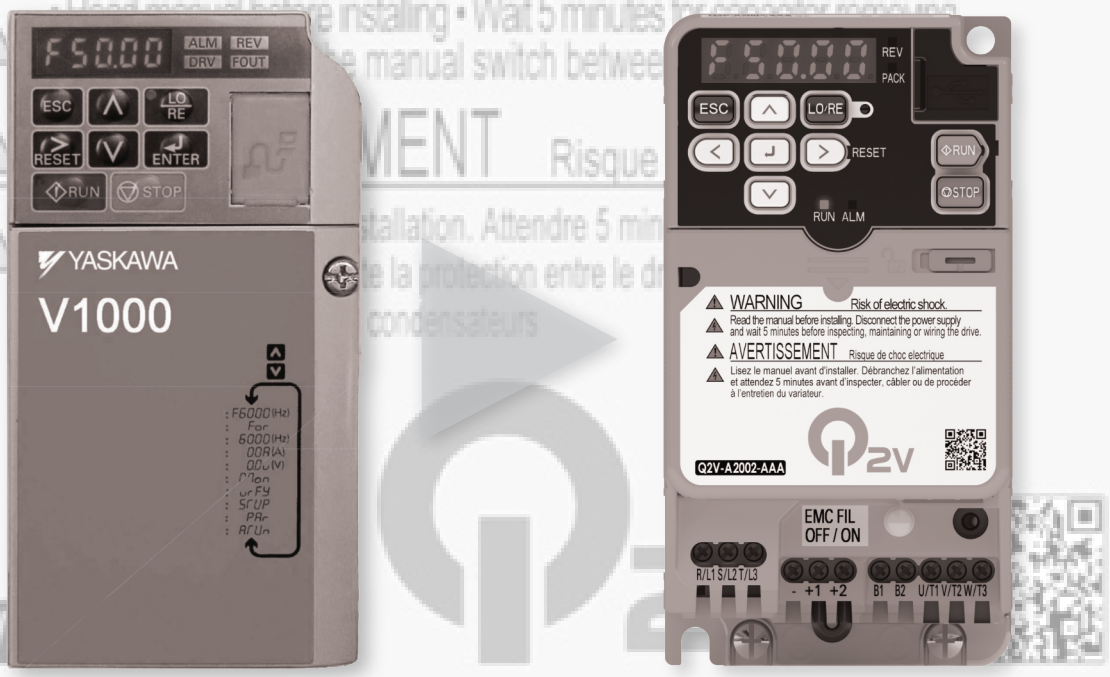
V1000 to Q2V
Replacement guide

Item code: Q2V-Axxxx-xxx

200 V Class, Three-Phase: 0.1 to 22 kW
200 V Class, Single-Phase: 0.1 to 4.0 kW
400 V Class, Three-Phase: 0.37 to 30 kW



AC Drive Replacement Guide

V1000 to Q2V

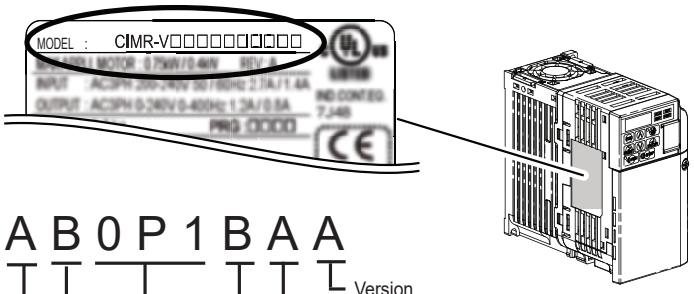
This document is intended to help OEM's, Integrators, and End Users select and replace Omron V1000 series AC drives with Q2V AC drives. Replacement should be conducted by qualified personnel familiar with AC drive installation. Follow local electrical codes during replacement and installation.

1 Model Identification

◆ Identify Your Model

The catalog numbers differ slightly between the drive series. Use this number comparison to understand nameplate location and catalog code differences between series when selecting a replacement drive.

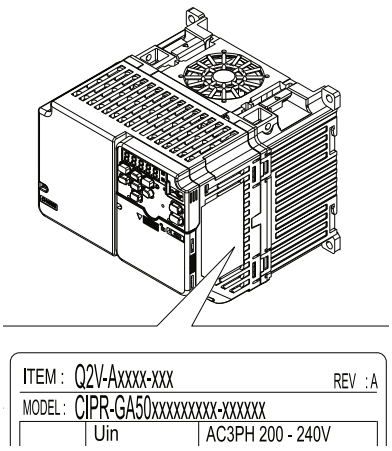
V1000 Drive



V Z A B 0 P 1 B A A

- V1000 series
- Z: European standard specifications
- A: Standard specs
- Voltage:
  - B: Single-phase 200VAC
  - 2: Three-phase 200 VAC
  - 4: Three-phase 400 VAC
- ["P" indicates a decimal point] Max. applicable motor output
  - 0P1: 0.1 kW
  - ~
  - 015: 15 kW
- Enclosure, Fin, Filter:
  - B: IP20 without top cover
  - F: Nema 1
  - E: IP20 without top cover and C3 filter
- Coating specs:
  - A: Standard
- Version

Q2V Drive



Q 2 V - A 4 0 0 2 - A A A

- Q2 series
- V series
- IP20 protection class
- Voltage:
  - B: Single-phase 200 VAC
  - 2: Three-phase 200 VAC
  - 4: Three-phase 400 VAC
- Rated Output Current Normal Duty
  - 001: 1.2 [A]
  - ~
  - 082: 82 [A]
- Type variant :
  - A: with embedded EMC filter
  - B: without embedded EMC filter
- Standard Coating specifications
- Version

2 Replacement Q2V Drive Selection

Table 1 through ***Table 3*** provide a model to model cross reference. Select the Q2V model that corresponds to your V1000 model.

Increasing the Carrier Frequency parameter C6-02 from the factory default setting may require derating of the drive capacity. ***Refer to Carrier Frequency - C6-02 [Carrier Frequency Selection] on page 36*** to understand the effect of changing parameter C6-02 on your new replacement drive.

Note: Normal Duty overload tolerance.

- V1000 120% of rated normal duty current for 60 seconds.
- Q2V 110% of rated normal duty current for 60 seconds.

Table 1 Single-Phase 240 V Models

V1000 Model CIMR-VC	Rated Output Heavy Duty (HD) Amps	Rated Output Normal Duty (ND) Amps		Q2V Model Q2V-A	Rated Output Heavy Duty (HD) Amps	Rated Output Normal Duty (ND) Amps
BA0001	0.8	1.2	⇔	B001	0.8	1.2
BA0002	1.6	1.9	⇔	B002	1.6	1.9
BA0003	3.0	3.3	⇔	B004	3.0	3.5
BA0006	5.0	6.0	⇔	B006	5.0	6.0
BA0010	8.0	9.6	⇔	B010	8.0	9.6
BA0012	11.0	12.0	⇔	B012	11.0	12.2
BA0018	17.5	-	⇔	B018	17.6	-

Table 2 Three-Phase 240 V Models

V1000 Model CIMR-VC	Rated Output Heavy Duty (HD) Amps	Rated Output Normal Duty (ND) Amps		Q2V Model Q2V-A	Rated Output Heavy Duty (HD) Amps	Rated Output Normal Duty (ND) Amps
2A0001	0.8	1.2	⇔	2001	0.8	1.2
2A0002	1.6	1.9	⇔	2002	1.6	1.9
2A0004	3.0	3.5	⇔	2004	3.0	3.5
2A0006	5.0	6.0	⇔	2006	5.0	6.0
2A0010	8.0	9.6	⇔	2010	8.0	9.6
2A0012	11.0	12.0	⇔	2012	11.0	12.2
2A0020	17.5	19.6	⇔	2018 / 21	17.6	21.0
2A0030	25.0	30.0	⇔	2030	25.0	30.0
2A0040	33.0	40.0	⇔	2042	33.0	42.0
2A0056	47.0	56.0	⇔	2056	47.0	56.0
2A0069	60.0	69.0	⇔	2070	60.0	70.0
-	-	-		2082	75.0	82.0

Table 3 Three-Phase 480 V Models

V1000 Model CIMR-VC	Rated Output Heavy Duty (HD) Amps	Rated Output Normal Duty (ND) Amps		Q2V Model Q2V-A	Rated Output Heavy Duty (HD) Amps	Rated Output Normal Duty (ND) Amps
4A0001	1.2	1.2	⇔	4001	1.2	1.2
4A0002	1.8	2.1	⇔	4002	1.8	2.1
4A0004	3.4	4.1	⇔	4004	3.4	4.1
4A0005	4.8	5.4	⇔	4005	4.8	5.4
4A0007	5.5	6.9	⇔	4007	5.6	7.1
4A0009	7.2	8.8	⇔	4009	7.3	8.9
4A0011	9.2	11.1	⇔	4012	9.2	11.9
4A0018	14.8	17.5	⇔	4018	14.8	17.5
4A0023	18.0	23.0	⇔	4023	18.0	23.4
4A0031	24.0	31.0	⇔	4031	24.0	31.0
4A0038	31.0	38.0	⇔	4038	31.0	38.0
-	-	-		4044	39.0	44.0
-	-	-		4060	45.0	60.0

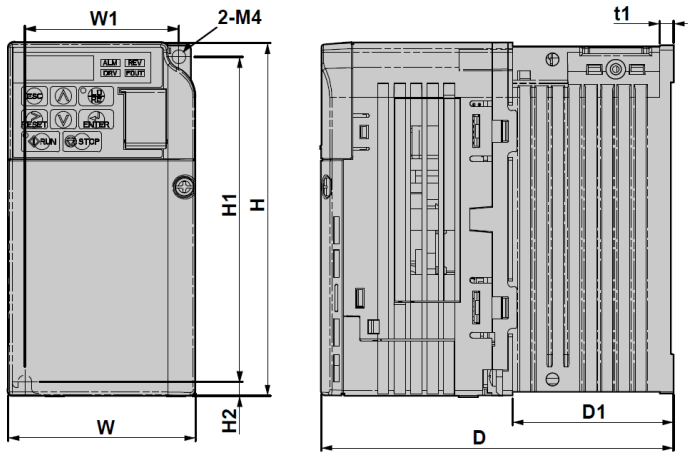
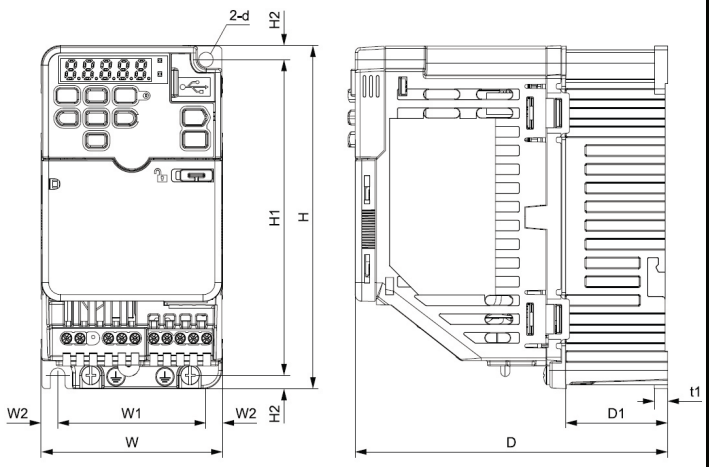
3 Dimensions

◆ Dimension Comparison

The standard models for V1000 and Q2V are IP20 enclosure.
Use these tables to understand physical dimensions when required for replacing the V1000 with a new Q2V drive.

Note:

- V1000 and Q2V have the same mounting dimensions. No mounting kit conversion is required.

V1000 IP20 Enclosure	Q2V IP20 Chassis
	

V1000 vs Q2V single phase 200V Dimensions

Voltage class	Max. applicable motor output kW	Inverter model VZA□	Figure	Dimensions in mm										
				W1	H1	W	H	D	t1	H2	D1	H3	H4	Weight kg
Single-phase 200 V	0.12	B0P1	1	56	118	68	128	76	3	5	6.5	-	-	0.6
	0.25	B0P2												0.7
	0.55	B0P4						108	5		38.5			1.0
	1.1	B0P7	2	96		108		137.5			58			1.7
	1.5	B1P5						154						1.8
	2.2	B2P2		128		140		163			65			2.4
	4.0	B4P0		158		170		180						3.0

Voltage	Inverter model	Fig.	Dimensions (mm)									
	Q2V-A□		W	W1	W2	H	H1	H2	D (STD / EMC)	D1	t1	d
Single-phase 200 V	B001, B002	1	68	56	6	128	118	5	76 / 116	6.5	3	M5
	B004								118 / 148	38.5	5	
	B006	2	108	96					137.5/182.5	56.5		
	B010								154 / 199			
	B012		140	128					163 / 203	65		
	B018		170	158					180			

V1000 vs Q2V three phase 200V Dimensions

Voltage class	Max. applicable motor output kW	Inverter model VZA□	Figure	Dimensions in mm										
				W1	H1	W	H	D	t1	H2	D1	H3	H4	Weight kg
Three-phase 200 V	0.12	20P1	1	56	118	68	128	76	3	5	6.5	-	-	0.6
	0.25	20P2												0.6
	0.55	20P4						108	5		38.5			0.9
	1.1	20P7						128						1.1
	1.5	21P5	2	96		108		129			58			1.3
	2.2	22P2						137.5						1.4
	4.0	24P0		128		140		143			65			2.1
	5.5	25P5	3	122	248	140	254	140	-	6	55	13	6.2	3.8
	7.5	27P5												3.8
	11	2011		160	284	180	290	163		8	75	15		5.5
	15	2015		192	336	220	358	187		7	78		7.2	9.2

Voltage	Inverter model Q2V-A□	Fig.	Dimensions (mm)									
			W	W1	W2	H	H1	H2	D (STD / EMC)	D1	t1	d
Three-phase 200 V	2001, 2002	1	68	56	6	128	118	5	76 / 116	6.5	3	M5
	2004								108 / 148	38.5	5	
	2006								128 / 168	58.5		
	2010	2	108	96					129 / 174	56.5		
	2012								137.5/182.5			
	2021		140	128					143 / 193	65		
	2030, 2042	3	140	122	9	260	248	6	140 / 196	55		
	2056		180	160	10	300	284	8	143 / 196			
	2070, 2082		220	192	14	350	336	7	187 / 216	78		M6

V1000 vs Q2V three phase 400V Dimensions

Voltage class	Max. applicable motor output kW	Inverter model VZA□	Figure	Dimensions in mm										
				W1	H1	W	H	D	t1	H2	D1	H3	H4	Weight kg
Three-phase 400 V	0.37	40P2	2	96	118	108	128	81	5	5	10	-	-	0.8
	0.55	40P4						99			28			1.0
	1.1	40P7						137.5			58			1.4
	1.5	41P5						154						1.5
	2.2	42P2												1.5
	3.0	43P0												1.5
	4.0	44P0		128		140		143			65			2.1
	5.5	45P5	3	122	248	140	254	140	-	6	55	13	6	3.8
	7.5	47P5											6.2	3.8
	11	4011		160	284	180	290	143		8		15	6	5.2
	15	4015						163			75			5.5

Voltage	Inverter model Q2V-A□	Fig.	Dimensions (mm)									
			W	W1	W2	H	H1	H2	D (STD / EMC)	D1	t1	d
Three-phase 400 V	4001	2	108	96	6	128	118	5	81 / 126	8.5	5	M5
	4002								99 / 144	26.5		
	4004								137.5/182.5	56.5		
	4005, 4007, 4009								154 / 199			
	4012		140	128					143 / 193	65		
	4018, 4023	3	140	122	9	260	248	6	140 / 196	55		
	4031, 4038		180	160	10	300	284	8	143 / 196			
	4044, 4060		190		15	350	336	7	204 / 251	94		M6

4 Branch Circuit Protection

Use this section to understand if the existing V1000 branch circuit protection for UL508 compliance is suitable for the replacement Q2V drive.

