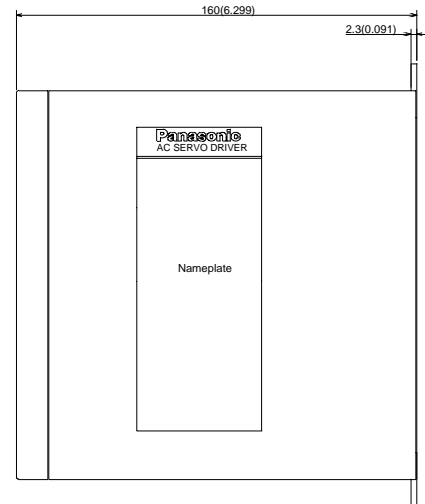
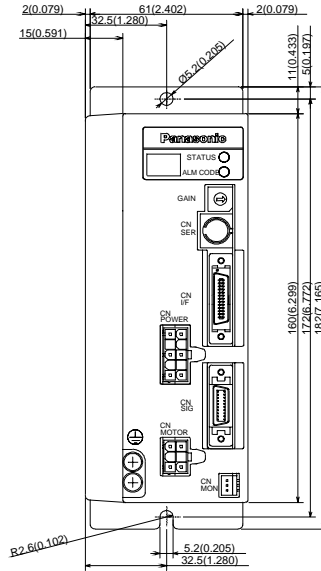


Dimensions (mm/in)

Units: mm(in)

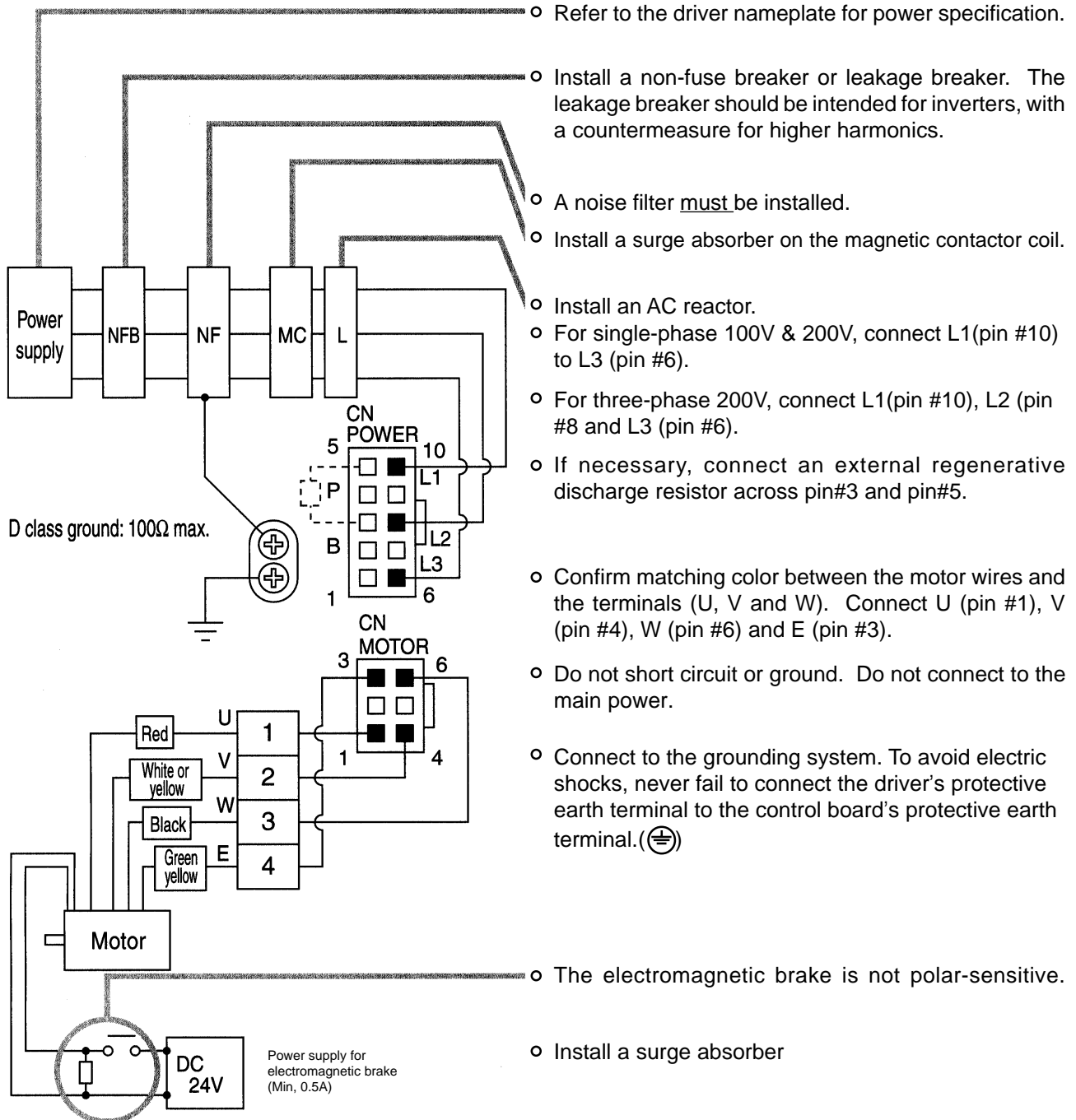
Model Number	Output / Power	
MUDS	041	400W Single phase 100V
	042	400W Single phase 200V
	083	750W Three phase 200V

