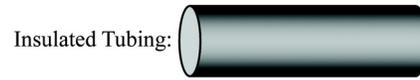
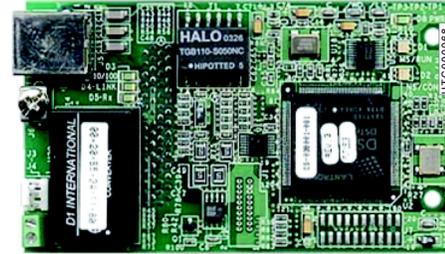


Applicable products: Yaskawa F7U, G7U, P7U, E7U, G5M(Spec F), and G5M(600V). For G5U(HHP) drives, refer to IG.G5HHP.26.

1. Unpack the CM092 EtherNet/IP Option kit and verify that all components are present and undamaged.

CM092 EtherNet/IP Option Kit Parts	Qty.
EtherNet/IP Option Card	1
Shielded RJ-45 M-F Cable	1
Ground Wire	1
4" x 1" Insulated Tubing	1
Cable Ties	2
MAC ID Label (Unique for each EtherNet/IP Option Card)	1
Installation Guide (IG.AFD.26)	1



2. Connect power to the Yaskawa AC drive and verify that the drive functions correctly.

This includes running the drive from the operator keypad. Refer to the appropriate drive technical manual for information on connecting and operating the drive.

3. Remove power from the drive and wait for the charge lamp to be completely extinguished.

Wait at least five additional minutes for the drive to be completely discharged. Measure the DC bus voltage and verify that it is at a safe level.

5. Mount the EtherNet/IP Option Card on the drive.

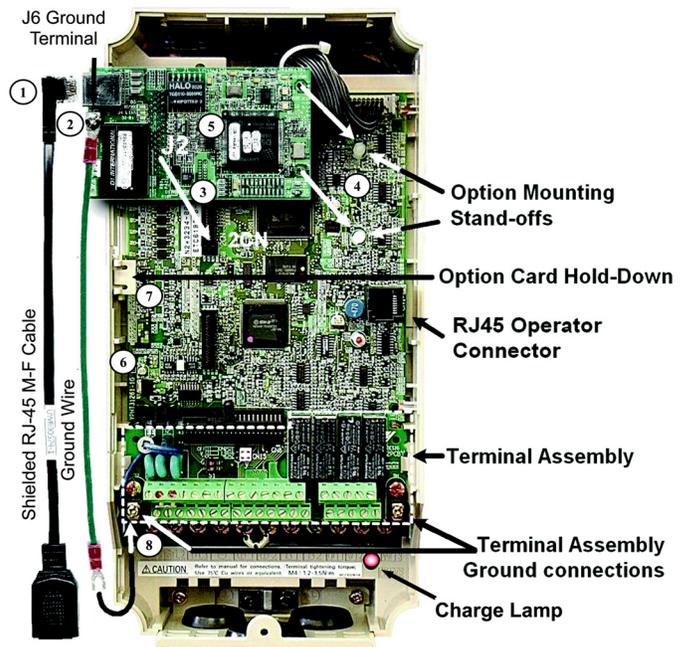
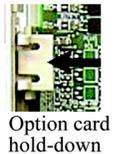
- Connect the RJ-45 M-F cable supplied in this kit to the EtherNet/IP Option Card.
- Connect the ground wire supplied to ground terminal J6 on the EtherNet/IP Option Card.
- Align the J2 connector on the back of the EtherNet/IP Option Card with its mating 2CN connector on the drive control card.
- Align the two standoffs on the front of the drive control board with the two holes on the right side of the EtherNet/IP Option Card.
- Press the EtherNet/IP Option Card firmly onto the drive 2CN connector and standoffs until the J2 connector is fully seated on 2CN and the drive standoffs have locked into their appropriate holes.
- Route the RJ-45 M-F cable and the ground wire along the left-inside of the AC drive enclosure.
- Replace the option card hold-down.
- Connect the ground wire from the option card terminal J6 to the terminal assembly ground connection.

⚠ WARNING

Dangerous voltages in excess of 400VDC (230V drives) or 800VDC (460V drives) are present at the DC bus terminals of the drive.

4. Remove the operator keypad and drive cover.

- Remove the operator keypad.
- Remove the terminal and control covers.
- Remove the option card hold-down by carefully compressing the top and bottom until it becomes free of its holder. Lift it out.



EtherNet/IP Option Kit CM092

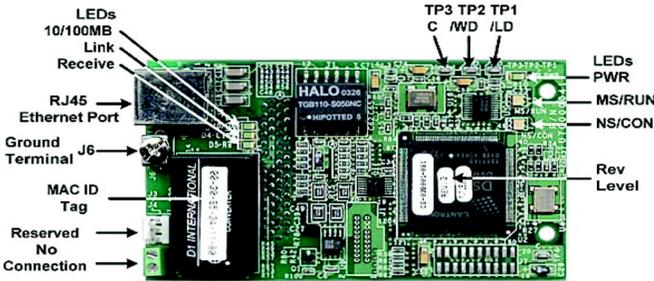
6. Diagnostic LED power-up test sequence

A power-up test is performed each time the AC drive is powered up after the initial boot-up sequence. The initial boot-up sequence may take several seconds. When this sequence is complete, the LEDs will assume their normal conditions.