◆ V1000 Branch Circuit Protection

Table 7 V1000 Branch Circuit Protection

V1000 Model	Fuse Type: Class T, Non-Time Delay (Manufacturer: Ferraz) Rating: 600 Vac, 200 kAIR		Fuse Type: Semiconductor Fuse, Fast Acting (Manufacturer: Bussmann) Rating: 500 Vac, 200 kAIR	
	Fuse	Amp	Fuse	Amp
Single-Phase 240 V				
BA0001	A6T6	6	FWH-25A14F	25
BA0002	A6T10	10	FWH-25A14F	25
BA0003	A6T20	20	FWH-60B	60
BA0006	A6T40	40	FWH-80B	80
BA0010	A6T40	40	FWH-100B	100
BA0012	A6T50	50	FWH-125B	125
BA0018	A6T80	80	FWH-175B	175
Three-Phase 240 V				
2A0001	A6T3	3	FWH-25A14F	25
2A0002	A6T6	6	FWH-25A14F	25
2A0004	A6T15	15	FWH-25A14F	25
2A0006	A6T20	20	FWH-25A14F	25
2A0010	A6T25	25	FWH-70B	70
2A0012	A6T25	25	FWH-70B	70
2A0020	A6T40	40	FWH-90B	90
2A0030	–	–	FWH-100B	100
2A0040	–	–	FWH-200B	200
2A0056	–	–	FWH-200B	200
2A0069	–	–	FWH-200B	200
Three-Phase 480 V				
4A0001	A6T3	3	FWH-40B	40
4A0002	A6T6	6	FWH-40B	40
4A0004	A6T15	15	FWH-50B	50
4A0005	A6T20	20	FWH-70B	70
4A0007	A6T25	25	FWH-70B	70
4A0009	A6T25	25	FWH-90B	90
4A0011	A6T30	30	FWH-90B	90
4A0018	–	–	FWH-80B	80
4A0023	–	–	FWH-100B	100
4A0031	–	–	FWH-125B	125
4A0038	–	–	FWH-200B	200

◆ Q2V Branch Circuit Protection

Use branch circuit protection to protect against short circuits and to maintain compliance with CE, IEC and UL61800-5-1.Use the fuses specified in this document or in the drive product instructions to prepare the drive for use on a circuit that supplies not more than 31,000 Amps RMS and not more than 240 Vac (200V models) or 480Vac (400V models) in shortcircuit condition.

Table 8 Q2V Branch Circuit Protection

Q2V model	Motor output ND kW (HP)	Motor output HD kW (HP)	Rated input current ND/HD	Rated output current ND/HD	UL Time delay J, CC, T (A)	IEC Time delay aM, gG & MCCB curve D (A)	UL61800-5-1 compliant fuse rating (A)	UL61800-5-1 BUSSMANN fuse model (in UL tests)	UL61800-5-1 MERSEN fuse model
2001	0.18 (1/6)	0.1 (1/6)	1.1 / 0.7	1.2 / 0.8	3	2	25	FWH-25A14F	A50QS-25-1
2002	0.37 (1/4)	0.25 (1/4)	1.9 / 1.5	1.9 / 1.6	6	4	25	FWH-25A14F	A50QS-25-1
2004	0.75 (3/4)	0.55 (1/2)	3.9 / 2.9	3.5 / 3.0	6	8	25	FWH-25A14F	A50QS-25-1
2006	1.1 (1.5)	1.1 (1.5)	7.3 / 5.8	6.0 / 5.0	10	12	25	FWH-25A14F	A50QS-25-1
2008	1.5 (2)	1.1 (1.5)	8.8 / 7.0	8.0 / 6.9	15	16	70	FWH-70B	A50QS-70-4
2010	2.2 (3)	1.5 (2)	10.8 / 7.5	9.6 / 8.0	20	20	70	FWH-70B	A50QS-70-4
2012	3.0 (4)	2.2 (3)	13.9 / 11	12.2 / 11	25	25	70	FWH-70B	A50QS-70-4
2018	3.7 (5)	3.0 (4)	18.5 / 15.6	17.5 / 14	30	32	90	FWH-90B	A50QS-90-4
2021	5.5 (5)	4.0 (5)	24 / 18.9	21 / 17.6	40	40	90	FWH-90B	A50QS-90-4
2030	7.5 (10)	5.5 (7.5)	37 / 24	30 / 25	-	63	100	FWH-100B	A50QS-100-4
2042	11 (15)	7.5 (10)	52 / 37	42 / 33	-	80	150	FWH-150B	A50QS-150-4
2056	15 (20)	11 (15)	68 / 52	56 / 47	-	100	200	FWH-200B	A50QS-200-4
2070	18.5 (25)	15 (20)	80 / 68	70 / 60	-	125	200	FWH-200B	A50QS-200-4
2082	22 (30)	18.5 (25)	114 / 96	82 / 75	-	160	225	FWH-225A	A50QS-225-4
B001	0.18 (1/6)	0.1 (1/6)	2.0 / 1.4	1.2 / 0.8	3	2	25	FWH-25A14F	A50QS-25-1
B002	0.37 (1/4)	0.25 (1/4)	5.0 / 2.8	1.9 / 1.6	6	4	25	FWH-25A14F	A50QS-25-1
B004	0.75 (3/4)	0.55 (1/2)	7.3 / 5.5	3.5 / 3.0	10	8	60	FWH-60B	A50P-60-4
B006	1.1 (1.5)	1.1 (1)	13.8 / 11	6.0 / 5.0	15	12	80	FWH-80B	A50QS-80-4
B010	2.2 (3)	1.5 (2)	20.2 / 14.1	9.6 / 8.0	25	20	100	FWH-100B	A50QS-100-4
B012	3.0 (3)	2.2 (3)	24 / 20.6	12.2 / 11	30	25	125	FWH-125B	A50QS-125-4
B018	-	4.0 (5)	HD only - 35	HD only - 17.6	-	40	150	FWH-150B	A50QS-150-4
4001	0.37 (1/2)	0.37 (1/2)	1.2	1.2	3	2	40	FWH-40B	A50P-40-4
4002	0.75 (1)	0.55 (3/4)	2.1 / 1.8	2.1 / 1.8	6	4	40	FWH-40B	A50P-40-4
4004	1.5 (2)	1.1 (2)	4.3 / 3.2	4.1 / 3.4	10	8	50	FWH-50B	A50P-50-4
4005	2.2 (3)	1.5 (3)	5.9 / 4.4	5.4 / 4.8	10	12	70	FWH-70B	A50QS-70-4
4007	3.0 (4)	2.2 (3)	8.1 / 6.0	7.1 / 5.6	15	16	70	FWH-70B	A50QS-70-4
4009	4.0 (5)	3.0 (4)	9.4 / 8.2	8.9 / 7.3	20	20	90	FWH-90B	A50QS-90-4
4012	5.5 (7.5)	4.0 (5)	14 / 10.4	11.9 / 9.2	25	25	90	FWH-90B	A50QS-90-4
4018	7.5 (10)	5.5 (10)	20 / 15	17.5 / 14.8	-	32	80	FWH-80B	A50QS-80-4
4023	11.0 (15)	7.5 (10)	24 / 20	23.4 / 18	-	40	100	FWH-100B	A50QS-100-4
4031	15.0 (20)	11.0 (15)	38 / 29	31 / 24	-	50	125	FWH-125B	A50QS-125-4
4038	18.5 (25)	15.0 (20)	44 / 39	38 / 31	-	63	175	FWH-175B	A50QS-175-4
4044	22.0 (30)	18.5 (25)	59.7 / 50.5	44 / 39	-	80	200	FWH-200B	A50QS-200-4
4060	30.0 (40)	22.0 (30)	80.7 / 59.7	60 / 45	-	100	200	FWH-200B	A50QS-200-4

5 Main Circuit and Motor Wiring

Use this section to convert the V1000 main circuit wiring for installation to the Q2V.

Key wiring differences between the V1000 and Q2V are:

- V1000 uses crimp terminals and Q2V accepts bare wire (except for ground terminal).
- Terminal sizes, shapes or physical location may differ slightly between V1000 and Q2V.

Information in this section:

◆ Main Circuit Connection Diagram

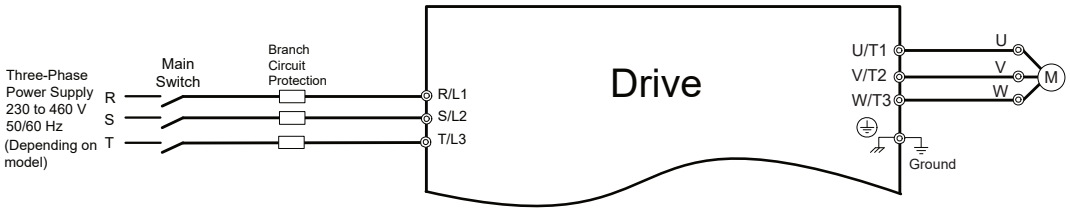


Figure 1 Main Circuit Connection Diagram (Typical)

◆ Main Circuit Wiring Procedure

Follow the Q2V Installation and operation instructions TOEPYEUOQ2V03A for all wiring procedures.

NOTICE:

- *A screwdriver or hexagonal tool must be used when wiring the terminal.*
- *When stranded wire is used, wire it so that no loose wire strands protrude out of the connection. Do not excessively twist stranded wire.*
- *Do not solder wire ends.*
- *Do not use bent or crushed wire. Cut off any rough ends of the wire before installation.*

1. Label the V1000 terminal wires before removing.
2. Remove crimp terminals if needed, and prepare wire ends.
3. Expose the required length of bare wire by stripping the insulation to the strip length in ***Table 9***.
4. Wire the terminals. The wire will correctly fit the terminal block when the insulation is stripped to expose the correct wire length.
5. Tighten screws according to the tightening torque listed in the TOEPYEUOQ2V03A - Q2V Installation and operation instructions.
6. Dress and arrange wires so that excessive wire tension is not applied to the terminal block.
7. After connecting the wires, gently pull on the wires to check that they do not pull out.
8. Regularly tighten any loose terminal block screws to their specified tightening torque.

◆ Wire Termination Differences V1000 to Q2V

If crimp terminal ends are present on the V1000, they must be removed and the wire stripped to bare wire for installation to the Q2V. Refer to the TOEPYEUOQ2V03A - Q2V Installation and operation instructions., for more information on wire termination.

■ Main Circuit and Motor Terminal Layout Comparison

Terminal location and appearance differs slightly between V1000 and Q2V. Use this section to understand differences to prepare for wiring the Q2V.

•Refer to ***Figure 2*** for V1000 Main Circuit and Motor Circuit Terminal Layout by Model
•Refer to ***Figure 3*** for Q2V Main Circuit and Motor Circuit Terminal Layout by Model

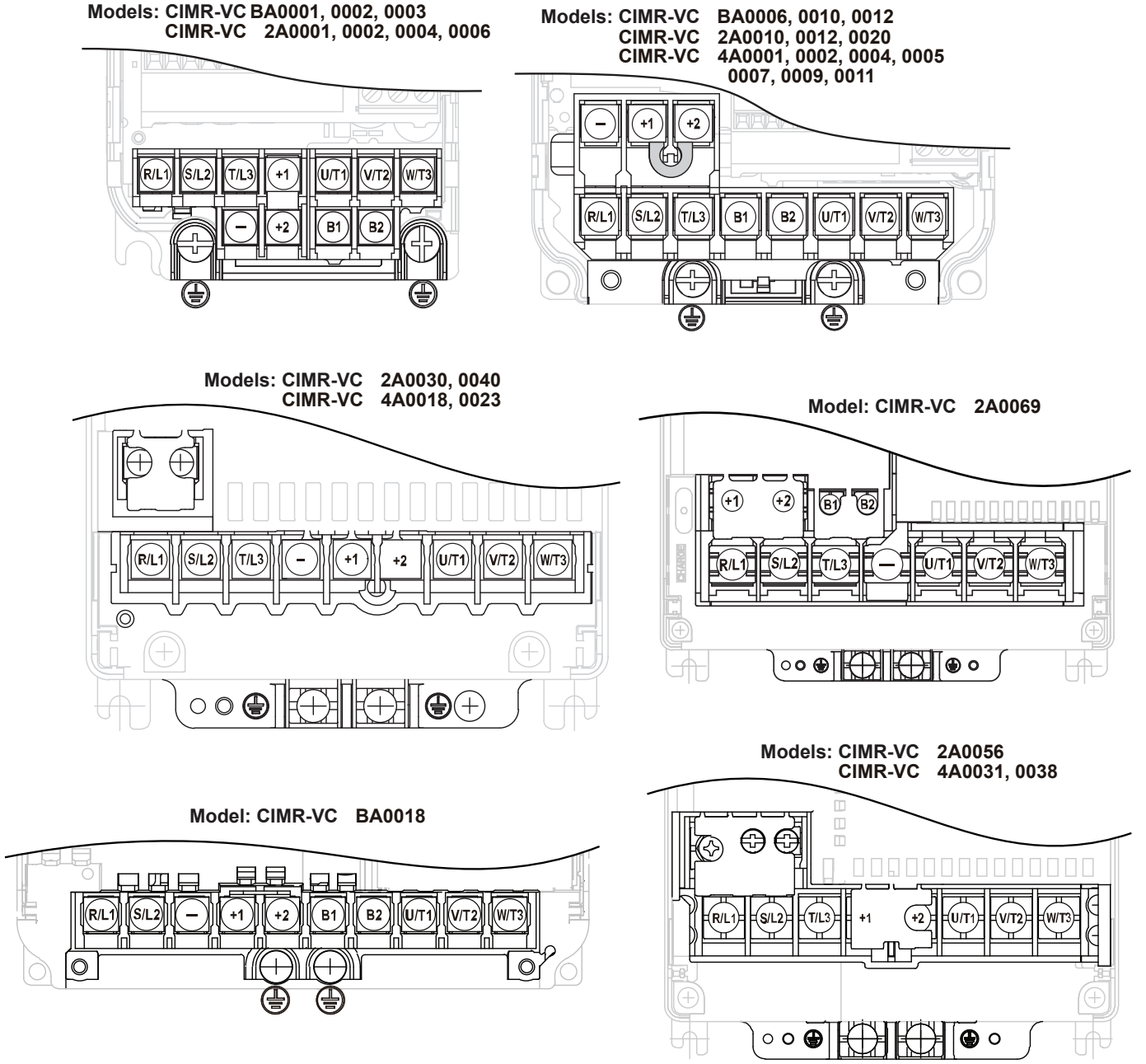
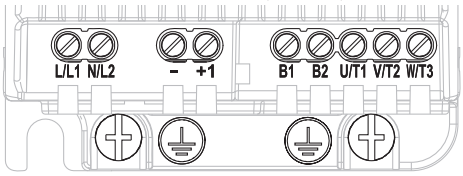
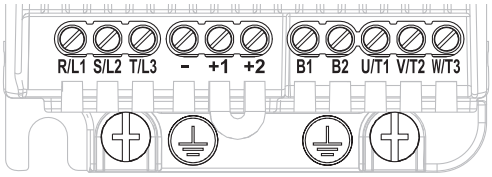


Figure 2 V1000 Main Circuit and Motor Circuit Terminal Layout by Model

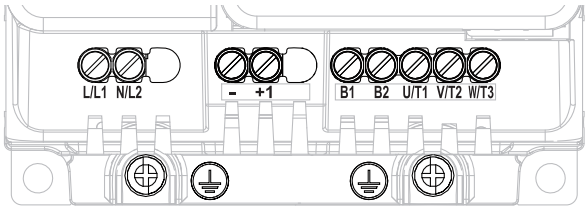
Models: Q2V-AB001 , B002, B004



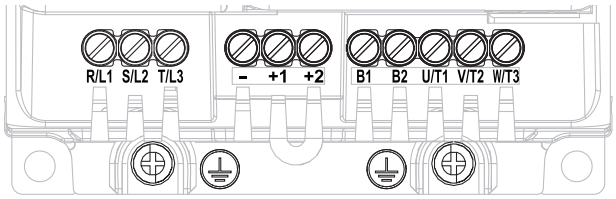
Models: Q2V-A2001 , 2002, 2004, 2006



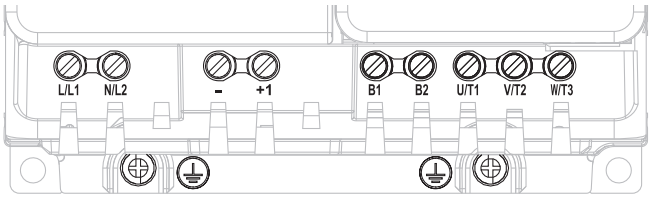
Models: Q2V-AB006 , B010



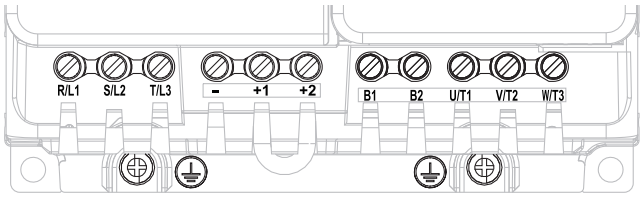
Models: Q2V-A2012 , 4001, 4002, 4004, 4005, 4007, 4009



