

YASKAWA AC Drive GA700 Supplemental Technical Manual

Introduction

Thank you for purchasing YASKAWA AC Drive GA700.

This supplemental manual describes the function added with a GA700 software upgrade (PRG: 01034), and should be read to ensure proper usage. Read this manual together with the “GA700 Quick Start Guide (TOEP C710617 xx)” included with the product and the “GA700 Technical Manual (SIEP C710617 xx)” that can be found on our documentation website. Always observe the safety messages and precautions to ensure correct application of the product. The item numbers in this manual correspond to the item numbers in the GA700 Technical Manual.

How to Check the Software Version

The software version is indicated on the nameplate affixed to the side of the product, and also can be viewed by using monitor parameter *U1-25*.

Contents

This supplemental manual explains about the new function, “Short-term data log function”. The keypads that support this function are as follows.

◆ Compatible Keypads

Keypad	Version ^{*1}
LCD Keypad (Model: JVOP-KPLCA04xxx)	REV: H or later
Bluetooth LCD Keypad (Model: JVOP-KPLCC04xxx)	REV: H or later

^{*1} The keypad version “REV” is located on the nameplate on the back of the keypad.

4 Startup Procedure and Test Run

4.2 Keypad Components and Functions

◆ LCD Display

Underlined text shows additions and modifications.

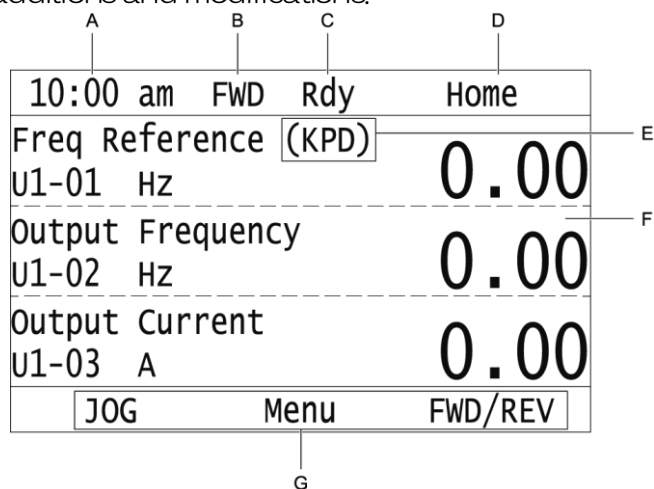


Figure 4.2 LCD Display Indications

Table 4.2 LCD Display Indications and Meanings

Symbol	Name	Description
A	Time display area	Shows the current time. Set the time on the default settings screen. Note: The time display flashes when using the data log function.
B	Forward run/Reverse indication	Shows direction of motor rotation. • FWD: Shown when set to Forward run. • REV: Shown when set to Reverse run. Note: In DriveWorksEZ operation, FWD or REV flash.
C	Ready	The screen will show Rdy when the drive is ready for operation or when the drive is running.
D	Mode display area	Shows the name of the current mode or screen.
E	Frequency reference source indicator	Shows the current frequency reference source. • KPD: keypad • AI: analog input terminal (terminals A1 to A3) • COM: MEMOBUS/Modbus communications • OPT: option card • RP: pulse train input terminal (terminal RP)
F	Data display area	Shows parameter values, monitor values, and details of the results of operations.
G	Function keys 1 to 3 (F1 to F3)	The function names shown in this area will change when the selected screen changes. Push one of the function keys F1 to F3 on the keypad to do the function.

4.6 Keypad Operation

◆ Start Data Logging

The data log function saves drive status information. Monitors U_x -xx are the source of log information. The procedure in this section shows how to start logging data.

There are two types of data log functions:

- Long-term data log: Saves data continuously over a long time period.
- Short-term data log: Saves data for a certain time period before and after the detection of a trigger with a short sampling cycle.

You can record a maximum of 10 monitors for long-term data logs and a maximum of four monitors for short-term data logs.

1. Make sure that a microSD card is inserted in the keypad.

2. Push **F2** (Home) to show the HOME screen.

Note: • When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.

• If [Home] is not shown on **F2**, push **F1** (Back) to show [Home] on **F2**.

3. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
Freq Reference (AI)			0.00
U1-01 Hz			0.00
Output Frequency			0.00
U1-02 Hz			0.00
Output Current			0.00
U1-03 A			0.00
Menu			

4. Push **▲** or **▼** to select [Diagnostic Tools], then push **↵**.

10:00 am	FWD	Menu
User Custom Parameters		
Parameter Backup/Restore		
Modified Param / Fault Log		
Auto-Tuning		
Initial Setup		
Diagnostic Tools		
Home		

5. Push **▲** or **▼** to select [Data Logger], then push **↵**.

10:00 am	FWD	Tools
Data Logger		
Backlight		
Drive Information		
Back	Home	Setup

6. Push **▲** or **▼** to select [Yes] or [No], then push **↵**.

10:00	FWD	Tools
Begin Data Logging?		
No		
Yes		
Long Log		
Back	Home	

• [Yes]: Data logging starts.

• [No]: Data logging will not start.

