

CIMR-V7AZ

Varispeed V7

Sensorless vector in pocket size

- Nominal torque at 0.5 Hz
- Autotuning
- High carrier up to 14 khz
- Stop accuracy function.
- Integrated PID controller and bidirectional PID-out put
- Motor protection with PTC input
- Pulse input
- Standard digital operator with copy function
- Fieldbus: Modbus, DeviceNet, PROFIBUS, CANopen
- High speed motion bus: ML- II
- Plug-in PLC option unit. Total inverter access.
- CE, UL, and cUL marked

V7 IP65

- Compact size
- Easy wiring
- Built-in filter (Class B)

Customized software*

- The inverter software can be customized to meet specific application. Examples:
- Traverse software S-9381.

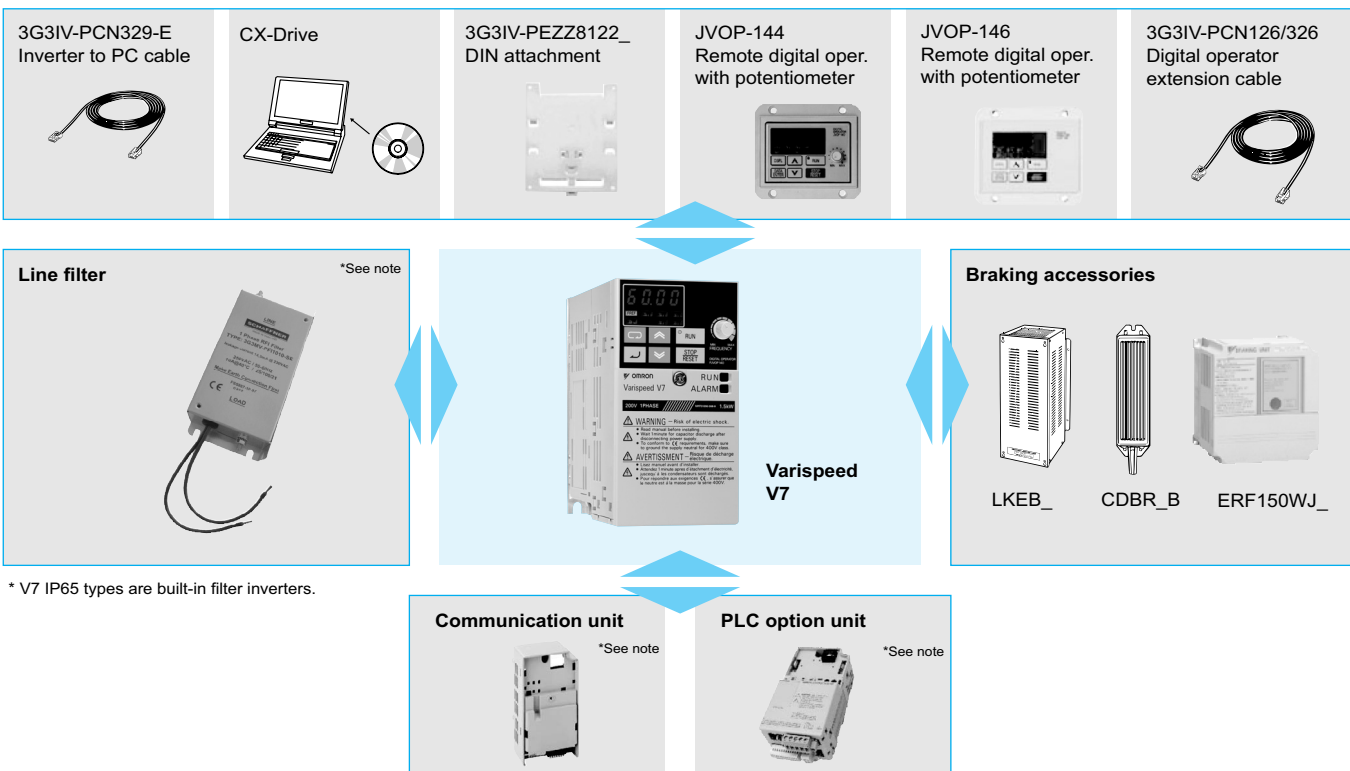
*For detailed information please refer to case software section.

Ratings

- 200 V Class single-phase 0.1 to 4 kW
- 200 V Class three-phase 0.1 to 7.5 kW
- 400 V Class three-phase 0.2 to 7.5 kW



System configuration

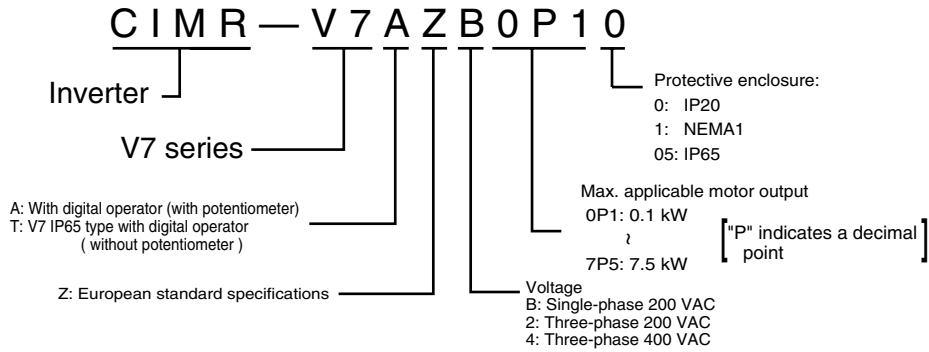


* V7 IP65 types are built-in filter inverters.

* Option frames are needed for V7 IP65 type.

Specifications

Type designation



200 V class

| IP20 single-phase: CIMR-V7AZ | | B0P1 | B0P2 | B0P4 | B0P7 | B1P5 | B2P2 | B4P0 |
|--|--|---|------|--------|--------|--------|--------|------|
| IP65 single-phase: CIMR-V7TZ | | --- | --- | B0P405 | B0P705 | B1P505 | B2P205 | --- |
| IP20 three-phase: CIMR-V7AZ | | 20P1 | 20P2 | 20P4 | 20P7 | 21P5 | 22P2 | 24P0 |
| Maximum permissible motor output kW¹ | | 0.12 | 0.25 | 0.55 | 1.1 | 1.5 | 2.2 | 4.0 |
| Output characteristics | Inverter capacity kVA | 0.3 | 0.6 | 1.1 | 1.9 | 3.0 | 4.2 | 6.7 |
| | Rated output current A | 0.8 | 1.6 | 3.0 | 5.0 | 8.0 | 11.0 | 17.5 |
| | Max. output voltage | Proportional to input voltage: 0..240 V | | | | | | |
| | Max. output frequency | 400 Hz | | | | | | |
| Power supply | Rated input voltage and frequency | Single-phase 200..240 V 50/60 Hz 3-phase 200..230 V 50/60 Hz | | | | | | |
| | Allowable voltage fluctuation | -15%..+10% | | | | | | |
| | Allowable frequency fluctuation | +5% | | | | | | |

1. Based on a standard 4-pole motor for maximum applicable motor output. Select the inverter model within the allowable motor rated current

400 V class

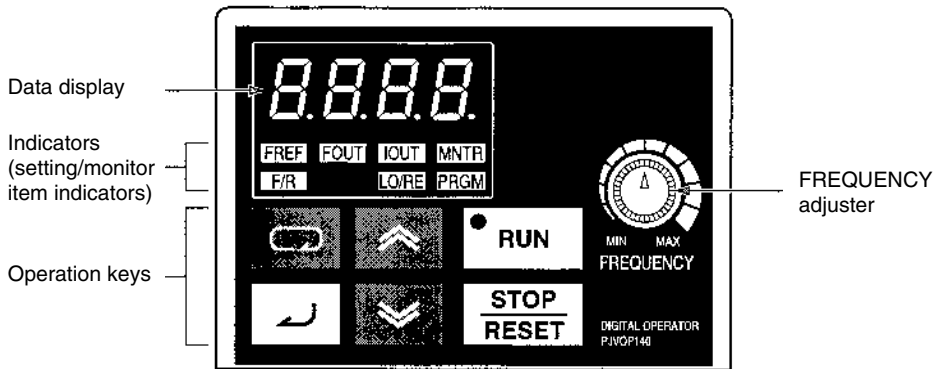
| IP20 three-phase: CIMR-V7AZ | | 40P2 | 40P4 | 40P7 | 41P5 | 42P2 | 43P0 | 44P0 | 45P5 | 47P5 |
|--|--|---|--------|--------|--------|--------|--------|--------|------|------|
| IP65 three-phase: CIMR-V7TZ | | | 40P405 | 40P705 | 41P505 | 42P205 | 43P005 | 44P005 | | |
| Maximum permissible motor output kW¹ | | 0.37 | 0.55 | 1.1 | 1.5 | 2.2 | 3.0 | 4.0 | 5.5 | 7.5 |
| Output characteristics | Inverter capacity kVA | 0.9 | 1.4 | 2.6 | 3.7 | 4.2 | 5.5 | 7.0 | 11.0 | 14.0 |
| | Rated output current A | 1.2 | 1.8 | 3.4 | 4.8 | 5.5 | 7.2 | 9.2 | 14.8 | 18.0 |
| | Max. output voltage | Proportional to input voltage: 0..400 V | | | | | | | | |
| | Max. output frequency | 400 Hz | | | | | | | | |
| Power supply | Rated input voltage and frequency | 3-phase 380..460 VAC, 50/60 Hz | | | | | | | | |
| | Allowable voltage fluctuation | -15%..+10% | | | | | | | | |
| | Allowable frequency fluctuation | +5% | | | | | | | | |

1. Based on a standard 4-pole motor for maximum applicable motor output. Select the inverter model within the allowable motor rated current

