**Applicable products: Yaskawa F7U, G7U, P7U, E7U, G5M (Spec F), G5M(600V) and G5HHP drives.**

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

Insulated Tubing:
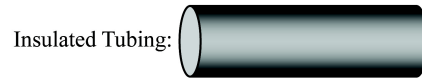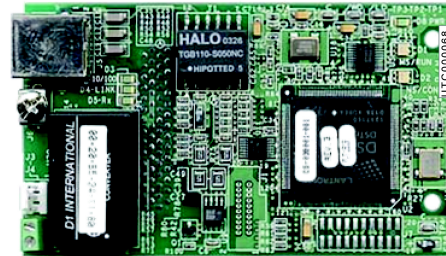
Example label: MAC ID: 00-20-B5-24-11-13

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.

⚠ WARNING

Dangerous voltages in excess of 400VDC (230V drives) or 800VDC (460V drives) are present at the DC bus terminals of the drive.
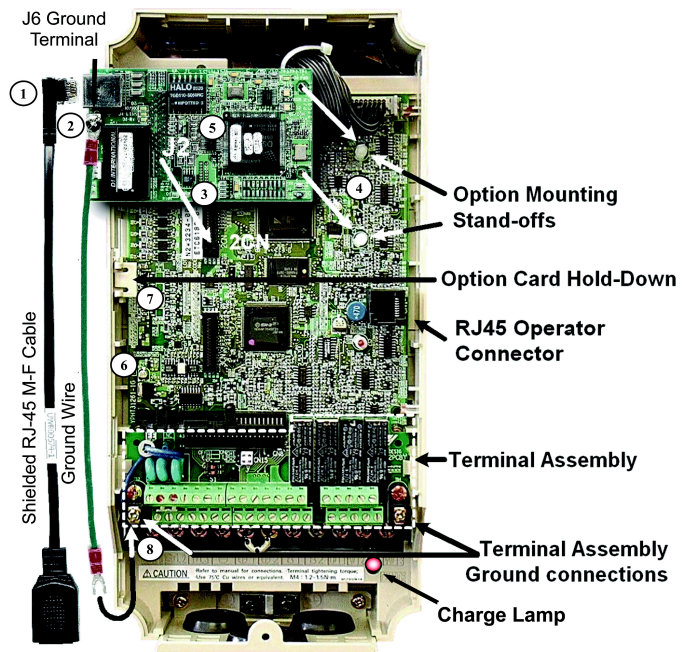
4. **Remove the operator keypad and drive cover.**

   a. Remove the operator keypad.

   b. Remove the terminal and control covers.

   c. Remove the option card hold-down by carefully compressing the top and bottom until it becomes free of its holder. Lift it out.

   Option card hold-down
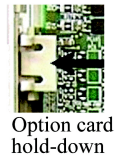
5. **Mount the EtherNet/IP Option Card on the drive**

   Note: Skip to step 6 for G5HHP drives.

   a. Connect the RJ-45 M-F cable supplied in this kit to the EtherNet/IP Option Card.

   b. Connect the ground wire supplied to ground terminal J6 on the EtherNet/IP Option Card.

   c. Align the J2 connector on the back of the EtherNet/IP Option Card with its mating 2CN connector on the drive control card.

   d. 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.

   e. 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.

   f. Route the RJ-45 M-F cable and the ground wire along the left-inside of the AC drive enclosure.

   g. Replace the option card hold-down.

   h. Connect the ground wire from the option card terminal J6 to the terminal assembly ground connection.

J6 Ground Terminal

Shielded RJ-45 M-F Cable

Ground Wire

Option Mounting Stand-offs

Option Card Hold-Down

RJ45 Operator Connector

Terminal Assembly

Terminal Assembly Ground connections

Charge Lamp

6. **Mount the EtherNet/IP Option Card on the G5HHP drive.**

   a. Attach the CM092 EtherNet/IP Option ground wire to the ground terminal as shown. Make sure that the terminal is connected to a reliable, noise free ground.

   b. Connect the CM092 EtherNet/IP Option card to the 2CN connector on the master control board.

   c. Secure the Cat-5 Ethernet cable to the support with a tie wrap to provide strain relief for the connector.

   d. Attach the Ethernet cable to the CM092 EtherNet/IP Option card as shown.

   e. Fully engage the stand-offs in the mounting holes on the card.

   f. Route the Ethernet cable away from any power wires within the cabinet. When outside of the cabinet, run the Ethernet cable in its own conduit. However, it may be run along with low voltage signals such as feedback wiring.
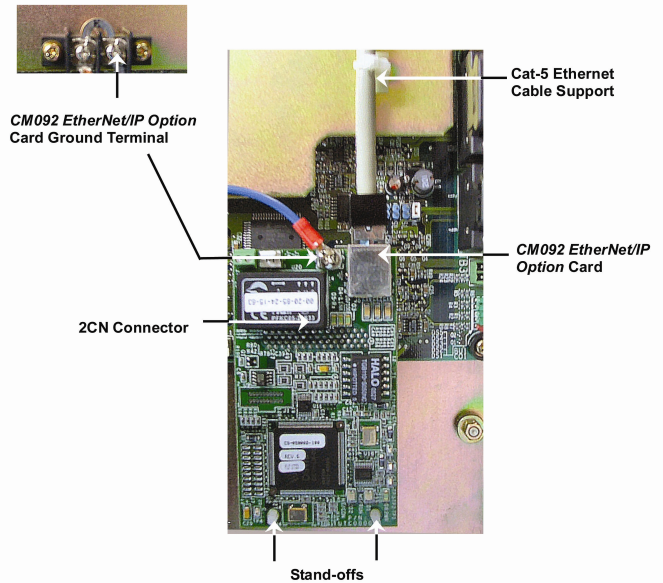
7. **Diagnostic LED power-up test sequence**

   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.
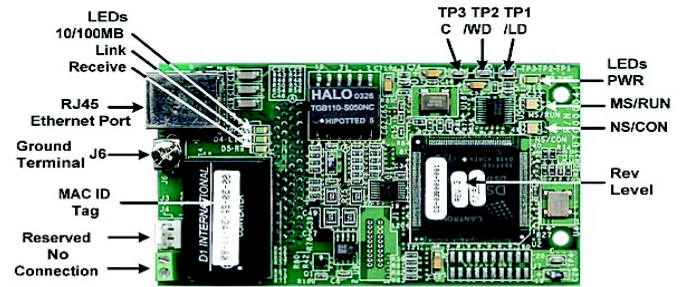
Successful Initialization:

The *EtherNet/IP Option Card* hardware is installed and operating correctly with the LEDs in the states shown in **bold text** in step 8 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.