Note: The type of data log that will start is displayed at the bottom of the screen.

If the drive was logging data when you entered the command, the keypad look like this:

- The following items are displayed for a long-term data log: start time and elapsed time of the data log.

10:00 am	FWD	Tools
End Data Logging?		
No		
Yes		
Start Time : 2016/01/01 00:00		
Period : 00:10:00		
Back	Home	

- The following items are displayed for a short-term data log: data log start time or trigger detection time and trigger detection count, as well as the log processing status (e.g., sampling or recording).

10:07	FWD	Tools
End Data Logging?		
No		
Yes		
Triggered : 2020/02/06 10:06		
Short Log : 1/Sampling		
Back		Home

◆ Configuring the Data Log Content

■ Set Type of Data Log

The procedure in this section shows how to set the type of data log.

1. Push **F2** (Home) to show the HOME screen.

Note: • When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.

- If the screen does not show [Home] for **F2**, push **F1** (Back), and then push **F2** to show [Home].

2. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
Freq Reference (AI)			
U1-01	Hz		0.00
Output Frequency			
U1-02	Hz		0.00
Output Current			
U1-03	A		0.00
Menu			

3. Push  or  to select [Diagnostic Tools], then push .

10:00 am	FWD	Menu
User Custom Parameters		
Parameter Backup/Restore		
Modified Param / Fault Log		
Auto-Tuning		
Initial Setup		
Diagnostic Tools		
Home		

4. Push  or  to select [Data Logger], then push **F3** (Setup).

10:00 am	FWD	Tools
Data Logger		
Backlight		
Drive Information		
Back Home Setup		

5. Push  or  to select [Log Type], then push .

10:09	FWD	Setup
Log Type		
Log Sampling Interval		
Log Monitor		
Back Home		

6. Push  or  to select the type of data log, then push .

10:11	FWD	Parameters
Log Type		
p5-00		1
Short Term Log		
Default : 0		
Back		Default

The procedure to set the type of data log is complete.

■ Set the Sampling Time

The procedure in this section shows how to set the sampling time for data logging.

1. Push **F2** (Home) to show the HOME screen.

Note: When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.

• If the screen does not show [Home] for **F2**, push **F1** (Back), and then push **F2** to show [Home].

2. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
Freq Reference (AI)			0.00
U1-01	Hz		
Output Frequency			0.00
U1-02	Hz		
Output Current			0.00
U1-03	A		
Menu			

3. Push **▲** or **▼** to select [Diagnostic Tools], then push **↵**.

10:00 am	FWD	Menu
User Custom Parameters		
Parameter Backup/Restore		
Modified Param / Fault Log		
Auto-Tuning		
Initial Setup		
Diagnostic Tools		
Home		

4. Push **▲** or **▼** to select [Data Logger], then push **F3** (Setup).

10:00 am	FWD	Tools
Data Logger		
Backlight		
Drive Information		
Back Home Setup		

5. Push **▲** or **▼** to select [Log Sampling Interval], then push **↵**.

10:13	FWD	Setup
Log Type		
Log Sampling Interval		
Log Monitor		
Back Home		

6. Push **<** or **>** to select the digit, then push **▲** or **▼** to change the value.

10:00 am	FWD	Parameters
Log Sampling Interval		
05-02	01000	ms
Default : 1000ms		
Range : 100~60000		
Back Default Min/Max		

Note: The range of the sampling time that can be set depends on the type of data log.

7. When you complete changing the value, push **↵**.

10:00 am	FWD	Parameters
Log Sampling Interval		
05-02	20000	ms
Default : 1000ms		
Range : 100~60000		
Back Default Min/Max		

The procedure to set the sampling time is complete.

■ Set the Sampling Time for a Trend Log

The procedure in this section shows how to set the sampling time for a trend log. When a trend log is set, it works concurrently with the short-term data log to save the data before the trigger is detected.

Note: This setting is displayed only when short-term data log is selected for the data log type.

1. Push **F2** (Home) to show the HOME screen.

Note: When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.

• If the screen does not show [Home] for **F2**, push **F1** (Back), and then push **F2** to show [Home].

2. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
Freq Reference (AI)			
U1-01	Hz		0.00
Output Frequency			
U1-02	Hz		0.00
Output Current			
U1-03	A		0.00
Menu			

3. Push **▲** or **▼** to select [Diagnostic Tools], then push **↵**.

10:00 am	FWD	Menu
User Custom Parameters		
Parameter Backup/Restore		
Modified Param / Fault Log		
Auto-Tuning		
Initial Setup		
Diagnostic Tools		
Home		

4. Push **▲** or **▼** to select [Data Logger], then push **F3** (Setup).

10:00 am	FWD	Tools
Data Logger		
Backlight		
Drive Information		
Back Home Setup		

5. Push **▲** or **▼** to select [Trend Log Sampling Selection], then push **↵**.

10:14	FWD	Setup
Log Type		
Log Sampling Interval		
Trend Log Sampling Selection		
Log Monitor		
Log Trigger		
Back Home		

6. Push **▲** or **▼** to select the sampling time for the trend log, then push **↵**.

10:15	FWD	Parameters
Trend Log Sampling Selection		
05-21		1
0.1 s (About 1 hour)		
Default : 0		
Back Default		

The procedure to set the sampling time for the trend log is complete.