Weight: 1.2 kg / 2.65 lb.



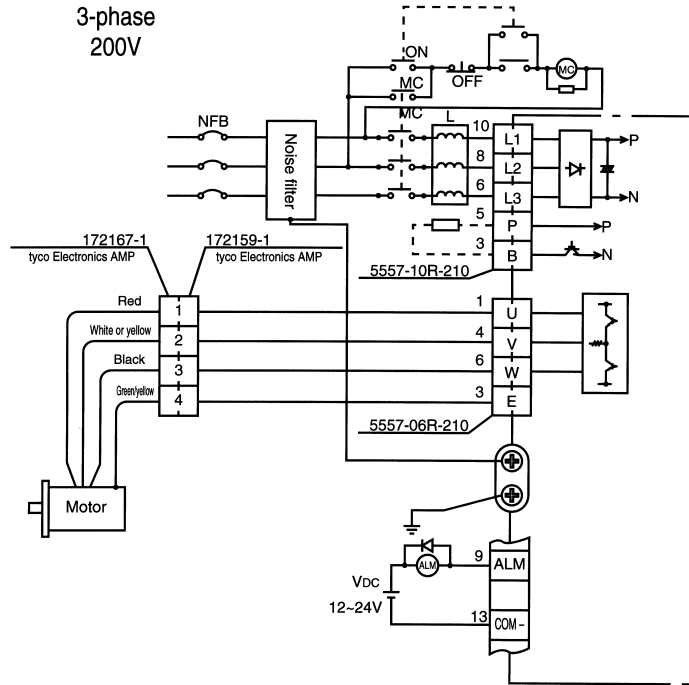
Wiring Diagram - Main Circuit

WARNING! To avoid electric shock do not turn on the main power until wiring is completed.