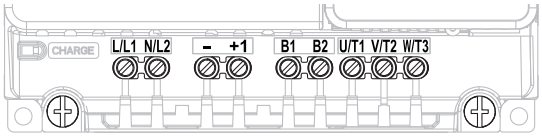
Model: Q2V-AB012



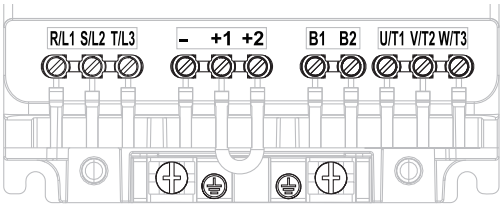
Model: Q2V-A4012



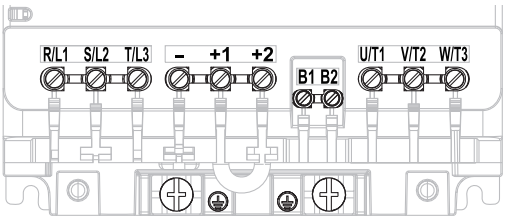
Model: Q2V-AB018



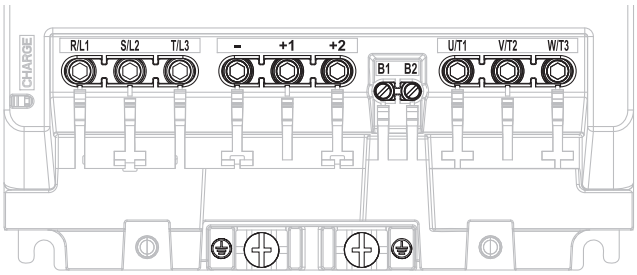
Models: Q2V-A2030 , 2042, 4018, 4023



Models: Q2V-A2056 , 4031, 4038



Models: Q2V-A2070 , 2082



Models: Q2V-A4044 , 4060

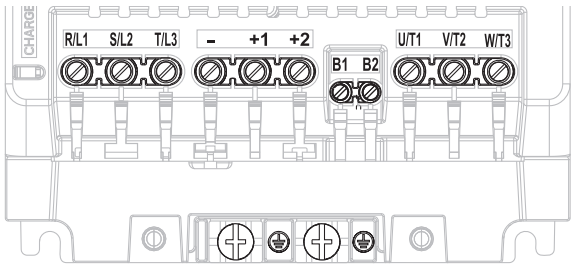


Figure 3 Q2V Main Circuit and Motor Circuit Terminal Layout by Model

■ Main Circuit and Motor Wire Gauge

Table 9 lists wire gauge for the drive main circuit terminals. Verify the existing V1000 wire size is within the Wire Range and Recommended Gauge for the Q2V.

■ Q2V Main Circuit Wiring Precautions

Wire the main circuit terminal block correctly as specified by the Q2V Installation and operation instructions (TOEPYEUOQ2V03A).Comply with local standards for correct wire gauge in the region where you will use the drive.

Q2V Wire Selection and Termination

Use vinyl-coated insulated copper wire rated 600 V minimum. Wire gauge must be calculated using 75 °C ratings, higher temperature rated wire may be utilized without a wire gauge reduction.

The recommended wire gauge are based on drive continuous current ratings with 75 °C (167 °F) 600 V class 2 heat-resistant indoor PVC wire. Assume these conditions:

- Ambient temperature: 40 °C (104 °F) maximum
- Wiring distance: 100 m (3281 ft) maximum
- Normal Duty rated current value

Q2V Peripheral Device Wiring

Refer to the instruction manual for each device for recommended wire gauge to connect peripheral devices or options to terminals +1, +2, -, B1, and B2. Contact Omronj or your nearest sales representative if the recommended wire gauge for the peripheral devices or options are out of the range of the applicable gauge for the drive.

Q2V Grounding

WARNING! *Electrical Shock Hazard*

Make sure that the protective ground wire complies with technical standards and local safety regulations. The EN 61800-5-1:2007 standard specifies that you must wire the power supply to automatically de-energize when the protective ground wire disconnects. If you turn on the internal EMC filter, the leakage current of the drive will be more than 3.5 mA. Use these closed-loop crimp terminals or equivalent to connect a protective ground wire that has a minimum cross-sectional area of 10 mm^2 (copper wire).

- 8-4NS from JST Mfg. Co., Ltd.
- R8-4S from NICHIFU Co., Ltd.
- P10-8R from PANDUIT Corp.

Table 9 Main Circuit and Motor Wire Gauge by Drive Model

V1000				Q2V				
Drive Model CIMR-VC_	Terminal	Recommended Gauge (mm)	Wire Range AWG	Catalog Code Q2V-A_	Terminal	Recommended Gauge (mm)	Wire Range AWG	Wire Stripping Length mm
Single-Phase 240 V Models								
BA0001 BA0002 BA0003	R/L1, S/L2, T/L3	2.5	18 to 14	B001 B002 B004	L/L1, N/L2	2.5	14	6.5
	U/T1,V/T2,W/T3	2.5	18 to14		U/T1,V/T2,W/T3 2.5		14	6.5
	-, +1, +2	-	18 to 14		-, +1	2.5	14	6.5
	B1, B2	-	18 to 14		B1, B2	2.5	14	6.5
	Ground	2.5	18 to 14		Ground	2.5	14	-
BA0006	R/L1, S/L2, T/L3	2.5	14 to 10	B006	L/L1, N/L2	2.5	14 to 10	8
	U/T1, V/T2, W/T3	2.5	14 to 10		U/T1, V/T2, W/T3	2.5	14 to 12	8
	-, +1, +2	–	14 to 10		-, +1	2.5	14 to 10	8
	B1,B2	–	14 to 10		B1,B2	2.5	14 to 10	8
	Ground	2.5	14 to 10		Ground	2.5	14 to 10	-

V1000				Q2V				
Drive Model CIMR-VC_	Terminal	Recommended Gauge (mm)	Wire Range AWG	Catalog Code Q2V-A_	Terminal	Recommended Gauge (mm)	Wire Range AWG	Wire Stripping Length mm
BA0010	R/L1, S/L2, T/L3	2.5	14 to 10	B010	L/L1, N/L2	2.5	12 to 10	8
	U/T1, V/T2, W/T3	2.5	14 to 10		U/T1, V/T2, W/T3	2.5	14 to 12	8
	-, +1, +2	–	14 to 10		-, +1	2.5	12 to 10	8
	B1, B2	–	14 to 10		B1, B2	2.5	14 to 12	8
	Ground	2.5	14 to 10		Ground	2.5	14 to 10	-
BA0012	R/L1, S/L2, T/L3	4	14 to 10	B012	L/L1, N/L2	4	14 to 8	10
	U/T1, V/T2, W/T3	2.5	14 to 10		U/T1, V/T2, W/T3	2.5	14 to 10	10
	-, +1, +2	–	14 to 10		-, +1	4	14 to 8	10
	B1, B2	–	14 to 10		B1, B2	2.5	14 to 12	10
	Ground	4	14 to 10		Ground	4	14 to 10	-
BA0018	R/L1, S/L2, T/L3	6	12 to 8	B018	L/L1, N/L2	6	12 to 6	10
	U/T1, V/T2, W/T3	2.5	12 to 8		U/T1, V/T2, W/T3	2.5	14 to 8	10
	-, +1, +2	–	12 to 8		-, +1	6	12 to 6	10
	B1, B2	–	12 to 8		B1, B2	2.5	14 to 12	10
	Ground	6	12 to 8		Ground	6	12 to 8	-
Three-Phase 240 V Models								
2A0001 2A0002 2A0004 2A0006	R/L1, S/L2, T/L3	2.5	18 to 14	2001 2002 2004 2006	R/L1, S/L2, T/L3	2.5	14	6.5
	U/T1, V/T2, W/T3	2.5	18 to 14		U/T1, V/T2, W/T3	2.5	14	6.5
	-, +1, +2	–	18 to 14		-, +1, +2	2.5	14	6.5
	B1, B2	–	18 to 14		B1, B2	2.5	14	6.5
	Ground	2.5	18 to 14		Ground	2.5	14	-
2A0010	R/L1, S/L2, T/L3	2.5	14 to 10	2010	R/L1, S/L2, T/L3	2.5	14 to 12	8
	U/T1, V/T2, W/T3	2.5	14 to 10		U/T1, V/T2, W/T3	2.5	14 to 12	8
	-, +1, +2	–	14 to 10		-, +1, +2	2.5	14 to 10	8
	B1, B2	–	14 to 10		B1, B2	2.5	14 to 12	8
	Ground	2.5	14 to 10		Ground	4	14 to 10	-
2A0012	R/L1, S/L2, T/L3	2.5	14 to 10	2012	R/L1, S/L2, T/L3	2.5	14 to 10	8
	U/T1, V/T2, W/T3	2.5	14 to 10		U/T1, V/T2, W/T3	2.5	14 to 10	8
	-, +1, +2	–	14 to 10		-, +1, +2	2.5	12 to 10	8
	B1, B2	–	14 to 10		B1, B2	2.5	14 to 12	8
	Ground	2.5	14 to 10		Ground	4	14 to 10	-
2A0020	R/L1, S/L2, T/L3	4	14 to 10	2018 2021	R/L1, S/L2, T/L3	2.5	14 to 8	10
	U/T1, V/T2, W/T3	2.5	14 to 10		U/T1, V/T2, W/T3	2.5	14 to 8	10
	-, +1, +2	–	14 to 10		-, +1, +2	4	14 to 8	10
	B1, B2	–	14 to 10		B1, B2	2.5	14 to 10	10
	Ground	4	14 to 10		Ground	6	14 to 8	-
2A0030	R/L1, S/L2, T/L3	6	10 to 6	2030	R/L1, S/L2, T/L3	6	12 to 6	10
	U/T1, V/T2, W/T3	6	10 to 6		U/T1, V/T2, W/T3	6	12 to 6	10
	-, +1, +2	–	10 to 6		-, +1, +2	10	12 to 6	10
	B1, B2	–	14 to 10		B1, B2	2.5	12 to 8	10
	Ground	6	10 to 6		Ground	6	10 to 6	-
2A0040	R/L1, S/L2, T/L3	10	10 to 6	2042	R/L1, S/L2, T/L3	10	12 to 6	10
	U/T1, V/T2, W/T3	10	10 to 6		U/T1, V/T2, W/T3	10	12 to 6	10
	-, +1, +2	–	10 to 6		-, +1, +2	16	10 to 2	18
	B1, B2	–	14 to 10		B1, B2	4	14 to 6	10
	Ground	10	10 to 6		Ground	10	10 to 6	-

V1000				Q2V				
Drive Model CIMR-VC_	Terminal	Recommended Gauge (mm)	Wire Range AWG	Catalog Code Q2V-A_	Terminal	Recommended Gauge (mm)	Wire Range AWG	Wire Stripping Length mm
2A0056	R/L1, S/L2, T/L3	16	6 to 4	2056	R/L1, S/L2, T/L3	16	10 to 2	18
	U/T1, V/T2, W/T3	16	6 to 4		U/T1, V/T2, W/T3	16	10 to 2	18
	-, +1, +2	–	6 to 4		-, +1, +2	25	8 to 2	18
	B1, B2	–	10 to 6		B1, B2	10	12 to 6	10
	Ground	16	8 to 4		Ground	10	8 to 4	-
2A0069	R/L1, S/L2, T/L3	25	8 to 2	2070	R/L1, S/L2, T/L3	25	6 to 1	20
	U/T1, V/T2, W/T3	16	8 to 2		U/T1, V/T2, W/T3	16	8 to 1	20
	-, +1, +2	–	8 to 2		-, +1, +2	35	6 to 1/0	20
	B1, B2	–	8 to 6		B1, B2	10	12 to 6	10
	Ground	16	6 to 4		Ground	16	6 to 4	-
–				2082	R/L1, S/L2, T/L3	35	6 to 1/0	20
					U/T1, V/T2, W/T3	25	6 to 1	20
					-, +1, +2	50	2 to 2/0	20
					B1, B2	16	10 to 6	10
					Ground	16	6 to 4	-
Three-Phase 480 V Models								
4A0001 4A0002 4A0004	R/L1, S/L2, T/L3	2.5	14 to 10	4001 4002	R/L1, S/L2, T/L3	2.5	14 to 12	8
	U/T1, V/T2, W/T3	2.5	14 to 10		U/T1, V/T2, W/T3	2.5	14 to 12	8
	-, +1, +2	–	14 to 10		-, +1, +2	2.5	14 to 12	8
	B1, B2	–	14 to 10		B1, B2	2.5	14 to 12	8
	Ground	2.5	14 to 10		Ground	2.5	14 to 10	-
				4004	R/L1, S/L2, T/L3	2.5	14 to 12	8
					U/T1, V/T2, W/T3	2.5	14 to 12	8
					-, +1, +2	2.5	14 to 12	8
					B1, B2	2.5	14 to 12	8
					Ground	4	14 to 10	-
4A0005 4A0007 4A0009	R/L1, S/L2, T/L3	2.5	14 to 10	4005 4007 4009	R/L1, S/L2, T/L3	2.5	14 to 12	8
	U/T1, V/T2, W/T3	2.5	14 to 10		U/T1, V/T2, W/T3	2.5	14 to 12	8
	-, +1, +2	–	14 to 10		-, +1, +2	2.5	14 to 12	8
	B1, B2	–	14 to 10		B1, B2	2.5	14 to 12	8
	Ground	2.5	14 to 10		Ground	4	14 to 10	-
4A0011	R/L1, S/L2, T/L3	2.5	14 to 10	4012	R/L1, S/L2, T/L3	2.5	14 to 10	10
	U/T1, V/T2, W/T3	2.5	14 to 10		U/T1, V/T2, W/T3	2.5	14 to 12	10
	-, +1, +2	–	14 to 10		-, +1, +2	2.5	12 to 8	10
	B1, B2	–	14 to 10		B1, B2	2.5	14 to 12	10
	Ground	2.5	14 to 10		Ground	4	14 to 10	-
4A0018	R/L1, S/L2, T/L3	2.5	14 to 6	4018	R/L1, S/L2, T/L3	2.5	12 to 8	10
	U/T1, V/T2, W/T3	2.5	14 to 6		U/T1, V/T2, W/T3	2.5	12 to 8	10
	-, +1,+2	–	14 to 6		-, +1, +2	4	14 to 8	10
	B1, B2	–	14 to 10		B1, B2	2.5	14 to 12	10
	Ground	2.5	14 to 6		Ground	4	14 to 6	-
4A0023	R/L1, S/L2, T/L3	4	10 to 6	4023	R/L1, S/L2, T/L3	4	14 to 6	10
	U/T1, V/T2, W/T3	4	10 to 6		U/T1, V/T2, W/T3	4	14 to 8	10
	-, +1, +2	–	10 to 6		-, +1, +2	4	12 to 6	10
	B1, B2	–	14 to 10		B1, B2	2.5	14 to 10	10
	Ground	4	10 to 6		Ground	4	10 to 6	-

V1000				Q2V				
Drive Model CIMR-VC_	Terminal	Recommended Gauge (mm)	Wire Range AWG	Catalog Code Q2V-A_	Terminal	Recommended Gauge (mm)	Wire Range AWG	Wire Stripping Length mm
4A0031	R/L1, S/L2, T/L3	6	10 to 6	4031	R/L1, S/L2, T/L3	6	12 to 6	10
	U/T1, V/T2, W/T3	6	10 to 6		U/T1, V/T2, W/T3	6	12 to 6	10
	-, +1, +2	–	10 to 6		-, +1, +2	10	12 to 4	18
	B1, B2	–	14 to 10		B1, B2	2.5	12 to 8	10
	Ground	6	10 to 6		Ground	6	10 to 6	-
4A0038	R/L1, S/L2, T/L3	10	10 to 6	4038	R/L1, S/L2, T/L3	10	12 to 6	10
	U/T1, V/T2, W/T3	6	10 to 6		U/T1, V/T2, W/T3	6	12 to 6	10
	-, +1, +2	–	10 to 6		-, +1, +2	16	10 to 2	18
	B1, B2	–	10 to 8		B1, B2	4	14 to 6	10
	Ground	10	10 to 6		Ground	10	10 to 6	-
–				4044	R/L1, S/L2, T/L3	16	10 to 2	18
					U/T1, V/T2, W/T3	10	12 to 4	18
					-, +1, +2	16	8 to 2	18
					B1, B2	6	12 to 6	10
					Ground	10	10 to 6	-
–				4060	R/L1, S/L2, T/L3	25	8 to 2	18
					U/T1, V/T2, W/T3	16	10 to 2	18
					-, +1, +2	25	6 to 2	18
					B1, B2	10	12 to 6	10
					Ground	10	10 to 6	-

6 Control Circuit Wiring

Use this section to understand differences between the V1000 and Q2V control circuit wiring to transfer control circuit wiring to the Q2V. Refer to the Q2V installation & operation Manual or Technical Reference manual (SIEP YEUOQ2V 01A) for more details and precautions when wiring the Q2V control circuit terminals.