8. **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)
D3	10/100	GREEN – 100Mbs Connection Speed

LED	Label	Description
D4	LINK	**GREEN – Link Established**
D5	Rx	GREEN – Message Being Received
D8	PWR	**GREEN - Appropriate Power Supplied to Card**

9. **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.

   a. 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.

      1. **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.

      2. **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**.

   b. 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.

10. **Configure the EtherNet/IP network.**

    a. 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.

    b. 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.

11. **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.
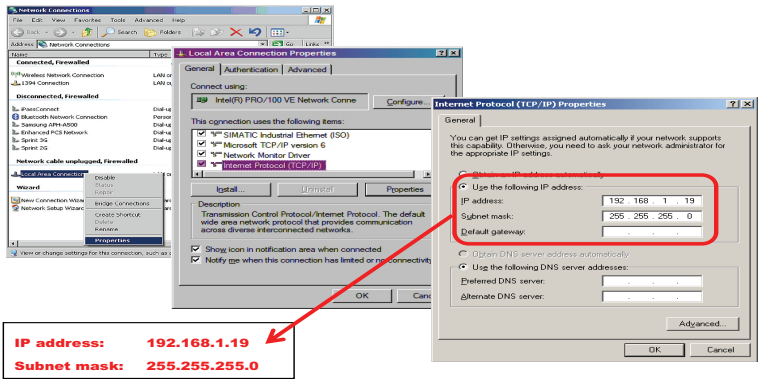
12. **Accessing the *EtherNet/IP Option Card* web pages**

    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. The main web page should be displayed.

13. **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.
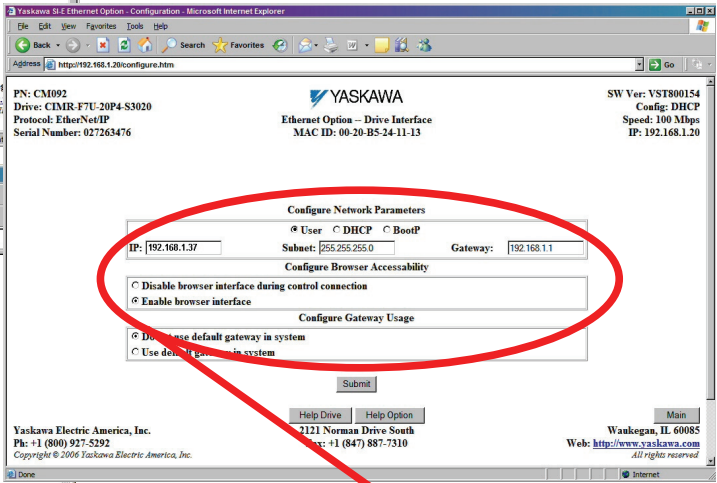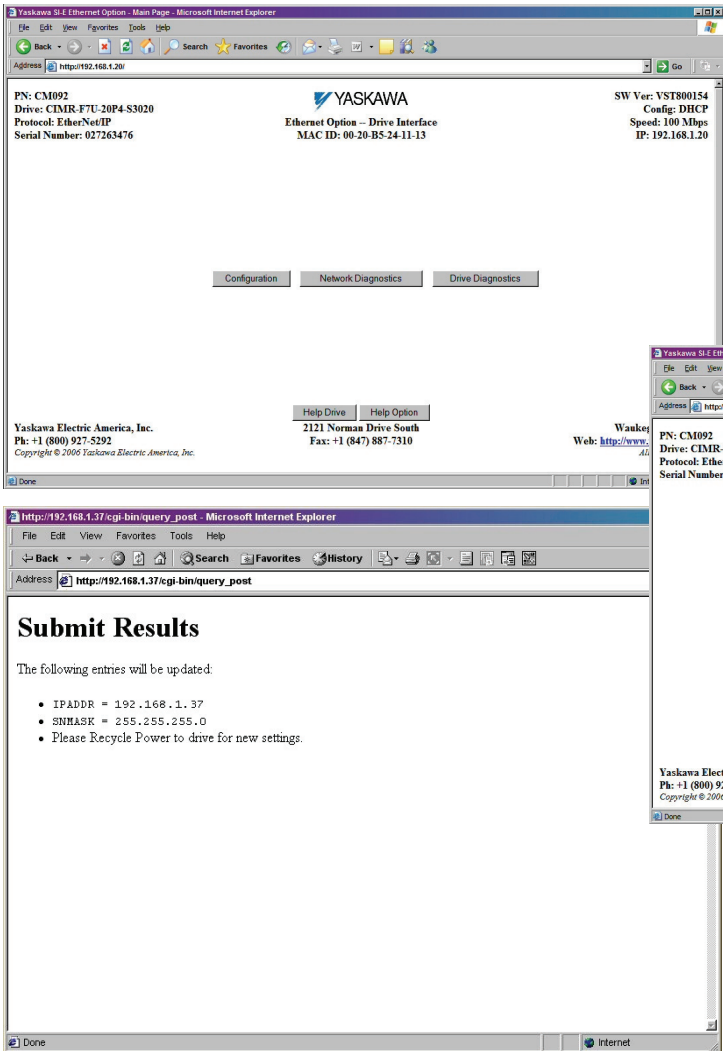
Configuration: **USER**
IP Address: **192.168.1.37**
Subnet mask: **255.255.255.0**
Enable Browser Interface
Gateway Usage Disabled