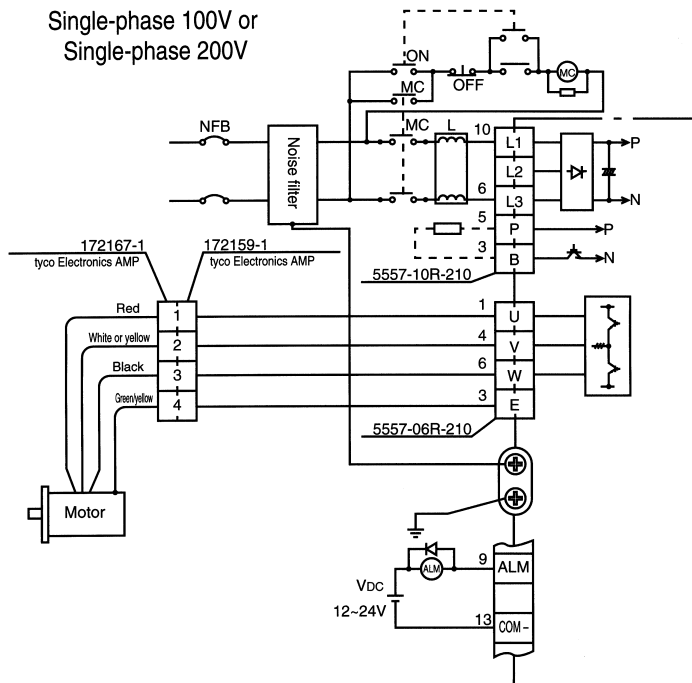
Wiring Diagram - Main Circuit

Three Phase 200V

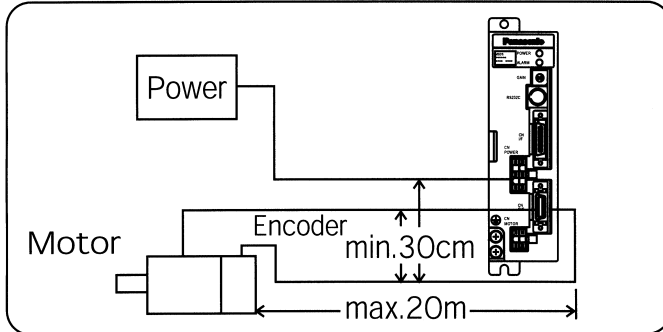


Single Phase 100V/200V

Single-phase 100V or
Single-phase 200V



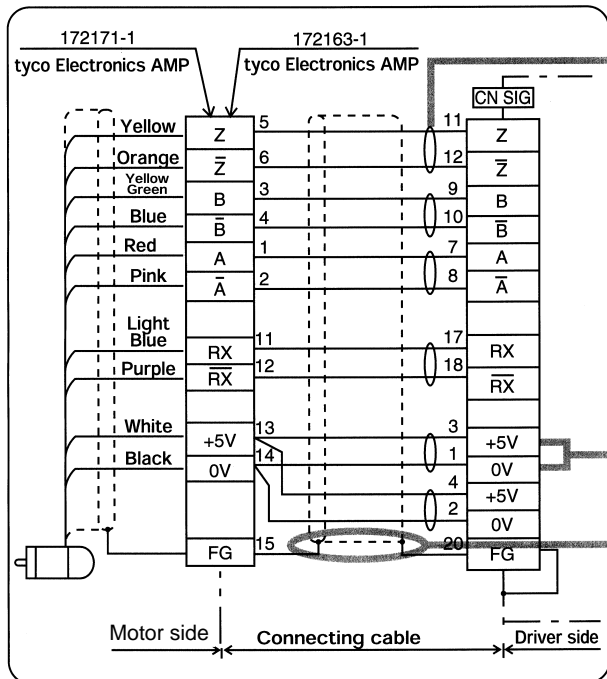
Wiring Instructions and Diagram for CN SIG Connector



The cable length between the driver and the motor should be a maximum of 20m (65.62ft). Should a longer cable be required, please consult an authorized Panasonic representative for assistance.

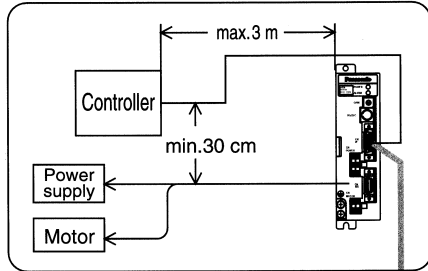
The wiring should be separated from the main circuit wires by at least 30cm (11.81in). Do not install these wires in the same duct as the mains or bundle them together with the mains.