◆ Control Circuit Terminal Layout

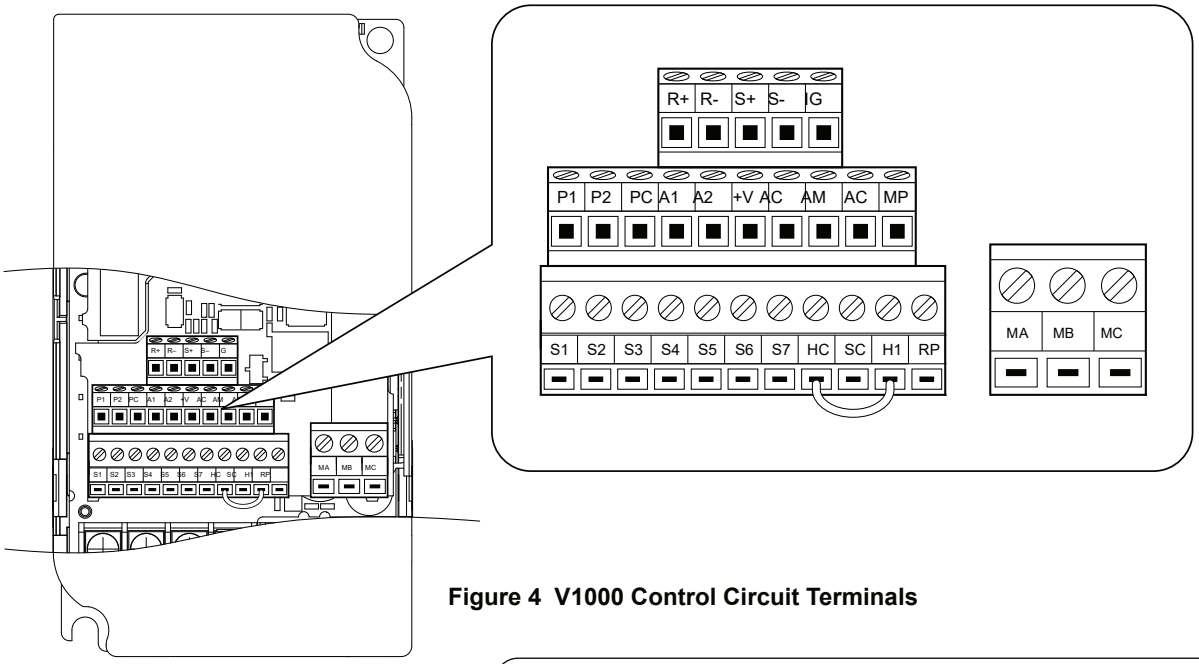


Figure 4 V1000 Control Circuit Terminals

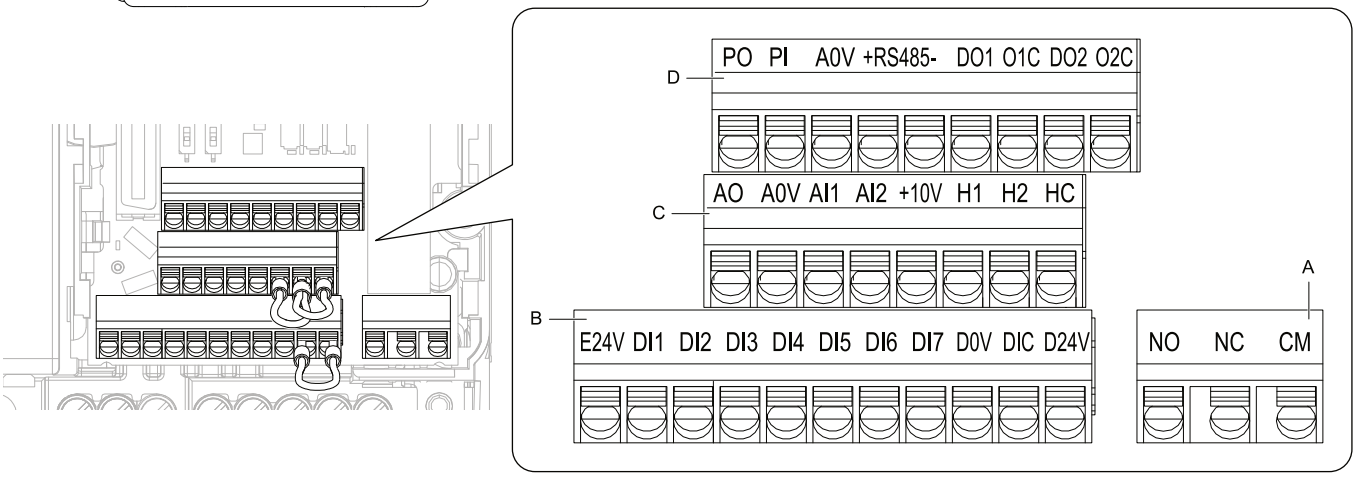


Figure 5 Q2V Control Circuit Terminals

◆ Control Circuit Connection Diagrams

Refer to the Q2V Installation & Primary Operation Manual (TOEPYEUOQ2V03A) or Technical Manual (SIEPCYEUOQ2V01B) for complete details on the Q2V control circuit wiring.

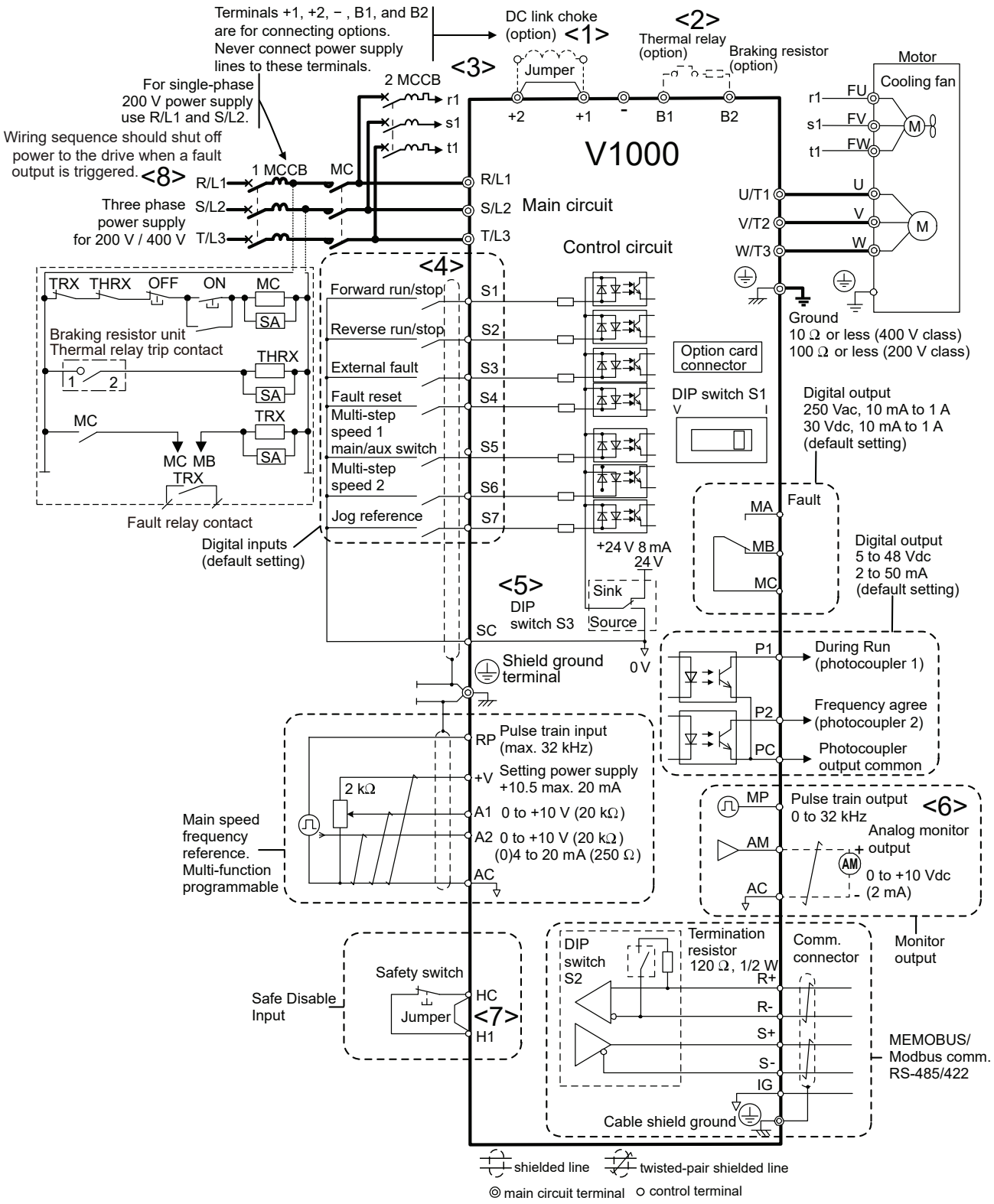


Figure 6 V1000 Connection Diagram

Standard connections

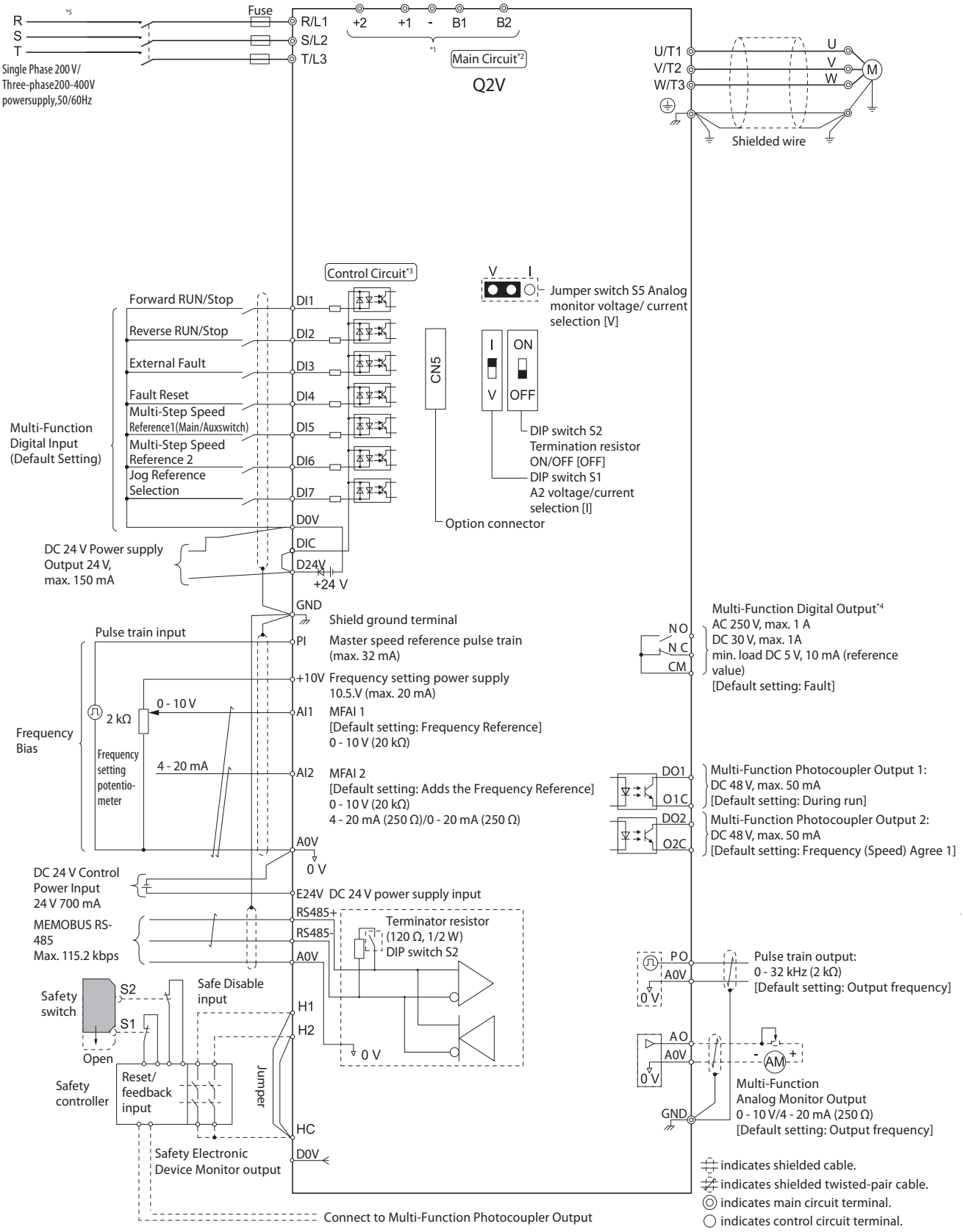


Figure 7 Q2V Connection Diagram

◆ Control Circuit I/O Cross Reference

Refer to the Q2V Installation & Primary Operation Manual or Technical Reference for more details and precautions when wiring the Q2V control circuit terminals.

Table 10 Control Circuit I/O Cross Reference

Control Circuit Terminals		Name	Signal Level	
V1000	Q2V		V1000	Q2V
S1	DI1	Multi-function digital input selection1 (ON: Forward run, OFF: Stop)	Photocoupler 24 Vdc, 8 mA	Photocoupler 24 Vdc, 6 mA
S2	DI2	Multi-function digital input selection2 (ON: Reverse run OFF: Stop)		
S3	DI3	Multi-function digital input selection3 (External fault (N.O.))		
S4	DI4	Multi-function digital input selection4 (Fault reset)		
S5	DI5	Multi-function digital input selection5 (Multi-step speed reference 1)		
S6	DI6	Multi-function digital input selection6 (Multi-step speed reference 2)		
S7	DI7	Multi-function digital input selection7 (Jog command)		
-	D0V	Multi-function digital input power supply 0 V	-	Multi-function digital input power supply, 24 V (Maximum 150 mA) Notice: Do not jumper or short terminals SP and SN. Failure to comply will damage the drive.
SC	DIC	Multi-function digital input selection common	Sequence Common	
-	D24V	Multi-function digital input power supply +24 Vdc	-	
H1	H1	Safe Disable input 1	Open: Output disabled Closed: Normal operation Note: Disconnect wire jumper between HC and H1 when using the safe disable input. The wire length should not exceed 30 m.	Remove the jumper between terminals H1-HC and H2-HC to use the Safe Disable input. • 24 V, 6 mA • ON: Normal operation • OFF: Coasting motor • Internal impedance 4.7 kΩ • OFF Minimum OFF time of 3 ms
-	H2	Safe Disable input 2	-	
HC	HC	Safe Disable function common	+24 Vdc (Maximum 10 mA)	Safe Disable function common NOTICE: Do not close the circuit between terminals HC and SN. A closed circuit between these terminals will cause damage to the drive.