■ Set Monitor to Log

The procedure in this section shows how to set the monitor for which to log data.

1. Push **F2** (Home) to show the HOME screen.

Note: • When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.

• If the screen does not show [Home] for **F2**, push **F1** (Back), and then push **F2** to show [Home].

2. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
Freq Reference (AI)			
U1-01	Hz		0.00
Output Frequency			
U1-02	Hz		0.00
Output Current			
U1-03	A		0.00
Menu			

3. Push **▲** or **▼** to select [Diagnostic Tools], then push **↵**.

10:00 am	FWD	Menu
User Custom Parameters		
Parameter Backup/Restore		
Modified Param / Fault Log		
Auto-Tuning		
Initial Setup		
Diagnostic Tools		
Home		

4. Push **▲** or **▼** to select [Data Logger], then push **F3** (Setup).

10:00 am	FWD	Tools
Data Logger		
Backlight		
Drive Information		
Back Home Setup		

5. Push **▲** or **▼** to select [Log Monitor], then push **↵**.

10:16	FWD	Setup
Log Type		
Log Sampling Interval		
Log Monitor		
Back Home		

6. Push **▲** or **▼** to select the save-destination monitor parameter, then push **↵**.

10:00 am	FWD	Setup
Log Monitor		
Log Monitor Data 1		
o5-03	101	(101)
Log Monitor Data 2		
o5-04	102	(102)
Back Home		

Note: The quantity of log monitor data that can be set depends on the type of data log.

7. Push **▲** or **▼** to select the monitor number to be logged, then push **↵**.

10:00 am	FWD	Parameters
Log Monitor Data 1		
o5-03	101	
Frequency Reference		
Default : 101		
Back Default		

The configuration procedure is complete.

■ Set the Trigger

The procedure in this section shows how to set the trigger for data logging.

Note: This setting is displayed only when short-term data log is selected for the data log type.

1. Push **F2** (Home) to show the HOME screen.

Note: • When the drive is in HOME Mode, the screen shows [Home] in the upper right-hand corner of the screen.

• If the screen does not show [Home] for **F2**, push **F1** (Back), and then push **F2** to show [Home].

2. Push **F2** (Menu).

10:00 am	FWD	Rdy	Home
Freq Reference (AI)			
U1-01	Hz		0.00
Output Frequency			
U1-02	Hz		0.00
Output Current			
U1-03	A		0.00
Menu			

3. Push **▲** or **▼** to select [Diagnostic Tools], then push **↵**.

10:00 am	FWD		Menu
User Custom Parameters			
Parameter Backup/Restore			
Modified Param / Fault Log			
Auto-Tuning			
Initial Setup			
Diagnostic Tools			
Home			

4. Push **▲** or **▼** to select [Data Logger], then push **F3** (Setup).

10:00 am	FWD		Tools
Data Logger			
Backlight			
Drive Information			
Back Home Setup			

5. Push **▲** or **▼** to select [Log Trigger], then push **↵**.

10:17	FWD		Setup
Log Type			
Log Sampling Interval			
Trend Log Sampling Selection			
Log Monitor			
Log Trigger			
Back Home			

6. Push **▲** or **▼** to select [Trigger Type Selection], then push **↵**.

10:19	FWD		Setup
Trigger Type Selection			
Trigger Object			
Trigger Condition			
Pre-Trigger Setting			
Back Home			

7. Push **▲** or **▼** to select the type of trigger, then push **↵**.

10:20	FWD		Parameters
Trigger Type Selection			
o5-15 0			
Digital Trigger			
Default : 0			
Back Default			

Note: There are no detection width and detection time settings for the analog trigger in the data log function. If variations in the analog signal become a problem, select the digital trigger and use o5-16 = 66/67 [Digital Trigger Object = Comparator 1/2]. Set the conditions for the comparator function with H2-20 to H2-32.

8. Push  or  to select [Trigger Object], then push .

10:30	FWD	Setup
Trigger Type Selection		
Trigger Object		
Trigger Condition		
Pre-Trigger Setting		
Back Home		

9. Push  or  to select the trigger target, then push .

10:30	FWD	Parameters
Digital Trigger Object		
p5-16 E		
Fault		
Default : E		
Back Default		

Note: If analog trigger is selected for the trigger type, set the trigger target and trigger level.

10. Push  or  to select [Trigger Condition], then push .

10:32	FWD	Setup
Trigger Type Selection		
Trigger Object		
Trigger Condition		
Pre-Trigger Setting		
Back Home		

11. Push  or  to select the trigger detection conditions, then push .

10:33	FWD	Parameters
Trigger Condition		
p5-19 0		
Rising Edge		
Default : 0		
Back Default		

12. Push  or  to select [Pre-Trigger Setting], then push .

10:33	FWD	Setup
Trigger Type Selection		
Trigger Object		
Trigger Condition		
Pre-Trigger Setting		
Back Home		

13. Push  or  to select the digit, then push  or  to change the value.

10:33	FWD	Parameters
Pre-Trigger Setting		
p5-20 090 %		
Default : 90%		
Range : 0~100		
Back Default Min/Max		

14. When you complete changing the value, push .

10:34	FWD	Parameters
Pre-Trigger Setting		
p5-20 070 %		
Default : 90%		
Range : 0~100		
Back Default Min/Max		

The procedure to set the trigger is complete.