Seq	MS/RUN	NS/CON	Time
1	GREEN	OFF	250ms
2	RED	OFF	250ms
3	GREEN	OFF	250ms
4	GREEN	GREEN	250ms
5	GREEN	RED	250ms
6	GREEN	OFF	

The EtherNet/IP Option Card is successfully initialized after the LEDs have completed the above sequence.

The EtherNet/IP Option Card LED status after the power-up sequence is described below. Please wait for at least five seconds for the loading process to complete before verifying the status of the LEDs.



Successful Initialization:

The EtherNet/IP Option Card hardware is installed and operating correctly with the LEDs in the states shown in **bold text** in step 7 per the "LED Descriptions" table. The LINK LED represents the status of the physical connection to the network and is not indicative of any card state.

7. LED descriptions

LED	Label	Description
D1	MS/RUN	GREEN – Card Functioning Normally GREEN BLINK – Standby/Initializing (500ms cycle) RED BLINK – Minor Fault (500ms cycle) RED – Major Fault GREEN/RED BLINK – Module Test (500ms cycle)
D2	NS/CON	GREEN – Connected GREEN BLINK – Waiting for Connections (500ms cycle) RED BLINK – Connection Timeout (500ms cycle) RED – Duplicate IP Address GREEN/RED BLINK – Network Test (500ms cycle)

LED	Label	Description
D3	10/100	GREEN – 100Mbps Connection Speed
D4	LINK	GREEN – Link Established
D5	Rx	GREEN – Message Being Received
D8	PWR	GREEN - Appropriate Power Supplied to Card

8. Connect to the EtherNet/IP Option Card.

Note: Due to the presence of high voltage in the area of the network connection, insulating the RJ-45 M-F cable connection is required.

- Prior to connecting the RJ-45 M-F network cable, slide the supplied insulated tubing (4"x1") over the female end of the supplied RJ-45 M-F cable.
 - Direct connection:** To connect directly to the EtherNet/IP Option Card, plug one end of a CAT-5 EtherNet/IP crossover cable into the RJ-45 socket on the supplied RJ-45 M-F cable. Connect the other end to the RJ-45 EtherNet/IP socket on the configuration device, typically a controller, laptop or other PC.

- Connection through hub or switch:** To connect through a switch, hub or router, connect the RJ-45 socket on the RJ-45 M-F cable to the switch, hub or router using a standard CAT-5 patch cable.

- After the network connection is made, slide the insulated tubing (4"x1" Insulated Tubing) over the connection and secure it in place using the supplied cable ties.

9. Configure the EtherNet/IP network.

- The default configuration option for the EtherNet/IP Option Card is DHCP (Dynamic Host Configuration Protocol). Thus there must be a DHCP Server connected to the network in order to have the IP address of the EtherNet/IP Option Card set. For detailed information on how to set up the Rockwell BOOTP/DHCP Server on a PC refer to the appropriate Rockwell document or Yaskawa's Application Note AN.AFD.10.

- If the network configuration requires that devices have a static IP address, the EtherNet/IP Option Card's configuration can be changed to USER and the appropriate static IP address can be entered via the EtherNet/IP Option Card's web pages as shown below.

Note that the EtherNet/IP Option Card must first have been assigned an IP address via DHCP before its configuration can be changed.

10. Configuring a PC with a static IP address

- a. Select an existing connection or create a new network connection for communication with the *EtherNet/IP Option Card*.
 1. Select **Start** ==> **Settings** ==> **Network Connections** from the task bar in the Windows OS.
 2. Select the network connection to be used.
- b. Right click on the network connection and select **Properties** from the drop-down menu.
- c. Select **Internet Protocol (TCP/IP)** from the components displayed.

*Note: If a TCP/IP selection is not available, it may be installed by selecting **Install**. Administrator access to the PC and the OS operating system installation CD-ROMs may also be required.*