Control Circuit Terminals		Name	Signal Level	
V1000	Q2V		V1000	Q2V
RP	PI	Master frequency reference pulse train input (Master frequency reference)	Responsefrequency: 0.5 to 32 kHz (Duty Cycle: 30 to 70%) (High level voltage: 3.5 to 13.2 Vdc) (Low level voltage: 0.0 to 0.8 Vdc) (Input impedance:3 kΩ)	Responsefrequency: 0.5 to 32 kHz (Duty Cycle: 30 to 70%) (High level voltage: 3.5 to 13.2 Vdc) (Low level voltage: 0.0 to 0.8 Vdc) (Input impedance:3 kΩ)
+V	+10V	Power supply for frequency setting	+10.5 Vdc (Allowable current 20 mA maximum)	+10.5 Vdc (Allowable current 20 mA maximum)
A1	AI1	Multi-function analoginput 1 Master frequency reference	Input voltage 0 to +10 Vdc (20 kΩ) resolution 1/1000	Voltage input Use H3-01 [Terminal A1 Signal Level Select] to select the signal level. • 0 V to 10 V/100% (input impedance:minimum 15 kΩ) • -10 V to +10 V/-100% to +100% (Input impedance:minimum 15 kΩ)
A2	AI2	Multi-function analoginput 2 (Combined to terminal A1)	Input voltage or input current (Selected by DIP switch S1 and H3-09) 0 to +10 Vdc (20 kΩ), Resolution: 1/1000 4 to 20 mA (250 Ω) or 0 to 20 mA (250 Ω) Resolution: 1/500	Voltage input or current input Use DIP switch S1 and H3-09 [Terminal A2 Signal Level Select] to select the input. 0 V to 10 V/100% (Input impedance:minimum 15 kΩ) -10 V to +10 V/-100% to +100% (Input impedance:Minimum 15 kΩ) 4 mA to 20 mA/100%, 0 mA to 20 mA/100% (Input impedance:250 Ω)
AC	A0V	Frequency reference common	0 V	0 V
E (G)	GND	Connecting shielded cable	-	-
MA	NO	N.O. output (Fault)	Relay output 30 Vdc, 10 mA to 1 A 250 Vac, 10 mA to 1 A Minimum load: 5 Vdc, 10 mA (Reference value)	Relay output 30 Vdc, 10 mA to 1 A 250 Vac, 10 mA to 1 A Minimum load: 5 Vdc, 10 mA (Reference value)
MB	NC	N.C. output (Fault)		
MC	CM	Digital output common		
P1	DO1	Multi-function photocoupler output 1	Photocoupler output 48 Vdc, 2 to 50 mA	Photocoupler output 48 V, 2 to 50 mA
-	O1C	(During RUN)		
P2	DO2	Multi-function photocoupler output 2		
-	O2C	(Speed agree 1)		
PC	-	Photocoupler common		
MP	PO	Pulse train output (Output frequency)	32 kHz (Maximum)	32 kHz (Maximum)

Control Circuit Terminals		Name	Signal Level	
V1000	Q2V		V1000	Q2V
AM	AO	Analog monitor output (Output frequency)	0 to 10 Vdc (2 mA or less) Resolution: 1/1000	Select voltage or current output. 0 V to 10 V/0% to 100% 4 mA to 20 mA (Receiver recommended impedance: 250 Ω) Note: Use jumper S5 and H4-07 [Terminal AM Signal Level Select] to set the signal type.
AC	A0V	Monitor common	0 V	0 V
-	E24V	External 24 V power supply input	-	Supplies backup power to the drive control circuit, keypad, and option board. 21.6 Vdc to 26.4 Vdc, 700 mA
-	A0V	External 24 V power supply ground	-	0 V
Serial Communication Terminal		**Name**	**Signal Level**	
V1000	**Q2V**		**V1000**	**Q2V**
R+	RS485+	Communications input (+)	RS-485/422 MEMOBUS/ Modbus communication protocol 115.2 kbps (Maximum)	RS-485 MEMOBUS/ Modbus communication protocol 115.2 kbps (Maximum)
R-	RS485-	Communications input (-)		
S+	RS485+	Communications output (+)		
S-	RS485-	Communications output (-)		
IG	A0V	Shield ground	0 V	0 V

◆ **Table 11 Control Circuit Terminal Sizes and Wire Gauge**

Model	Capacity	Terminal Symbol	Screw	Tightening Torque N•m (lb-in)	Bare Wire		Crimp Ferrule	
					Recommended Gauge mm² (AWG)	Wire Range mm² (AWG)	Recommended Gauge mm² (AWG)	Wire Range mm² (AWG)
V1000	All capacities	S1-S7, SC, RP, +V, A1, A2, AC, HC, H1, P1, P2, PC, MP, AM, AC, S+, S-, R+, R-, IG	M2	0.22 to 0.25 (1.9 to 2.2)	0.75 (18)	Stranded wire: 0.25 to 1.0 (24 to 18) Solid wire: 0.25 to 1.5 (24 to 16)	0.25 to 0.5 (24 to 20)	0.5 (20)
		MA, MB, MC	M3	0.5 to 0.6 (4.4 to 5.3)	0.75 (18)	Stranded wire: 0.25 to 1.5 (24 to 16) Solid wire: 0.25 to 1.5 (24 to 16)	0.25 to 1.0 (24 to 17)	0.5 (20)
Q2V	All capacities	E24V, DI1-DI7, D0V, DIC, D24V, AO, A0V, AI1, AI2, +10V, H1, H2, HC, PO, PI, A0V, DO1, O1C, DO2, O2C, RS485+, RS485-	M2	0.22 - 0.25 (1.95 - 2.21)	0.75 (18)	Stranded wire: 0.25 - 1.0 (24 - 17) Solid wire: 0.25 - 1.5 (24 - 16)	0.5 (20)	0.25 - 0.5 (24 - 20)
		NC, NO, CM	M3	0.5 - 0.6 (4.4 - 5.3)	0.75 (18)	Stranded wire: 0.25 - 1.5 (24 -16) Solid wire: 0.25 - 1.5 (24 - 16)	0.5 (20)	0.25 - 1.0 (24 - 17)

◆ Control Circuit Switches and Jumpers

Use this section to make any needed changes to the Q2V control circuit switches or jumpers.

■ V1000 Switches and Jumpers

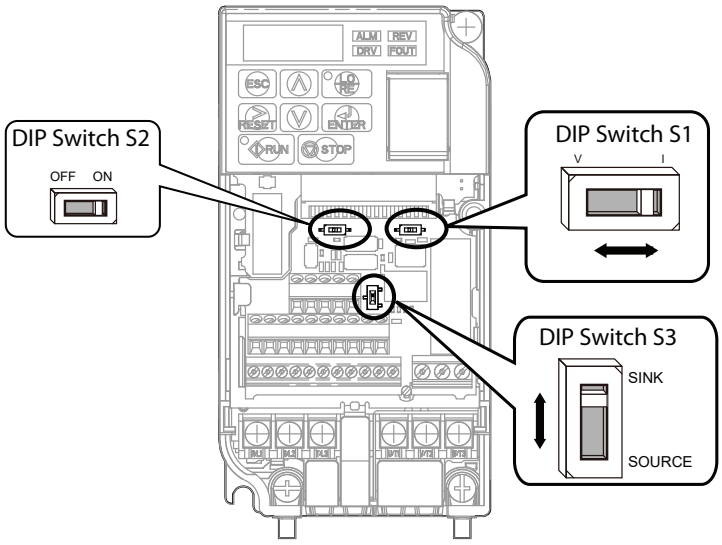


Figure 8 V1000 DIP Switches

Table 12 V1000 DIP Switch Settings

DIP Switch	Switch Function	Setting Value	DIP Switch Setting Description
S1	Analog input signal selection for voltage or current for terminal A2	V (left position)	Voltage input (0 to 10 V)
		I (right position)	Current input (4 to 20 mA or 0 to 20 mA): default setting
S2	MEMOBUS/Modbus termination resistor switch setting for the RS-485, RS-422 communication terminals R-, R+, S-S+	ON	Internal termination resistor ON
		OFF	Internal termination resistor OFF (no termination resistor): default setting
S3	Sinking/sourcing mode switch for digital input terminals S1~S7	SINK	Sinking Mode (0 V common): default setting
		SOURCE	Sourcing Mode (+24 V common)

■ Q2V Switches and Jumpers

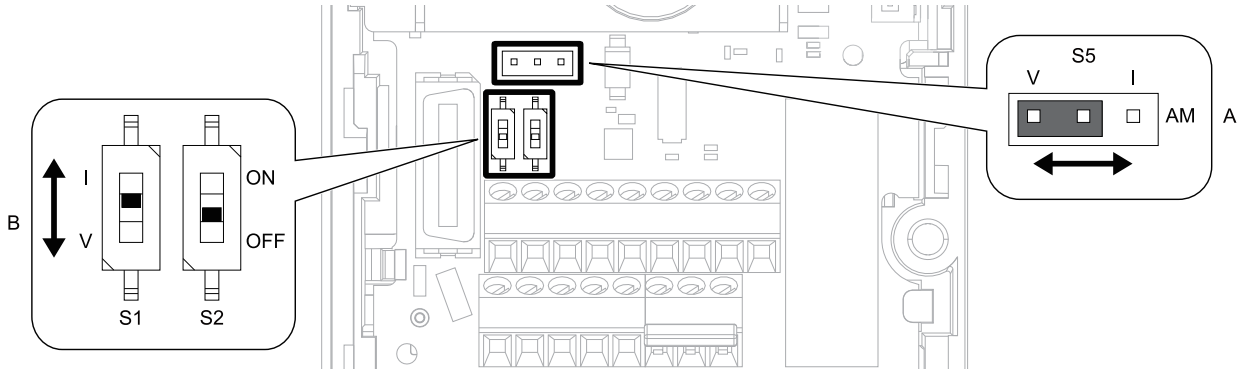


Figure 9 Q2V Switches and Jumpers

Table 13 Q2V Switch and Jumper Settings

Switch or Jumper	Q2V Terminal	Default Setting Value	DIP Switch Setting Description
DIP SW S1	AI2	I (current input)	Sets the input method for terminal A2 (voltage or current).
DIP SW S2	-	OFF	Enables and disables the MEMOBUS/Modbus communications termination resistor.
Jumper S5	AO	V (voltage output)	Sets the output method for terminal AM (voltage or current).

7 Differences in Parameter Settings

Q2Edit can not read old CX-Drive files for direct conversion. It is recommended to check old project “modified” parameter filters, by opening a separate session of CX-Drive with the old project and transfer by manually editing them in a Q2Edit project for the equivalent Q2V model.

Alternatively, we can use a physical V1000 with JVOP-180 LCD text operator. An easy way to view V1000 parameters that differ from factory settings is to use the V1000 **urFy** or **verify** menu. If no parameters differ from factory settings then the V1000 will display “**None**”. Transfer those to the Q2V using a JVOP-KPLCA04AEZ LCD text operator, in Q2V or alternatively the Q2App Mobile application.

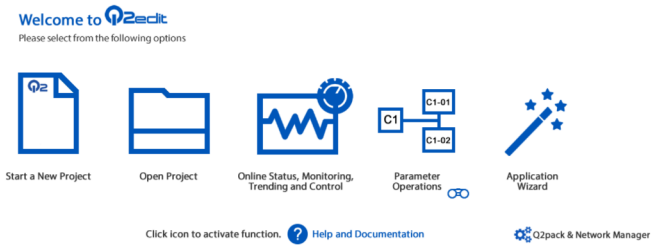
Please consider the textual description of the parameter options, as numeric values of parameters may differ from previous drive generation, due to parameter opcion sorting policy changes.

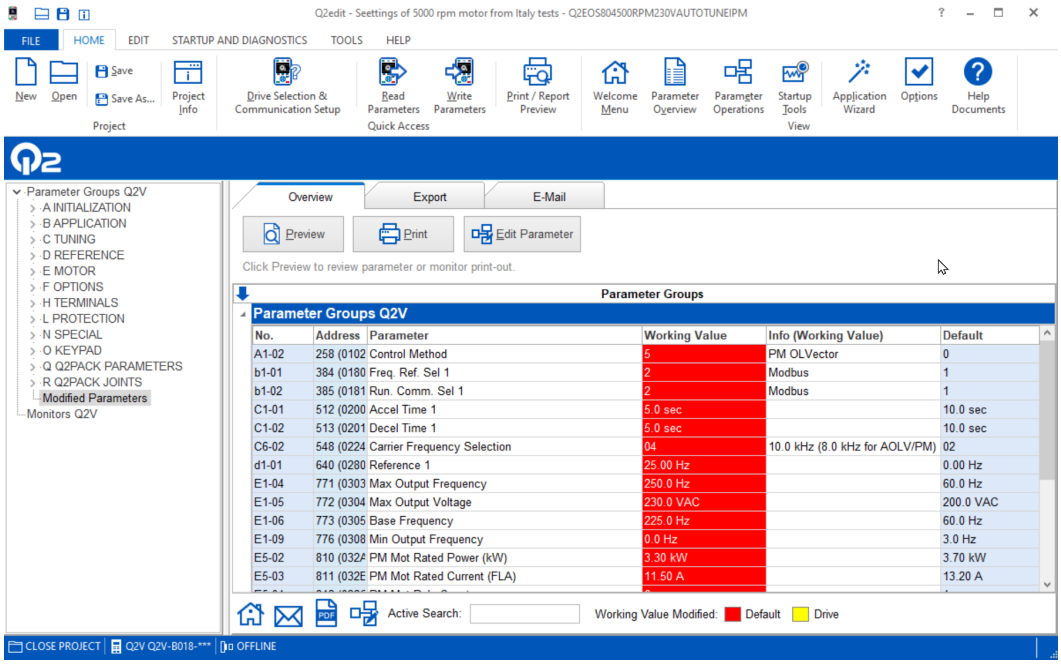
◆ Q2Edit PC Software

Q2Edit support tool is a Windows-based PC program designed to make commissioning and troubleshooting of Omron Q2 series drives as simple as possible. Q2Edit Industrial provides user-friendly tools for viewing, manipulating, and exchanging data with the drive. Data can be retrieved, changed, stored, and graphed.

Q2Edit PC tool is compatible with the Q2A and the Q2V series.

Free copy of Q2Edit PC software here:
https://assets.omron.eu/downloads/software/en/v6/q2edit_v2.0.0.1_software_en.zip





About Q2App for Android and iOS

Q2App for mobile devices allows editing drive parameters live with your mobile phone and save the parameters for later edition and import in Q2Edit PC tool.

Start-up, adjust, and monitor Omron Q2V AC drives with your smartphone or tablet. Use Q2App to backup, store, and retrieve your drive settings locally, share by e-mail or store in your favouirite cloud service.

Get Q2App Mobile here:

https://industrial.omron.eu/en/products/q2v#downloads

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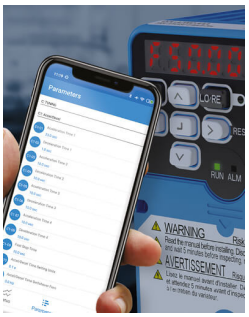


◆ Parameters settings differences between V1000 and Q2V.

Some of the setting ranges and default settings for certain parameters differ between V1000 and Q2V.
The changes are introduced to improve drive usabilty. They can generate some “configuration time” issue. But no parameter with a chance to be online controlled from a PLC or HMI has been changed.

Table 15 only lists **setting range or default setting differences** between similar V1000 and Q2V parameters. It is s not a complete comparison of all parameter differences between V1000 and Q2V.

- Q2V parameters that have no equal in V1000 (additional parameters in Q2V) are omitted.
- Q2V parameters with extended range (e.g. Frequency limit 400Hz in V1000, and 590Hz in Q2V, are also omitted.
- Parameters related with DriveworksEZ / Q2Dev programmability are also omitted.