7 Troubleshooting

7.5 Minor Faults/Alarms

Underlined text shows additions and modifications.

Code	Name	Causes	Possible Solutions
LoG	Com Error / Abnormal SD card	There is not a micro SD in the keypad.	Put a micro SD card in the keypad.
		• The drive is connected to USB. • The number of log communication files is more than 1000. • The micro SD card does not have available memory space. • The line number data in a log communication file is not correct. • A communication error between the keypad and drive occurred during a log communication.	Set <i>a5-01 = 0 [Log Start/Stop Selection = OFF]</i> .
		<u>Short-term data logging started while a keypad that does not support short-term data logs was connected.</u>	• <u>Connect a keypad that supports short-term data logs.</u> <u>Note: The LCD keypad and Bluetooth LCD keypad with REV: H or later are supported. The keypad version “REV” is located on the nameplate on the back of the keypad.</u> • Set <i>a5-00 = 0 [Log Type = Long Term Log]</i>. • Set <i>a5-01 = 0 [Log Start/Stop Selection = OFF]</i>.
Note: If the drive detects this error, the terminal set to <i>H2-01 to H2-04 = 6A [MFDO Function Selection = Data Logger Error]</i> will activate.			

11 Parameter List

11.13 o: Keypad-Related Settings

◆ o5 : Log Function

Underlined text shows additions and modifications.

No. (Hex.)	Name	Description	Default (Range)	Ref.
<u>o5-00</u> (1E81) <u>RUN</u>	<u>Log Type</u>	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Selects the type of data log function. This parameter is only available when using an LCD keypad. 0 : Long Term Log 1 : Short Term Log	<u>0</u> (0 - 1)	=
o5-01 (1551) RUN	Log Start/Stop Selection	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log function. This parameter is only available when using an LCD keypad. 0 : OFF 1 : ON	0 (0 - 1)	-
o5-02 (1552) RUN	Log Sampling Interval	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log sampling cycle. This parameter is only available when using an LCD keypad.	1000 ms when <u>o5-00 = 0</u> , 10 ms when <u>o5-00 = 1</u> (0 - 6000 ms)	-
o5-03 (1553) RUN	Log Monitor Data 1	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	101 (000, 101 - 999)	-
o5-04 (1554) RUN	Log Monitor Data 2	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	102 (000, 101 - 999)	-
o5-05 (1555) RUN	Log Monitor Data 3	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	103 (000, 101 - 999)	-
o5-06 (1556) RUN	Log Monitor Data 4	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	107 (000, 101 - 999)	-
o5-07 (1557) RUN	Log Monitor Data 5	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	108 (000, 101 - 999)	-
o5-08 (1558) RUN	Log Monitor Data 6	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	000 (000, 101 - 999)	-
o5-09 (1559) RUN	Log Monitor Data 7	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	000 (000, 101 - 999)	-
o5-10 (155A) RUN	Log Monitor Data 8	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	000 (000, 101 - 999)	-
o5-11 (155B) RUN	Log Monitor Data 9	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	000 (000, 101 - 999)	-
o5-12 (155C) RUN	Log Monitor Data 10	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	000 (000, 101 - 999)	-
<u>o5-15</u> (1E82) <u>RUN</u>	<u>Trigger Type Selection</u>	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Selects the type of trigger for the short-term data log. This parameter is only available when using an LCD keypad. 0 : Digital Trigger 1 : Analog Trigger	<u>0</u> (0 - 1)	=
<u>o5-16</u> (1E83) <u>RUN</u>	<u>Digital Trigger Object</u>	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PN CLV/PM EZOLV Selects the function to set for the digital trigger target from the setting values for multi-function digital outputs. This parameter is only available when using an LCD keypad.	<u>E</u> (0 - FF)	=

No. (Hex.)	Name	Description	Default (Range)	Ref.
<u>o5-17</u> <u>(1E84)</u> <u>RUN</u>	<u>Analog Trigger</u> <u>Object</u>	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Selects the monitor ($Lx-xx$) to set for the analog trigger target. This parameter is only available when using an LCD keypad.	<u>102</u> <u>(0 - 999)</u>	-
<u>o5-18</u> <u>(1E85)</u> <u>RUN</u>	<u>Analog Trigger</u> <u>Level</u>	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the level to compare with the analog trigger target. This parameter is only available when using an LCD keypad.	<u>0.0%</u> <u>(-999.9% - +999.9%)</u>	-
<u>o5-19</u> <u>(1E86)</u> <u>RUN</u>	<u>Trigger Condition</u>	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Selects the condition with which to detect the trigger. This parameter is only available when using an LCD keypad. 0: Rising Edge 1: Falling Edge	<u>0</u> <u>(0 - 1)</u>	-
<u>o5-20</u> <u>(1E87)</u> <u>RUN</u>	<u>Pre-Trigger</u> <u>Setting</u>	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the percentage of data to save before the trigger is detected for the short-term data log. This parameter is only available when using an LCD keypad.	<u>90%</u> <u>(0% - 100%)</u>	-
<u>o5-21</u> <u>(1E88)</u> <u>RUN</u>	<u>Trend Log</u> <u>Sampling Time</u> <u>Selection</u>	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Selects the sampling cycle for the trend log to save data before the trigger is detected. The trend log works concurrently with the short-term data log. This parameter is only available when using an LCD keypad. 0: Trend Log Disabled 1: 0.1 s (About 1 hour) 2: 1 s (About 10 hours) 3: 10 s (About 100 hours) 4: 60 s (About 600 hours)	<u>0</u> <u>(0 - 4)</u>	-