14. 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)***	

15. 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)
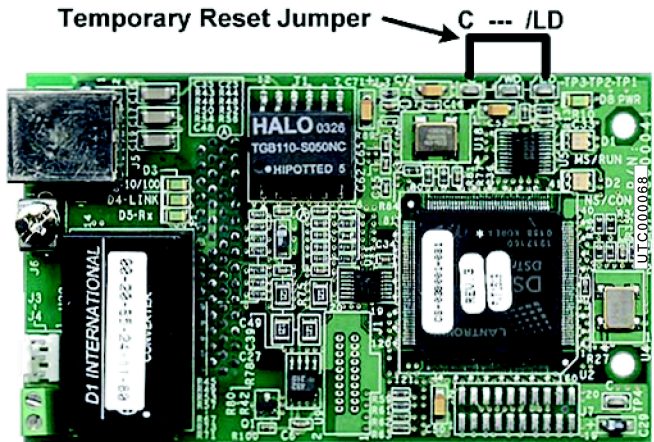
16. Important notes

a. It is strongly recommended that **shielded** CAT-5 patch or crossover cable be used for all network cables. (Refer to step 9 above for the proper selection of patch or crossover cable).

b. Switches implementing IGMP snooping are strongly recommended. When IGMP snooping is used, devices will only receive the multicast packets in which they are interested.

c. The maximum number of simultaneous connections is: 1 for I/O, 4 for Explicit, 2 for Drive Wizard.

d. 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.

e. 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.

17. 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	

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

INVERTER MODULE	
CODE NO.: EUJ615162	
SERV. NO.: 4W06X7847760001	
	MASS: 125KG
YASKAWA AMERICA, INC.	

          Nameplate for all drives except G5HHP drives   Nameplate for G5HHP drives

    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.

18. *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.

Note: G5HHP drive differences are denoted by bold text inside carets <> in the following table.

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) **<Reserved>**
2200h	Inverter Overload (OL2)	7112h	Dynamic Braking Resistor (RH) **<Reserved>**
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	*EtherNet/IP* Communication Error (BUS)
2310h	High Slip Braking (OL7) <Reserved>	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) **<External Fault 3 (EF3) (Terminal 11)>**
4200h	Heatsink Over-temperature (OH)	9000h	External Fault on Terminal S4 (EF4) **<External Fault 4 (EF4) (Terminal 12)>**
4210h	Heatsink Maximum Temperature (OH1)	9000h	External Fault on Terminal S5 (EF5) **<External Fault 5 (EF5) (Terminal 13)>**
4300h	Motor Overheat 1 (OH3)	9000h	External Fault on Terminal S6 (EF6) **<External Fault 6 (EF6) (Terminal 14)>**
4310h	Motor Overheat 2 (OH4)	9000h	External Fault on Terminal S7 (EF7) **<External Fault 7 (EF7) (Terminal 15)>**
5110h	CTL PS Undervoltage (UV2)	9000h	External Fault on Terminal S8 (EF8) **<External Fault 8 (EF8) (Terminal 16)>**
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 Output Instances for Assembly Object Class 04

Note: G5HHP drive differences are denoted by bold text inside carets <> in the following tables.

♦ **Basic Speed Control Output Instance 20 (14h)**

Output Instance	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
20 (14h)	0h	-	-	-	-	-	Fault Reset	-	Run Forward
	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 Output Instance 21 (15h)**

Output Instance	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
21 (15h)	0h	-	Net Reference **<Not Available>**	Net Run/Stop **<Not Available>**	-	-	Fault Reset	Run Reverse	Run Forward
	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]							

♦ **Speed and Torque Control Output Instance 22 (16h)**

Output Instance	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
22 (16h)	0h	-	-	-	-	-	Fault Reset	-	Run Forward
	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 and Torque Control Output Instance 23 (17h)**

Output Instance	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
23 (17h)	0h	-	Net Reference **<Not Available>**	Net Run/Stop **<Not Available>**	-	-	Fault Reset	Run Reverse	Run Forward
	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 Output Instance 101 (65h)**

Output Instance	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
101 (65h)	0h	Terminal S8 <Terminal 16>	Terminal S7 <Terminal 15>	Terminal S6 <Terminal 14>	Terminal S5 <Terminal 13>	Terminal S4 <Terminal 12>	Terminal S3 <Terminal 11>	Run Reverse	Run Forward
	1h	Terminal M5-M6 <Terminals 20-50>	Terminal M3-M4 <Terminals 19-50>	Terminal M1-M2 <Terminals 53-57>	-	-	-	Fault Reset	External Fault
	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 <Torque Compensation (Low Byte) [0.1%]>							
	7h	Reserved <Torque Compensation (High Byte) [0.1%]>							

♦ **Yaskawa Extended Speed/Torque Control Output Instance 115 (73h)**

Output Instance	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
115 (73h)	0h	Terminal S8 <Terminal 16>	Terminal S7 <Terminal 15>	Terminal S6 <Terminal 14>	Terminal S5 <Terminal 13>	Terminal S4 <Terminal 12>	Terminal S3 <Terminal 11>	Run Reverse	Run Forward
	1h	Terminal M5-M6 <Terminals 20-50>	Terminal M3-M4 <Terminals 19-50>	Terminal M1-M2 <Terminals 53-57>	-	-	-	Fault Reset	External Fault
	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)] <Analog Input Terminal 36 (Low Byte)>							
	Dh	Analog Output Terminal FM (High Byte) [-726 ~ +726 (-11VDC ~ +11VDC)] <Analog Input Terminal 36 (High Byte)>							
	Eh	Analog Output Terminal AM (Low Byte) [-726 ~ +726 (-11VDC ~ +11VDC)] <Analog Input Terminal 39 (Low Byte)>							
	Fh	Analog Output Terminal AM (High Byte) [-726 ~ +726 (-11VDC ~ +11VDC)] <Analog Input Terminal 39 (High Byte)>							
	10h	Digital Output Terminal M1-M2 (Low Byte) <Digital Output (Low Byte) U1-11>							
	11h	Digital Output Terminal M3-M4 (High Byte) <Digital Output (High Byte) U1-11>							
	12h ~ 13h	Reserved							
	14h ~ 15h	Network Control (bit 0: Network Speed Reference, bit 1: Network Run Command) <Reserved>							
	16h ~ 27h	Reserved							

Supported Input Instances for Assembly Object Class 04

Note: G5HHP drive differences are denoted by bold text inside carets <> in the following tables.