Common specifications

| Model number CIMR-V7AZ-□ CIMR-V7TZ-□ | | Specifications |
|--|---|---|
| Control functions | Control methods | Sine wave PWM (V/f control, sensorless vector control) |
| | Output frequency range | 0.1..400 Hz |
| | Frequency tolerance | Digital set value: ±0.01% (-10..+50 °C) |
| | | Analogue set value: ±0.5% (25 ±10 °C) |
| | Resolution of frequency set value | Digital set value: 0.01 Hz (<100 Hz), 0.1 Hz (>100 Hz) |
| | | Analogue set value: 1/1000 of maximum frequency |
| | Resolution of output frequency | 0.01 Hz |
| | Overload capability | 150%/60 s |
| Frequency set value | 0..10 V (20 kΩ), 4..20 mA (250 Ω), 0..20 mA (250 Ω) | |
| | Pulse train input, frequency setting value (selectable) | |
| Braking torque (short term peak torque) | Up to 200 W 150% or more 550 W to 1.1 kW 100% or more 1.5 kW 50% or more >1.5 kW 20% or more Continuous braking torque approx. 20% without, 150% with external braking resistor | |
| Functionality | Binary inputs | 7 freely programmable inputs |
| | Binary outputs | 1 relay output, 2 freely programmable open collector outputs |
| | Analogue output | 1 programmable analogue output (0..10 V)/pulse output |
| | Analogue inputs | 2 analogue inputs, 0..10 V, 4..20 mA, 0..20 mA |
| | Braking/acceleration times | 0.01..6000 s |
| | Display | Optionally frequency, current or set value Error and status LED |
| Protection functions | Motor overload protection | Electronic thermal overload relay |
| | Instantaneous overcurrent | Motor coasts to a stop at approx. 250% of inverter rated current |
| | Overload | Motor coasts to a stop after 1 minute at 150% of inverter rated output current |
| | Overvoltage | Motor coasts to a stop if DC bus voltage exceed 410 V (double for 400 V class) |
| | Undervoltage | Stops when DC bus voltage is approx. 200 V or less (double for 400 V class) (approx. 160 V or less for single-phase series) |
| | Momentary power loss | Following items are selectable: not provided (stop if power loss is 15 ms or longer), continuous operation if power loss is approx. 0.5 s or shorter, continuous operation |
| | Cooling fin overheat | Protected by electronic circuit |
| | Stall prevention level | Individual levels during accel/constant speed. Decel ON/OFF available. During decel enable/disable selectable. |
| | Cooling fan fault | Detected by electronic circuit (fan lock detection) |
| | Ground fault | Protected by electronic circuit (operation level is approx. 250% of rated output current) |
| | Power charge indication | RUN lamp stays ON or digital operator LED stays ON until the DC bus voltage becomes 50 V or less. (Charge LED is provided for 400 V) |
| Ambient conditions | Degree of protection | IP20, NEMA1, IP65 |
| | Cooling | Self cooling for 200 V 0.1..0.4 kW (3 or single phase) and for 400 V 0.2..0.75 kW |
| | | Cooling fan for 200 V 0.75 to 7.5 kW and for 400 V 1.5 to 7.5 kW |
| | Ambient temperature | Open air mounting: -10 °C..50 °C |
| | | Wall mounting: -10 °C..40 °C |
| | Ambient humidity | 95% (without condensation) |
| | Storage temperature | -20 °C..+60 °C (short-term temperature during transportation) |
| | Installation | Indoor (no corrosive gas, dust, etc.) |
| Installation height | Max. 1000 m | |
| Vibration | 10 to 20 Hz, 9.8 m/s ² max; 20 to 50 Hz, 2 m/s ² max | |

Digital operator



| Appearance | Name | Function |
|------------|-------------------------------------|---|
| | Data display | Displays relevant data items, such as frequency reference, output frequency, and parameter set values. |
| | Frequency adjuster | Sets the frequency reference within a range between 0 Hz and the maximum frequency. ¹ |
| | Frequency reference indicator | The frequency reference can be monitored or set while this indicator is lit. |
| | Output frequency indicator | The output frequency of the inverter can be monitored while this indicator is lit. |
| | Output current indicator | The output current of the inverter can be monitored while this indicator is lit. |
| | Multi-function monitor indicator | The values set in U01 through U10 are monitored while this indicator is lit. |
| | Forward/reverse selection indicator | The direction of rotation can be selected while this indicator is lit when operating the inverter with the RUN key. |
| | Local/remote selection indicator | The operation of the inverter through the digital operator or according to the set parameters is selectable while this indicator is lit. ² |
| | Parameter setting indicator | The parameters in n001 through n179 can be set or monitored while this indicator is lit. ³ |
| | Mode key | Switches the simplified-LED (setting and monitor) item indicators in sequence. Parameter being set will be canceled if this key is pressed before entering the setting. |
| | Increment key | Increases multi-function monitor numbers, parameter numbers, and parameter set values. |
| | Decrement key | Decreases multi-function monitor numbers, parameter numbers, and parameter set values. |
| | Enter key | Enters multi-function monitor numbers, parameter numbers, and internal data values after they are set or changed. |
| | RUN key | Starts the inverter running when the 3G3MV is in operation with the digital operator |
| | STOP/RESET key | Stops the inverter unless parameter n007 is set to disable the STOP key. Used to reset the inverter when an error occurs. ⁴ |

1. V7 IP65 types have digital operator without frequency adjuster.
2. The status of the local/remote selection indicator can be only monitored while the inverter is in operation. Any RUN command input is ignored while this indicator is lit.
3. While inverter is in operation, the parameters can be only monitored and only some parameters can be changed. Any RUN command is ignored while the parameter setting indicator is lit.
4. For safety reasons, the reset function cannot be used while an operation instruction (forward/reverse) is being input. Turn the operation instruction OFF before using this function.

Dimensions

IP 20 type 0.1 to 4 Kw

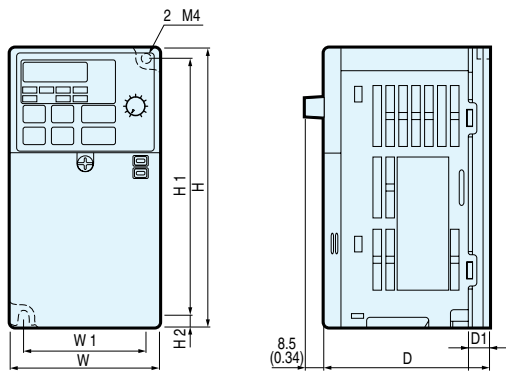


Figure 1

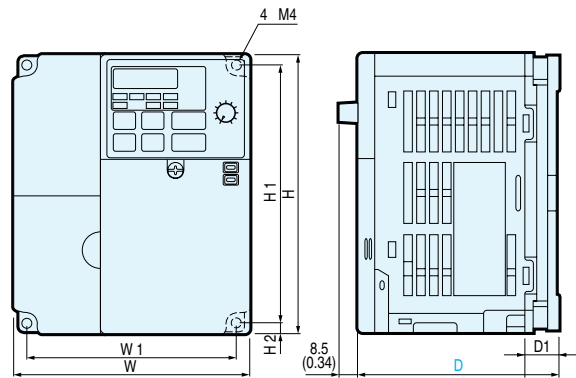


Figure 2

| Voltage class | Max. applicable motor output kW | Inverter model CIMR V7AZ | Figure | Dimensions in mm | | | | | | | Weight kg | Cooling method |
|--------------------|---------------------------------|--------------------------|--------|------------------|-----|-----|-----|-----|----|-----|-----------|----------------|
| | | | | W | H | D | W1 | H1 | H2 | D1 | | |
| Three-phase 200 V | 0.12 | 20P1 | 1 | 68 | 128 | 76 | 56 | 118 | 5 | 10 | 0.6 | Self cooled |
| | 0.25 | 20P2 | | | | 108 | | | | 42 | 0.6 | |
| | 0.55 | 20P4 | | | | 128 | | | | 62 | 0.9 | |
| | 1.1 | 20P7 | 2 | 108 | | 131 | 96 | | 5 | 64 | 1.4 | Fan cooled |
| | 1.5 | 21P5 | | | | 140 | | | | 71 | 1.5 | |
| | 2.2 | 22P2 | | | | 143 | | | | 128 | 2.1 | |
| 4.0 | 24P0 | 140 | 128 | 71 | 2.1 | | | | | | | |
| Single-phase 200 V | 0.12 | B0P1 | 1 | 68 | 128 | 76 | 56 | 118 | 5 | 10 | 0.6 | Self cooled |
| | 0.25 | B0P2 | | | | 76 | | | | 42 | 0.7 | |
| | 0.55 | B0P4 | | | | 131 | | | | 64 | 1.0 | |
| | 1.1 | B0P7 | 2 | 108 | | 140 | 96 | | 5 | 64 | 1.5 | Fan cooled |
| | 1.5 | B1P5 | | | | 156 | | | | 71 | 1.5 | |
| | 2.2 | B2P2 | | | | 163 | | | | 128 | 2.2 | |
| 4.0 | B4P0 | 170 | 158 | 71 | 2.9 | | | | | | | |
| Three-phase 400 V | 0.37 | 40P2 | 2 | 108 | 128 | 92 | 96 | 118 | 5 | 16 | 1.0 | Self cooled |
| | 0.55 | 40P4 | | | | 110 | | | | 34 | 1.1 | |
| | 1.1 | 40P7 | | | | 140 | | | | 64 | 1.5 | |
| | 1.5 | 41P5 | 2 | 140 | | 156 | 128 | | 5 | 64 | 1.5 | Fan cooled |
| | 2.2 | 42P2 | | | | 143 | | | | 71 | 1.5 | |
| | 3.0 | 43P0 | | | | 140 | | | | 128 | 2.1 | |
| 4.0 | 44P0 | 140 | 128 | 71 | 2.1 | | | | | | | |

IP20 / NEMA1 type 5.5/7.5 Kw

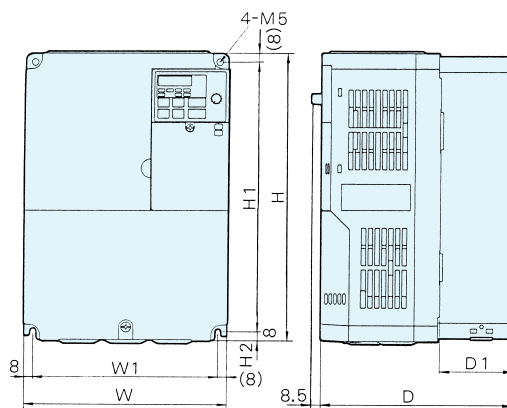


Figure 3

| Voltage class | Max. applicable motor output kW | Inverter model CIMR - V7AZ | Figure | Dimensions in mm (inches) | | | | | | | Weight kg | Cooling method |
|-------------------|---------------------------------|----------------------------|--------|---------------------------|-----|-----|-----|-----|----|----|-----------|----------------|
| | | | | W | H | D | W1 | H1 | H2 | D1 | | |
| Three-phase 200 V | 5.5 | 25P5 | 3 | 180 | 260 | 170 | 164 | 244 | 8 | 65 | 4.6 | Fan cooled |
| | 7.5 | 27P5 | | | | | | | | | 4.8 | |
| Three-phase 400 V | 5.5 | 45P5 | | | | | | | | | 4.8 | |
| | 7.5 | 47P5 | | | | | | | | | 4.8 | |