When preparing your own connecting cables, contact Panasonic concerning optional parts for connectors and:



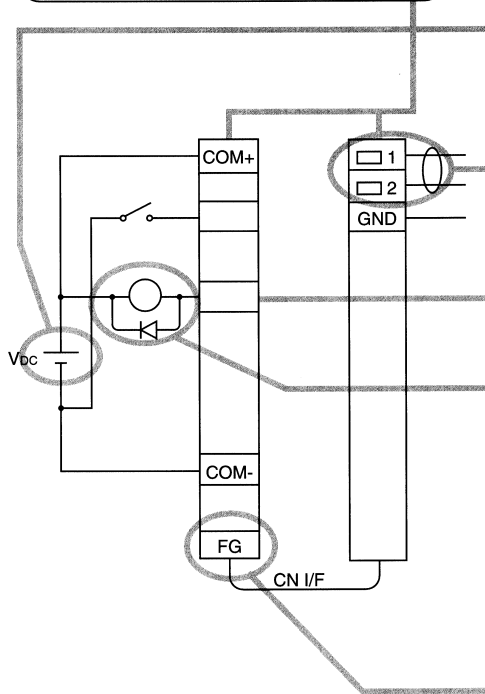
- 1) Follow the wiring diagram provided
- 2) Use wires of 0.18mm² (AWG24) or higher, shielded twisted-paired wire with sufficient bending durability.
- 3) Signal/power paired wires should be a twisted-paired type.
- 4) Shield:
 - The shield at the driver side should be connected to Pin 20 (FG) of CN SIG connector.
 - The shield at the motor side should be connected to Pin #15 of the motor side connector (AMP).
- 5) If the cable is longer than 10m (32.81ft), the encoder power line (+5V and 0V) should be dual, per the figure shown to the left.
- 6) Other terminals should be left unconnected.

CN I/F Connector



Wiring Instructions

- Place peripheral devices, such as the controller, a maximum of 3m (9.84ft) from the driver.
- Keep the wiring a minimum of 30cm (11.81in) from the main circuit wires. Do not install these wires in the same duct as the mains or bundle them together with the mains.



- Control power (VDC) between COM+ and COM- should be supplied by the customer (recommended voltage: +12VDC to +24 VDC).
- Control signal output terminals can accept a maximum of 24V or 50mA. Do not apply voltage or current exceeding these limits.
- If a relay is activated using the control signal, install a diode in parallel to the relay as shown. Without a diode installed in the proper direction, the driver will be damaged.
- Use a shielded twist-paired type of wire for pulse input, encoder signal output, or analog command input.
- The Frame Ground (FG) is connected to an earth terminal in the driver.

