Pro-face

SCIENCE GATE
Your Automation Partner
SCIGATE AUTOMATION (S) PTE LTD
No.1 Bukit Batok Street 22 #01-01 Singapore 659592
Tel: (65) 6561 0488 Fax: (65) 6562 0588
Email: sales@scigate.com.sg Web: www.scigate.com.sg
Business Hours: Monday - Friday 8.30am - 6.15pm

Digital Human Machine Interface

Device/PLC Connection Manuals

About the Device/PLC Connection Manuals

Prior to reading these manuals and setting up your device, be sure to read the "Important: Prior to reading the Device/PLC Connection manual" information. Also, be sure to download the "Preface for Trademark Rights, List of Units Supported, How to Read Manuals and Documentation Conventions" PDF file. Furthermore, be sure to keep all manual-related data in a safe, easy-to-find location.

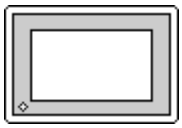
Fuji Electric Corporation Inverters

1 System Structure

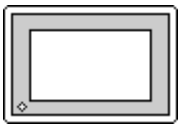
The following describes the system configuration used when connecting the Fuji Electric inverters to the GP/GLC/LT.

- **If a communication error occurs while the unit is operating via RS-485, a stop command may not be recognized via RS-485. To prevent any accidents, be sure to use the inverter external signal terminal's forced stop function so that emergency stop will always be effective.**
- **If an alarm is reset with a run command sent via RS-485, the unit will suddenly restart. To prevent accidents, be sure to confirm that the run command is no longer being sent.**

■ FRENICS5000G11S Series

Inverter *1	Cable Diagram	GP/GLC/LT
		
FRN□□G11S-2 FRN□□G11S-4	RS-485 (1:1) (Cable Diagram 1) RS-485(1:n) (Cable Diagram 2)	GP Series GLC Series LT Type C

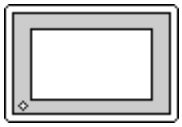
■ FRENICS5000P11S Series

Inverter *1	Cable Diagram	GP/GLC/LT
		
FRN□□P11S-2 FRN□□P11S-4	RS-485 (1:1) (Cable Diagram 1) RS-485(1:n) (Cable Diagram 2)	GP Series GLC Series LT Type C

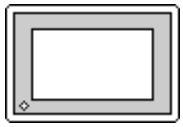
**1 The "□□□" characters in the inverter model codes reflect applicable standard generator capacities.*

**2 The "□" character in the option card model code reflects the classification of the card type (either A, B, or C) according to this series inverter capacities.*

■ FVR-E11S Series

Inverter *1	Cable Diagram	GP/GLC/LT
		
FVR□□□E11S-2 FVR□□□E11S-7	RS-485 (1:1) (Cable Diagram 3) RS-485(1:n) (Cable Diagram 4)	GP Series GLC Series LT Type C

■ FVR-C11S Series (Optional for Communication)

Inverter *1	Communication I/F	Cable Diagram	GP/GLC/LT
			
FVR□□□C11S-2 FVR□□□C11S-6 FVR□□□C11S-7	Option: OPC-C11S-RS□ *2	RS-485 (1:1) (Cable Diagram 1) RS-485(1:n) (Cable Diagram 2)	GP Series GLC Series LT Type C

**1 The "□□□" characters in the inverter model codes reflect applicable standard generator capacities.*

**2 The "□" character in the option card model code reflects the classification of the card type (either A, B, or C) according to this series inverter capacities.*

2 Cable Diagrams

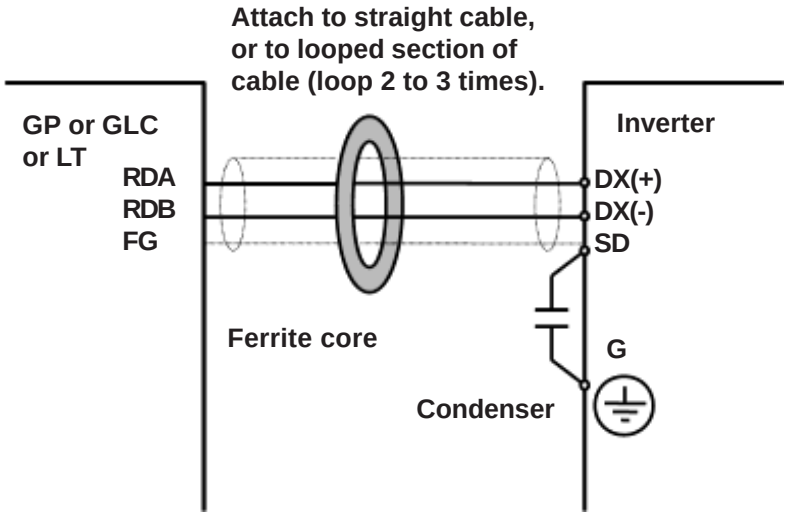
Important

- ***The following cables are recommended:***

  <For G11S, P11S, C11S>
  Furukawa Electric UL AWM2789 1/0.65 mm² long distance braided shield cable