Table 15 Parameters with Setting Range, defaults or behaviour Differences

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
A1	A1 Initialization					A1	A1 SETTINGS			
A1-00	Language Selection	(0): English 1: Japanese 2: German 3: French 4: Italian 5: Spanish 6: Portuguese 7: Chinese	0	English		A1-00	Language Selection	(0) : English 1 : Japanese 2 : German 3 : French 4 : Italian 5 : Spanish 6 : Portuguese 7 : Chinese 8 : Czech 9 : Russian 10 : Turkish 11 : Polish 12 : Greek	0	English
A1-01	Access level	0: Operation only 1: User (2): Advanced 606: Factory Level	2	Advanced Level Access		A1-01	Access Level... [M]	0 : Monitor only 1 : Manual Parameters (2) : Standard Parameters 3 : Expert Parameters 957 : Factory Parameters	2	Standard Parameters
A1-02	Control method	(0): V/f Control without PG 2: Open Loop Vector 5: PM Open Loop Vector	0	V/f control		A1-02	Control Method	(0) : V/f Control 2 : OLVector 5 : PM OLVector 6 : PM AOLVector 8 : EZ Vector	0	V/f Control
A1-06	Select application	(0) : General-purpose 1 : Water Supply Pump 2 2 : Conveyor 3 : Exhaust Fan 4 : HVAC Fan 5 : Air Compressor 6 : Crane (Hoist) 7 - 15 : reserved	0	General		A1-06	Select application	(0) : General-purpose	0	General Purpose

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
A2	A2 User Parameters					A2	A2 MANUAL SELECTION			
A2-01	User parameter 1	(A1-00 - O4-99)	A1-02	Control method		A2-01	MAN1 Param1	(A1-00 - U8-99)	d1-01	Reference 1
A2-02	User parameter 2	(A1-00 - O4-99)	b1-01	Reference selection		A2-02	MAN1 Param2	(A1-00 - U8-99)	C1-01	Accel Time 1
A2-03	User parameter 3	(A1-00 - O4-99)	b1-02	Operation method selection		A2-03	MAN1 Param3	(A1-00 - U8-99)	C1-02	Decel Time 1
A2-04	User parameter 4	(A1-00 - O4-99)	b1-03	Stopping method		A2-04	MAN1 Param4	(A1-00 - U8-99)	U1-01	Frequency Reference
A2-05	User parameter 5	(A1-00 - O4-99)	C1-01	Acceleration time 1		A2-05	MAN1 Param5	(A1-00 - U8-99)	U1-02	Output Frequency
A2-06	User parameter 6	(A1-00 - O4-99)	C1-02	Deceleration time 1		A2-06	MAN1 Param6	(A1-00 - U8-99)	U1-03	Output Current
A2-07	User parameter 7	(A1-00 - O4-99)	C6-01	Duty Cycle		A2-07	MAN1 Param7	(A1-00 - U8-99)	d1-17	Jog Reference
A2-08	User parameter 8	(A1-00 - O4-99)	C6-02	Carrier frequency selection		A2-08	MAN1 Param8	(A1-00 - U8-99)	b1-01	Freq. Ref. Sel 1
A2-09	User parameter 9	(A1-00 - O4-99)	d1-01	Frequency reference 1		A2-09	MAN1 Param9	(A1-00 - U8-99)	b1-02	Run. Comm. Sel 1
A2-10	User parameter 10	(A1-00 - O4-99)	d1-02	Frequency reference 2		A2-10	MAN1 Param10	(A1-00 - U8-99)	b1-03	Stopping Method Selection
A2-11	User parameter 11	(A1-00 - O4-99)	d1-03	Frequency reference 3		A2-11	MAN2 Param1	(A1-00 - U8-99)	E2-11	Motor Rated Power
A2-12	User parameter 12	(A1-00 - O4-99)	d1-04	Frequency reference 4		A2-12	MAN2 Param2	(A1-00 - U8-99)	E2-01	Mot Rated Current (FLA)
A2-13	User parameter 13	(A1-00 - O4-99)	d1-17	Jog frequency reference		A2-13	MAN2 Param3	(A1-00 - U8-99)	E2-04	Motor Pole Count
A2-14	User parameter 14	(A1-00 - O4-99)	E1-01	Input voltage setting		A2-14	MAN2 Param4	(A1-00 - U8-99)	E1-04	Max Output Frequency
A2-15	User parameter 15	(A1-00 - O4-99)	E1-03	V/F pattern selection		A2-15	MAN2 Param5	(A1-00 - U8-99)	-----	
A2-16	User parameter 16	(A1-00 - O4-99)	E1-04	Max. output frequency		A2-16	MAN2 Param6	(A1-00 - U8-99)	-----	
A2-17	User parameter 17	(A1-00 - O4-99)	E1-05	Max. voltage		A2-17	MAN2 Param7	(A1-00 - U8-99)	-----	
A2-18	User parameter 18	(A1-00 - O4-99)	E1-06	Base frequency		A2-18	MAN2 Param8	(A1-00 - U8-99)	-----	
A2-19	User parameter 19	(A1-00 - O4-99)	E1-09	Min. output frequency		A2-19	MAN2 Param9	(A1-00 - U8-99)	U1-16	SFS Output Frequency
A2-20	User parameter 20	(A1-00 - O4-99)	E1-13	Base voltage		A2-20	MAN2 Param10	(A1-00 - U8-99)	U1-05	Motor Speed
A2-21	User parameter 21	(A1-00 - O4-99)	E2-01	Motor rated current		A2-21	MAN3 Param1	(A1-00 - U8-99)	b5-02	Proportional Gain (P)
A2-22	User parameter 22	(A1-00 - O4-99)	E2-04	Number of motor poles		A2-22	MAN3 Param2	(A1-00 - U8-99)	b5-03	Integral Time (I)
A2-23	User parameter 23	(A1-00 - O4-99)	E2-11	Motor rated output		A2-23	MAN3 Param3	(A1-00 - U8-99)	b5-05	Derivative Time (D)
A2-24	User parameter 24	(A1-00 - O4-99)	H4-02	Analog 1 Terminal Output Gain		A2-24	MAN3 Param4	(A1-00 - U8-99)	U5-04	PID Setpoint
A2-25	User parameter 25	(A1-00 - O4-99)	L1-01	Motor protection selection		A2-25	MAN3 Param5	(A1-00 - U8-99)	U5-01	PID Feedback
A2-26	User parameter 26	(A1-00 - O4-99)	L3-04	StallP deceleration selection		A2-26	MAN3 Param6	(A1-00 - U8-99)	b5-01	PID Enable
A2-27	User parameter 27	(A1-00 - O4-99)	-----			A2-27	MAN3 Param7	(A1-00 - U8-99)	b5-18	b5-19 PID SP Selection
A2-28	User parameter 28	(A1-00 - O4-99)	-----			A2-28	MAN3 Param8	(A1-00 - U8-99)	b5-06	PID Output Limit
A2-29	User parameter 29	(A1-00 - O4-99)	-----			A2-29	MAN3 Param9	(A1-00 - U8-99)	b5-70	PID MainRefMode
A2-30	User parameter 30	(A1-00 - O4-99)	-----			A2-30	MAN3 Param10	(A1-00 - U8-99)	b5-10	PID Output Gain Setting
A2-31	User parameter 31	(A1-00 - O4-99)	-----			A2-31	MAN3 Param11	(A1-00 - U8-99)	b5-11	PID Output Reverse Sel.
A2-32	User parameter 32	(A1-00 - O4-99)	-----			A2-32	MAN3 Param12	(A1-00 - U8-99)	b5-17	PID Accel/Decel Time

7 Differences in Parameter Settings

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
b1	**b1 Operation Mode Selection**					**b1**	**b1 OPERATION MODE SELECT**			
b1-07	Local/remote run selection	(0) : Cycle RUN 1 : Accept RUN	0	Cycle External Run - If the run command is closed when switching from LOCAL mode or alternative reference to REMOTE mode, the drive will not run.		b1-07	LO/RE Run Selection	(1) : Cycle RUN 2 : Accept RUN	1	Cycle RUN
b1-08	Run command at programming	(0) : Disabled 1 : Enabled 2 : Operation not possible	0	Cannot operate		b1-08	RUN@PRG Mode Selection	(1) : NoRUN@Program 2 : RUN@Program 3 : Program@Stop only	2	RUN@Program
b1-17	Operation permission with power ON/OFF	(0) : Reject RUN 1 : Accept RUN	0	Prohibition		b1-17	RUN@PowerUp Selection	(1) : Disregard RUN 2 : Accept RUN	1	Disregard RUN

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
b3	**b3 Speed Search**					**b3**	**b3 SPEED SEARCH**			
b3-24	Speed search method selection	(0) : Current Detection type 1 : Speed calculation	0	Current detection type		b3-24	SpSrch Method Selection	1 : Speed Estimation (2) : Current Det2	2	Current Det2

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
b5	**b5 PID Control**					**b5**	**b5 PID CONTROL**			
b5-01	PID control mode selection	0 : Disabled 1 : Enabled D=Fdbk 2 : Enabled D=Fdfwd 3 : Fref+PID D=Fdbk 4 : Fref+PID D=Fdfwd	0	Disabled		b5-01	PID Enable	(0) : Disabled 1 : Enabled	0	Disabled
						b5-70	PID MainRefMode	(0) : PID only 1 : Fref + PID	0	PID only
						b5-71	PID Fdbk 1/2 Selection	(0) : Feedback 1 1 : Feedback 2	0	Feedback 1
						b5-72	PID D-FF Mode	(0) : D=Fdback 1 : D=FdFwd	0	D=Fdback

Please note that certain voltage to frequency default settings have changed.
If your motor behaves differently compared to when V1000 was installed, please review this settings.

E1	E1 Motor 1 V/f Pattern Characteristics					E1	E1 V/F PARAMETER MOTOR 1			
E1-07	Mid output frequency	0.0-400.0	2.5 Hz			E1-07	Mid A Frequency	0.0-590.0	3.0 Hz	
E1-08	Mid output frequency voltage	(200 V Class: 0.0 to 255.0 V, 400 V Class: 0.0 to 510.0 V)	32.0 VAC			E1-08	Mid A Voltage	(200 V Class: 0.0 to 255.0 V, 400 V Class: 0.0 to 510.0 V)	28.8 VAC	
E1-09	Min. output frequency	0.0-400.0	1.3 Hz			E1-09	Min Output Frequency	0.0-590.0	0.5 Hz	
E1-10	Min. output frequency voltage	(200 V Class: 0.0 -255.0 V, 400 V Class: 0.0 - 510.0 V)	24.0 VAC			E1-10	Min Output Voltage	(200 V Class: 0.0 -255.0 V, 400 V Class: 0.0 - 510.0 V)	6.0 VAC	

Multifunction digital input choices have been resorted with the principle of "most used first"

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
H1	**H1 Multi-Function Digital Inputs**					**H1**	**H1 DIGITAL INPUTS**			
H1-01	Terminal S1 function selection	(0-019F) 1000 mapping	40	Forward Run Command		H1-01	DI1 Function Selection	(0-019F) Q2 mapping	0001	Forward Run
H1-02	Terminal S2 function selection	(0-019F) 1000 mapping	41	Reverse Run Command		H1-02	DI2 Function Selection	(0-019F) Q2 mapping	0002	Reverse Run
H1-03	Terminal S3 function selection	(0-019F) 1000 mapping	24	External fault, N/O Detect always, coast stop		H1-03	DI3 Function Selection	(0-019F) Q2 mapping	0024	ExF NO-AlCoast
H1-04	Terminal S4 function selection	(0-019F) 1000 mapping	14	Fault reset		H1-04	DI4 Function Selection	(0-019F) Q2 mapping	007B	Fault Reset
H1-05	Terminal S5 function selection	(0-019F) 1000 mapping	03	Multi-step speed reference 1		H1-05	DI5 Function Selection	(0-019F) Q2 mapping	000A	MultSpd Ref1
H1-06	Terminal S6 function selection	(0-019F) 1000 mapping	04	Multi-step speed reference 2		H1-06	DI6 Function Selection	(0-019F) Q2 mapping	000B	MultSpd Ref2
H1-07	Terminal S7 function selection	(0-019F) 1000 mapping	06	Jog frequency reference		H1-07	DI7 Function Selection	(0-019F) Q2 mapping	0006	Jog Reference
H1-13	Selection external BB	(0) : Fout hold in BB 1 : Fout = 0 in BB	0	Fout is held during external BB		H1-13	Oper.Select@BB External	(1) : Fout Hold in BB 2 : Fout = 0 in BB	1	Fout Hold in BB

Multifunction digital input choice list comparison (H1-xx)

V1000		Q2V replace list		V1000		Q2V replace list	
MFDI	**Name**	**MFDI**	**Description**	**MFDI**	**Name**	**MFDI**	**Description**
0	3-Wire Sequence	**5**	3-Wire Seq.	**2D**	External Fault (NC-Always-Alarm)	**2D**	ExF NC-AlAlarm
1	LOCAL/REMOTE Selection	**11**	LOC/REM Sel.	**2E**	External Fault (NO-@Run-Alarm)	**2E**	ExF NO-RnAlarm
2	External Reference 1/2 Selection	**9**	Ext Ref 1/2	**2F**	External Fault (NC-@Run-Alarm)	**2F**	ExF NC-RnAlarm
3	Multi-Step Speed Reference 1	**0A**	MultSpd Ref1	**30**	PID integral reset	**71**	PID I Reset
4	Multi-Step Speed Reference 2	**0B**	MultSpd Ref2	**31**	PID integral hold	**72**	PID I Hold
5	Multi-Step Speed Reference 3	**0C**	MultSpd Ref3	**32**	Multi-Step Speed Reference 4	**0D**	MultSpd Ref4
6	Jog Reference Selection	**6**	Jog Reference	**34**	PID soft starter cancel	**75**	PID SS Cancel
7	Accel/decel Time Selection 1	**18**	Ac/Dec Time1	**35**	PID input level selection	**76**	PID InLv Select
8	Baseblock Command (N.O.)	**1B**	Baseblock NO	**40**	Forward Run Command (2-Wire Seq)	**1**	Forward Run
9	Baseblock Command (N.C.)	**1E**	Baseblock NC	**41**	Reverse Run Command (2-Wire Seq)	**2**	Reverse Run
0A	Accel/Decel Ramp Hold	**17**	Ac/Dec Hold	**42**	Run Command (2-Wire Sequence 2)	**3**	Run Command
0B	Drive Overheat Alarm (oH2)	**7C**	Drive OH2	**43**	FWD/REV Command (2-Wire Seq 2)	**4**	FWD/REV Cmd
0C	Analog Terminal Input Selection	**12**	AI Input Sel	**44**	Offset frequency 1	**0E**	Offset Frq 1
0F	Through Mode	**0**	Through Mode	**45**	Offset frequency 2	**0F**	Offset Frq 2
10	Up Command	**62**	Up Command	**46**	Offset frequency 3	**10**	Offset Frq 3
11	Down Command	**63**	Down Command	**47**	Node Setup	**7D**	Node Setup
12	Forward Jog	**7**	Jog Forward	**60**	DC Injection Braking command	**30**	DCInj Cmd
13	Reverse Jog	**8**	Jog Reverse	**61**	External Speed Search command 1	**67**	SpeedSrch 1
14	Fault Reset	**7A**	Fault Reset	**62**	External Speed Search command 2	**68**	SpeedSrch 2
15	Fast Stop (N.O.)	**34**	Fast Stop NO	**65**	KEB Ride-Thru 1 (N.C.)	**40**	KEB Thru1 NC
16	Motor 2 Selection	**61**	Motor 2 Select	**66**	KEB Ride-Thru 1 (N.O.)	**41**	KEB Thru1 NO
17	Fast Stop (N.C.)	**35**	Fast Stop NC	**67**	Communications test mode	**7E**	Comms Test
18	Timer Function Input	**60**	Timer Fn Input	**68**	High Slip Braking (HSB)	**32**	HiSlipBraking
19	PID Disable	**6A**	PID Disable	**6A**	Drive Enable	**1A**	Drive Enable
1A	Accel/Decel Time Selection 2	**19**	Ac/Dec Time2	**75**	Up 2 Command	**65**	Up2 Command
1B	Program Lockout	**7B**	Prg Lock	**76**	Down 2 Command	**66**	Dw2 Command
1E	Reference sample hold	**16**	Ref Sample	**7A**	KEB Ride-Thru 2 (N.C.)	**42**	KEB Thru2 NC
20	External Fault (NO-Always-Ramp)	**20**	ExF NO-AlRmp	**7B**	KEB Ride-Thru 2 (N.O.)	**43**	KEB Thru2 NO
21	External Fault (NC-Always-Ramp)	**21**	ExF NC-AlRmp	**7E**	FWD/REV Detect (V/f w/ simplePG)	**15**	FWD/REV Det
22	External Fault (NO-@Run-Ramp)	**22**	ExF NO-RnRmp	**90**	DriveWorksEZ Digital Input 1	**90**	Q2Pack DI1
23	External Fault (NC-@Run-Ramp)	**23**	ExF NC-RnRmp	**91**	DriveWorksEZ Digital Input 2	**91**	Q2Pack DI2
24	External Fault (NO-Always-Coast)	**24**	ExF NO-AlCoast	**92**	DriveWorksEZ Digital Input 3	**92**	Q2Pack DI3
25	External Fault (NC-Always-Coast)	**25**	ExF NC-AlCoast	**93**	DriveWorksEZ Digital Input 4	**93**	Q2Pack DI4
26	External Fault (NO-@Run-Coast)	**26**	ExF NO-RnCoast	**94**	DriveWorksEZ Digital Input 5	**94**	Q2Pack DI5
27	External Fault (NC-@Run-Coast)	**27**	ExF NC-RnCoast	**95**	DriveWorksEZ Digital Input 6	**95**	Q2Pack DI6
28	External Fault (NO-Always-FStop)	**28**	ExF NO-AlFStop	**96**	DriveWorksEZ Digital Input 7	**96**	Q2Pack DI7
29	External Fault (NC-Always-FStop)	**29**	ExF NC-AlFStop	**97**	DriveWorksEZ Digital Input 8	**97**	Q2Pack DI8
2A	External Fault (NO-@Run-FStop)	**2A**	ExF NO-RnFStop	**9F**	DriveWorksEZ Disable	**9F**	Q2Pack Disable
2B	External Fault (NC-@Run-FStop)	**2B**	ExF NC-RnFStop	**101 to 19F**	Inverse Input of 1 to 9F	**101 to 19F**	Offset Frq 2
2C	External Fault (NO-Always-Alarm)	**2C**	ExF NO-AlAlarm				