IIP65 type 0.55 to 4 Kw

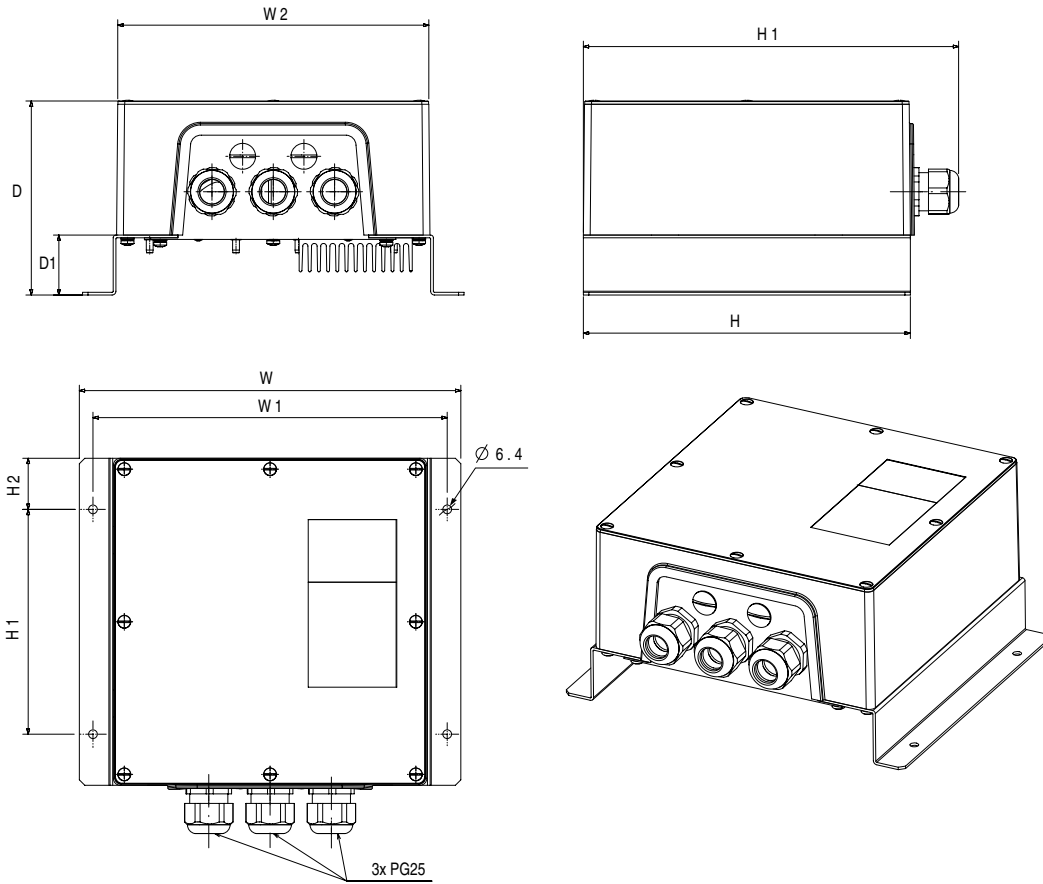


Figure 4

| Voltage class | Max. applicable motor output kW | Inverter model CIMR V7TZ | Figure | Dimensions in mm | | | | | | | | | Weight kg | Cooling method |
|-----------------------|---------------------------------|--------------------------|--------|------------------|-----|-----|-----|-----|-----|----|-----|----|-----------|----------------|
| | | | | W | H | D | W1 | W2 | H1 | H2 | H3 | D1 | | |
| Single-phase 200 V | 0.55 | B0P405 | 4 | 280 | 240 | 142 | 260 | 228 | 165 | 38 | 275 | 44 | 3.4 | Self cooled |
| | 1.1 | B0P705 | | | | | | | | | | | 4.3 | Fan cooled |
| | 1.5 | B1P505 | | | | | | | | | | | 3.7 | |
| | 2.2 | B2P205 | | | | | | | | | | | 4.2 | |
| Three-phase 400 V | 0.55 | 40P405 | | 280 | 240 | 142 | 260 | 228 | 165 | 38 | 275 | 44 | 4.2 | Self cooled |
| | 1.1 | 40P705 | | | | | | | | | | | 4.3 | Fan cooled |
| | 1.5 | 41P505 | | | | | | | | | | | 3.7 | |
| | 2.2 | 42P205 | | | | | | | | | | | 3.7 | |
| | 3.0 | 43P005 | 4.1 | | | | | | | | | | | |
| | 4.0 | 44P005 | 4.1 | | | | | | | | | | | |

IP65 type 0.55 to 4Kw (with option frame accessory attached)

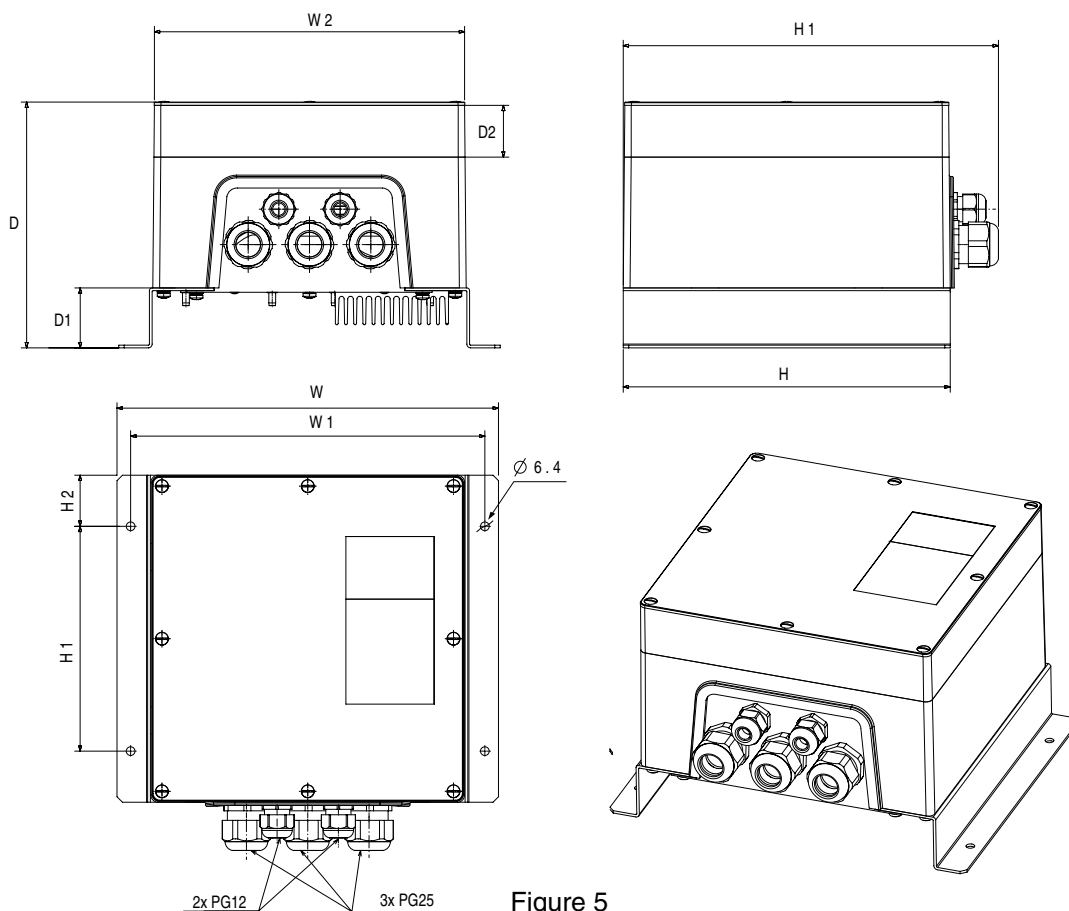
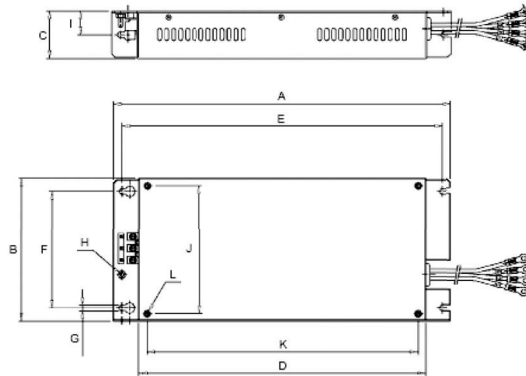


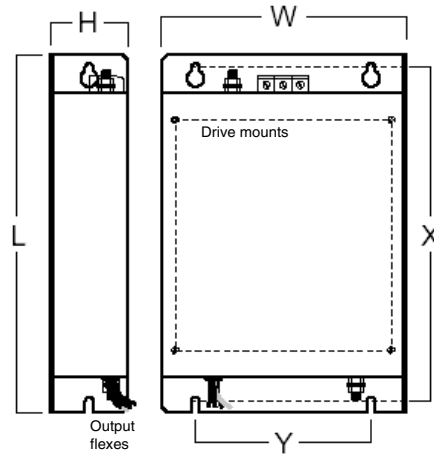
Figure 5

| Voltage class | Max. applicable motor output kW | Inverter model CIMR V7TZ | Figure | Dimensions in mm | | | | | | | | | | Weight kg | Cooling method |
|--------------------|---------------------------------|--------------------------|--------|------------------|-----|-----|-----|-----|-----|----|-----|----|----|-----------|----------------|
| | | | | W | H | D | W1 | W2 | H1 | H2 | H3 | D1 | D2 | | |
| Single-phase 200 V | 0.55 | B0P405 | 5 | 280 | 240 | 180 | 260 | 228 | 165 | 38 | 275 | 44 | 38 | 3.6 | Self cooled |
| | 1.1 | B0P705 | | | | | | | | | | | | 4.5 | |
| | 1.5 | B1P505 | | | | | | | | | | | | 3.9 | Fan cooled |
| | 2.2 | B2P205 | | | | | | | | | | | | 4.4 | |
| Three-phase 400 V | 0.55 | 40P405 | | 280 | 240 | 180 | 260 | 228 | 165 | 38 | 275 | 44 | 38 | 4.4 | Self cooled |
| | 1.1 | 40P705 | | | | | | | | | | | | 4.5 | |
| | 1.5 | 41P505 | | | | | | | | | | | | 3.9 | Fan cooled |
| | 2.2 | 42P205 | | | | | | | | | | | | 3.9 | |
| | 3.0 | 43P005 | 4.3 | | | | | | | | | | | | |
| | 4.0 | 44P005 | 4.3 | | | | | | | | | | | | |