12 Parameter Details

12.11 o: Keypad-Related Settings

◆ o5: Log Function

The data log function saves drive status information as a CSV file in the micro SD memory card in the keypad. Monitors *Ux-xx* are the source of data log information.

There are two types of data log functions:

- Long-term data log: Saves data continuously over a long time period.
- Short-term data log: Saves data for a certain time period before and after the detection of a trigger with a short sampling cycle.

You can record a maximum of 10 monitors for long-term data logs and a maximum of four monitors for short-term data logs.

Change the LCD keypad screen from the main menu to the Diagnostic Tools screen and select the data log function. Set the number of the monitor to record, the sampling time, and the trigger, then start to record the data log.

Table 12.79 Setting Parameters for Data Log Items

No.	Name	Default	Data Log Monitors
<i>o5-03</i>	Log Monitor Data 1	101	<i>U1-01</i> [Frequency Reference]
<i>o5-04</i>	Log Monitor Data 2	102	<i>U1-02</i> [Output Frequency]
<i>o5-05</i>	Log Monitor Data 3	103	<i>U1-03</i> [Output Current]
<i>o5-06</i>	Log Monitor Data 4	107	<i>U1-07</i> [DC Bus Voltage]
<i>o5-07</i>	Log Monitor Data 5	108	<i>U1-08</i> [Output Power]
<i>o5-08</i>	Log Monitor Data 6	000	Not selected
<i>o5-09</i>	Log Monitor Data 7	000	Not selected
<i>o5-10</i>	Log Monitor Data 8	000	Not selected
<i>o5-11</i>	Log Monitor Data 9	000	Not selected
<i>o5-12</i>	Log Monitor Data 10	000	Not selected

Note: • Do not de-energize the drive or disconnect the keypad from the drive during log transfer communication. Failure to obey can cause the log function to fail after you restore power or connect the keypad.

- You can use a Micro SDHC card a maximum of 32 GB capacity.
- For a short-term data log, *o5-03* [Log Monitor Data 1] to *o5-06* [Log Monitor Data 4] are enabled.

■ Log File Specifications

Item	Specification
File storage location	A folder called [Log_File] is created in the root directory of the micro SD card.
Filename	Long-term data log: GLOG0xxx.csv Note: [xxx] identifies a 3-digit decimal number Short-term data log: SLOG0xxx.csv Note: [xxx] identifies a 3-digit decimal number
Maximum number of files	Long-term data log: 999 (GLOG0001.csv to GLOG0999.csv) Short-term data log: 999 (SLOG0001.csv to SLOG0999.csv)
Character code	ASCII code
Line break code	<CR><LF>
Separating character	[,] (Commas)
Header Rows	First Row: Drive information including Drive Model, software version, control method, sampling time, and trigger settings Second Row: Log data information including the monitor number, number decimal points, and unit code

■ Log File Configuration

The [Log_Files] folder is created in the root directory of the micro SD card. This is where the log data is stored as CSV files. Log data files are created in this configuration. The number of rows changes when the number of selected monitors change.

First Row	Drive information
Second Row	Log data information
Third Row	Log data 1
:	Log data 2
:	Log data 3
:	:
Last Row	Log data n

First Row: Drive Information

This example shows the data text strings and data generated for the first row of log data.

- Example of generated data for a long-term data log:
00,0012,160107111230,GA700,VSAA01010,2,62,1000,000001
- Example of generated data for a short-term data log:
00,1012,160107111230,GA700,VSAA01010,2,62,10,1,1000,
1,E,102,50,0,1,50,5020,000001