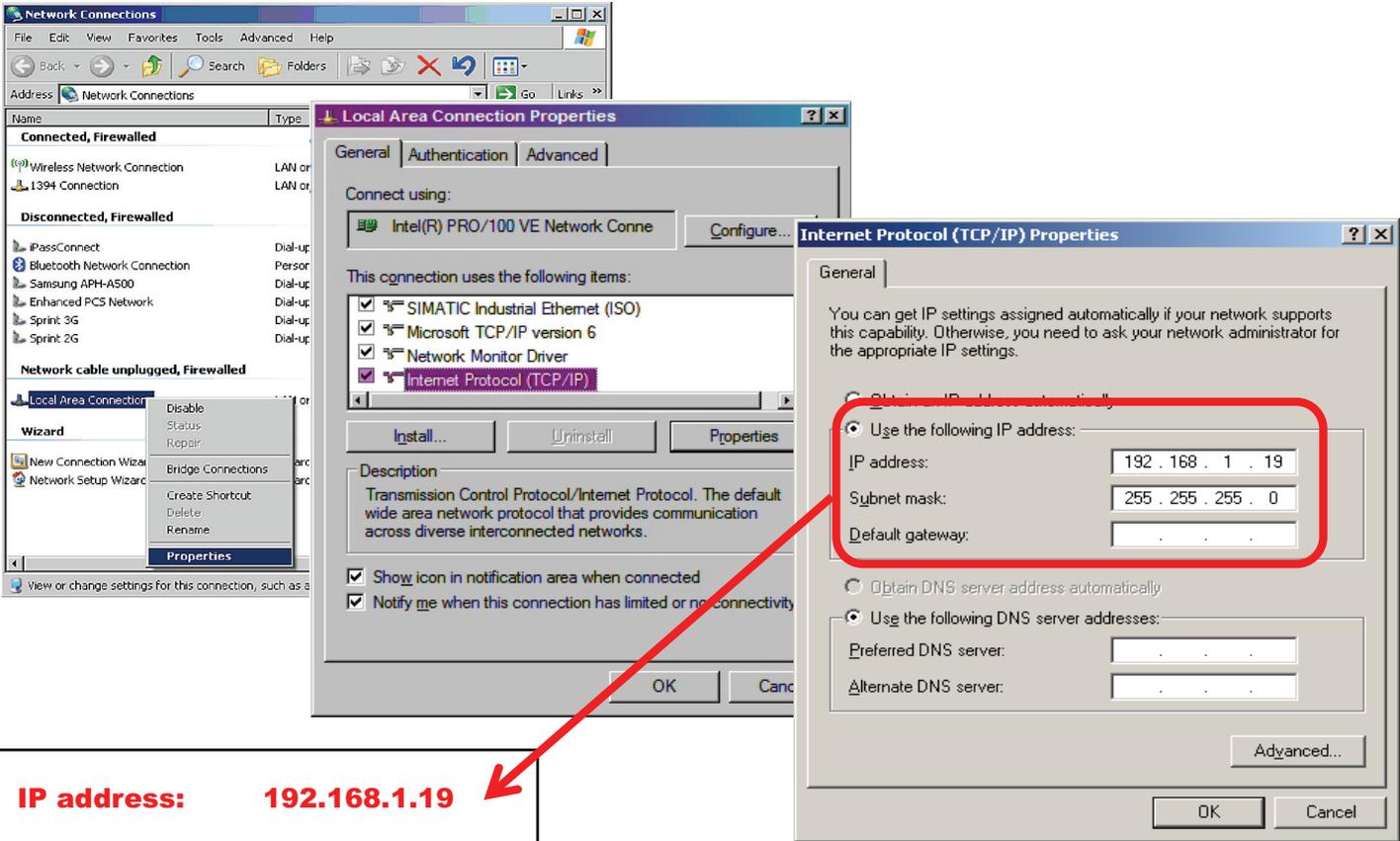
1. Select **Properties**.

Note: If the PC is on a building or office network, disconnect it from that network before proceeding. Record the existing network

*settings. If the network connection already has an IP address assigned on the EtherNet/IP Local network, ignore the following instructions and just click on **Cancel**.*

2. Select the **Use the following IP address** radio button.
3. Enter the IP address of a vacant IP address on the EtherNet/IP Local Network (**192.168.1.19** in this example).
4. Enter the subnet mask for the EtherNet/IP Local Network (**255.255.255.0** in this example).
5. Check the system network schematic or with your network administrator to ensure that the IP address does not already exist on the network.
6. Once the **IP address** and **Subnet mask** are entered, select **OK**.

Note: It may be necessary to reboot the PC in order for the changes to take effect.



11. Accessing the EtherNet/IP Option Card web pages

The browser interface to the *EtherNet/IP Option Card* can be used for configuring the card or for network and drive information and diagnostics. To access the web pages:

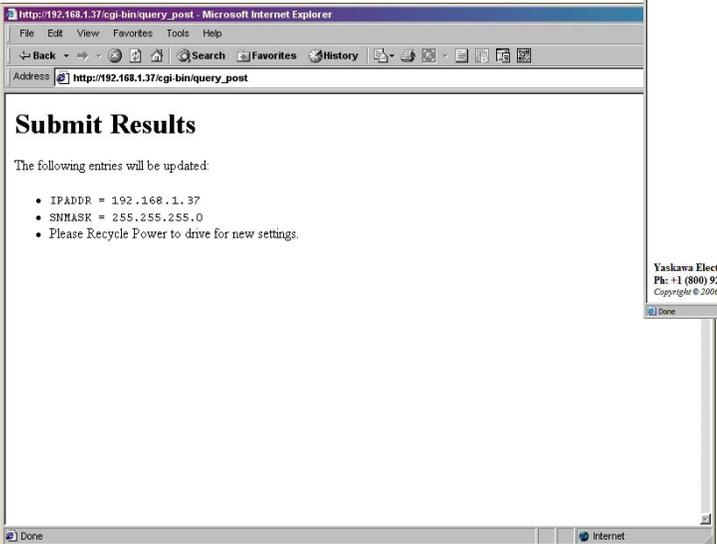
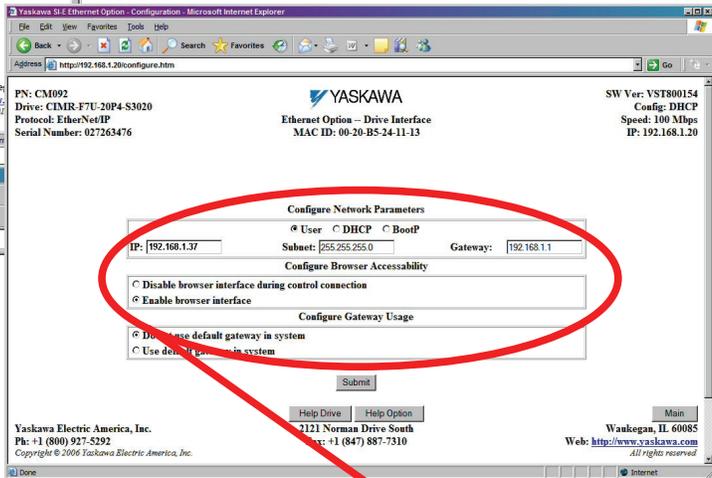
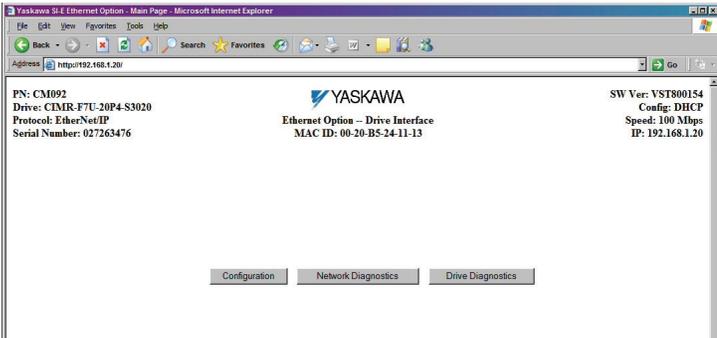
- a. Obtain the IP address of the desired drive and enter that IP address in the browser address bar. Hit Enter. The IP address of the desired drive is 192.168.1.20 in this example.
- b. The main web page should be displayed.