Filters *



| Schaffner model | | Dimensions | | | | | | | | | | | |
|-----------------|------------------|------------|-----|----|-----|-----|-----|-----|----|----|-----|-----|----|
| | | A | B | C | D | E | F | G | H | I | J | K | L |
| 3x200 V | 3G3MV-PFI2010-SE | 194 | 82 | 50 | 160 | 181 | 62 | 5.3 | M5 | 25 | 56 | 118 | M4 |
| | 3G3MV-PFI2020-SE | 169 | 111 | 50 | 135 | 156 | 91 | 5.5 | M5 | 25 | 96 | 118 | M4 |
| | 3G3MV-PFI2030-SE | 174 | 144 | 50 | 135 | 161 | 120 | 5.3 | M5 | 25 | 128 | 118 | M4 |
| 1x200 V | 3G3MV-PFI1010-SE | 169 | 71 | 45 | 135 | 156 | 51 | 5.3 | M5 | 22 | 56 | 118 | M4 |
| | 3G3MV-PFI1020-SE | 169 | 111 | 50 | 135 | 156 | 91 | 5.3 | M5 | 25 | 96 | 118 | M4 |
| | 3G3MV-PFI1030-SE | 174 | 144 | 50 | 135 | 161 | 120 | 5.3 | M5 | 25 | 128 | 118 | M4 |
| | 3G3MV-PFI1040-SE | 174 | 144 | 50 | 135 | 161 | 150 | 5 | M5 | 25 | 158 | 118 | M4 |
| 3x400 V | 3G3MV-PFI3005-SE | 169 | 111 | 45 | 135 | 156 | 91 | 5.3 | M5 | 22 | 96 | 118 | M4 |
| | 3G3MV-PFI3010-SE | 169 | 111 | 45 | 135 | 156 | 91 | 5.3 | M5 | 22 | 96 | 118 | M4 |
| | 3G3MV-PFI3020-SE | 174 | 144 | 50 | 135 | 161 | 120 | 5 | M5 | 25 | 128 | 118 | M4 |
| | 3G3MV-PFI3030-SE | 304 | 184 | 56 | 264 | 288 | 150 | 6 | M5 | 28 | 164 | 244 | M5 |

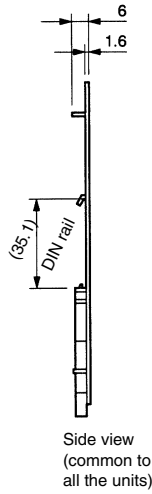
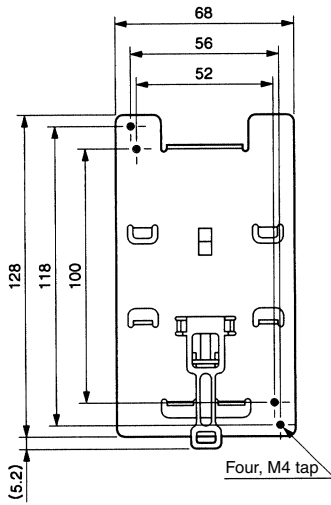


| Rasmi model | | Dimensions | | | | | Inverter fixing |
|-------------|-----------------|------------|----|-----|-----|-----|-----------------|
| | | W | H | L | X | Y | |
| 3x200 V | 3G3MV-PFI2010-E | 82 | 50 | 194 | 181 | 62 | M5 |
| | 3G3MV-PFI2020-E | 111 | 50 | 169 | 156 | 91 | M5 |
| | 3G3MV-PFI2030-E | 144 | 50 | 174 | 161 | 120 | M5 |
| | 3G3MV-PFI2050-E | 184 | 56 | 304 | 288 | 150 | M5 |
| 1x200 V | 3G3MV-PFI1010-E | 71 | 45 | 169 | 156 | 51 | M5 |
| | 3G3MV-PFI1020-E | 111 | 50 | 169 | 156 | 91 | M5 |
| | 3G3MV-PFI1030-E | 144 | 50 | 174 | 161 | 120 | M5 |
| | 3G3MV-PFI1040-E | 174 | 50 | 174 | 161 | 150 | M5 |
| 3x400 V | 3G3MV-PFI3005-E | 111 | 50 | 169 | 156 | 91 | M5 |
| | 3G3MV-PFI3010-E | 111 | 50 | 169 | 156 | 91 | M5 |
| | 3G3MV-PFI3020-E | 144 | 50 | 174 | 161 | 120 | M5 |
| | 3G3MV-PFI3030-E | 184 | 56 | 304 | 288 | 150 | M5 |

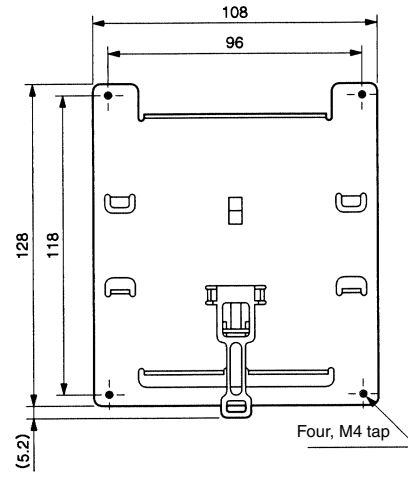
* V7 IP65 types are built-in filter inverters.

DIN rail mounting bracket

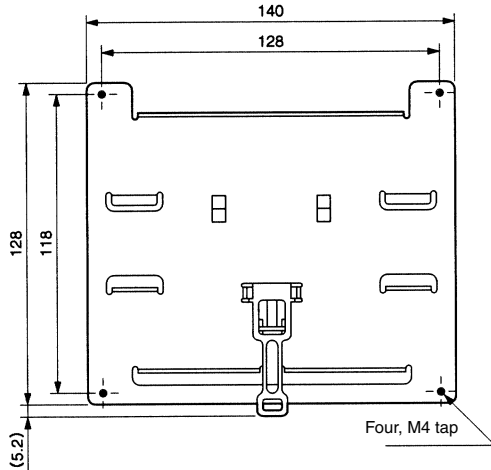
3G3IV-PZZ08122A



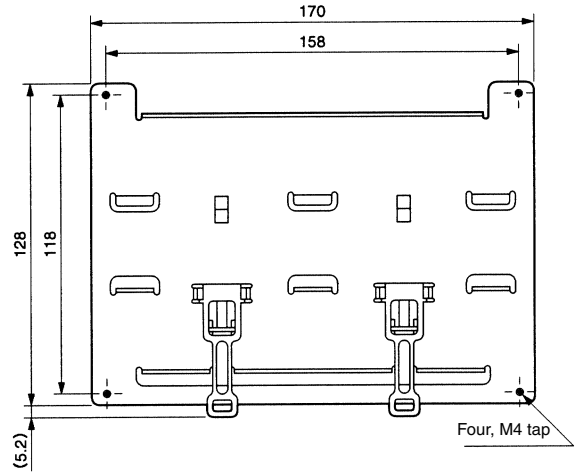
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3G3IV-PZZ08122C



3G3IV-PZZ08122D

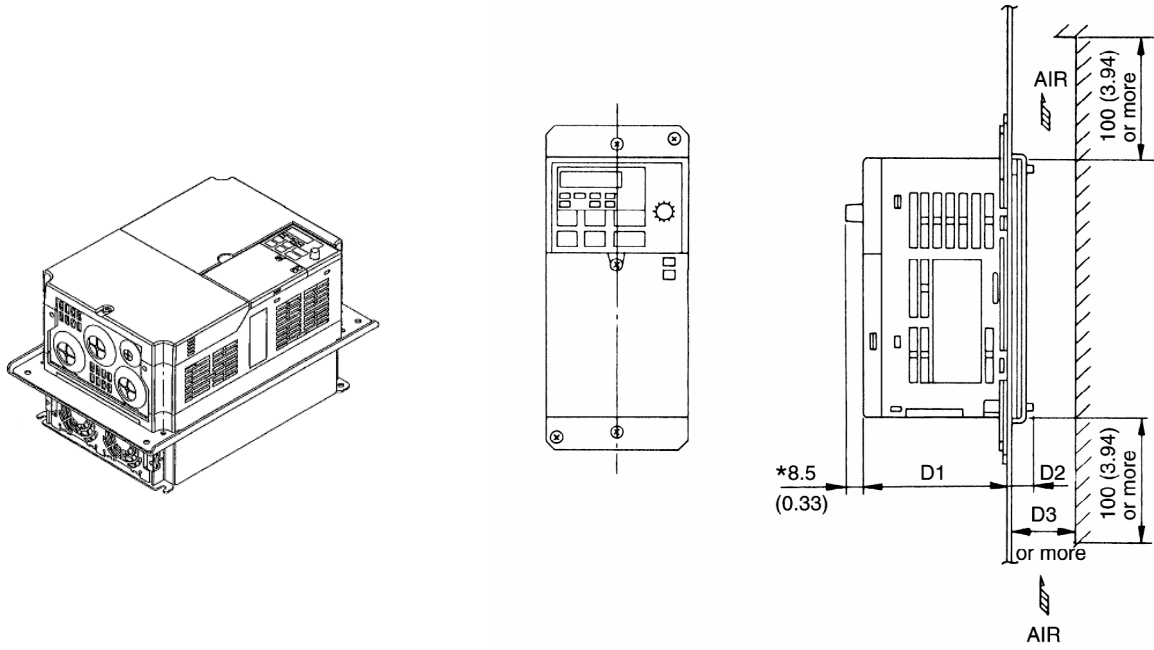


| | Inverter | DIN rail mounting bracket |
|----------------------|--|---------------------------|
| 3-phase 200 VAC | CIMR-V7AZ - 20P1/ 20P4/ 20P7 | 3G3IV-PEZZ08122A |
| | CIMR-V7AZ - 21P5/ 22P2 | 3G3IV-PEZZ08122B |
| | CIMR-V7AZ - 24P0 | 3G3IV-PEZZ08122C |
| Single-phase 200 VAC | CIMR-V7AZ - B0P1/ B0P2/ B0P4 | 3G3IV-PEZZ08122A |
| | CIMR-V7AZ - B0P7/ B1P5 | 3G3IV-PEZZ08122B |
| | CIMR-V7AZ - B2P2 | 3G3IV-PEZZ08122C |
| | CIMR-V7AZ - B4P0 | 3G3IV-PEZZ08122D |
| 3-phase 400 VAC | CIMR-V7AZ - 40P2/ 40P4/ 40P7/ 41P5/ 42P2 | 3G3IV-PEZZ08122B |
| | CIMR-V7AZ - 44P0 | 3G3IV-PEZZ08122C |