♦ **Basic Speed Control Input Instance 70 (46h)**

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

♦ **Extended Speed Control Input Instance 71 (47h)**

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

♦ **Speed and Torque Control Input Instance 72 (48h)**

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

♦ **Extended Speed and Torque Control Input Instance 73 (49h)**

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

♦   **Yaskawa Standard Speed/Torque Input Instance 151 (97h)**

Output Instance	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
151 (97h)	0h	@Fault	@Alarm	@Drive Ready	@Speed Agree	@Reset	@Running Rev	@Zero Speed	@Running Fwd
	1h	@Zero Servo Complete <Zero Servo>	-	Terminal M5-M6 <Terminals 20-50>	Terminal M3-M4 <Terminals 19-50>	Terminal M1-M2 <Terminals 53-57>	@Local Mode	Undervoltage	@OPE Error
	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]							

♦   **Table 1: Yaskawa Extended Speed/Torque Input Instance 155 (9Bh)**

Output Instance	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
155 (9Bh)	0h	Fault	Alarm	Drive Ready	Speed Agree	Reset Active	Running Rev	Zero Speed	Running Fwd
	1h	Zero Servo Complete <Zero Servo>	-	Terminal M5-M6 <Terminal 20-50>	Terminal M3-M4 <Terminals 19-50>	Terminal M1-M2 <Terminals 53-57>	Local Mode	Undervoltage	OPE Error
	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] <PG Count Value (PG-X2) (Low Byte)*>							
	7h	PG Counter Channel 1 (High Byte) [rolling counter from -32,766 ~ 32,767] <PG Count Value (PG-X2) (High Byte)*>							
	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] <Inverter AI Terminal 39 Output (Low Byte)>							
	Fh	Terminal A2 Output (High Byte) [0.1%] [U1-16] <Inverter AI Terminal 39 Output (High Byte)>							
	10h	Main Circuit DC Voltage (Low Byte) [1VDC] [U1-07]							
	11h	Main Circuit DC Voltage (High Byte) [1VDC] [U1-07]							
Refer to Table 2 for G5HHP Error Alarm Details	12h	Error Alarm 1 (Low Byte) [See Section 18 on Page 7 for a list of fault codes]							
	13h	Error Alarm 1 (High Byte) [See Section 18 on Page 7 for a list of fault codes]							
	14h	Error Alarm 2 (Low Byte) [See Section 18 on Page 7 for a list of fault codes]							
	15h	Error Alarm 2 (High Byte) [See Section 18 on Page 7 for a list of fault codes]							
	16h	Error Alarm 3 (Low Byte) [See Section 18 on Page 7 for a list of fault codes]							
	17h	Error Alarm 3 (High Byte) [See Section 18 on Page 7 for a list of fault codes]							

♦ **Table 1: (continued) Yaskawa Extended Speed/Torque Input Instance 155**

Output Instance	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
155 (9Bh)	18h	Terminal A3 Output (Low Byte) [0.1%] [U1-17] **<Inverter AI Terminal 42 Input (Low Byte)>**							
	19h	Terminal A3 Output (High Byte) [0.1%] [U1-17] **<Inverter AI Terminal 42 Input (High Byte)>**							
	1Ah	Digital Input Terminal Bit Field (Low Byte) [Terminals S1 ~ S8] [U1-10] **<Inverter DI Terminals 9~16 Input (Low Byte)>**							
	1Bh	Digital Input Terminal Bit Field (High Byte) [Terminals S1 ~ S8] [U1-10] **<Inverter DI Terminals 9~16 Input (High Byte)>**							
	1Ch	Terminal A1 Output (Low Byte) [0.1%] [U1-15] **<Inverter AI Terminal 36 Input (Low Byte)>**							
	1Dh	Terminal A1 Output (High Byte) [0.1%] [U1-15] **<Inverter AI Terminal 36 Input (High Byte)>**							
	1Eh	PG Counter Channel 2 (Low Byte) [rolling counter from -32,766 ~ 32,767] **<PG Counter (Ch2) (PG-W2) (Low Byte)**>**							
	1Fh	PG Counter Channel 2 (High Byte) [rolling counter from -32,766 ~ 32,767] **<PG Counter (Ch2) (PG-W2) (High Byte)**>**							
	20h	Drive Software Number (U1-14) **<Reserved>**							
	21h ~ 27h	Reserved							

* Encoder pulse count from PG-X2 option when in flux vector mode. There is no associated drive parameter

** Encoder pulse count from PG-W2 option when in flux vector mode and using motor 2. Speed detection PG counter value.

Table 1 Details: G5HHP bytes 12 to 17 for Instance 155 (9Bh)

Reference details in Table 1: Yaskawa Extended Speed/Torque Input Instance 155 (9Bh) for G5HHP drives bytes 12 to 17.

Bytes 12 (Low) and 13 (High) - Error Alarm Signal 1		Bytes 14 (Low) and 15 (High) - Error Alarm Signal 2		Bytes 16 (Low) and 17 (High) - Error Alarm Signal 3	
Bit	Fault	Bit	Fault	Bit	Fault
0h	PUF DC Bus Fuse Open	0h	EF3 External Fault - Terminal 11	0h	CE Modbus Communication Error
1h	UV1 DC Bus Undervoltage	1h	EF4 External Fault - Terminal 12	1h	BUS EtherNet/IP Bus Fault
2h	UV2 Control Circuit Undervoltage	2h	EF5 External Fault - Terminal 13	2h	<Reserved>
3h	UV3 Main Circuit Contactor Answerback Fault	3h	EF6 External Fault - Terminal 14	3h	<Reserved>
4h	<Reserved>	4h	EF7 External Fault - Terminal 15	4h	CF Out of Control Fault No Determination of Motor Speed
5h	GF Ground Fault	5h	EF8 External Fault - Terminal 16	5h	SVE Zero Servo Fault (Closed loop flux vector only)
6h	OC Overcurrent Fault	6h	<Reserved>	6h	EF0 External Communications Fault
7h	OV Overvoltage Fault	7h	OS Overspeed Fault	7h	<Reserved>
8h	OH Heatsink Over Temperature Fault	8h	DEV Speed Deviation Fault	8h	<Reserved>
9h	OH1 Drive Overheat Fault	9h	PGO PG Open, Encoder (Pulse Generator open circuit)	9h	<Reserved>
Ah	OL1 Motor Overload Fault	Ah	PF Input Phase Loss Fault	Ah	<Reserved>
Bh	OL2 Drive Overload Fault	Bh	LF Output Phase Loss	Bh	<Reserved>
Ch	OL3 Overtorque Fault 1 (L6-02)	Ch	<Reserved>	Ch	<Reserved>
Dh	OL4 Overtorque Fault 2 (L6-05)	Dh	OPR Operator Disconnected	Dh	<Reserved>
Eh	RR Not possible in HHP	Eh	ERR EEPROM R/W Error	Eh	<Reserved>
Fh	RH Not possible in HHP	Fh	<Reserved>	Fh	<Reserved>