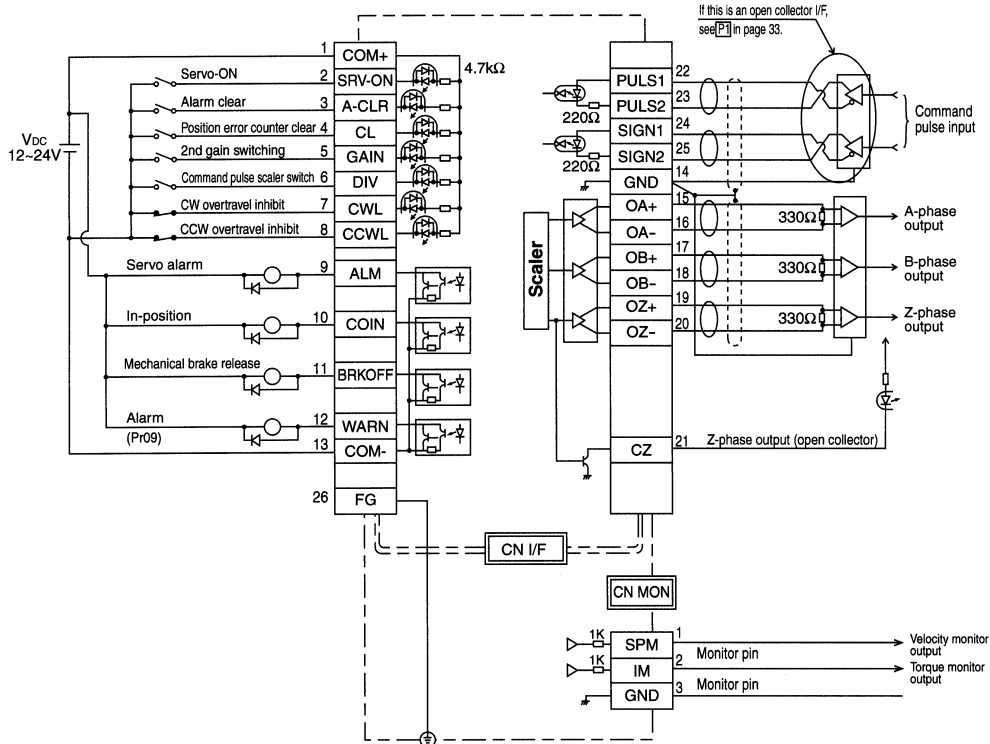
Connector Specifications

Interface Connector:

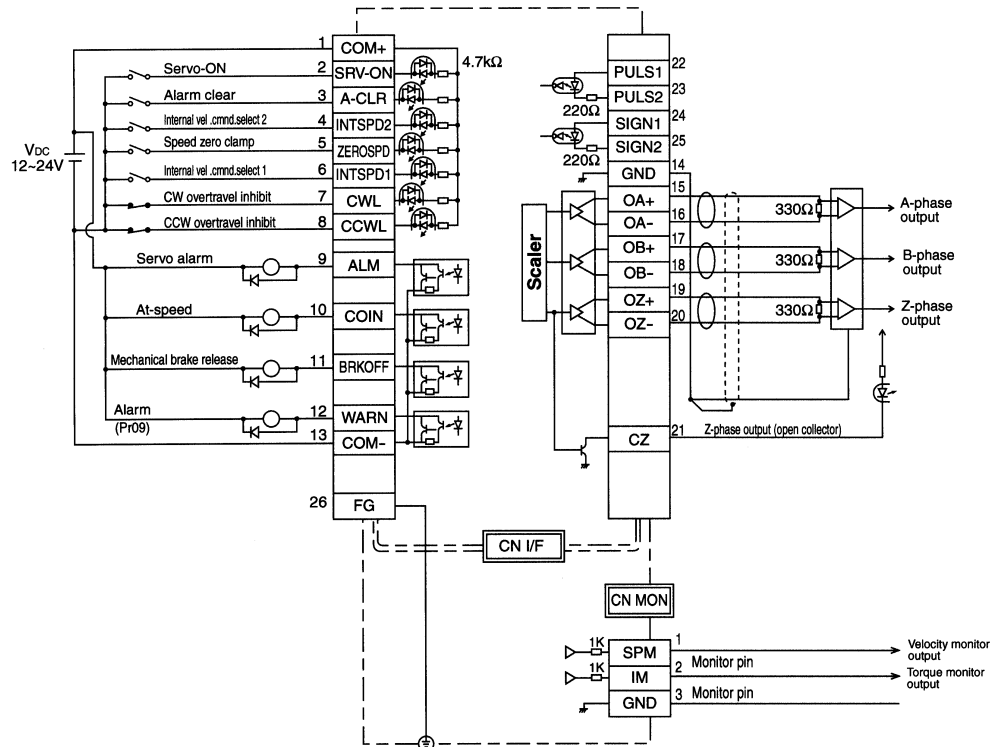
- Solder type plug
Part # 10126-3000VE
- Shell
Part # 10326-52A0-008