Attachments

Heatsink external mounting attachment

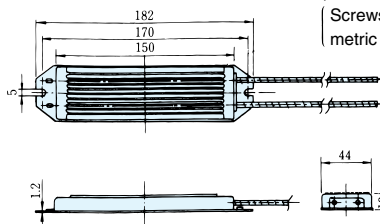
When mounting an external cooling-fan to the V7AZ, this attachment is required.



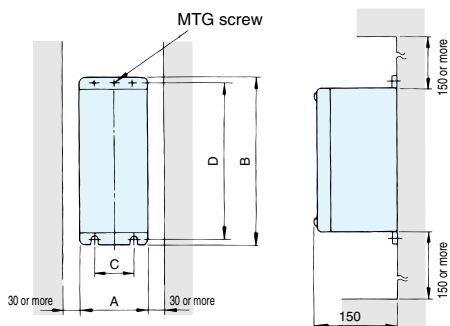
| CIMR-V7AZ | Attachment order code | Dimensions in mm | | |
|------------------------|-----------------------|------------------|------|----|
| | | D1 | D2 | D3 |
| V7AZ-20P1 V7AZ-20P2 | EZZ08136A | 69.2 | 12 | 30 |
| V7AZ-20P4 | EZZ08136B | 69.2 | 42 | 50 |
| V7AZ-20P7 | EZZ08136C | 69.2 | 62 | 70 |
| V7AZ-21P5 | EZZ08136D | 73 | 58 | 70 |
| V7AZ-22P2 | | 98 | 58 | 70 |
| V7AZ-24P0 | -EZZ08136F | 78.6 | 64.4 | 70 |
| V7AZ-25P5 V7AZ-27P5 | EZZ08136H | 113.8 | 56.2 | 60 |
| V7AZ-B0P1 V7AZ-B0P2 | EZZ08136A | 69.2 | 12 | 30 |
| V7AZ-B0P4 | EZZ08136B | 92.2 | 42 | 50 |
| V7AZ-B0P7 | EZZ08136D | 82 | 58 | 70 |
| V7AZ-B1P5 | | 98 | 58 | 70 |
| V7AZ-B2P2 | EZZ08136F | 98.6 | 64.4 | 70 |
| V7AZ-B4P0 | EZZ08136G | 115.6 | 64.4 | 70 |
| V7AZ-40P2 | EZZ08136E | 82 | 13.2 | 30 |
| V7AZ-40P4 | EZZ08136D | 82 | 28 | 40 |
| V7AZ-40P7 | | 82 | 58 | 70 |
| V7AZ-41P5 V7AZ-42P2 | | 98 | 58 | 70 |
| V7AZ-43P0 V7AZ-44P0 | EZZ08136F | 78.6 | 64.4 | 70 |
| V7AZ-45P5 V7AZ-47P5 | EZZ08136H | 113.8 | 56.2 | 60 |

Braking resistor unit ERF-150WJ

Note: Prepare mounting screws
(2-M4x8 tapped screws).
(Screws 8mm or more and general
metric screws cannot be used.)



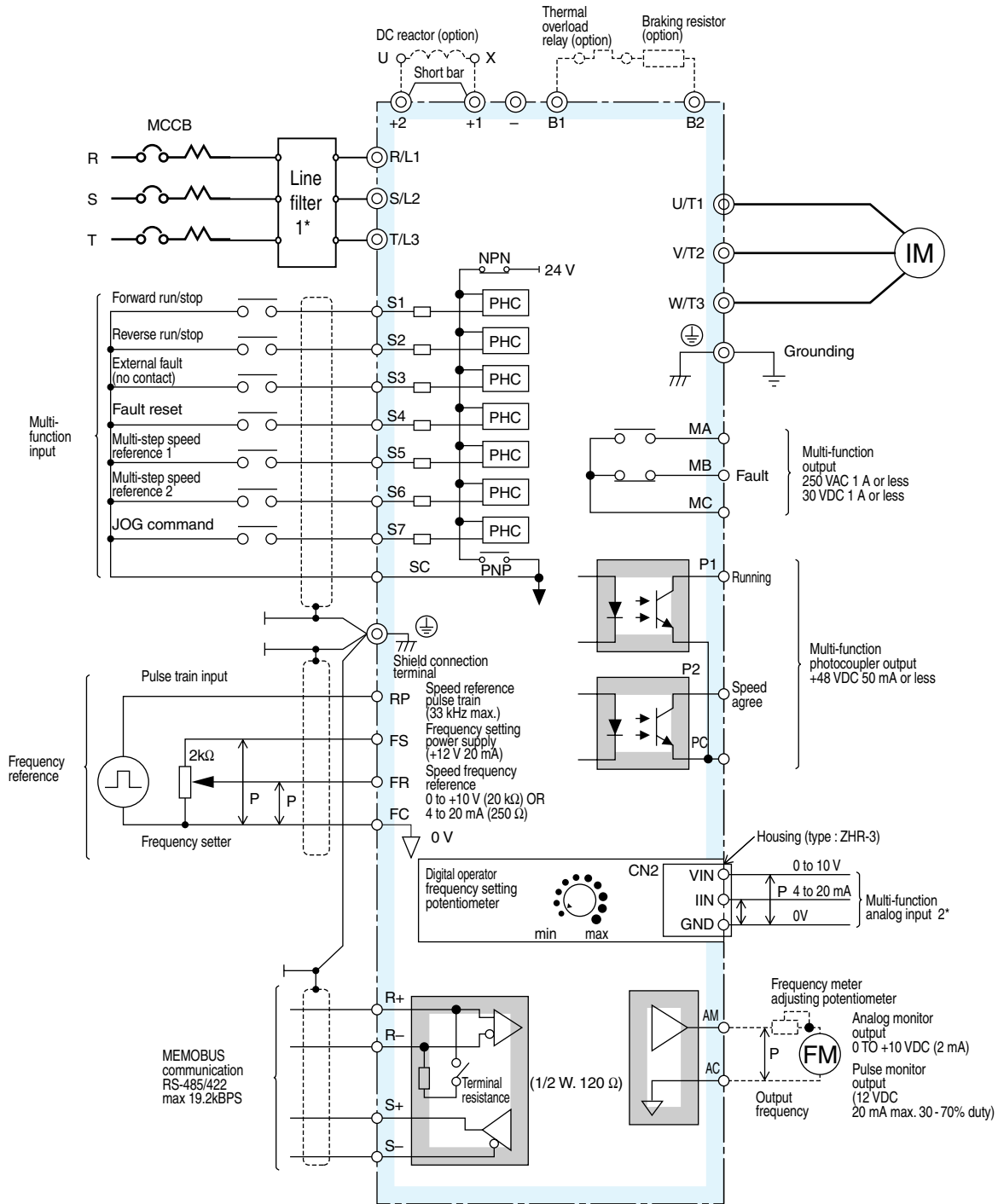
Braking resistors unit



| Voltage | Model LKEB-□ | Dimensions in mm | | | | | Approx. weight kg |
|-------------|--------------|------------------|-----|-----|------|-----------|-------------------|
| | | A | B | C | D | MTG.screw | |
| 200 V class | 20P7 | 105 | 275 | 50 | 260 | M5x3 | 3.0 |
| | 21P5 | 130 | 350 | 75 | 335 | M5x4 | 4.5 |
| | 22P2 | 130 | 350 | 75 | 335 | M5x4 | 4.5 |
| | 40P7 | 130 | 350 | 75 | 350 | M5x4 | 5.0 |
| | 25P5 | 250 | 350 | 200 | 335 | M6x4 | 7.5 |
| | 27P5 | 350 | 350 | 200 | 335 | M6x4 | 8.5 |
| 400 V class | 40P7 | 105 | 275 | 50 | 260 | M5x3 | 3.0) |
| | 41P5 | 130 | 350 | 75) | 335 | M5x4 | 4.5 |
| | 42P2 | 130 | 350 | 75) | 335 | M5x4 | 4.5 |
| | 43P0 | 130 | 350 | 75 | 335 | M5x4 | 5.0 |
| | 43P7 | | | | | | |
| | 45P5 | 250 | 350 | 200 | 335 | M6x4 | 7.5 |
| 47P5 | 350 | 350 | 200 | 335 | M6x4 | 8.5 | |

Installation

Standard connections



1* V7 IP65 types are built-in filter.