♦ **Parameter Specific data for G5HHP Modular Drives**

Name	Addr	Text	Limits	Default	Motor Control Method	Name	Addr	Text	Limits	Default	Motor Control Method
A1-00	100	Language Select	0 ~ 1	0		b3-01	18E	Speed Search Mode Select	0 ~ 1	0	
A1-01	101	Access Level Select	0 ~ 4	2		b3-02	18F	Speed Search Current Level	0 ~ 200	150	
A1-02	102	Control Mode Select	0 ~ 3	0		b3-03	190	Speed Search Decel Time	0.1 ~ 10.0	10.0	
A1-03	103	Initialization Select	0 ~ 3330	0		b4-01	192	Timer On Delay	0.0 ~ 300.0	0.0	
A1-04	104	Password	0 ~ 9999	0		b4-02	193	Timer Off Delay	0.0 ~ 300.0	0.0	
A1-05	105	Password	0 ~ 9999	0		b5-01	194	PID Mode Select	0 ~ 2	0	
A2-01	106	User Parameter 01	180h ~	0		b5-02	195	PID P Gain	0.00 ~ 25.00	1.00	
A2-02	107	User Parameter 02	180h ~	0		b5-03	196	PID I Time	0.0 ~ 360.0	1.0	
A2-03	108	User Parameter 03	180h ~	0		b5-04	197	PID I Limit	0.00 ~ 100.0	100.0	
A2-04	109	User Parameter 04	180h ~	0		b5-05	198	PID D Time	0.0 ~ 10.00	0.00	
A2-05	10A	User Parameter 05	180h ~	0		b5-06	199	PID Limit	0.0 ~ 100.0	100	
A2-06	10B	User Parameter 06	180h ~	0		b5-07	19A	PID Offset	-100.0 ~ +100.0	0.0	
A2-07	10C	User Parameter 07	180h ~	0		b5-08	19B	PID Delay	0.00 ~ 10.00	0.00	
A2-08	10D	User Parameter 08	180h ~	0		b6-01	19C	Dwell Reference at Start	0.0 ~ 150.0	0.0	
A2-09	10E	User Parameter 09	180h ~	0		b6-02	19D	Dwell Time at Start	0.0 ~ 10.0	0.0	
A2-10	10F	User Parameter 10	180h ~	0		b6-03	19E	Dwell Reference at Stop	0.0 ~ 150.0	0.0	
A2-11	110	User Parameter 11	180h ~	0		b6-04	19F	Dwell Time at Stop	0.0 ~ 10.0	0.0	
A2-12	111	User Parameter 12	180h ~	0		b7-01	1A0	Droop Gain	0.0 ~ 100.0	0.0	FV
A2-13	112	User Parameter 13	180h ~	0		b7-02	1A1	Droop Delay	0.03 ~ 2.00	0.05	FV
A2-14	113	User Parameter 14	180h ~	0		b8-01	1A2	Energy Savings Gain	0 ~ 100	80	
A2-15	114	User Parameter 15	180h ~	0		b8-02	1A3	Energy Savings Reference	0.0 ~ 150.0	0.0	
A2-16	115	User Parameter 16	180h ~	0		b9-01	1A4	Zero Servo Gain	0 ~ 100	5	FV
A2-17	116	User Parameter 17	180h ~	0		b9-02	1A5	Zero Servo Completion Width	0 ~ 16383	10	FV
A2-18	117	User Parameter 18	180h ~	0		C1-01	200	Accel Time 1	0.0 ~ 6000.0	30.0	
A2-19	118	User Parameter 19	180h ~	0		C1-02	201	Decel Time 1	0.0 ~ 6000.0	30.0	
A2-20	119	User Parameter 20	180h ~	0		C1-03	202	Accel Time 2	0.0 ~ 6000.0	30.0	
A2-21	11A	User Parameter 21	180h ~	0		C1-04	203	Decel Time 2	0.0 ~ 6000.0	30.0	
A2-22	11B	User Parameter 22	180h ~	0		C1-05	204	Accel Time 3	0.0 ~ 6000.0	30.0	
A2-23	11C	User Parameter 23	180h ~	0		C1-06	205	Decel Time 3	0.0 ~ 6000.0	30.0	
A2-24	11D	User Parameter 24	180h ~	0		C1-07	205	Accel Time 4	0.0 ~ 6000.0	30.0	
A2-25	11E	User Parameter 25	180h ~	0		C1-08	207	Decel Time 4	0.0 ~ 6000.0	30.0	
A2-26	11F	User Parameter 26	180h ~	0		C1-09	208	Fast Stop Time	0.0 ~ 6000.0	30.0	
A2-27	120	User Parameter 27	180h ~	0		C1-10	209	Accel/Decel Unit Select	0 ~ 1	0	
A2-28	121	User Parameter 28	180h ~	0		C1-11	20A	Accel/Decel Switch Frequency	0.0 ~ 150.0	0.0	
A2-29	122	User Parameter 29	180h ~	0		C2-01	20B	S-Curve Accel at Start	0.00 ~ 2.50	0.20	
A2-30	123	User Parameter 30	180h ~	0		C2-02	20C	S-Curve Accel at End	0.00 ~ 2.50	0.20	
A2-31	124	User Parameter 31	180h ~	0		C2-03	20D	S-Curve Decel at Start	0.00 ~ 2.50	0.20	
A2-32	125	User Parameter 32	180h ~	0		C2-04	20E	S-Curve Decel at End	0.00 ~ 2.50	0.20	
b1-01	180	Reference Source Select	0 ~ 3	1		C3-01	20F	Slip Comp Gain	0.00 ~ 2.50	0.00	
b1-02	181	Run Command Source Select	0 ~ 3	1		C3-02	210	Slip Comp Time	0 ~ 10000	2000	
b1-03	182	Stopping Method Select	0 ~ 3	0		C3-03	211	Slip Comp Limit	0 ~ 250	200	