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12. Configuring the EtherNet/IP Option Card

- a. Select **Configuration** from the main web page.
- b. After the **Configuration** page has been displayed, select the method in which the *EtherNet/IP Option Card* will obtain its IP address.
 1. **User:** The *EtherNet/IP Option Card* will use the network address as entered in the **IP**, **Subnet** and **Gateway** fields. Check with the system schematic or network administrator to insure that the IP address is valid and unique and that the subnet mask is correct.
The **USER** radio button is used in this example.
Enter the new IP address, 192.168.1.37 in this example.
 2. **DHCP:** The *EtherNet/IP Option Card* will use the network address assigned to it by the DHCP server.
 3. **BOOTP:** The *EtherNet/IP Option Card* will use the network address assigned to it by the BOOTP server.
- c. Select the **Gateway Usage**. Connectivity to the *EtherNet/IP Option Card* may be limited or nonfunctional if the gateway usage setting and gateway address do not match the network infrastructure in which it is installed.

1. **Do not use default gateway in system.** Select this radio button to disable the gateway when there is no external gateway in the system.
 2. **Use default gateway in system.** Select this radio button to enable the gateway when there is an external gateway in the system. Verify and/or update the gateway address as necessary, so that it matches the address of the system gateway.
 3. In all cases the **Gateway** field must contain a valid IP address and must not be blank.
- d. When the new configuration, IP address and subnet mask have been entered, click the **Submit** button.
 - e. Verify that the information is correct on the **Submit Results** page.
 - f. Power cycle the drive in order to store the new information on the *EtherNet/IP Option Card*.
 - g. **Note:** The IP address in the browser address bar will have to be changed to the drive's new IP address and the web page refreshed in order to continue to communicate with the *EtherNet/IP Option Card* web pages.



Configuration: **USER**
IP Address: **192.168.1.37**
Subnet mask: **255.255.255.0**
Enable Browser Interface
Gateway Usage Disabled

EtherNet/IP Option Kit CM092

13. Finish the EtherNet/IP Option Card installation.

- a. Remove power from the AC drive and wait for the charge lamp to be completely extinguished. Wait at least five additional minutes for the drive to be completely discharged. Measure the AC drive DC bus voltage and verify that it is at a safe level.

⚠ WARNING

Dangerous voltages in excess of 400VDC (230V drives) or 800VDC (460V drives) are present at the DC bus terminals of the drive.

- b. Reinstall all drive covers and the operator keypad. Apply power to the drive.
- c. Set parameters b1-01 and b1-02 to their appropriate values. Refer to the table to the right for available b1-01 and b1-02 values.

Parameter	Function	Data	Description	Default
b1-01	Reference Source	0	Digital Operator	1
		1	Terminal Strip	
		2	Built-in Modbus RTU RS-485 Terminals	
		3	Option Kit (EtherNet/IP Option)	
		4	Pulse Input (F7 and G7 Only)	
b1-02	Run Source	0	Digital Operator	1
		1	Terminal Strip	
		2	Built-in Modbus RTU RS-485 Terminals	
		3	Option Kit (EtherNet/IP Option)	

14. Resetting the EtherNet/IP Option Card to its default configuration

The factory default settings are as follows:

Configure Network Parameters: DHCP

IP Address: 192.168.1.20

Subnet: 255.255.255.0

Gateway: 192.168.1.1

Symptom: The Yaskawa EtherNet/IP Option Card Main web page does not display on the PC web browser screen.

Corrective Action: Check that the PC is set up, properly connected and that an IP address has been assigned to both the server and the node and that they are on the same local network.

If the web page is still not visible after confirming PC set up, then reset the configuration of the EtherNet/IP Option Card to its factory default as follows:

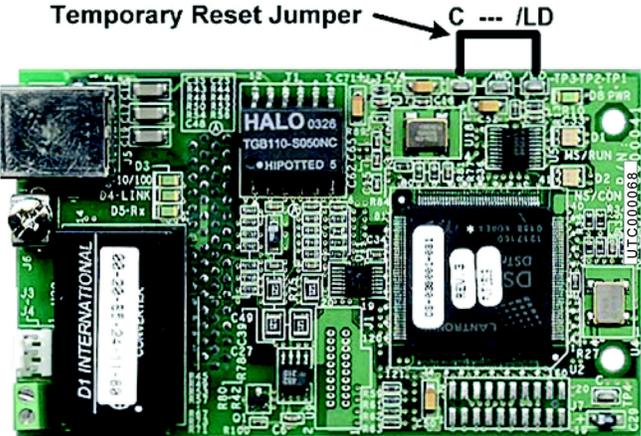
- a. Remove power from the AC drive and wait for the charge lamp to be completely extinguished. Wait at least five additional minutes for the drive to be completely discharged. Measure the AC drive DC bus voltage and verify that it is at a safe level.