No.	Item	Number of Characters	Example	Description
1	Attribute	2	00	[00] shows that the record is a drive information record.
2	File number	4	0012	Long-term data log: Shows the [xxx] part (a 3-digit number) of the [GLOGOxxx.csv] filename. Short-term data log: Shows the [xxx] part (a 3-digit number) of the [SLOGOxxx.csv] filename + 1000.
3	Time stamp ^{*1}	12	160107111230	Date file was generated · Date: 20YY/MM/DD · Time in 24-hour format: HH:MM:SS Example data of [160107111230]: 11:12:30 on January 7, 2016
4	Model	5	GA700	Drive model information
5	Software number	9	VSAA01010	Drive software number
6	Control method selection	1	2	Setting value (Dec.) of <i>A1-02 [Control Method Selection]</i>
7	Drive capacity	2	62	Setting value (Hex.) of <i>o2-04 [Drive Model (KVA) Selection]</i>
8	Sampling time	5 (maximum)	1000	Setting value (Dec.) of <i>o5-02 [Log Sampling Interval]</i> Unit: ms
9	Log data type ^{*2}	1	1	1: Short-term data log (trend log disabled) 2: Short-term log for short-term data log (trend log enabled) 3: Trend log for short-term data log (trend log enabled)
10	Trend log sampling cycle ^{*2}	5 (Maximum)	1000	Sampling cycle (Dec.) selected by <i>o5-21 [Trend Log Sampling Time Selection]</i> Unit: ms
11	Trigger type ^{*2}	1	1	Setting value (Dec.) of <i>o5-15 [Trigger Type Selection]</i>
12	Digital trigger target ^{*2}	2 (Maximum)	E	Setting value (Hex.) of <i>o5-16 [Digital Trigger Object]</i>
13	Analog trigger target ^{*2}	3	102	Setting value (Dec.) of <i>o5-17 [Analog Trigger Object]</i>
14	Analog trigger level ^{*2}	6 (Maximum)	50,0	Setting value (Dec.) of <i>o5-18 [Analog Trigger Level]</i> Unit: %
15	Trigger condition ^{*2}	1	1	Setting value (Dec.) of <i>o5-19 [Trigger Condition]</i>
16	Pre-trigger ^{*2}	3 (Maximum)	50	Setting value (Dec.) of <i>o5-20 [Pre-Trigger Setting]</i> Unit: %
17	Offset between data ^{*2}	6 (Maximum)	5020	Time offset (Dec.) between the trend log and short-term log for short-term data log (trend log enabled) Unit: ms
18	Row number	6	000001	Row number (Hex.) in the data log file

*1 If you do not set the time in the keypad, the text string of [000000000000] is generated to show the time.

*2 Generated only for a short-term data log.

Second Row: Log Data Information

This example shows the data text strings and data generated for the second row of log data.

Example of generated data:

01,0012,160107111230,0101,0201,0102,0201,0103,0206,0107,0005,0108,0209,
0000,0000,0000,0000,0000,0000,0000,0000,0000,0000,0000,0000,0000,
000002

No.	Item	Number of Characters	Description
1	Attribute	2	[01] shows that the record is a log data information record.
2	File number	4	Long-term data log: Shows the [xxx] part (a 3-digit number) of the [GLOG0xxx.csv] filename. Short-term data log: Shows the [xxx] part (a 3-digit number) of the [SLOG0xxx.csv] filename + 1000.
3	Time stamp	12	Date file was generated
4	Monitor number 1*1	4	Monitor number selected by <i>o5-03 [Log Monitor Data 1]</i> Ex.: 0101 (Dec.) for <i>U1-01</i>
5	Monitor unit 1*2	4	Unit code and number of decimal places used for the monitor selected with <i>o5-03</i> Example when <i>U1-01 = 30.00 Hz</i> : Number of decimal places = 2, Hz unit code = 01, monitor unit 1 = 0201 (Hex.)
6	Monitor number 2	4	Monitor number (Dec.) selected by <i>o5-04 [Log Monitor Data 2]</i>
7	Monitor Unit 2	4	Unit code and number of decimal places used for the monitor selected with <i>o5-04</i>
:	:	:	:
22	Monitor number 10	4	Monitor number (Dec.) selected by <i>o5-12 [Log Monitor Data 10]</i>
23	Monitor Unit 10	4	Unit code and number of decimal places used for the monitor selected with <i>o5-12</i>
24 - 27	Region Code	4	-
28	Row number	6	Row number (Hex.) in the data log file

*1 If there is no data log monitor selected, the text string of [0000] is generated. [0000] is generated for monitor number 5 and subsequent monitors for a short-term data log.

*2 Refer to [Table 12.88](#) for information about unit codes.

Table 12.88 Unit Codes

Unit Code (Hex.)	Unit	Unit Code (Hex.)	Unit	Unit Code (Hex.)	Unit	Unit Code (Hex.)	Unit
00	-	08	PPR	10	H	18	OH
01	Hz	09	kW	11	V	19	-
02	RPM	0A	Ω	12	us	1A	-
03	%	0B	ms	13	min	1B	-
04	VAC	0C	kHz	14	°C	1C	-
05	VDC	0D	PSI	15	W	1D	-
06	A	0E	MPM	16	kWH	1E	-
07	sec	0F	FPM	17	MWH	1F	-

Third and Subsequent Rows: Log Data

This example shows the data text strings and data generated for the third row of log data.