b1-04	183	Reverse Prohibit Select	0 ~ 1	0		C3-04	212	Slip Comp Regen Select	0 ~ 1	0	
b1-05	184	Zero Speed Mode Select	0 ~ 3	0	FV	C3-05	242	Flux Select	0 ~ 1	0	OLV
b1-06	185	I/O Scan Time Select	0 ~ 1	1		C4-01	213	Torque Comp Gain	0.00 ~ 2.50	1.00	
b1-07	186	Local/Remote Select	0 ~ 1	0		C4-02	214	Torque Comp Time	0 ~ 10000	1000	
b2-01	187	DC Injection Start Frequency	0.0 ~ 10.0	0.5		C5-01	215	ASR P Gain	0.00 ~ 300.00	20.00	w/ PG
b2-02	188	DC Injection Current Level	0 ~ 100	50		C5-02	216	ASR I Time	0.000 ~ 10.000	0.500	w/ PG
b2-03	189	DC Injection Time at Start	0.00 ~ 10.00	0.00		C5-03	217	ASR P Gain 2	0.00 ~ 300.00	20.00	w/ PG
b2-04	18A	DC Injection Time at Stop	0.00 ~ 10.00	0.00		C5-04	218	ASR I Time 2	0.000 ~ 10.000	0.500	w/ PG
C5-05	219	ASR Limit	0.0 ~ 20.0	5.0	V/f w/PG	E2-03	310	No-Load Current	0.0 ~ 2000.0	192.0	
C5-06	21A	ASR Delay Time	0.000 ~ 0.500	0.004	FV	E2-04	311	Number of Motor Poles	2 ~ 48	4	w/ PG
C5-07	21B	ASR Switchover Frequency	0.0 ~ 150.0	0.0	FV	E2-05	312	Motor Line-to-Line Resistance	0.000 ~ 65.000	0.010	
C5-08	241	ASR I Limit	0 ~ 400	400	FV	E2-06	313	Leakage Inductance	0.0 ~ 30.0	5.0	OLV, FV
C6-01	21C	Carrier Frequency Upper Limit	0.4 ~ 2.0	2.0		E2-07	314	Saturation Coefficient 1	0.00 ~ 0.50	0.50	OLV, FV
C6-02	21D	Carrier Frequency Lower Limit	0.4 ~ 2.0	1.0		E2-08	315	Saturation Coefficient 2	0.00 ~ 0.75	0.75	OLV, FV
C6-03	21E	Carrier Frequency Gain	00 ~ 99	36		E2-09	316	Mechanical Loss	0.0 ~ 10.0	0.0	OLV, FV
C7-01	21F	Hunting Prevention Select	0 ~ 1	1		E3-01	317	Motor 2 Control Mode Select	0 ~ 1	1	
C7-02	220	Hunting Prevention Gain	0.00 ~ 2.50	1.00		E4-01	318	Motor 2 Max Output Frequency	50.0 ~ 150.0	60.0	
C8-08	22A	AFR Gain	0.00 ~ 10.00	1.00	OLV	E4-02	319	Motor 2 Max Output Voltage	0.0 ~ 510.0	460.0	
C8-09	22B	AFR Time	0 ~ 200	50	OLV	E4-03	31A	Motor 2 Base Frequency	0.0 ~ 150.0	60.0	
C8-30	240	Carrier Frequency in Auto Tune	0 ~ 1	0	OLV	E4-04	31B	Motor 2 Mid Output Frequency A	0.0 ~ 150.0	3.0	
C9-04	24B	CT/VT Operation Mode Select	0 ~ 1			E4-05	31C	Motor 2 Mid Output Voltage A	0.0 ~ 510.0	27.6	
d1-01	280	Frequency Reference 1	0.0 ~ 150.0	0.0		E4-06	31D	Motor 2 Min Output Frequency	0.0 ~ 150.0	1.5	
d1-02	281	Frequency Reference 2	0.0 ~ 150.0	0.0		E4-07	31E	Motor 2 Min Output Voltage	0.0 ~ 510.0	13.8	
d1-03	282	Frequency Reference 3	0.0 ~ 150.0	0.0		E5-01	31F	Motor 2 Rated Current	0.0 ~ 2000.0	740.0	
d1-04	283	Frequency Reference 4	0.0 ~ 150.0	0.0		E5-02	320	Motor 2 Rated Slip	0.00 ~ 20.00	1.30	
d1-05	284	Frequency Reference 5	0.0 ~ 150.0	0.0		E5-03	321	Motor 2 No-Load Current	0.0 ~ 2000.0	192.0	
d1-06	285	Frequency Reference 6	0.0 ~ 150.0	0.0		E5-05	323	Motor 2 Line-to-Line Resistance	0.000 ~ 65.000	0.010	
d1-07	286	Frequency Reference 7	0.0 ~ 150.0	0.0		F1-01	380	Encoder (PG) PPR	0 ~ 60000	1024	w/ PG
d1-08	287	Frequency Reference 8	0.0 ~ 150.0	0.0		F1-02	381	PG Feedback Loss Select	0 ~ 3	1	w/ PG
d1-09	288	Jog Frequency Reference	0.0 ~ 150.0	6.0		F1-03	382	PG Overspeed Select	0 ~ 3	1	w/ PG
d2-01	289	Frequency Reference Upper Limit	0.0 ~ 110.0	100.0		F1-04	383	PG Deviation Select	0 ~ 3	3	w/ PG
d2-02	28A	Frequency Reference Lower Limit	0.0 ~ 109.0	0.0		F1-05	384	PG Rotation Select	0 ~ 1	0	w/ PG
d3-01	28B	Jump Frequency 1	0.0 ~ 150.0	0.0		F1-06	385	PG Output Monitor Ratio	1 ~ 132	1	w/ PG
d3-02	28C	Jump Frequency 2	0.0 ~ 150.0	0.0		F1-07	386	PG Integral Accel/Decel Select	0 ~ 1	0	V/f w/PG
d3-03	28D	Jump Frequency 3	0.0 ~ 150.0	0.0		F1-08	387	PG Overspeed Level	0 ~ 120	115	w/ PG
d3-04	28E	Jump Bandwidth	0.0 ~ 20.0	1.0		F1-09	388	PG Overspeed Time	0.0 ~ 2.0	0.0	w/ PG