Multifunction digital output choices have been resorted with the principle of “most used first”

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
H2	H2 Multi-Function Digital Outputs					H2	H2 DIGITAL OUTPUTS			
H2-01	Terminal MA/MB-MC Selection	(0-019F) 1000 mapping	000E	Fault		H2-01	NO,NC,CM FuncSelection	(0-019F) Q2 mapping	0003	Fault
H2-02	Terminal P1 Selection	(0-019F) 1000 mapping	0000	During run		H2-02	DO1-O1C Func Selection	(0-019F) Q2 mapping	0005	@Run
H2-03	Terminal P2 Selection	(0-019F) 1000 mapping	0002	Frequency agree 1		H2-03	DO2-O2C Func Selection	(0-019F) Q2 mapping	000F	SpeedAgree1
H2-06	Output unit selection	(0) : 0.1 kWh units 1 : 1 kWh units 2 : 10 kWh units 3 : 100 kWh units 4 : 1000 kWh units	0	0.1kWh unit		H2-06	kWH Out Unit Selection	(1) : 0.1 kWh units 2 : 1 kWh units 3 : 10 kWh units 4 : 100 kWh units 5 : 1000 kWh units	1	0.1 kWh units

Multifunction digital output choice list comparison (H2-xx)

V1000		Q2V replace list	
MFDO	Name	MFDO	Description
0	During Run	5	@Run
1	Zero Speed	7	Zero Speed
2	Speed Agree 1	0F	SpeedAgree1
3	User-set Speed Agree 1	10	USpeedAgree1
4	Frequency Detection 1	13	FreqDetect 1
5	Frequency Detection 2	14	FreqDetect 2
6	Drive Ready	1	Drive Ready
7	DC Bus Undervoltage	4A	DC Bus Undervolt
8	During Baseblock (N.O.)	1A	@BaseblockNO
9	Frequency Reference Source	1C	FreqRefSource
0A	Run Command Source	1D	RunCmdSource
0B	Torque Detection 1 (N.O.)	32	TrqDetect1NO
0C	Frequency Reference Loss	4B	FreqRef Loss
0D	Braking Resistor Fault	4C	BrkRes Fault
0E	Fault	3	Fault
0F	Through Mode	0	Through Mode
10	Minor Fault	4	Alarm
11	Fault Reset Command Active	20	FltReset Active
12	Timer Output	39	Timer Output
13	Speed Agree 2	11	SpeedAgree2
14	User-set Speed Agree 2	12	USpeedAgree2
15	Frequency Detection 3	15	FreqDetect 3
16	Frequency Detection 4	16	FreqDetect 4
17	Torque Detection 1 (N.C.)	32	TrqDetect1NO
18	Torque Detection 2 (N.O.)	37	TrqDetect2NO
19	Torque Detection 2 (N.C.)	38	TrqDetect2NC
1A	During Reverse	6	@Reverse
1B	During Baseblock (N.C.)	1B	@BaseblockNC
1C	Motor 2 Selection	1E	Motor2 Select
1E	Restart Enabled	1F	Restart Enable
1F	Motor Overload Alarm (oL1)	4D	Motor OL1
20	Drive Overheat Pre-Alarm (oH)	4E	Drive PreOH
22	Mechanical Weakening Detection	66	MechWeakDetect
2F	Maintenance Period	63	Maintenance
37	During Frequency Output	0B	@FreqOutput
38	Drive Enabled	2	Drive Enable
39	Watt Hour Pulse Output	65	WattH Pulse
3C	LOCAL/REMOTE Status	0D	LO/RE Status
3D	During Speed Search	2F	@SpeedSearch
3E	PID Feedback Low	3E	PID Fbk Low
3F	PID Feedback High	3F	PID Fbk High
4A	During KEB Ride- Thru	18	@KEBridethru
4C	During Fast Stop	17	@Fast Stop
4D	oH Pre-Alarm Time Limit	4F	PreOHTimeLim
4E	Braking Transistor Fault (rr)	60	BrkTransFault
4F	Braking Resistor Overheat (oH)	61	BrkTransOH
90	DWEZ Digital Output 1	90	Q2Pack DO1
91	DWEZ Digital Output 2	91	Q2Pack DO2
92	DWEZ Digital Output 3	92	Q2Pack DO3
100 through 1A7	Inverse output of 0 through A7	100 through 1A7	SpeedAgree1

Multifunction analog input choices have been resorted with the principle of “most used first”

V1000 Group or param	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group or Param	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
H3	**H3 Multi-Function Analog Inputs**					**H3**	**H3 ANALOG INPUTS**			
H3-02	Terminal A1 Function Selection	(0 - 32h) 1000 mapping	00	Frequency bias		H3-02	AI1 Function Selection	(0 - 32h) Q2 mapping	04	Freq Ref/BIAS
H3-10	Terminal A2 Function Selection	(0 - 32) 1000 mapping	00	Frequency bias		H3-10	AI2 Function Selection	(0 - 32) Q2 mapping	04	Freq Ref/BIAS
H3-14	Terminal Analog Input Selection(when H1-xx = C)	1 : Terminal A1 only 2 : Terminal A2 only (7) : Terminals A1 and A2	7	Terminal A1 and A2 Enable		H3-14	An.In Term.Enable Sel	1 : Terminal A1 only 2 : Terminal A2 only (3) : Terminals A1 and A2	3	AI1 and AI2

Multifunction analog input choice list comparison (H3-xx)

V1000 / GA-500		Q2V Replace list	
MFAI	**Name**	**MFAI**	**Name**
0	Freq. Bias Master freq. reference	4	FrqBIAS Frq
1	Frequency Gain	5	Freq Gain
2	Auxiliary Frequency Reference 1	1	AuxFreqRef1
4	Output Voltage Bias	6	OutVolt Bias
7	Overtorque/ Undertorque DetectLvl	0E	OvUntrq Level
0B	PID Feedback	0F	PID Fbk
0C	PID Setpoint	10	PID SetPoint
0D	Frequency Bias	3	Freq BIAS
0E	Motor Temperature (PTC input)	16	Mot PTC Input
0F	Through Mode	0	Through Mode
16	Differential PID Feedback	11	Diff PIDFbk
1F	Through Mode old	1F	0
30	DriveWorksEZ analog input 1	30	Q2Pack AI1
31	DriveWorksEZ analog input 2	31	Q2Pack AI2

Multifunction analog output choices (H4-xx) are based on monitor list. Monitor list has not been modified.

V1000 Group or param	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group or Param	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
H5	**H5 MEMOBUS/Modbus Communications**					**H5**	**H5 MODBUS PORTS**			
H5-03	Communication parity selection	(0) : No parity 1 : Even parity 2 : Odd parity	0	No parity		H5-03	Mbus Parity	1 : Even parity 2 : Odd parity (3) : No parity	3	No parity

V1000 Group or param	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group or Param	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
L2	**L2 Momentary Power Loss**					**L2**	**L2 POWER LOSS RIDE THROUGH**			
L2-01	Momentary power loss detection	(0) : Disabled 1 : General Purpose 2 : Intelligent (Ignore Decel Ramp) 3 : General Purpose w/ DB resistor 4 : Overexcitation/High Flux 5 : Overexcitation/High Flux 2	0	Disabled		L2-01	RideThru@PwrLoss	(0): Disabled 1: Enabled	0	Disabled
						L2-50	RidThruMode@PwrLoss	(0): General Purpose 1: Automatic Decel Reduction 2: Gen Purpose w/ DB Resistor 3: HiFlux Overexcitation 4: HiFlux2 Overexcitation	0	General Purpose
L2-11	Desired DC Bus Voltage during KEB	(300-800 Vdc)	480 V			L2-11	KEB DC Volt Setpoint	(300-800 Vdc)	500 VDC	

V1000 Group or param	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group or Param	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
L3	**L3 Stall Prevention Function**					**L3**	**L3 STALL PREVENTION**			
L3-01	StallP acceleration selection	(0) : Disabled 1 : General Purpose 2 : Intelligent	1	General Purpose		L3-01	StallP Mode@Accel	1: Disabled (2): General Purpose 3: Intelligent Accel 4: Ilim mode	2	General Purpose
L3-04	StallP deceleration selection	0: Disabled 1: General Purpose 2: Intelligent 3: Stall Prevention with Braking Resistor 4: Overexciation Deceleration - Decelerates with the flux level determined by n3-13 (Overexcitation Gain). 7: Overexciation Deceleration3	1	General Purpose - The deceleration will be stop when the Vdc reaches the stall prevention level. And decelerates again when the Vdc recovered.		L3-04	StallP@Decel Enable	0: Disabled (1): Enabled	1	Enabled
						L3-50	StallP@Decel Mode	(0): General Purpose 1: Automatic Decel Reduction 2: Gen Purpose w/ DB Resistor 3: HiFlux Overexcitation 4: HiFlux2 Overexcitation	0	General Purpose
L3-05	StallP running selection	0 : Disabled (1) : Deceleration Time 1 (C1-02) 2 : Deceleration Time 2 (C1-04) 3 : Intelligent	1	Deceleration time 1		L3-05	StallP@RUN Enable	0 : Disabled (1) : Enabled	1	Enabled
						L3-51	StallP@RUNDecTime	(0) : Dec Time 1 (C1-02) 1 : Dec Time 2 (C1-04)	0	DecTime 1 (C1-02)
L3-17	Overvoltage Suppression and Deceleration Stall and Desired DC Bus Voltage during Motor Stall	(300 - 800Vdc)	740 V			L3-17	DCBus Regul.Level	(300 - 800Vdc)	750 VDC	
L3-23	StallP running level output auto reduction	(0): stall prevention @ L3-06. 1: Automatic reduction	0	Sets the stall prevention level throughout the entire frequency range to the value in parameter L3-06.		L3-23	Stall P Reduction at Constant HP	(1) : Level@L3-06 2 : Automatic Reduction	1	Level@L3-06
L3-24	Inertia conversion motor acceleration time	(0.001 - 10.000 sec)	0.166 sec			L3-24	Acc@Rated Torque	(0 - 10000ms)	166 ms	

V1000 Group or param	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group or Param	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
L4	**L4 Frequency Detection**					**L4**	**L4 SPEED DETECTION**			
L4-05	Reference loss selection	(0): Stop 1: Operation at L4-06	0	Stop		L4-05	FrefLoss Det.Selection	(1) : Stop 2 : Run@L4-06PrevRef	1	Stop
L4-07	Conditions of Frequency detection	(0): No detection during BB 1: Detection always enabled	0	No detection during baseblock.		L4-07	SpAgree Det.Selection	(1) : No Detect@BB 2 : Always Detect	1	No Detect@BB

V1000 Group or param	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group or Param	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
L5	**L5 Fault Reset**					**L5**	**L5 FAULT RESTART**			
L5-02	Auto restart operation selection	(0) : No Fault output 1 : Enable Fault Output	0	Not output(Fault contact is not activated)		L5-02	Fault@Reset Select	(1) : Disable Fault Output 2 : Enable Fault Output	1	Disable Fault Output
L5-05	Auto restart selection	(0) : Count number of restarts 2 : Restart number	0	Count number of restarts (G7 formula)		L5-05	Reset Method	(1) : Continuous 2 : Use L5-04 Time	1	Continuous

V1000 Group or param	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group or Param	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
L6	**L6 Overtorque Detection**					**L6**	**L6 TORQUE DETECTION**			
L6-01	Torque detection selection 1	0: Disabled 1: OL3 at Speed Agree - Alarm 2: OL3 at RUN - Alarm 3: OL3 at Speed Agree - Fault 4: OL3 at RUN - Fault 5: UL3 at Speed Agree - Alarm 6: UL3 at RUN - Alarm 7: UL3 at Speed Agree - Fault 8: UL3 at RUN - Fault	0	Overtorque/undertorque 3 detection disabled		L6-01	Trq Det1 Select (OL3 / UL3)	(0) : Disabled 1 : Enabled	0	Disabled
						L6-50	Trq Det1 Type	(0): At Overload 1: At Underload	0	At Overload
						L6-51	Trq Det1 Action	(0): Alarm 1: Fault	0	Alarm
						L6-52	Trq Det1 Condition	(0): At Speed Agree 1: During Run	0	At Speed Agree
L6-04	Torque detection selection 2	0: Disabled 1: OL4 at Speed Agree - Alarm 2: OL4 at RUN - Alarm 3: OL4 at Speed Agree - Fault 4: OL4 at RUN - Fault 5: UL4 at Speed Agree - Alarm 6: UL4 at RUN - Alarm 7: UL4 at Speed Agree - Fault 8: UL4 at RUN - Fault	0	Overtorque/undertorque 4 detection disabled		L6-04	Trq Det2 Select (OL4 / UL4)	(0) : Disabled 1 : Enabled	0	Disabled
						L6-53	Trq Det2 Type	(0): At Overload 1: At Underload	0	At Overload
						L6-54	Trq Det2 Action	(0): Alarm 1: Fault	0	Alarm
						L6-55	Trq Det2 Condition	(0): At Speed Agree 1: During Run	0	At Speed Agree
L6-08	Machine degradation detection selection	0: Detection invalid 1: Alarm at speed (signed) >L6-09 2: Alarm at speed (not signed) >L6-09 3: Fault at speed(signed)>L6-09. 4: Fault at speed(not signed)>L6-09. 5: Alarm at speed (signed) < L6-09 6: Alarm at speed (not signed) < L6-09 7: Fault at speed(signed)< L6-09. 8: Fault at speed(not signed)< L6-09.	0	Machine degradation detection invalid		L6-08	MechF Enable	(0) : Disabled 1 : Enabled	0	Disabled
						L6-56	MechF.Action	(0) : Alarm 1 : Fault	0	Alarm
						L6-57	MechF AbsSpeed	(0) : [Spd] Absolute 1 : Spd Signed	0	Spd Absolute
						L6-58	MechF Method	(0) : Spd>L6-09 1 : Spd<L6-09	0	Spd>L6-09

7 Differences in Parameter Settings

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
L8	**L8 Hardware Protection**					**L8**	**L8 DRIVE PROTECTION**			
L8-10	Cooling fan control selection	(0): Operates when inverter is running 1: Always operates during power on	0	Operates when inverter is running		L8-10	Fan Operate Selection	(1) : Dur Run (OffDly) 2 : Always On 3 : Fan ON @Heating of Drive	1	Dur Run (OffDly)

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
n1	**n1 Hunting Prevention**					**n1**	**n1 HUNTING PREVENTION**			
n1-01	Hunting-prevention selection	0 : Disabled (1) : Enabled	1	Disabled		n1-01	HuntPrev Selection	1 : Disabled (2) : Enabled (Normal) 3 : Enabled (High Carrier Frequency)	1	Disabled

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
n3	**n3 High-Slip Braking**					**n3**	**n3 HIGHSLIP/OVEREXCITATION BRAKE**			
n3-23	Over Excitation Run	0: Disabled 1: Enabled only when rotating forward 2: Enabled only when in reverse	0	Disable		n3-23	OverExcBr Operation	(1) : Enabled@Both directions 2 : Enabled@FW direction 3 : Enabled@REV direction	1	Enabled@Both Directions

V1000 Group	V1000 Description	V1000 Range	V1000 Default	V1000 Default meaning		Q2V Group	Q2V Description	Q2V Range	Q2V Default	Q2V Default meaning
o1	**o1 Display Settings**					**o1**	**o1 KEYPAD DISPLAY**			
o1-05	LCD Contrast	(0 - 5)	3			o1-05	LCD Contrast Adjustment	(0 - 10)	5	

8 Carrier Frequency - C6-02 [Carrier Frequency Selection]

To understand the effect of changing the Carrier Frequency on your new replacement drive, refer to the Q2V Technical manual SIEP YEUOQ2V 01A, Section 10.7 Drive Derating, Carrier Frequency Settings and Rated Current Values. Download here: **https://assets.omron.eu/downloads/manual/en/v4/q2v_technical_manual_en.pdf**

9 Watt Loss Comparison

Use this section to understand the watt loss difference between the V1000 and Q2V. This is useful to ensure proper cooling for Q2V drives that replace V1000 drives inside of enclosures.

Understanding the “Difference” columns in ***Table 16*** through ***Table 21***.