Example of generated data:

02,0012,160107111239,1770,1770,00BE,0118,0028,0000,0000,0000,0000,0000,
0000,0000,00000C

No.	Item	Number of Characters	Description
1	Attribute	2	[02] shows that the record is a monitor data record for a long-term data log. [03] shows that the record is a monitor data record for a short-term data log. [04] shows that the record is a monitor data record for a trend log.
2	File number	4	Long-term data log: Shows the [xxx] part (a 3-digit number) of the [GLOG0xxx.csv] filename. Short-term data log: Shows the [xxx] part (a 3-digit number) of the [SLOG0xxx.csv] filename + 1000.
3	Time stamp	12	Data log data was retrieved (YYMMDDHHMMSS) Trigger detection time for a short-term data log (common to all data)

No.	Item	Number of Characters	Description
4	Log Monitor Data 1	4	Log monitor data (Hex.) of the monitor selected with <i>o5-03 [Log Monitor Data 1]</i>
5	Log Monitor Data 2	4	Log monitor data (Hex.) of the monitor selected with <i>o5-04 [Log Monitor Data 2]</i>
:	:	:	:
13	Log Monitor Data 10	4	Log monitor data (Hex.) of the monitor selected with <i>o5-12 [Log Monitor Data 10]</i>
14	Region Code	4	-
15	Encoding data	4	Encoding data for log monitor data 1 through 10 (Hex.) Bits 0 through 9 show the encoding of log monitor data 1 through 10. A bit value of 1 shows that the data represents a negative value. (Log monitor data 1 through 10 is absolute value data without encoding) Example when log monitor data 2, 5, and 8 show negative values: Bits 1, 4, and 7 have values of 1, and the encoding data = 0010010010 (Bin.) = 0092 (Hex.)
16	Row number	6	Row number (Hex.) in the data log file

■ o5-00: Log Type

No. (Hex.)	Name	Description	Default (Range)
o5-00 (1E81) RUN	Logging Type Selection	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Selects the type of data log function. This parameter is only available when using an LCD keypad.	0 (0 - 1)

0: Long Term Log

Saves data continuously over a long time period.

1: Short Term Log

Saves data of a certain time period before and after the detection of a trigger with a short sampling cycle.

■ o5-01: Log Start/Stop Selection

No. (Hex.)	Name	Description	Default (Range)
o5-01 (1551) RUN	Log Start/Stop Selection	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log function. This parameter is only available when using an LCD keypad.	0 (0 - 1)

0: OFF

Stops the data log.

1: ON

Starts the data log as specified by the sampling cycle set in *o5-02 [Log Sampling Interval]*.

■ o5-02: Log Sampling Interval

No. (Hex.)	Name	Description	Default (Range)
o5-02 (1552) RUN	Log Sampling Interval	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log sampling cycle. This parameter is only available when using an LCD keypad.	1000 ms when <i>o5-00</i> = 0, 10 ms when <i>o5-00</i> = 1 (0 - 6000 ms)

■ o5-03: Log Monitor Data 1

No. (Hex.)	Name	Description	Default (Range)
o5-03 (1553) RUN	Log Monitor Data 1	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	101 (000,101 - 999)

Note: Set the *U monitor* number you will log.

For example, to display *U1-01 [Frequency Reference]*, set *o5-03* = 101. When it is not necessary to set a data log monitor, set this parameter to 000.

■ o5-04: Log Monitor Data 2

No. (Hex.)	Name	Description	Default (Range)
o5-04 (1554) RUN	Log Monitor Data 2	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	102 (000,101 - 999)

Note: Set the *U monitor* number you will log.

For example, to display *U1-02 [Output Frequency]*, set *o5-04* = 102. When it is not necessary to set data log monitor, set this parameter to 000.

■ o5-05: Log Monitor Data 3

No. (Hex.)	Name	Description	Default (Range)
o5-05 (1555) RUN	Log Monitor Data 3	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	103 (000,101 - 999)

Note: Set the *U monitor* number you will log.

For example, to display *U1-03 [Output Current]*, set *o5-05* = 103. When it is not necessary to set a data log monitor, set this parameter to 000.

■ o5-06: Log Monitor Data 4

No. (Hex.)	Name	Description	Default (Range)
o5-06 (1556) RUN	Log Monitor Data 4	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	107 (000,101 - 999)

Note: Set the *U monitor* number you will log.

For example, to display *U1-07 [DC Bus Voltage]*, set *o5-06* = 107. When it is not necessary to set a data log monitor, set this parameter to 000.

■ o5-07: Log Monitor Data 5

No. (Hex.)	Name	Description	Default (Range)
o5-07 (1557) RUN	Log Monitor Data 5	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	108 (000,101 - 999)

Note: Set the *U monitor* number you will log.

For example, to display *U1-08 [Output Power]*, set *o5-07* = 108. When it is not necessary to set a data log monitor, set this parameter to 000.

■ o5-08: Log Monitor Data 6

No. (Hex.)	Name	Description	Default (Range)
o5-08 (1558) RUN	Log Monitor Data 6	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	000 (000,101 - 999)

Note: Set the *U monitor* number you will log.

For example, to display *U1-01 [Frequency Reference]*, set *o5-08* = 101. When it is not necessary to set a data log monitor, set this parameter to 000.

■ o5-09: Log Monitor Data 7

No. (Hex.)	Name	Description	Default (Range)
o5-09 (1559) RUN	Log Monitor Data 7	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	000 (000,101 - 999)

Note: Set the *U monitor* number you will log.