d4-01	28F	MOP Reference Memory Select	$0 \sim 1$	0			F1-10	389	Speed Deviation Level	$0 \sim 50$	10	w/ PG
d4-02	290	Trim Control Level	$0 \sim 100$	10			F1-11	38A	Speed Deviation Delay Time	$0.0 \sim 10.0$	0.5	w/ PG
d5-01	291	Torque Control Select	$0 \sim 1$	0	FV		F1-12	38B	PG Gear Teeth 1	$0 \sim 1000$	0	V/f w/PG
d5-02	292	Torque Reference Filter	$0 \sim 1000$	0	FV		F1-13	38C	PG Gear Teeth 2	$0 \sim 1000$	0	V/f w/PG
d5-03	293	Speed Limit Select	$1 \sim 2$	1	FV		F1-14	397	PG Loss Detection Delay Time	$0.0 \sim 10.0$	2.0	w/ PG
d5-04	294	Speed Limit Value	$-120 \sim +120$	0	FV		F2-01	38D	A1-14B Input Select	$0 \sim 1$	0	
d5-05	295	Speed Limit Bias	$0 \sim 120$	10	FV		F3-01	38E	DI-08/DI-16H2 Input Select	$0 \sim 7$	0	
d5-06	296	Speed/Torque Switchover Time	$0 \sim 1000$	0	FV		F4-01	38F	AO-08/AO-12 Channel 1 Select	$1 \sim 33$	2	
E1-01	300	Input Voltage	$360 \sim 460$	460			F4-02	390	AO-08/AO-12 Channel 1 Gain	$0.00 \sim 2.50$	1.00	
E1-02	301	Motor Overload Curve Select	$0 \sim 1$	0			F4-03	391	AO-08/AO-12 Channel 2 Select	$1 \sim 33$	3	
E1-03	302	V/f Pattern Select	$0 \sim F$	F			F4-04	392	AO-08/AO-12 Channel 2 Gain	$0.00 \sim 2.50$	0.50	
E1-04	303	Maximum Output Frequency	$50.0 \sim 150.0$	60.0			F5-01	393	DO-02C Channel 1 Select	$0 \sim 37$	0	
E1-05	304	Maximum Output Voltage	$0.0 \sim 510.0$	460.0			F5-02	394	DO-02C Channel 2 Select	$0 \sim 37$	1	
E1-06	305	Base Frequency	$0.0 \sim 150.0$	60.0			F6-01	395	DO-08 Output Select	$0 \sim 1$	0	
E1-07	306	Mid Output Frequency A	$0.0 \sim 150.0$	3.0			F7-01	396	PO-36F Output Select	$0 \sim 4$	1	
E1-08	307	Mid Output Voltage A	$0.0 \sim 510.0$	27.6			F8-01	398	SI-F/G E-15 Detection Select	$0 \sim 3$	1	
E1-09	308	Minimum Output Frequency	$0.0 \sim 150.0$	1.5			F9-01	399	EF0 Fault Select	$0 \sim 1$	0	
E1-10	309	Minimum Output Voltage	$0.0 \sim 510.0$	13.8			F9-02	39A	EF0 Detection Select	$0 \sim 1$	0	
E1-11	30A	Mid Output Frequency B	$0.0 \sim 150.0$	0.0			F9-03	39B	EF0 Response Select	$0 \sim 3$	1	
E1-12	30B	Mid Output Voltage B	$0.0 \sim 510.0$	0.0			F9-04	39C	Trace Sample Time	$0 \sim 60000$	0	
E1-13	30C	Base Voltage	$0.0 \sim 510.0$	0.0			F9-06	39F	BUS Fault Select	$0 \sim 3$	1	
E2-01	30E	Motor Rated Current	$80.0 \sim 1600.0$	740.0			H1-01	400	DI Terminal 11 Function Select	$0 \sim 77h$	24	
E2-02	30F	Motor Rated Slip	$0.00 \sim 20.00$	1.30			H1-02	401	DI Terminal 12 Function Select	$0 \sim 77h$	14	
H1-03	402	DI Terminal 13 Function Select	$0 \sim 77h$	3			L3-03	48A	Stall Prevention Accel CHP Limit	$0 \sim 100$	50	
H1-04	403	DI Terminal 14 Function Select	$0 \sim 77h$	4			L3-04	48B	Stall Prevention Decel Select	$0 \sim 2$	1	
H1-05	404	DI Terminal 15 Function Select	$0 \sim 77h$	6			L3-05	48C	Stall Prevention Run Select	$0 \sim 2$	1	
H1-06	405	DI Terminal 16 Function Select	$0 \sim 77h$	8			L3-06	48D	Stall Prevention Run Level	$30 \sim 200$	160	
H2-01	406	DO Terminal 53-57 Function	$0 \sim 37h$	0			L4-01	490	Speed Agree Level	$0.0 \sim 150.0$	0.0	
H2-02	407	DO Terminal 19-50 Function	$0 \sim 37h$	1			L4-02	491	Speed Agree Width	$0.0 \sim 20.0$	2.0	
H2-03	408	DO Terminal 20-50 Function	$0 \sim 37h$	2			L4-03	492	Speed Agree Detection Level	$0.0 \sim 150.0$	0.0	
H3-01	409	AI Terminal 36 Signal Type Select	$0 \sim 1$	0			L4-04	493	Speed Agree Detection Width	$0.0 \sim 20.0$	2.0	
H3-02	40A	AI Terminal 36 Gain	$0.0 \sim 100.0$	100.0			L4-05	494	Reference Loss Detection Select	$0 \sim 1$	0	
H3-03	40B	AI Terminal 36 Bias	$-100.0 \sim +100.0$	0.0			L5-01	495	Number of Auto Restarts Select	$0 \sim 10$	0	
H3-04	40C	AI Terminal 42 Signal Type Select	$0 \sim 1$	0			L5-02	496	Auto Restart Fault Select	$0 \sim 1$	0	