  < For E11S>
  Cable conforming to EIA568 standard (for 10BASE-T), as well as RJ45 connector

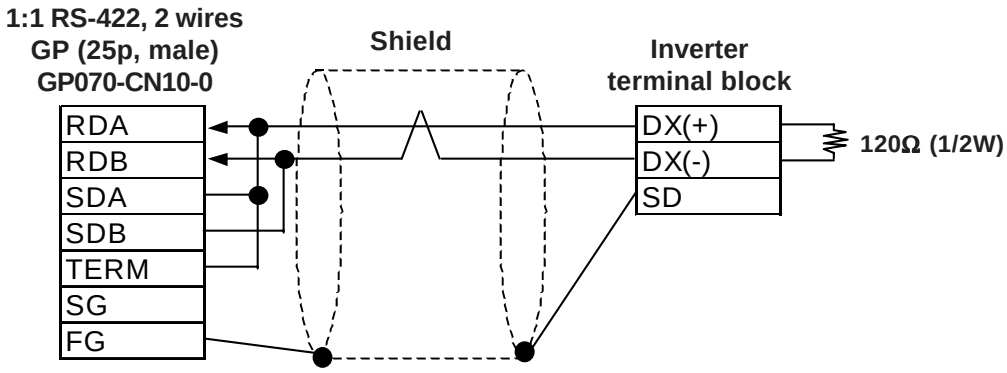
- ***The maximum length of a cable (transmission distance) is 500m.***
- ***Depending on the usage environment, a unit may malfunction due to the noise generated from the inverter. In such a case, connect a ferrite core or condenser to the cable.***



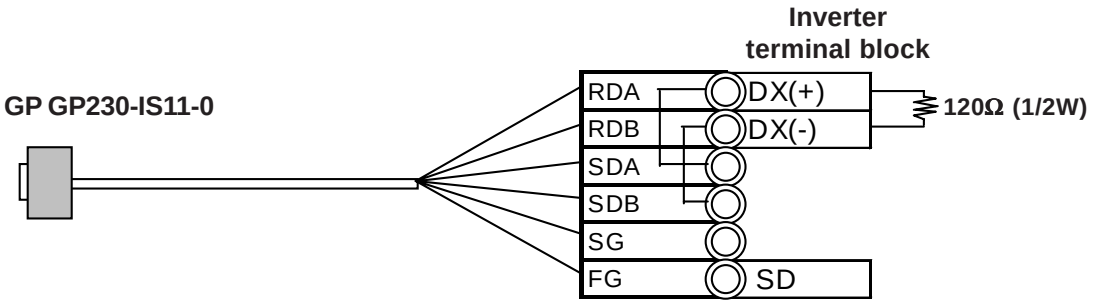
- ***A terminating resistor (100Ω) has been embedded in the E11S. When connecting the inverter to the end of the cable, turn ON SW2 located below the connector.***

Cable Diagram 1 (1:1)

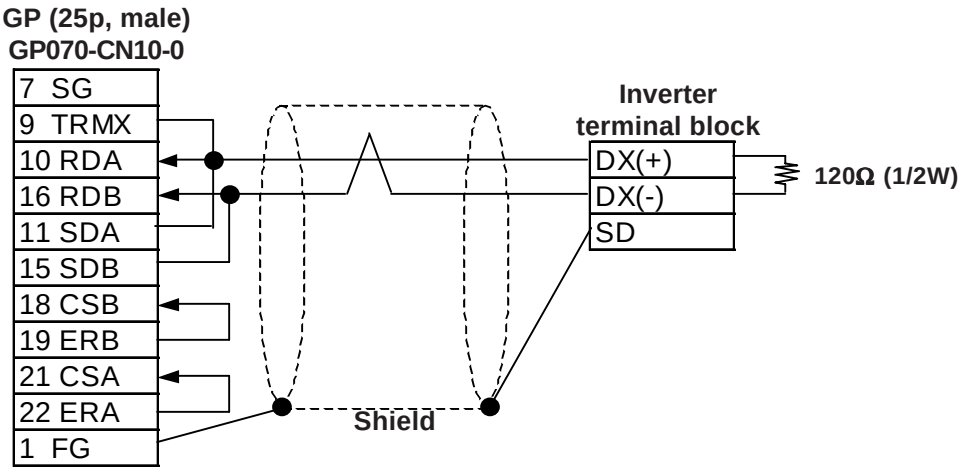
<When using Digital's RS-422 connector terminal adapter GP070-CN10-0>