⚠ WARNING

Dangerous voltages in excess of 400VDC (230V drives) or 800VDC (460V drives) are present at the DC bus terminals of the drive.

- b. Place an **insulated wire reset jumper** between test points C and /LD on the EtherNet/IP Option Card as shown in the figure to the right.
- c. Reapply power to the AC drive and wait approximately 10 seconds for the power-up cycle to complete.
- d. Remove power from the AC drive and remove the jumper between C and /LD on the EtherNet/IP Option Card.
- e. Reapply power to the AC drive and wait approximately 10 seconds for the power-up sequence to complete.

**Insulated Wire Reset Jumper
(Customer supplied)**



15. Important notes

- a. It is strongly recommended that **shielded** CAT-5 patch or crossover cable be used for all network cables. (Refer to step 8 above for the proper selection of patch or crossover cable).
- b. The maximum number of simultaneous connections is: 1 for I/O, 4 for Explicit, 2 for Drive Wizard.
- c. To simplify the drive configuration, EDS file can be obtained at www.yaskawa.com. Select **Downloads, By Inverter Drives, By**

Product, and **Network Comms-Ethernet**. Then select the appropriate EDS file based on the drive series and the latest version from those listed. EDS files for individual drive models are compressed into a single Zip file and need to be un-zipped into a temporary directory in order to be installed.

- d. Refer to the appropriate user, programming or parameter access manual for a complete list of drive parameters and registers available. A list of applicable manuals is available at the end of this document.

16. Drive labeling and EDS files

- a. Place the supplied MAC ID label on the side of the drive either above or below the drive nameplate.

MAC ID: 00-20-B5-24-11-13

MODEL: CIMR-G7U20P4	SPEC: 20P41A
INPUT: AC3PH 200 - 240V 50/60Hz 3.8A	
OUTPUT: AC3PH 0 - 240V 0 - 400Hz 3.2A 1.2kVA	
O/N:	MASS: 3.0kg
S/N: 1W0149999991W0001	PRG:
1W0149999991W0001	
FILE NO: E131457	

- b. To simplify the drive configuration, EDS file can be obtained at www.yaskawa.com. Select **Downloads, By Inverter Drives, By Product, and Network Comms-Ethernet**. Then select the appropriate EDS file based on the drive series and the latest version from those listed. EDS files for individual drive models are compressed into a single Zip file.

17. EtherNet/IP Option Card fault codes

The table of *EtherNet/IP Option Card* fault codes returned by the drive is shown below. Refer to the appropriate drive user and/or programming manual(s) for drive specific information on the fault returned.

EtherNet/IP Fault Code [hex]	Description	EtherNet/IP Fault Code [hex]	Description
0000h	None	5300h	OPE errors (01,02,03,05,06,07,08,09,10,11)
2120h	Ground Fault (GF)	6320h	EEPROM R/W Error (ERR)
2130h	Short Circuit (SC)	7110h	Dynamic Braking Transistor (RR)
2200h	Inverter Overload (OL2)	7112h	Dynamic Braking Resistor (RH)
2220h	Motor Overload (OL1)	7301h	PG Open (PGO)
2221h	Overtorque Detection 1 (OL3)	7310h	Overspeed Detection (OS)
2222h	Overtorque Detection 2 (OL4)	7310h	Speed Deviation (DEV)
2300h	Overcurrent (OC)	7500h	<i>EtherNet/IP</i> Communication Error (BUS)
2310h	High Slip Braking (OL7)	8110h	Feedback Loss (FBL)
3130h	Input Phase Loss (PF)	8313h	Zero Servo Fault (SVE)
3130h	Output Phase Loss (LF)	8321h	Out of Control (CF)
3210h	DC Bus Overvoltage (OV)	8321h	Undertorque Detection 1 (UL3)
3220h	DC Bus Undervoltage (UV1)	8321h	Undertorque Detection 2 (UL4)
3222h	MC Answerback (UV3)	9000h	External Fault on Terminal S3 (EF3)
4200h	Heatsink Over-temperature (OH)	9000h	External Fault on Terminal S4 (EF4)
4210h	Heatsink Maximum Temperature (OH1)	9000h	External Fault on Terminal S5 (EF5)
4300h	Motor Overheat 1 (OH3)	9000h	External Fault on Terminal S6 (EF6)
4310h	Motor Overheat 2 (OH4)	9000h	External Fault on Terminal S7 (EF7)
5110h	CTL PS Undervoltage (UV2)	9000h	External Fault on Terminal S8 (EF8)
5120h	DC Bus Fuse Open (PUF)	9000h	External Fault Through Option Card (EF0)
5300h	Operator Disconnected (OPR)	-	-

EtherNet/IP Option Card Supported Class Summary

01 – Identity Object	06 – Connection Manager Object	2A – AC Drive Object	F5 – TCP/IP Object
02 – Message Router Object	28 – Motor Object	64 – Yaskawa Command Object	F6 – Ethernet Link Object
04 – Assembly Object	29 – Control Supervisor Object	65 – Yaskawa Status Object	