Manufacturer:
Sumitomo 3M

CN I/F Connector - Wiring for Position Control



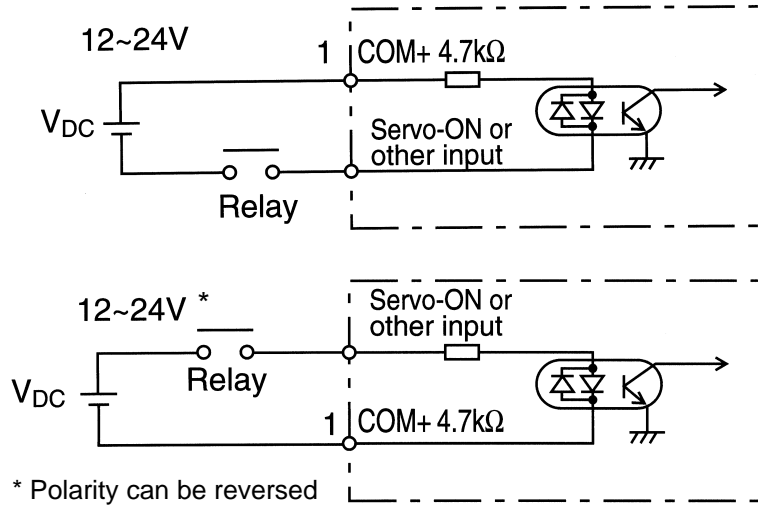
CN I/F Connector - Wiring for Internal Speed Control



Input Interface Circuit

SI - Connecting to Sequence Input Signals

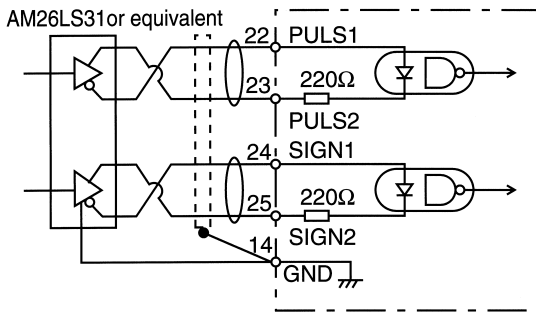
- Connect to the contacts of the switch and relay, or to a transistor of an open collector output.
- Use a switch or relay for micro current to avoid insufficient contact.
- COM+ could be used as COM-



PI - Command Pulse Input Circuit

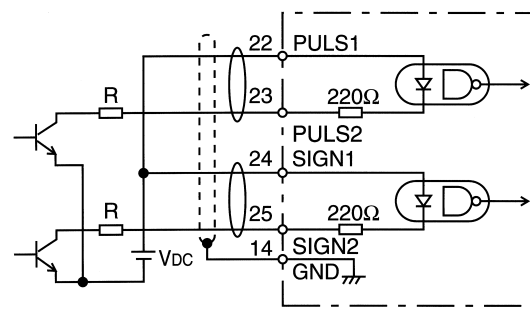
Line Driver I/F

- This is a good signal transmission method that is less sensitive to noise. We recommend you use this method to maintain the reliability of signals.




Open Collector I/F

- Uses an external control power supply (VDC).
- Requires a current-limiting resistor corresponding to the capacity of the VDC value.



$$\frac{VDC - 1.5}{R + 220} \approx 10\text{mA}$$

VDC	R Value
12V	1kΩ 1/4W
24V	2kΩ 1/4W

 shows a pair of twisted wires

Output Interface Circuit

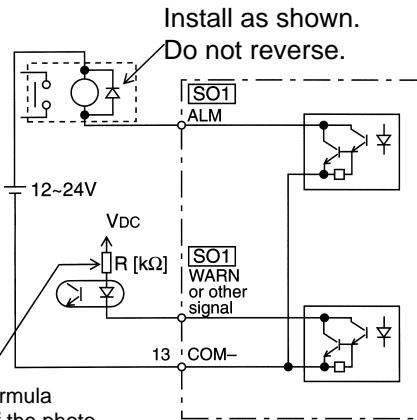
S01 S02 - Sequence Output Circuit

- Comprises a Darlington amplifier with an open collector connected to a relay or photo coupler.
- There is a collector-to-emitter voltage VCE(SAT) of approximately 1.2V at transistor ON, due to the Darlington connection of the output transistor. Note that normal TTLIC can not be directly connected since it does not meet the VIL requirement.
- This circuit has an independent emitter connection, or an emitter connection that is commonly used at the minus (-) terminal (COM-) of the control power.
- The maximum rating is 30V, 50mA.

Calculate the value R using the formula below so as the primary current of the photo coupler become approx. 10mA.