2* A housing is required when using the CN2 terminal on the back side of the digital operator.
1m analog input cable (code no. 3G3MV-PCN-CN2) is available for housing on request

: shielded wire : twisted pair shielded wire

Shows the following two kinds of connections (factory setting) :
· Input signals (S1 to S7) are non-voltage contacts
· Sequence connection by NPN transistor (0V common)

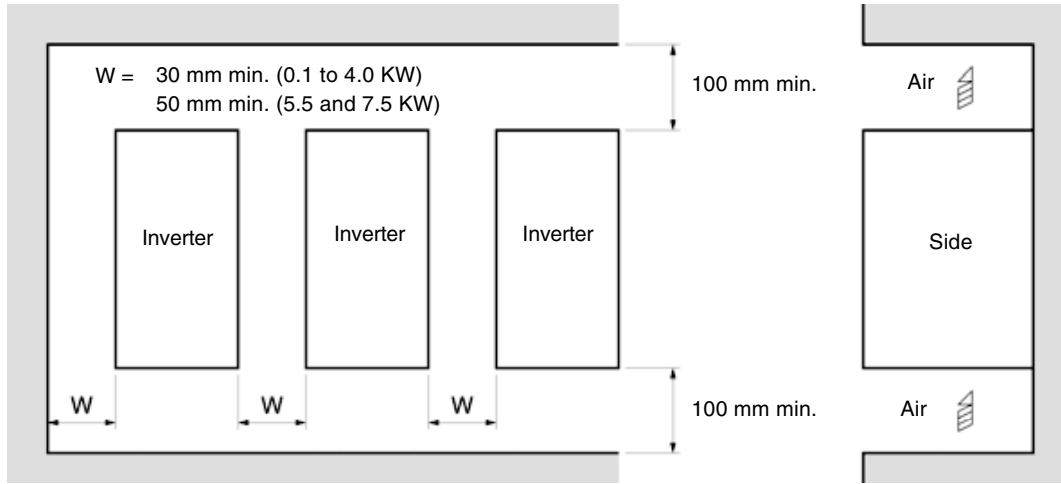
A +24 V power supply is required for sequence connection by PNP transistor (+24 V common) .

Main circuit

| Terminal | Name | Function (signal level) |
|------------------|-----------------------------|---|
| R/L1, S/L2, T/L3 | AC power supply input | Main circuit power supply input (use R/L1 and S/L2 for single-phase power supply inverter. Do not use T/L3 of the models less than 0.75 kW for other usage, such as a junction terminal.) |
| U/T1, V/T2, W/T3 | Inverter output | For inverter output |
| B1, B2 | Braking resistor connection | For braking resistor connection |
| +2, +1 | DC reactor connection | Remove the short bar between +2 and +1 when connecting DC reactor (option) |
| +1, - | DC power supply input | For power supply input (+1: positive electrode; - : negative electrode)* |
| ⊕ | Grounding | For grounding (grounding should conform to the local grounding code.) |

Control Circuit

| Type | No. | Signal name | Function | Signal level |
|------------------------|---------|---|---|---|
| Digital input signals | S1 | Multi-function input selection 1 | Factory setting: runs when CLOSED, stops when OPEN. | 24VDC, 8mA photocoupler insulation |
| | S2 | Multi-function input selection 2 | Factory setting: runs when CLOSED, stops when OPEN. | |
| | S3 | Multi-function input selection 3 | Factory setting: "fault reset" | |
| | S4 | Multi-function input selection 4 | Factory setting: "external fault (NO contact)" | |
| | S5 | Multi-function input selection 5 | Factory setting: "multi-step speed reference 1" | |
| | S6 | Multi-function input selection 6 | Factory setting: "multi-step speed reference 2" | |
| | S7 | Multi-function input selection 7 | Factory setting: "JOG command" | |
| | SC | Multi-function input selection Common | Common for control signal | |
| Analog input signals | RP | Speed reference pulse train input | 33 kHz max. | |
| | FS | Power supply terminal for frequency setting | +12V (allowable current: 20 mA max.) | |
| | FR | Speed frequency reference | 0 to +10 VDC (20 kΩ) or 4 to 20 mA (250 Ω), 0 to 20 mA (250 Ω) (resolution 1/1000) | |
| | FC | Frequency reference common | 0 V | |
| | 1 (CN2) | Multi-function analog voltage input | Voltage input (between terminals 1 and 3): 0 to 10 VDC (input impedance: 20 kΩ) Current input (between terminals 2 and 3): 4 to 20 mA (input impedance: 250 Ω) | |
| | 2 (CN2) | Multi-function analog current input | | |
| | 3 (CN2) | Multi-function analog input common | | |
| Digital output signals | MA | NO contact output | Factory setting: "fault" | Contact capacity 250 VAC, 1 A or less 30 VDC, 1 A or less |
| | NC | Contact output | | |
| | MC | Contact output common | | |
| | P1 | Photocoupler output 1 | Factory setting: "running" | Photocoupler output: +48 VDC, 50 mA or less |
| | P2 | Photocoupler output 2 | Factory setting: "at frequency" | |
| | PC | Photocoupler output common | 0 V | |
| Analog output signals | AM | Analog monitor output | Factory setting: "output frequency" 0 to +10 V output (pulse monitor output available by setting constants. Duty: 30 to 70%) | 0 to 10 V 2 mA or less Resolution: 8 bits |
| | AC | Analog monitor common | 0 V | |
| RS-485/422 | R+ | Communication input (+) | For MEMOBUS communication operation by RS-485 or RS-422 communication is available. | RS-485/422 MEMOBUS protocol 19.2 kBPS max. |
| | R- | Communication input (-) | | |
| | S+ | Communication output (+) | | |
| | S- | Communication output (-) | | |



Inverter heat loss

Three-phase 200 V class

| Model CIMR-V7AZ | 20P1 | 20P2 | 20P4 | 20P7 | 21P5 | 22P2 | 24P0 | 25P5 | 27P5 |
|-----------------------|-----------------|------|------|------|------|------|------|-------|-------|
| Inverter capacity kVA | 0.3 | 0.6 | 1.1 | 1.9 | 3.0 | 4.2 | 6.7 | 9.5 | 13 |
| Rated current A | 0.8 | 1.6 | 3 | 5 | 8 | 11 | 17.5 | 25 | 33 |
| Heat loss W | Fin | 3.7 | 7.7 | 15.8 | 28.4 | 53.7 | 60.4 | 96.7 | 170.4 |
| | Inside unit | 9.3 | 10.3 | 12.3 | 16.7 | 19.1 | 34.4 | 52.4 | 79.4 |
| | Total heat loss | 13.0 | 18.0 | 28.1 | 45.1 | 72.8 | 94.8 | 149.1 | 249.8 |

Single-phase 200 V class

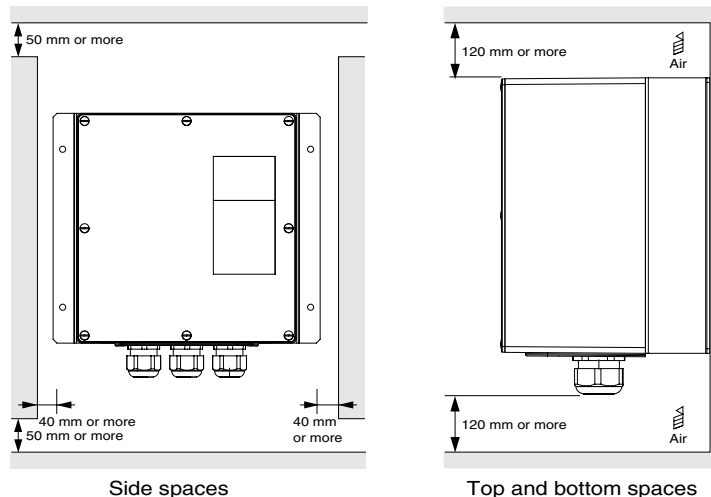
| Model CIMR-V7AZ | B0P1 | B0P2 | B0P4 | B0P7 | B1P5 | B2P2 | B4P0 |
|-----------------------|-----------------|------|------|------|------|------|-------|
| Inverter capacity kVA | 0.3 | 0.6 | 1.1 | 1.9 | 3.0 | 4.2 | 6.7 |
| Rated current A | 0.8 | 1.6 | 3 | 5 | 8 | 11 | 17.5 |
| Heat loss W | Fin | 3.7 | 7.7 | 15.8 | 28.4 | 53.7 | 64.5 |
| | Inside unit | 10.4 | 12.3 | 16.1 | 23.0 | 29.1 | 49.1 |
| | Total heat loss | 14.1 | 20.0 | 31.9 | 51.4 | 82.8 | 113.6 |

Three-phase 400 V class

| Model CIMR-V7AZ | 40P2 | 40P4 | 40P7 | 41P5 | 42P2 | 44P0 | 45P5 | 47P5 |
|-----------------------|-----------------|------|------|------|------|------|-------|-------|
| Inverter capacity kVA | 1.4 | 2.6 | 3.7 | 4.2 | 5.5 | 7.0 | 11 | 14 |
| Rated current A | 1.8 | 3.4 | 4.8 | 5.5 | 7.2 | 8.6 | 14.8 | 18 |
| Heat loss W | Fin | 15.1 | 30.3 | 45.8 | 50.5 | 58.2 | 73.4 | 168.8 |
| | Inside unit | 15.0 | 24.6 | 29.9 | 32.5 | 37.6 | 44.5 | 87.7 |
| | Total heat loss | 30.1 | 54.9 | 75.7 | 83.0 | 95.8 | 117.9 | 256.5 |

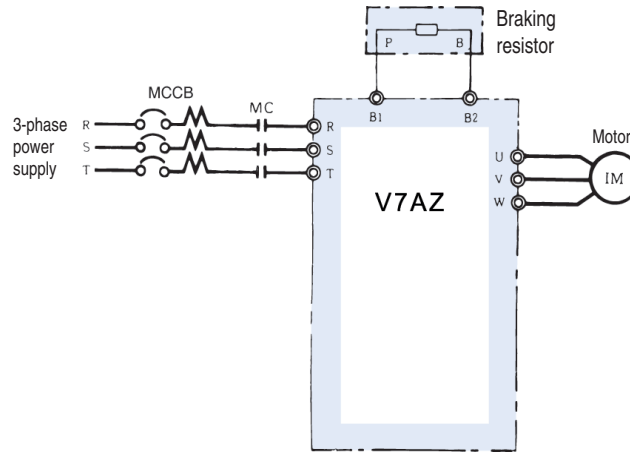
Installation conditions for IP65

Install the inverter vertically in order to ensure proper cooling. When installing the inverter, always provide the following minimum installation space to allow normal heat dissipation.