H3-05	40D	AI Terminal 42 Function Select	1 ~ 1Fh	0		L6-01	498	Torque Detection Select 1	0 ~ 4	0	
H3-06	40E	AI Terminal 42 Gain	0.0 ~ 100.0	100.0		L6-02	499	Torque Detection Level 1	0 ~ 300	150	
H3-07	40F	AI Terminal 42 Bias	-100.0 ~ +100.0	0.0		L6-03	49A	Torque Detection Time 1	0.0 ~ 10.0	0.1	
H3-08	410	AI Terminal 39 Signal Type Select	0 ~ 2	2		L6-04	49B	Torque Detection Select 2	0 ~ 4	0	
H3-09	411	AI Terminal 39 Function Select	1 ~ 1Fh	1F		L6-05	49C	Torque Detection Level 2	0 ~ 300	150	
H3-10	412	AI Terminal 39 Gain	0.0 ~ 100.0	100.0		L6-06	49D	Torque Detection Time 2	0.0 ~ 10.0	0.1	
H3-11	413	AI Terminal 39 Bias	-100.0 ~ +100.0	0.0		L7-01	49E	Forward Torque Limit	0 ~ 300	200	OLV, FV
H3-12	414	AI Terminals Filter Time	0.00 ~ 2.00	0.00		L7-02	49F	Reverse Torque Limit	0 ~ 300	200	OLV, FV
H4-01	415	AO Terminal 45 Function Select	1 ~ 33h	2		L7-03	4A0	Forward Regen Torque Limit	0 ~ 300	200	OLV, FV
H4-02	416	AO Terminal 45 Gain	0.00 ~ 2.50	1.00		L7-04	4A1	Reverse Regen Torque Limit	0 ~ 300	200	OLV, FV
H4-03	417	AO Terminal 45 Bias	-10 ~ +10	0.0		L8-01	4A4	DB Resistor Protection Select	0 ~ 1	0	
H4-04	418	AO Terminal 48 Function Select	1 ~ 33h	3		L8-02	4A5	OH Pre-Alarm Level	50 ~ 110	95	
H4-05	419	AO Terminal 48 Gain	0.00 ~ 2.50	0.50		L8-03	4A6	OH Pre-Alarm Select	0 ~ 3	3	
H4-06	41A	AO Terminal 48 Bias	-10.0 ~ +10.0	0.0		L8-05	4A8	Input Phase Loss Select	0 ~ 1	0	
H4-07	41B	AO Terminal Signal Type Select	0 ~ 1	0		L8-07	4AA	Output Phase Loss Select	0 ~ 1	1	
H5-01	41C	Modbus Node Address	0 ~ 20	1F		o1-01	500	User Monitor Select	4 ~ 33	6	
H5-02	41D	Modbus Baud Rate Select	0 ~ 3	3		o1-02	501	Power-On Monitor Select	1 ~ 4	1	
H5-03	41E	Modbus Parity Select	0 ~ 2	0		o1-03	502	Display Scaling Select	0 ~ 39999	0	
H5-04	41F	Serial Fault Stopping Method	0 ~ 3	3		o1-04	503	V/f Pattern Unit Select	0 ~ 1	0	
H5-05	420	Serial Fault Detection Select	0 ~ 1	1		o1-05	504	Modbus Address Display Select	0 ~ 1	6	
L1-01	480	Motor Overload Fault Select	0 ~ 1	1		o2-01	505	Local/Remote Key Select	0 ~ 1	1	
L1-02	481	Motor Overload Time Constant	0.1 ~ 5.0	1.0		o2-02	506	Stop Key Function Select	0 ~ 1	1	
L2-01	482	Power Loss Detection Select	0 ~ 2	0		o2-03	507	User Initialize Default Select	0 ~ 2	0	
L2-02	483	Power Loss Ride-Thru Time	0.0 ~ 2.0	1.0		o2-04	508	Drive Model kVA Select	0 ~ FFh	4400	
L2-03	484	Minimum Baseblock Time	0.0 ~ 25.5	10.0		o2-05	509	Operator MOP Function Select	0 ~ 1	0	
L2-04	485	Voltage Recovery Ramp Time	0.0 ~ 5.0	3.0		o2-06	50A	Operator Detection Select	0 ~ 1	1	
L2-05	486	Undervoltage Detection Level	300 ~ 420	380		o2-07	50B	Elapsed Time Initial Setting	0 ~ 65535	0	
L2-06	487	KEB Decel Time	0.0 ~ 100.0	0.0		o2-08	50C	Elapsed Time Function Select	0 ~ 1	0	
L3-01	488	Stall Prevention Accel Select	0 ~ 2	1		o2-09	50D	Initialization Mode Select	0 ~ 2	1	
L3-02	489	Stall Prevention Accel Level	0 ~ 200	150		-	-	-	-	-	

Note: 1. Default values were determined through a 2-wire reset on drive model 4400. Default values may be different for different drive models.

2. Use address FFDDh for the ACCEPT command

3. Use address FFFDh for the ENTER command

IMPORTANT: **Limit the use of the ENTER command. The drive has limited writes when using the ENTER command.**

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 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***

*G5HHP Drive Technical Manual - **TM.G5HHP.01***

*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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