Supported Input Instances for Assembly Object Class 04

◆ Basic Speed Control Input Instance 20 (14h)

Input	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	-	-	-	-	-	Fault Reset	-	Run Forward
20 (14h)	1h	Reserved							
	2h	Speed Reference (Low Byte) [Scaled by parameter o1-03] [U1-01]							
	3h	Speed Reference (High Byte) [Scaled by parameter o1-03] [U1-01]							

◆ Extended Speed Control Input Instance 21 (15h)

Input	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	-	Net Reference	Net Run/Stop	-	-	Fault Reset	Run Reverse	Run Forward
21 (15h)	1h	Reserved							
	2h	Speed Reference (Low Byte) [Scaled by parameter o1-03] [U1-01]							
	3h	Speed Reference (High Byte) [Scaled by parameter o1-03] [U1-01]							

◆ Basic Speed Control Input Instance 22 (16h)

Input	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	-	-	-	-	-	Fault Reset	-	Run Forward
22 (16h)	1h	Reserved							
	2h	Speed Reference (Low Byte) [Scaled by parameter o1-03] [U1-01]							
	3h	Speed Reference (High Byte) [Scaled by parameter o1-03] [U1-01]							
	4h	Torque Reference (Low Byte) [0.1%] [U1-09]							
	5h	Torque Reference (High Byte) [0.1%] [U1-09]							

◆ Extended Speed Control Input Instance 23 (17h)

Input	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	-	Net Reference	Net Run/Stop	-	-	Fault Reset	Run Reverse	Run Forward
23 (17h)	1h	Reserved							
	2h	Speed Reference (Low Byte) [Scaled by parameter o1-03] [U1-01]							
	3h	Speed Reference (High Byte) [Scaled by parameter o1-03] [U1-01]							
	4h	Torque Reference (Low Byte) [0.1%] [U1-09]							
	5h	Torque Reference (High Byte) [0.1%] [U1-09]							

◆ Yaskawa Standard Speed/Torque Control Input Instance 101 (65h)

Input	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	Terminal S8	Terminal S7	Terminal S6	Terminal S5	Terminal S4	Terminal S3	Run Reverse	Run Forward
	1h	Terminal M5-M6	Terminal M3-M4	Terminal M1-M2	-	-	-	Fault Reset	External Fault
101 (65h)	2h	Speed Reference (Low Byte) [Scaled by parameter o1-03] [U1-01]							
	3h	Speed Reference (High Byte) [Scaled by parameter o1-03] [U1-01]							
	4h	Torque Reference (Low Byte) [0.1%] [U1-09]							
	5h	Torque Reference (High Byte) [0.1%] [U1-09]							
	6h	Reserved							
	7h	Reserved							

◆ **Yaskawa Standard Speed/Torque Control Input Instance 115 (73h)**

Input	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	Terminal S8	Terminal S7	Terminal S6	Terminal S5	Terminal S4	Terminal S3	Run Reverse	Run Forward
	1h	Terminal M5-M6	Terminal M3-M4	Terminal M1-M2	-	-	-	Fault Reset	External Fault
115 (73h)	2h	Speed Reference (Low Byte) [Scaled by parameter o1-03] [U1-01]							
	3h	Speed Reference (High Byte) [Scaled by parameter o1-03] [U1-01]							
	4h	Torque Reference (Low Byte) [0.1%] [U1-09]							
	5h	Torque Reference (High Byte) [0.1%] [U1-09]							
	6h	Torque Compensation (Low Byte) [0.1%]							
	7h	Torque Compensation (High Byte) [0.1%]							
	8h ~ Bh	Reserved							
	Ch	Analog Output Terminal FM (Low Byte) [-726 ~ +726 (-11VDC ~ +11VDC)]							
	Dh	Analog Output Terminal FM (High Byte) [-726 ~ +726 (-11VDC ~ +11VDC)]							
	Eh	Analog Output Terminal AM (Low Byte) [-726 ~ +726 (-11VDC ~ +11VDC)]							
	Fh	Analog Output Terminal AM (High Byte) [-726 ~ +726 (-11VDC ~ +11VDC)]							
	10h	Digital Output Terminal M1-M2 (Low Byte)							
	11h	Digital Output Terminal M3-M4 (High Byte)							
	14h ~ 15h	Network Control (bit 0: Network Speed Reference, bit 1: Network Run Command)							
16h ~ 27h	Reserved								

Supported Output Instances for Assembly Object Class 04

◆ **Basic Speed Control Output Instance 70 (46h)**

Output	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	-	-	-	-	-	Running Fwd	-	Fault
70 (46h)	1h	Reserved							
	2h	Output Frequency (Low Byte) [Scaled by parameter o1-03] [U1-02]							
	3h	Output Frequency (High Byte) [Scaled by parameter o1-03] [U1-02]							

◆ **Extended Speed Control Output Instance 71 (47h)**

Output	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	Speed Agree	Net Reference	Net Run/Stop	Drive Ready	Running Rev	Running Fwd	Alarm	Fault
71 (47h)	1h	Reserved							
	2h	Output Frequency (Low Byte) [Scaled by parameter o1-03] [U1-02]							
	3h	Output Frequency (High Byte) [Scaled by parameter o1-03] [U1-02]							

◆ **Basic Speed Control Output Instance 72 (48h)**

Output	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	-	-	-	-	-	Running Fwd	-	Fault
72 (48h)	1h	Reserved							
	2h	Output Frequency (Low Byte) [Scaled by parameter o1-03] [U1-02]							
	3h	Output Frequency (High Byte) [Scaled by parameter o1-03] [U1-02]							
	4h	Torque Reference (Low Byte) [0.1%] [U1-09]							
	5h	Torque Reference (High Byte) [0.1%] [U1-09]							