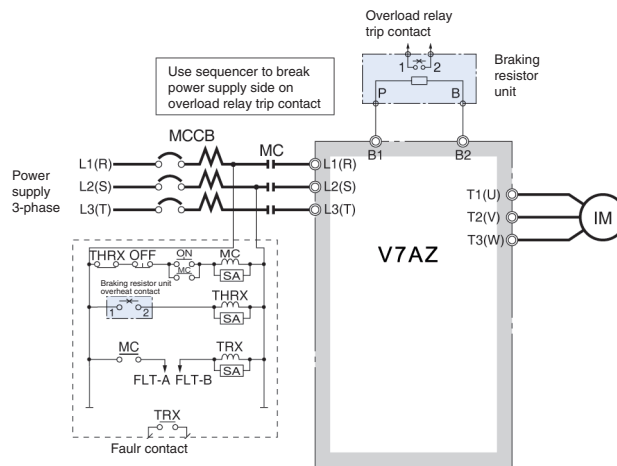


1. Always provide enough space for the main circuit or control lines including cable gland.
2. If installing inverters next to one another, provide a minimum spacing of 60mm.

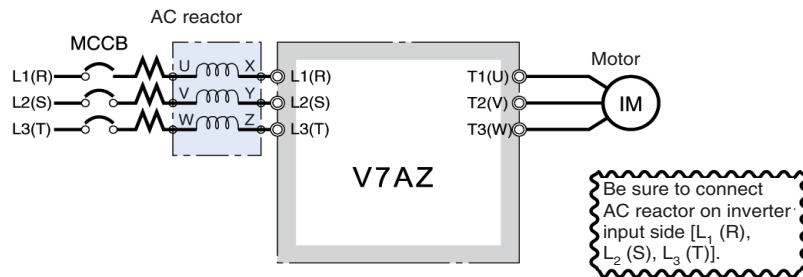
Connections for braking resistor



Connections for braking resistor unit

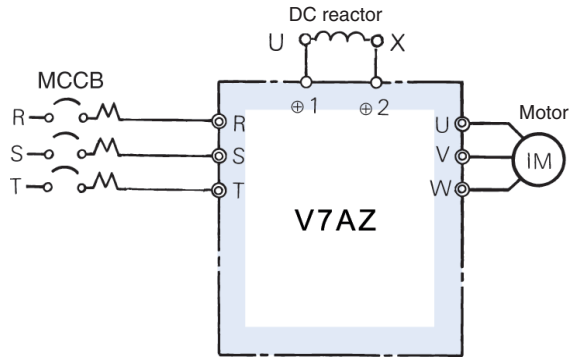


AC reactor



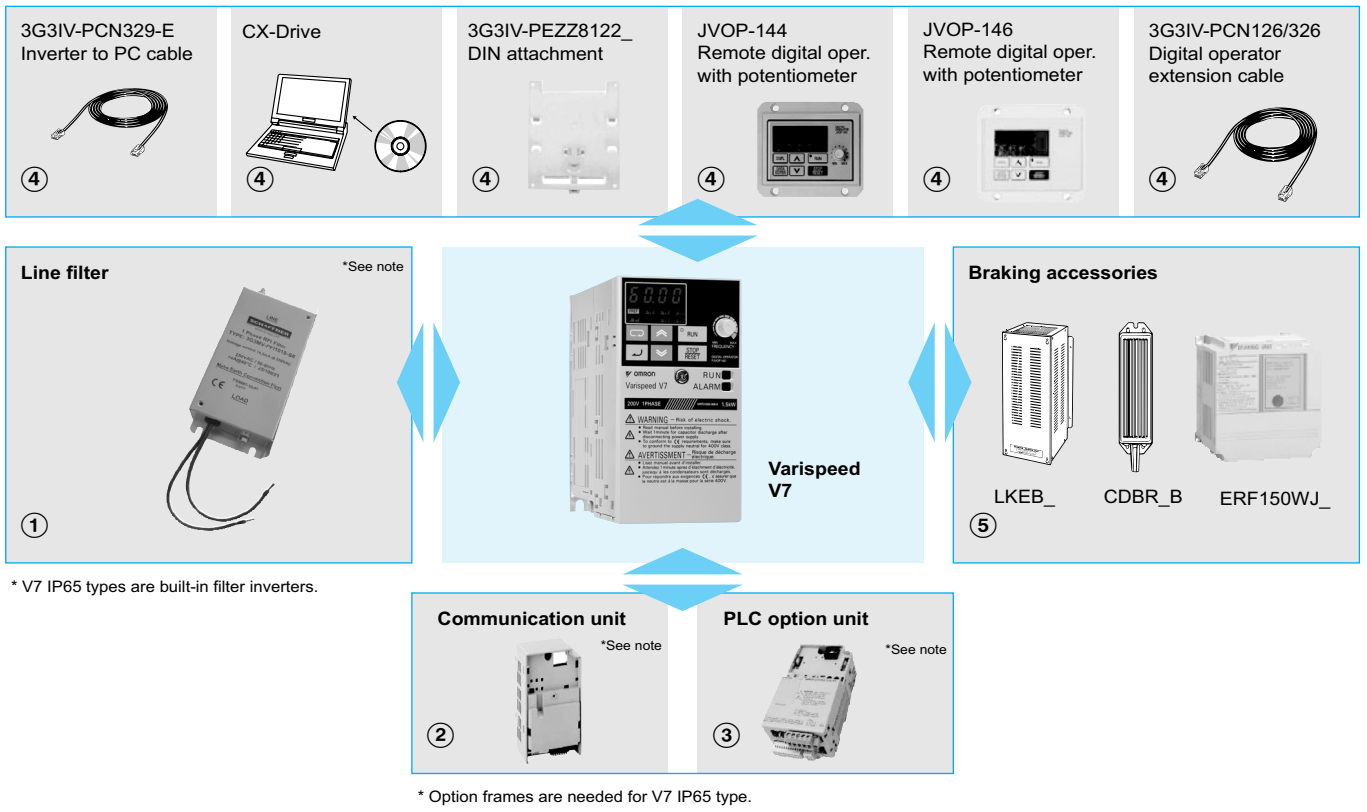
| 200 V class | | | 400 V class | | |
|---------------------------------|-----------------|---------------|---------------------------------|-----------------|---------------|
| Max. applicable motor output kW | Current value A | Inductance mH | Max. applicable motor output kW | Current value A | Inductance mH |
| 0.12 | 2.0 | 2.0 | | ----- | |
| 0.25 | 2.0 | 2.0 | 0.2 | | |
| 0.55 | 2.5 | 4.2 | 0.4 | 1.3 | 18.0 |
| 1.1 | 5 | 2.1 | 0.75 | 2.5 | 8.4 |
| 1.5 | 10 | 1.1 | 1.5 | 5 | 4.2 |
| 2.2 | 15 | 0.71 | 2.2 | 7.5 | 3.6 |
| 4.0 | 20 | 0.53 | 4.0 | 10 | 2.2 |
| 5.5 | 30 | 0.35 | 5.5 | 15 | 1.42 |
| 7.5 | 40 | 0.265 | 7.5 | 20 | 1.06 |

DC reactor



| 200 V class | | | 400 V class | | |
|---------------------------------|-----------------|---------------|---------------------------------|-----------------|---------------|
| Max. applicable motor output kW | Current value A | Inductance mH | Max. applicable motor output kW | Current value A | Inductance mH |
| 0.12 | 5.4 | 8 | ----- | 3.2 | 28 |
| 0.25 | | | 0.2 | | |
| 0.55 | | | 0.4 | | |
| 1.1 | | | 0.75 | | |
| 1.5 | 18 | 3 | 1.5 | 5.7 | 11 |
| 2.2 | | | 2.2 | | |
| 4.0 | | | 4.0 | | |
| 5.5 | | | 5.5 | | |
| 7.5 | 36 | 1 | 7.5 | 23 | 3.6 |

Ordering information



Varispeed V7



200 V

| Specifications | | | Model |
|----------------|---------|----------------|----------------|
| 1x200 V | 0.12 Kw | 0.8 A | CIMR-V7AZB0P10 |
| | 0.25 Kw | 1.6 A | CIMR-V7AZB0P20 |
| | 0.55 Kw | 3.0 A | CIMR-V7AZB0P40 |
| | 1.1 Kw | 5.0 A | CIMR-V7AZB0P70 |
| | 1.5 Kw | 8.0 A | CIMR-V7AZB1P50 |
| | 2.2 Kw | 11.0 A | CIMR-V7AZB2P20 |
| | 4.0 Kw | 17.5 A | CIMR-V7AZB4P00 |
| 3x200 V | 0.12 Kw | 0.8 A | CIMR-V7AZ20P10 |
| | 0.25 Kw | 1.6 A | CIMR-V7AZ20P20 |
| | 0.55 Kw | 3.0 A | CIMR-V7AZ20P40 |
| | 1.1 Kw | 5.0 A | CIMR-V7AZ20P70 |
| | 1.5 Kw | 8.0 A | CIMR-V7AZ21P50 |
| | 2.2 Kw | 11.0 A | CIMR-V7AZ22P20 |
| | 4.0 Kw | 17.5 A | CIMR-V7AZ24P00 |
| | 5.5 Kw | 25.0 A | CIMR-V7AZ25P51 |
| 7.5 Kw | 33.0 A | CIMR-V7AZ27P51 | |

400 V

| Specifications | | | Model |
|----------------|---------|--------|----------------|
| 3x400 V | 0.37 Kw | 1.2 A | CIMR-V7AZ40P20 |
| | 0.55 Kw | 1.8 A | CIMR-V7AZ40P40 |
| | 1.1 Kw | 3.4 A | CIMR-V7AZ40P70 |
| | 1.5 Kw | 4.8 A | CIMR-V7AZ41P50 |
| | 2.2 Kw | 5.5 A | CIMR-V7AZ42P20 |
| | 3.0 Kw | 7.2 A | CIMR-V7AZ43P00 |
| | 4.0 Kw | 9.2 A | CIMR-V7AZ44P00 |
| | 5.5 Kw | 14.8 A | CIMR-V7AZ45P51 |
| | 7.5 Kw | 18.0 A | CIMR-V7AZ47P51 |