<When using Digital's RS-422 connector terminal adapter GP070-CN10-0>

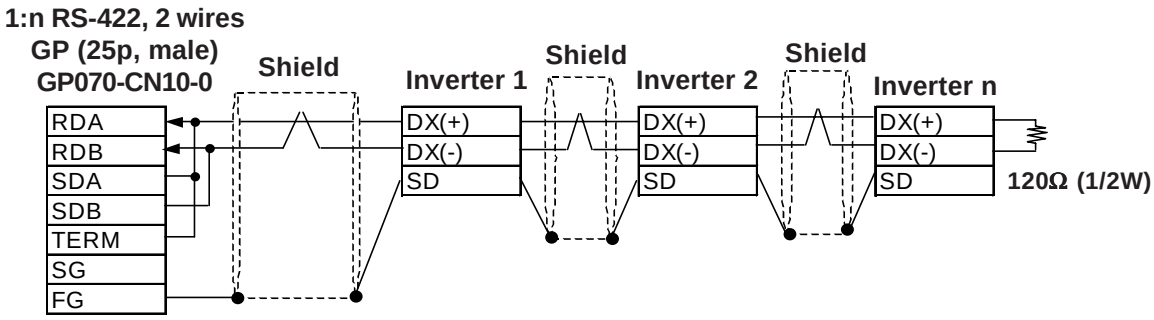


<When making your own cable>

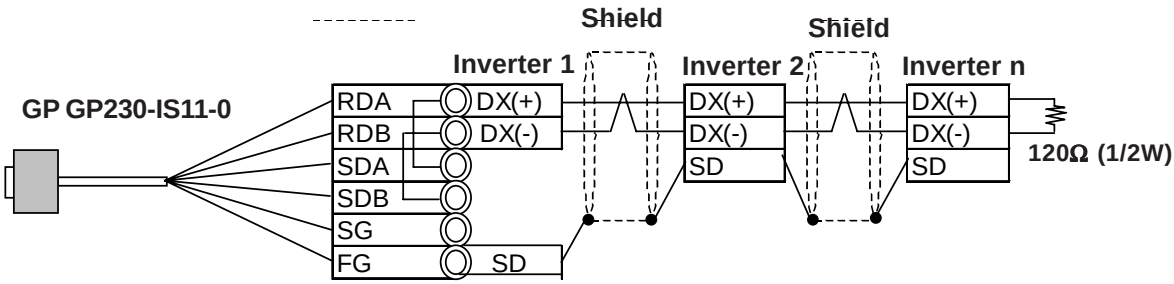


Cable Diagram 2 (1:n)

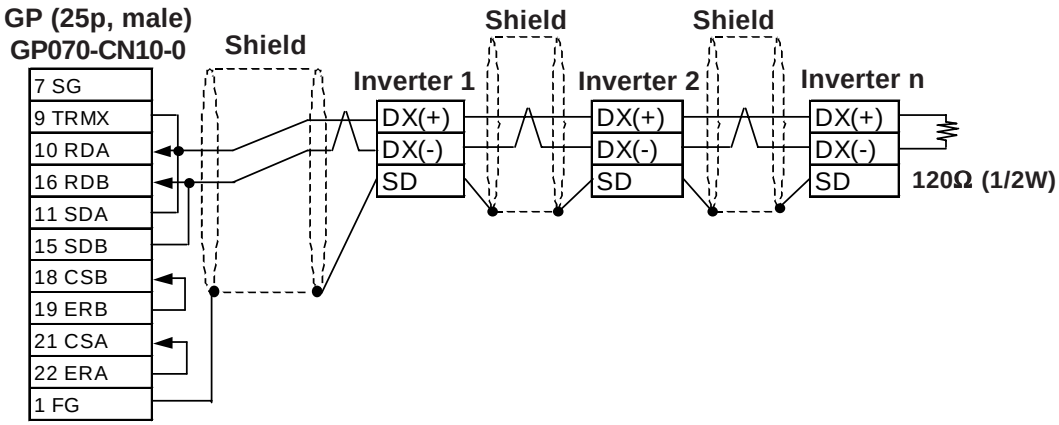
<When using Digital's RS-422 connector terminal adapter GP070-CN10-0>