- A positive number = Q2V has **more** watt loss compared to V1000.
- A negative number = Q2V has **less** watt loss compared to V1000.

◆ Normal Duty (Parameter C6-01=1, factory default)

Table 16 Single-Phase 240 V Models, Watt Loss Comparison

V1000					Q2V					Difference		
Model	Carrier kHz	Watt Loss			Catalog Code		Watt Loss			Watt Loss		
CIMR-VC		Interior	External	Total	Q2V-A	Carrier kHz	Interior	External	Total	Interior	External	Total
BA0001	Swing 2 kHz	5.0	8.5	13.5	B001	2.0	8.0	6.0	14.0	3.0	-2.5	0.5
BA0002	Swing 2 kHz	7.6	9.7	17.3	B002	2.0	14.0	11.0	25.0	6.4	1.3	7.7
BA0003	Swing 2 kHz	14.6	14.4	29.1	B004	2.0	14.0	17.0	31.0	-0.6	2.6	1.9
BA0006	Swing 2 kHz	30.1	19.4	49.5	B006	2.0	17.0	26.0	43.0	-13.1	6.6	-6.5
BA0010	Swing 2 kHz	51.7	29.8	81.4	B010	2.0	36.0	50.0	86.0	-15.7	20.2	4.6
BA0012	Swing 2 kHz	61.3	37.1	98.4	B012	2.0	48.0	60.0	108.0	-13.3	22.9	9.6
BA0018	Swing 2 kHz	—	—	—	B018	2.0	49.0	92.0	141.0	N/A	N/A	N/A

Table 17 Three-Phase 240 V Models, Watt Loss Comparison

V1000					Q2V					Difference		
Model	Carrier kHz	Watt Loss			Catalog Code		Watt Loss			Watt Loss		
CIMR-VC		Interior	External	Total	Q2V-A	Carrier kHz	Interior	External	Total	Interior	External	Total
2A0001	Swing 2 kHz	5.0	8.0	13.0	2001	2.0	7.0	5.0	12.0	2.0	-3.0	-1.0
2A0002	Swing 2 kHz	7.6	9.5	17.1	2002	2.0	9.0	9.0	18.0	1.4	-0.5	0.9
2A0004	Swing 2 kHz	15.8	13.6	29.4	2004	2.0	11.0	16.0	27.0	-4.8	2.4	-2.4
2A0006	Swing 2 kHz	27.5	17.2	44.7	2006	2.0	14.0	25.0	39.0	-13.5	7.8	-5.7
2A0010	Swing 2 kHz	51.7	25.8	77.5	2010	2.0	25.0	51.0	76.0	-26.7	25.2	-1.5
2A0012	Swing 2 kHz	61.3	30.4	91.7	2012	2.0	30.0	61.0	91.0	-31.3	30.6	-0.7
2A0020	Swing 2 kHz	98.7	46.3	145.0	2018/21	2.0	52.0	111.0	163.0	-46.7	64.7	18.0
2A0030	Swing 2 kHz	246.4	88.9	335.3	2030	2.0	63.0	240.0	303.0	-183.4	151.1	-32.3
2A0040	Swing 2 kHz	266.7	112.8	379.6	2042	2.0	84.0	307.0	391.0	-182.7	194.2	11.4
2A0056	Swing 2 kHz	357.9	151.8	509.7	2056	2.0	109.0	367.0	476.0	-248.9	215.2	-33.7
2A0069	Swing 2 kHz	461.7	184.5	646.2	2070	2.0	142.0	534.0	676.0	-319.7	349.5	29.8
-	-	-	-	-	2082	2.0	160.0	531.0	691.0	N/A	N/A	N/A

Table 18 Three-Phase 480 V Models, Watt Loss Comparison

V1000					Q2V					Difference		
Model	Carrier kHz	Watt Loss			Catalog Code		Watt Loss			Watt Loss		
CIMR-VC		Interior	External	Total	Q2V-A	Carrier kHz	Interior	External	Total	Interior	External	Total
4A0001	Swing 2 kHz	10.0	9.6	19.6	4001	2.0	8.0	7.0	15.0	-2.0	-2.6	-4.6
4A0002	Swing 2 kHz	18.5	13.9	32.4	4002	2.0	13.0	12.0	25.0	-5.5	-1.9	-7.4
4A0004	Swing 2 kHz	30.5	16.8	47.3	4004	2.0	14.0	24.0	38.0	-16.5	7.2	-9.3

V1000					Q2V					Difference		
Model	Carrier kHz	Watt Loss			Catalog Code		Watt Loss			Watt Loss		
CIMR-VC		Interior	External	Total	Q2V-A	Carrier kHz	Interior	External	Total	Interior	External	Total
4A0005	Swing 2 kHz	44.5	21.8	66.3	4005	2.0	16.0	32.0	48.0	-28.5	10.2	-18.3
4A0007	Swing 2 kHz	58.5	28.4	86.9	4007	2.0	20.0	44.0	64.0	-38.5	15.6	-22.9
4A0009	Swing 2 kHz	63.7	31.4	95.1	4009	2.0	28.0	58.0	86.0	-35.7	26.6	-9.1
4A0011	Swing 2 kHz	81.7	46.0	127.7	4012	2.0	39.0	83.0	122.0	-42.7	37.0	-5.7
4A0018	Swing 2 kHz	181.2	80.1	261.3	4018	2.0	52.0	155.0	207.0	-129.2	74.9	-54.3
4A0023	Swing 2 kHz	213.4	107.7	321.1	4023	2.0	86.0	236.0	322.0	-127.4	128.3	0.9
4A0031	Swing 2 kHz	287.5	146.1	433.6	4031	2.0	101.0	284.0	385.0	-186.5	137.9	-48.6
4A0038	Swing 2 kHz	319.2	155.8	475.0	4038	2.0	108.0	341.0	449.0	-211.2	185.2	-26.0
-	-	-	-	-	4044	2.0	137.0	417.0	554.0	N/A	N/A	N/A
-	-	-	-	-	4060	2.0	176.0	490.0	666.0	N/A	N/A	N/A

◆ Heavy Duty (Parameter C6-01=0)

Table 19 Single-Phase 240 V Models, Watt Loss Comparison

V1000					Q2V					Difference		
Model	Carrier kHz	Watt Loss			Catalog Code		Watt Loss			Watt Loss		
CIMR-VC		Interior	External	Total	Q2V-A	Carrier kHz	Interior	External	Total	Interior	External	Total
BA0001	8.0	4.3	7.4	11.7	B001	10.0	8.0	5.0	13.0	3.7	-2.4	1.3
BA0002	8.0	7.9	8.9	16.7	B002	10.0	10.0	9.0	19.0	2.1	0.1	2.3
BA0003	8.0	16.1	11.5	27.7	B004	10.0	14.0	16.0	30.0	-2.1	4.5	2.3
BA0006	8.0	33.7	16.8	50.5	B006	10.0	18.0	28.0	46.0	-15.7	11.2	-4.5
BA0010	8.0	54.8	25.9	80.7	B010	8.0	31.0	42.0	73.0	-23.8	16.1	-7.7
BA0012	8.0	70.7	34.1	104.8	B012	8.0	41.0	55.0	96.0	-29.7	20.9	-8.8
BA0018	8.0	110.5	51.4	161.9	B018	8.0	53.0	98.0	151.0	-57.5	46.6	-10.9

Table 20 Three-Phase 240 V Models, Watt Loss Comparison

V1000					Q2V					Difference		
Model	Carrier kHz	Watt Loss			Catalog Code		Watt Loss			Watt Loss		
CIMR-VC		Interior	External	Total	Q2V-A	Carrier kHz	Interior	External	Total	Interior	External	Total
2A0001	8.0	4.3	7.3	11.6	2001	10.0	6.0	5.0	11.0	1.7	-2.3	-0.6
2A0002	8.0	7.9	8.8	16.7	2002	10.0	7.0	8.0	15.0	-0.9	-0.8	-1.7
2A0004	8.0	16.2	11.5	27.7	2004	10.0	10.0	16.0	26.0	-6.2	4.5	-1.7
2A0006	8.0	27.4	15.9	43.3	2006	10.0	14.0	27.0	41.0	-13.4	11.1	-2.3
2A0010	8.0	54.8	23.8	78.6	2010	8.0	18.0	43.0	61.0	-36.8	19.2	-17.6
2A0012	8.0	70.7	29.9	100.6	2012	8.0	24.0	56.0	80.0	-46.7	26.1	-20.6
2A0020	8.0	110.5	43.3	153.8	2018/21	8.0	40.0	108.0	148.0	-70.5	64.7	-5.8
2A0030	8.0	231.5	72.2	303.7	2030	8.0	49.0	187.0	236.0	-182.5	114.8	-67.7
2A0040	8.0	339.5	82.8	321.3	2042	8.0	60.0	232.0	292.0	-279.5	149.2	-29.3
2A0056	8.0	347.6	117.6	465.2	2056	8.0	85.0	318.0	403.0	-262.6	200.4	-62.2
2A0069	8.0	437.7	151.4	589.1	2070	8.0	119.0	473.0	592.0	-318.7	321.6	2.9
-	-	-	-	-	2082	8.0	148.0	525.0	673.0	N/A	N/A	N/A

Table 21 Three-Phase 480 V Models, Watt Loss Comparison

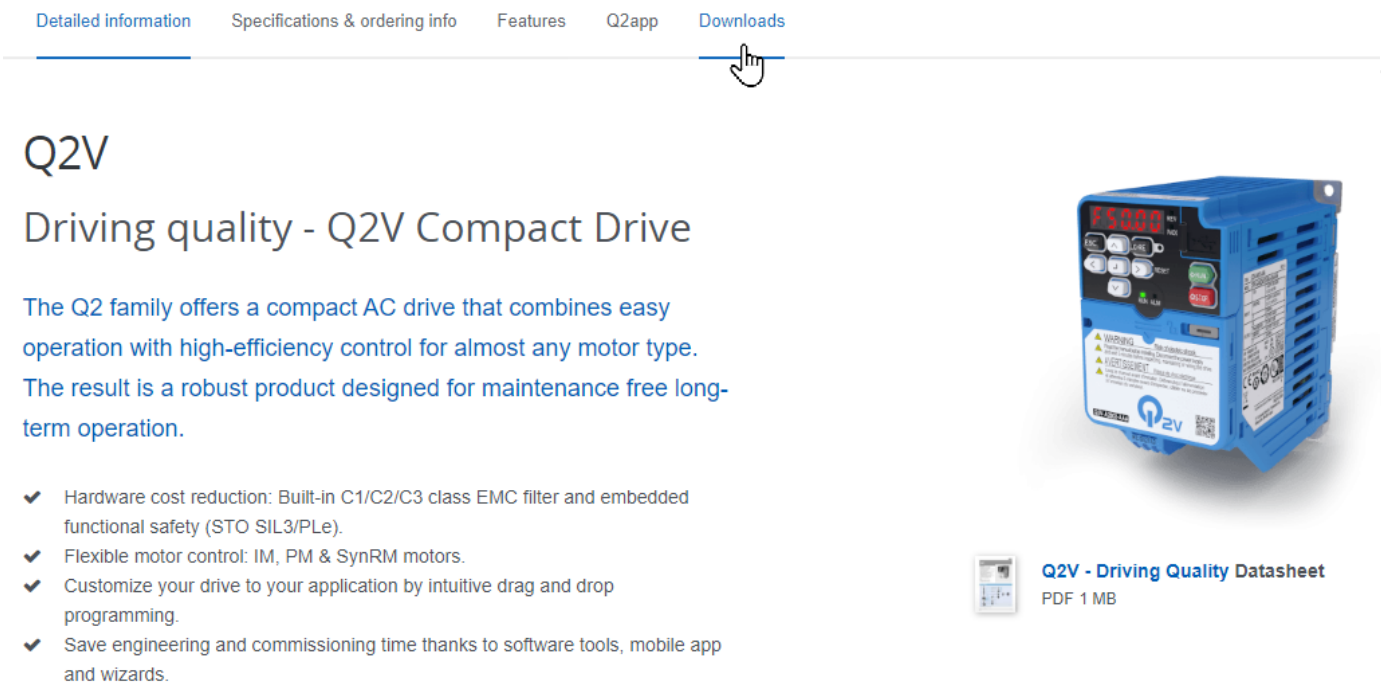
V1000					Q2V					Difference		
Model	Carrier kHz	Watt Loss			Catalog Code		Watt Loss			Watt Loss		
CIMR-VC		Interior	External	Total	Q2V-A	Carrier kHz	Interior	External	Total	Interior	External	Total
4A0001	8.0	19.2	11.5	30.7	4001	8.0	9.0	11.0	20.0	-10.2	-0.5	-10.7
4A0002	8.0	28.9	14.8	43.7	4002	8.0	11.0	16.0	27.0	-17.9	1.2	-16.7
4A0004	8.0	42.3	17.9	60.2	4004	8.0	15.0	31.0	46.0	-27.3	13.1	-14.2
4A0005	8.0	70.7	26.2	96.9	4005	8.0	18.0	42.0	60.0	-52.7	15.8	-36.9
4A0007	8.0	81.0	30.7	111.7	4007	8.0	18.0	49.0	67.0	-63.0	18.3	-44.7
4A0009	8.0	84.6	32.9	117.5	4009	8.0	25.0	65.0	90.0	-59.6	32.1	-27.5
4A0011	8.0	107.2	41.5	148.7	4012	8.0	32.0	85.0	117.0	-75.2	43.5	-31.7
4A0018	8.0	166.0	62.7	228.7	4018	8.0	55.0	166.0	221.0	-111.0	103.3	-7.7
4A0023	8.0	207.1	78.1	285.2	4023	8.0	61.0	200.0	261.0	-146.1	121.9	-24.2
4A0031	8.0	266.9	105.9	372.8	4031	8.0	79.0	255.0	334.0	-187.9	149.1	-38.8
4A0038	8.0	319.1	126.6	445.7	4038	8.0	95.0	338.0	433.0	-224.1	211.4	-12.7
-	-	-	-	-	4044	8.0	127.0	442.0	569.0	N/A	N/A	N/A
-	-	-	-	-	4060	8.0	135.0	446.0	581.0	N/A	N/A	N/A

10 Network Communication and Control I/O Options

I/O options are generally compatible with Q2V, except option case has to be changed (available separately as JOHB-Q2V). Firmware of communication options may require an update to support Q2V.
Communication options officially supported are following :
- SI-ES3 (EtherCAT)
- SI-EP3 (ProfiNET)
- SI-EN3 (EtherNET /IP single port)
- SI-EN3/D (EtherNET /IP dual port)
- SI-EL3 (PowerLink)

Check Q2V datasheet for more details about Q2V options, and documentation downloads.

URL: ***https://industrial.omron.eu/en/products/q2v***



Refer to the Q2V Datasheet I177E-EN-01J for a complete list of Q2V options.
Download here: **https://assets.omron.eu/downloads/datasheet/en/v5/i177e_q2v_-_driving_quality_datasheet_en.pdf**

11 Other Option Compatibility

- **Braking resistor option :**
  The braking unit can be transferred to Q2V without making any changes.

- **Braking units :**
  The braking unit can be transferred to Q2V without making any changes. If using a braking unit, set L8-55 = 0 [Internal DB Transistor Protection = Disabled] (same as in V1000)

- **AC or DC reactor:**
  The AC or DC input reactor and AC output reactors can be transferred to Q2V without making any changes.

- **Ferrite rings / chokes:**
  Ferrite chokes can be used with Q2V without making any changes.

- **EMC filters**
  EMC filters have to be replaced for proper CE compliance assurance, although no damage and a high degree of EMC conducted noise is already cancelled even keeping original V1000 filter.

12 Special Firmware compatibility

- **V1000 special firmwares can not be used directly with Q2V :**
  Q2V has the target to minimize the need of special firmwares by a more powerful implementation of Q2Dev Drive Programming capabilities and functions and new customization functions called Q2pack.

12 PC Tool compatibility

- **V1000 CX-Drive files can not be used with Q2Edit software editor**

The differences in the products are described in this guide, and the adaptation has to be made manually, although the correspondence of parameters is almost 1:1, and care has to be taken for the parameter differences described in the following section.

V1000 to Q2V
Replacement Guide

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In the event that the end user of this product is to be the military and said product is to be employed in any weapons systems or the manufacture thereof, the export will fall under the relevant regulations as stipulated in the Foreign Exchange and Foreign Trade Regulations. Therefore, be sure to follow all procedures and submit all relevant documentation according to any and all rules, regulations and laws that may apply. Specifications are subject to change without notice for ongoing product modifications and improvements.

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