Varispeed V7 IP65



200 V

| Specifications | | | Model |
|----------------|---------|--------|-----------------|
| 1x200 V | 0.55 Kw | 3.0 A | CIMR-V7TZB0P405 |
| | 1.1 Kw | 5.0 A | CIMR-V7TZB0P705 |
| | 1.5 Kw | 8.0 A | CIMR-V7TZB1P505 |
| | 2.2 Kw | 11.0 A | CIMR-V7TZB2P205 |

400 V

| Specifications | | | Model |
|----------------|---------|-------|-----------------|
| 3x400 V | 0.55 Kw | 1.8 A | CIMR-V7TZ40P405 |
| | 1.1 Kw | 3.4 A | CIMR-V7TZ40P705 |
| | 1.5 Kw | 4.8 A | CIMR-V7TZ41P505 |
| | 2.2 Kw | 5.5 A | CIMR-V7TZ42P205 |
| | 3.0 Kw | 7.2 A | CIMR-V7TZ43P005 |
| | 4.0 Kw | 9.2 A | CIMR-V7TZ44P005 |






① Line filters *



| Inverter | | Line filter | | | |
|----------------------|---------------------------|------------------|-----------------|-------------------|-------------|
| Voltage | Model CIMR-V7AZ | Schaffner | Rasmi | Rated current (A) | Weight (kg) |
| 3-Phase 200 VAC | 20P1 / 20P2 / 20P4 / 20P7 | 3G3MV-PFI2010-SE | 3G3MV-PFI2010-E | 10 | 0.8 |
| | 21P5 / 22P2 | 3G3MV-PFI2020-SE | 3G3MV-PFI2020-E | 20 | 1.0 |
| | 24P0 | 3G3MV-PFI2030-SE | 3G3MV-PFI2030-E | 30 | 1.1 |
| | 25P5 / 27P5 | - | 3G3MV-PFI2050-E | 50 | 2.3 |
| Single-Phase 200 VAC | B0P1 / B0P2 / B0P4 | 3G3MV-PFI1010-SE | 3G3MV-PFI1010-E | 10 | 0.6 |
| | B0P7 / B1P5 | 3G3MV-PFI1020-SE | 3G3MV-PFI1020-E | 20 | 1.0 |
| | B2P2 | 3G3MV-PFI1030-SE | 3G3MV-PFI1030-E | 30 | 1.1 |
| | B4P0 | 3G3MV-PFI1040-SE | 3G3MV-PFI1040-E | 40 | 1.2 |
| 3-Phase 400 VAC | 40P2 / 40P4 | 3G3MV-PFI3005-SE | 3G3MV-PFI3005-E | 5 | 1.0 |
| | 40P7 / 41P5 / 42P2 | 3G3MV-PFI3010-SE | 3G3MV-PFI3010-E | 10 | 1.0 |
| | 43P0 / 44P0 | 3G3MV-PFI3020-SE | 3G3MV-PFI3020-E | 15 | 1.1 |
| | 45P5 / 47P5 | 3G3MV-PFI3030-SE | 3G3MV-PFI3030-E | 30 | 2.3 |


* V7 IP65 types are built-in filter inverters.

② Communication cards

| Type | Model ¹ | Description | Function |
|----------------------------|--|------------------------------------|---|
| Communication option board |  3G3MV-PDRT2 | DeviceNet option card ² | <ul style="list-style-type: none"> Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through DeviceNet communication with the host controller. |
| |  SI-P1/V7 | PROFIBUS-DP option card | <ul style="list-style-type: none"> Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through PROFIBUS-DP communication with the host controller. |
| |  SI-S1/V7 | Can open option card | <ul style="list-style-type: none"> Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through CANopen communication with the host controller. |
| |  3G3MV-PCORT21 | Can open gateway | <ul style="list-style-type: none"> Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through CANopen communication with the host controller. |
| |  SI-T1/V7 | MECHATROLINK-II option card | <ul style="list-style-type: none"> Used for running or stopping the inverter, setting or referencing parameters, and monitoring output frequency, output current, or similar items through MECHATROLINK-II communication with the host controller. High speed motion bus. Host controller: TrajeXia, MCH or MP series.³ |

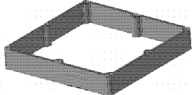
- Option frame accessory is needed for V7 IP65 types when communications option units are used.
- For V7 IP65 types with DeviceNet communication, SI-N1/V7 should be used.
- Please refer to TrajeXia, MCH or MP series section for host controller technical information.

③ PLC option card


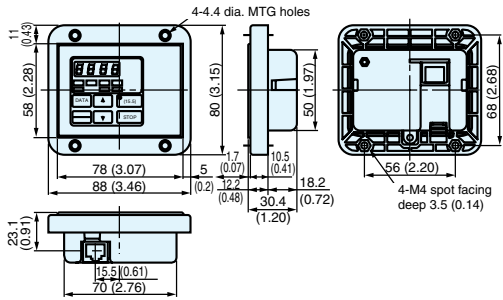

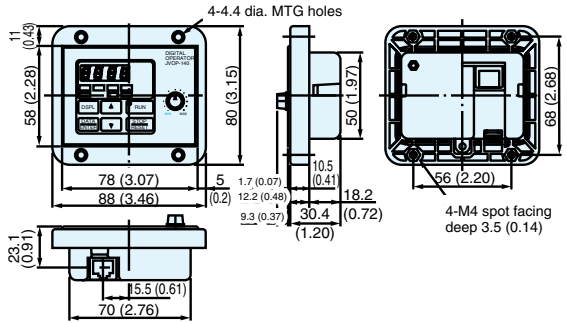
| Type | Model ¹ | Description | Function |
|------------|---|----------------------------|--|
| PLC option |  3G3MV-P10CDT-E | PLC option | <ul style="list-style-type: none"> Full PLC features, wireless installation and seamless access to the inverter parameters and analogue/digital inputs and outputs. Standard OMRON tools can be used for programming Calendar / clock |
| | 3G3MV-P10CDT3-E | PLC option with RS 422/485 | <ul style="list-style-type: none"> Same features as standard models with RS 422/485 support. |

- Option frame accessory is needed on V7 IP65 types when PLC option unit is used.

④ Option frame accessory for V7 IP65

| Type | Model | Description | Function |
|--------------|---|--------------|--|
| Option frame |  V7TZ-FR1 | Option frame | <ul style="list-style-type: none"> Frame accessory is needed when communication option unit or PLC option unit are used with Varispeed V7 IP65. |

⑤ Accessories

| Types | Model | Description | Functions |
|------------------|---|---|--|
| Digital operator |  JVOP-146 | Remote digital operator without potentiometer |  |
| |  JVOP-144 | Remote digital operator with potentiometer |  |
| | 72606-CVS31060 | Blank cover | ----- |
| | 3G3IV-PEZZ0838BA | Digital operator case | same as JVOP-144 without operator |
| Accessories | 3G3IV-PCN126 3G3IV-PCN326 | Digital operator extension cable 1 meter 3 meters | ----- |
| | 3G3IV-PCN329-E | PC configuration cable | ----- |

⑤ Computer software

| Types | Model | Description | Installation |
|----------|----------|-------------------|--|
| Software | CX-drive | Computer software | Configuration and monitoring software tool |
| | CX-One | Computer software | Configuration and monitoring software tool |

⑥ Braking unit, braking resistor unit

| Inverter | | Braking resistor unit | | | | | | | | | | |
|-----------------------------|---------------------------------|--------------------------|--------------|---|--------------|-------------|------------------|--|-----------------------------------|-------------|------------------|-------------------------------|
| Voltage | Max. applicable motor output kW | Inverter model CIMR-V7AZ | | Inverter-mounted type (3 %ED, 10 sec max) | | | | Separately-installed type (10 %ED, 10 sec. max.) | | | | |
| | | Three-phase | Single-phase | Model ERF-150WJ_ | Resistance Ω | No. of used | Braking torque % | Model LKEB-□ | Resistor spec. (per one unit) W Ω | No. of used | Braking torque % | Connectable min. resistance Ω |
| 200 V (single-/three-phase) | 0.12 | 20P1 | B0P1 | 401 | 400 | 1 | 220 | — | — | — | — | 300 |
| | 0.25 | 20P2 | B0P2 | 401 | 400 | 1 | 220 | — | — | — | — | 300 |
| | 0.55 | 20P4 | B0P4 | 201 | 200 | 1 | 220 | 20P7 | 70 200 | 1 | 220 | 200 |
| | 1.1 | 20P7 | B0P7 | 201 | 200 | 1 | 125 | 20P7 | 70 200 | 1 | 125 | 120 |
| | 1.5 | 21P5 | B1P5 | 101 | 100 | 1 | 125 | 21P5 | 260 100 | 1 | 125 | 60 |
| | 2.2 | 22P2 | B2P2 | 700 | 70 | 1 | 120 | 22P2 | 260 70 | 1 | 120 | 60 |
| | 4.0 | 24P0 | B4P0 | 620 | 62 | 1 | 100 | 23P7 | 390 40 | 1 | 125 | 32 |
| | 5.5 | 25P5 | — | — | — | — | — | 25P5 | 520 30 | 1 | 115 | 9.6 |
| 400 V (three-phase) | 7.5 | 27P5 | — | — | — | — | — | 27P5 | 780 20 | 1 | 125 | 9.6 |
| | 0.37 | 40P2 | — | 751 | 750 | 1 | 230 | — | — | — | — | 750 |
| | 0.55 | 40P4 | — | 751 | 750 | 1 | 230 | 40P7 | 70 750 | 1 | 230 | 750 |
| | 1.1 | 40P7 | — | 751 | 750 | 1 | 130 | 40P7 | 70 750 | 1 | 130 | 510 |
| | 1.5 | 41P5 | — | 401 | 400 | 1 | 125 | 41P5 | 260 400 | 1 | 125 | 240 |
| | 2.2 | 42P2 | — | 301 | 300 | 1 | 115 | 42P2 | 260 250 | 1 | 135 | 200 |
| | 3.0 | 43P0 | — | 401 | 400 | 2 | 105 | 43P7 | 390 150 | 1 | 135 | 100 |
| | 4.0 | 44P0 | — | | | | | | | | | |
| | 5.5 | 45P5 | — | — | — | — | — | 45P5 | 520 100 | 1 | 135 | 32 |
| | 7.5 | 47P5 | — | — | — | — | — | 47P5 | 780 75 | 1 | 130 | 32 |

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.