◆ **Extended Speed Control Output Instance 73 (49h)**

Output	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	Speed Agree	Net Reference	Net Run/Stop	Drive Ready	Running Rev	Running Fwd	Alarm	Fault
73 (49h)	1h	Reserved							
	2h	Output Frequency (Low Byte) [Scaled by parameter o1-03] [U1-02]							
	3h	Output Frequency (High Byte) [Scaled by parameter o1-03] [U1-02]							
	4h	Torque Reference (Low Byte) [0.1%] [U1-09]							
	5h	Torque Reference (High Byte) [0.1%] [U1-09]							

◆ **Yaskawa Standard Speed/Torque Output Instance 151 (97h)**

Output	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	@Fault	@Alarm	@Drive Ready	@Speed Agree	@Reset	@Running Rev	@Zero Speed	@Running Fwd
	1h	@Zero Servo Complete	-	Terminal M5-M6	Terminal M3-M4	Terminal M1-M2	@Local Mode	Undervoltage	@OPE Error
151 (97h)	2h	Output Frequency (Low Byte) [Scaled by parameter o1-03] [U1-02]							
	3h	Output Frequency (High Byte) [Scaled by parameter o1-03] [U1-02]							
	4h	Torque Reference (Low Byte) [0.1%] [U1-09]							
	5h	Torque Reference (High Byte) [0.1%] [U1-09]							
	6h	Output Current (Low Byte) [0.01A up to 11kW, 0.1A 15kW and above] [U1-03]							
	7h	Output Current (High Byte) [0.01A up to 11kW, 0.1A 15kW and above] [U1-03]							

◆ **Yaskawa Standard Speed/Torque Output Instance 155 (9Bh)**

Output	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Instance	0h	Fault	Alarm	Drive Ready	Speed Agree	Reset Active	Running Rev	Zero Speed	Running Fwd
	1h	Zero Servo Complete	-	Terminal M5-M6	Terminal M3-M4	Terminal M1-M2	Local Mode	Undervoltage	OPE Error
155 (9Bh)	2h	Motor Speed (Low Byte) [Scaled by parameter o1-03] [U1-05] [Not available in V/F control mode (A1-02 = 0)]							
	3h	Motor Speed (High Byte) [Scaled by parameter o1-03] [U1-05] [Not available in V/F control mode (A1-02 = 0)]							
	4h	Torque Reference (Low Byte) [0.1%] [U1-09]							
	5h	Torque Reference (High Byte) [0.1%] [U1-09]							
	6h	PG Counter Channel 1 (Low Byte) [rolling counter from -32,766 ~ 32,767]							
	7h	PG Counter Channel 1 (High Byte) [rolling counter from -32,766 ~ 32,767]							
	8h	Frequency Reference (Low Byte) [Scaled by parameter o1-03] [U1-01]							
	9h	Frequency Reference (High Byte) [Scaled by parameter o1-03] [U1-01]							
	Ah	Output Frequency (Low Byte) [Scaled by parameter o1-03] [U1-02]							
	Bh	Output Frequency (High Byte) [Scaled by parameter o1-03] [U1-02]							
	Ch	Output Current (Low Byte) [0.01A up to 11kW, 0.1A 15kW and above] [U1-03]							
	Dh	Output Current (High Byte) [0.01A up to 11kW, 0.1A 15kW and above] [U1-03]							
	Eh	Terminal A2 Output (Low Byte) [0.1%] [U1-16]							
	Fh	Terminal A2 Output (High Byte) [0.1%] [U1-16]							
	10h	Main Circuit DC Voltage (Low Byte) [1VDC] [U1-07]							
	11h	Main Circuit DC Voltage (High Byte) [1VDC] [U1-07]							
	12h	Error Alarm 1 (Low Byte) [See Section 15 on Page 5 for a list of fault codes]							
	13h	Error Alarm 1 (High Byte) [See Section 15 on Page 5 for a list of fault codes]							
	14h	Error Alarm 2 (Low Byte) [See Section 15 on Page 5 for a list of fault codes]							
	15h	Error Alarm 2 (High Byte) [See Section 15 on Page 5 for a list of fault codes]							
	16h	Error Alarm 3 (Low Byte) [See Section 15 on Page 5 for a list of fault codes]							
	17h	Error Alarm 3 (High Byte) [See Section 15 on Page 5 for a list of fault codes]							
	18h	Terminal A3 Output (Low Byte) [0.1%] [U1-17]							
	19h	Terminal A3 Output (High Byte) [0.1%] [U1-17]							
	1Ah	Digital Input Terminal Bit Field (Low Byte) [Terminals S1 ~ S8] [U1-10]							
	1Bh	Digital Input Terminal Bit Field (High Byte) [Terminals S1 ~ S8] [U1-10]							
	1Ch	Terminal A1 Output (Low Byte) [0.1%] [U1-15]							
1Dh	Terminal A1 Output (High Byte) [0.1%] [U1-15]								
1Eh	PG Counter Channel 2 (Low Byte) [rolling counter from -32,766 ~ 32,767]								
1Fh	PG Counter Channel 2 (High Byte) [rolling counter from -32,766 ~ 32,767]								
20h	Drive Software Number (U1-14)								
21h ~ 27h	Reserved								

Copies of this Installation Guide along with all technical manuals in ".pdf" format and support files may be obtained from either the CD supplied with the drive or from www.yaskawa.com. Printed copies of any Yaskawa manual may be obtained by contacting the nearest Yaskawa office. Information on EtherNet/IP may be obtained from www.odva.org.