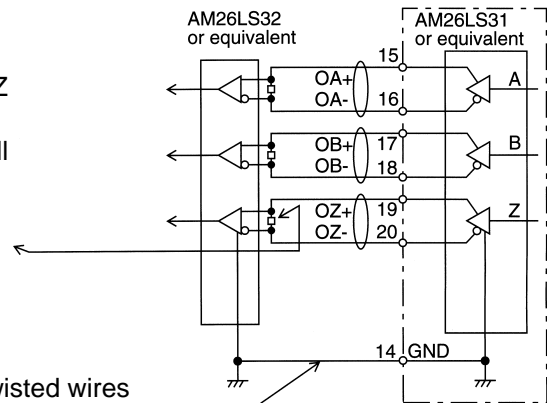
$$R = \frac{V_{DC} - 2.5}{10} \text{ [K}\Omega\text{]}$$

Maximum rating:
30V, 50mA



P01 Line Driver (Differential) Output

- Provides differential output of encoder signals (A, B and Z phases) that come from the scalar.
- Receive these signals with line receivers. In this case, install a resistor of approximately 330Ω between the inputs.

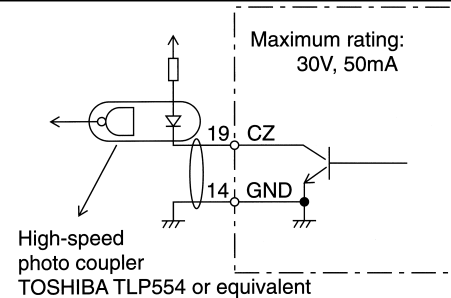


Connect the signal grounds between the controller and the driver.

P02 Open Collector Output

- Outputs Z-phase signals from the encoder by open collector.
- This is non-insulated output.
- Receive these signals with a high-speed photo coupler at controller side, since Z-phase signal width is normally narrow.

⊕ shows a pair of twisted wires

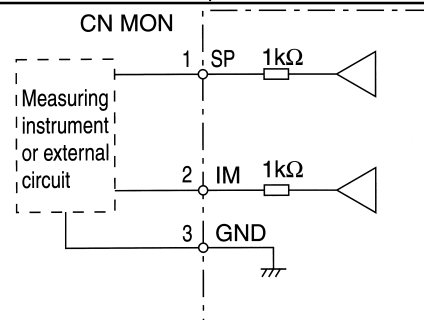


A0 Analog Monitor Output

- This output is the velocity signal (SP) or torque monitor signal (IM).
- The signal range is approximately 0 to ±9V.
- The output impedance is 1kΩ. Pay attention to the input impedance of your measuring instruments and external circuits connected.

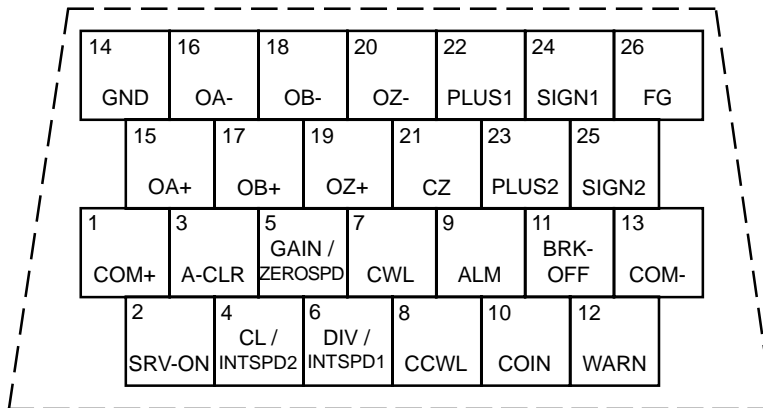
Resolution

- Velocity monitor signal (SP): 8 r/min./LSB calculated from 6V/3000 r/min (pr07=3)
- Torque monitor signal (IM): 0.4%/LSB calculated from 3V/rated value (100%)



Driver Connector Configurations

Pin Assignment for CN I/F on Driver



Pin Assignment for CN SIG on Driver - For 2500p/r Incremental Encoder