For example, to display *U1-01 [Frequency Reference]*, set *o5-09* = 101. When it is not necessary to set a data log monitor, set this parameter to 000.

■ o5-10: Log Monitor Data 8

No. (Hex.)	Name	Description	Default (Range)
o5-10 (155A) RUN	Log Monitor Data 8	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	000 (000,101 - 999)

Note: Set the *U monitor* number you will log.

For example, to display *U1-01 [Frequency Reference]*, set *o5-10 = 101*. When it is not necessary to set a data log monitor, set this parameter to *000*.

■ o5-11: Log Monitor Data 9

No. (Hex.)	Name	Description	Default (Range)
o5-11 (155B) RUN	Log Monitor Data 9	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	000 (000,101 - 999)

Note: Set the *U monitor* number you will log.

For example, to display *U1-01 [Frequency Reference]*, set *o5-11 = 101*. When it is not necessary to set a data log monitor, set this parameter to *000*.

■ o5-12: Log Monitor Data 10

No. (Hex.)	Name	Description	Default (Range)
o5-12 (155C) RUN	Log Monitor Data 10	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the data log monitor. This parameter is only available when using an LCD keypad.	000 (000,101 - 999)

Note: Set the *U monitor* number you will log.

For example, to display *U1-01 [Frequency Reference]*, set *o5-12 = 101*. When it is not necessary to set a data log monitor, set this parameter to *000*.

■ o5-15: Trigger Type Selection

No. (Hex.)	Name	Description	Default (Range)
o5-15 (1E82) RUN	Trigger Type Selection	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Selects the type of trigger for the short-term data log. This parameter is only available when using an LCD keypad.	0 (0 - 1)

0: Digital Trigger

A digital signal inside the drive will act as the trigger.

1: Analog Trigger

An analog signal inside the drive will act as the trigger.

Note: There are no detection width and detection time settings for the analog trigger in the data log function. If variations in the analog signal become a problem, select the digital trigger and use *o5-16 = 66/67 [Digital Trigger Object = Comparator 1/2]*. Set the conditions for the comparator function with *H2-20* to *H2-32*.

■ o5-16: Digital Trigger Object

No. (Hex.)	Name	Description	Default (Range)
o5-16 (1E83) RUN	Digital Trigger Object	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Selects the function to set for the digital trigger target from the setting values for multi-function digital outputs. This parameter is only available when using an LCD keypad.	E (0 - FF)

■ o5-17: Analog Trigger Object

No. (Hex.)	Name	Description	Default (Range)
o5-17 (1E84) RUN	Analog Trigger Object	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Selects the monitor (<i>Ux-xx</i>) to set for the analog trigger target. This parameter is only available when using an LCD keypad.	102 (0 - 999)

■ o5-18 : Analog Trigger Level

No. (Hex.)	Name	Description	Default (Range)
o5-18 (1E85) RUN	Analog Trigger Level	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the level to compare with the analog trigger target. This parameter is only available when using an LCD keypad.	0.0% (-999.9% - +999.9%)

■ o5-19: Trigger Condition

No. (Hex.)	Name	Description	Default (Range)
o5-19 (1E86) RUN	Trigger Condition	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Selects the condition with which to detect the trigger. This parameter is only available when using an LCD keypad.	0 (0 - 1)

0: Rising Edge

For a digital trigger, the trigger is detected when the digital trigger target switches from OFF to ON. For an analog trigger, the trigger is detected when the analog trigger target changes from less than the trigger level to greater than or equal to the trigger level.

1: Falling Edge

For a digital trigger, the trigger is detected when the digital trigger target switches from ON to OFF. For an analog trigger, the trigger is detected when the analog trigger target changes from more than the trigger level to less than or equal to the trigger level.

■ o5-20: Pre-Trigger Setting

No. (Hex.)	Name	Description	Default (Range)
o5-20 (1E87) RUN	Pre-Trigger Setting	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Sets the percentage of data to save before the trigger is detected for the short-term data log. This parameter is only available when using an LCD keypad.	90% (0% - 100%)

■ o5-21: Trend Log Sampling Time Selection

No. (Hex.)	Name	Description	Default (Range)
o5-21 (1E88) RUN	Trend Log Sampling Time Selection	V/f CL-V/f OLV CLV AOLV OLV/PM AOLV/PM CLV/PM EZOLV Selects the sampling cycle for the trend log to save data before the trigger is detected. The trend log works concurrently with the short-term data log. This parameter is only available when using an LCD keypad.	0 (0 - 4)

0: Trend Log Disabled

The trend log is not saved.

1: 0.1 s (About 1 hour)

Saves a trend log with a sampling cycle of 0.1 s. A maximum of approximately one hour of data is saved before the trigger is detected.

2: 1 s (About 10 hours)

Saves a trend log with a sampling cycle of 1 s. A maximum of approximately 10 hours of data is saved before the trigger is detected.

3: 10 s (About 100 hours)

Saves a trend log with a sampling cycle of 10 s. A maximum of approximately 100 hours of data is saved before the trigger is detected.

4: 60 s (About 600 hours)

Saves a trend log with a sampling cycle of 60 s. A maximum of approximately 600 hours of data is saved before the trigger is detected.