Reference documents:

EtherNet/IP Option Card Installation Guide - IG.AFD.26

EtherNet/IP Option Card Installation Guide for G5HHP - IG.G5HHP.26

EtherNet/IP Option Card Technical Manual - TM.AFD.26

Application Note - Using the Yaskawa AC Drive "EtherNet/IP" Option with Controllogix / Compactlogix Programmable Controllers - AN.AFD.09

Application Note - Commissioning the Yaskawa Drive EtherNet/IP Option with the Rockwell BOOTP/DHCP Server - AN.AFD.10

G5U Technical Manual - TM.4515

G5M Modbus Technical Manual - TM.4025

E7U Drive User Manual - TM.E7.01

E7U Drive Programming Manual - TM.E7.02

F7U Drive User Manual - TM.F7.01

F7U Drive Programming Manual - TM.F7.02

F7U Drive Parameter Access Technical Manual - TM.F7.11

G7U Drive Technical Manual - TM.G7.01

P7U Drive User Manual - TM.P7.01

P7U Drive Programming Manual - TM.P7.02

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YASKAWA ELECTRIC AMERICA, INC.

Chicago-Corporate Headquarters
2121 Norman Drive South, Waukegan, IL 60085, U.S.A.
Phone: (800) YASKAWA (800-927-5292) Fax: (847) 887-7310
Internet: <http://www.yaskawa.com>

MOTOMAN INC.

805 Liberty Lane, West Carrollton, OH 45449, U.S.A.
Phone: (937) 847-6200 Fax: (937) 847-6277
Internet: <http://www.motoman.com>

YASKAWA ELECTRIC CORPORATION

New Pier Takeshiba South Tower, 1-16-1, Kaigan, Minatoku, Tokyo, 105-0022, Japan
Phone: 81-3-5402-4511 Fax: 81-3-5402-4580
Internet: <http://www.yaskawa.co.jp>

YASKAWA ELETRICO DO BRASIL COMERCIO LTDA.

Avenida Fagundes Filho, 620 Bairro Saude Sao Paulo-SP, Brasil CEP: 04304-000
Phone: 55-11-5071-2552 Fax: 55-11-5581-8795
Internet: <http://www.yaskawa.com.br>

YASKAWA ELECTRIC EUROPE GmbH

Hauptstrabe 185,65760 Eschborn, Germany
Phone: 49-6196-569-300 Fax: 49-6196-569-398

MOTOMAN ROBOTICS AB

Box 504 S38525, Torsas, Sweden
Phone: 46-486-48800 Fax: 46-486-41410

MOTOMAN ROBOTEC GmbH

Kammerfeldstrabe 1, 85391 Allershausen, Germany
Phone: 49-8166-900 Fax: 49-8166-9039

YASKAWA ELECTRIC UK LTD.

1 Hunt Hill Orchardton Woods Cumbernauld, G68 9LF, Scotland, United Kingdom
Phone: 44-12-3673-5000 Fax: 44-12-3645-8182

YASKAWA ELECTRIC KOREA CORPORATION

Paik Nam Bldg. 901 188-3, 1-Ga Euljiro, Joong-Gu, Seoul, Korea

Phone: 82-2-776-7844 Fax: 82-2-753-2639

YASKAWA ELECTRIC (SINGAPORE) PTE. LTD.

Head Office: 151 Lorong Chuan, #04-01, New Tech Park Singapore 556741, Singapore
Phone: 65-282-3003 Fax: 65-289-3003

TAIPEI OFFICE (AND YATEC ENGINEERING CORPORATION)

10F 146 Sung Chiang Road, Taipei, Taiwan
Phone: 886-2-2563-0010 Fax: 886-2-2567-4677

YASKAWA JASON (HK) COMPANY LIMITED

Rm. 2909-10, Hong Kong Plaza, 186-191 Connaught Road West, Hong Kong
Phone: 852-2803-2385 Fax: 852-2547-5773

BEIJING OFFICE

Room No. 301 Office Building of Beijing International Club,
21 Jianguomanwai Avenue, Beijing 100020, China
Phone: 86-10-6532-1850 Fax: 86-10-6532-1851

SHANGHAI OFFICE

27 Hui He Road Shanghai 200437 China
Phone: 86-21-6553-6600 Fax: 86-21-6531-4242

SHANGHAI YASKAWA-TONJI M & E CO., LTD.

27 Hui He Road Shanghai 200437 China
Phone: 86-21-6533-2828 Fax: 86-21-6553-6677

BEIJING YASKAWA BEIKE AUTOMATION ENGINEERING CO., LTD.

30 Xue Yuan Road, Haidian, Beijing 100083 China
Phone: 86-10-6232-9943 Fax: 86-10-6234-5002

SHOUGANG MOTOMAN ROBOT CO., LTD.

7, Yongchang-North Street, Beijing Economic & Technological Development Area,
Beijing 100076 China
Phone: 86-10-6788-0551 Fax: 86-10-6788-2878

YEA, TAICHUNG OFFICE IN TAIWAN

B1, 6F, No.51, Section 2, Kung-Yi Road, Taichung City, Taiwan, R.O.C.
Phone: 886-4-2320-2227 Fax: 886-4-2320-2239

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