<When making your own cable>

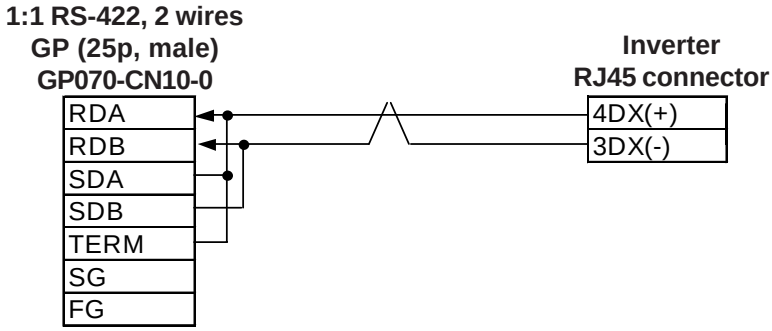


<When making your own cable>

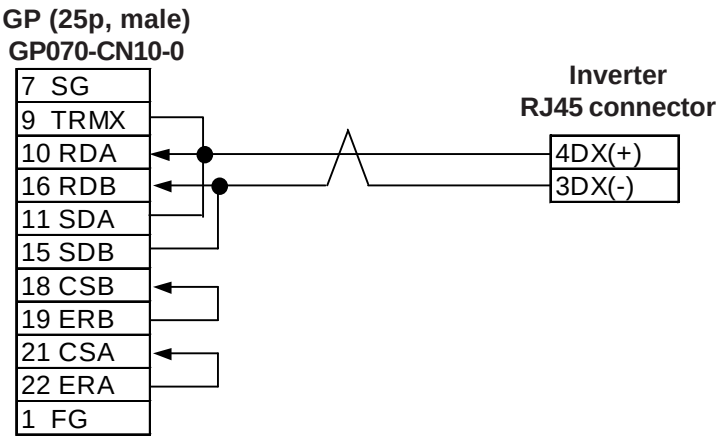


Cable Diagram 3 (1:1)

<When using Digital's RS-422 connector terminal adapter GP070-CN10-0>



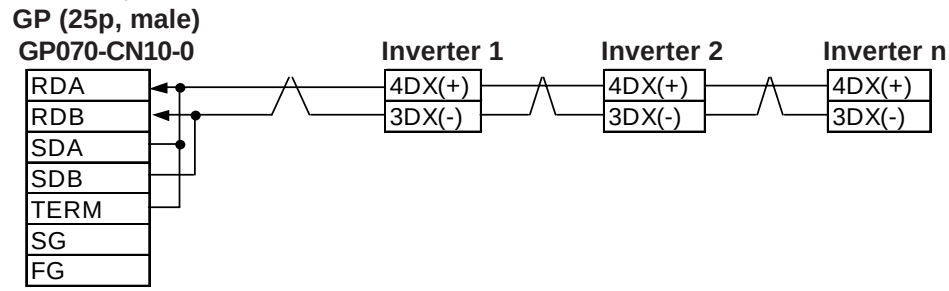
<When making your own cable>



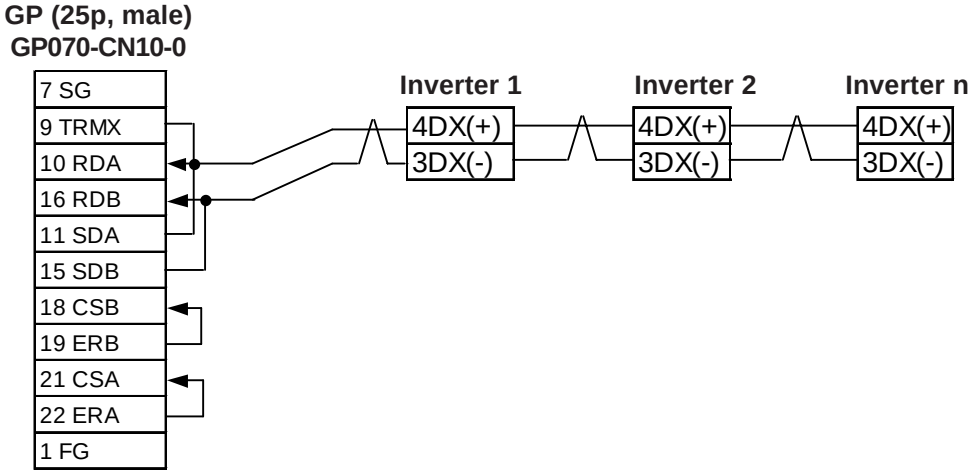
Cable Diagram 4 (1:n)

<When using Digital's RS-422 connector terminal adapter GP070-CN10-0>

1:n RS-422, 2 wires



<When making your own cable>



3 Supported Devices

■ FRENICS5000G11S/FRENICS5000P11S Series

Device	Bit Addresses	Word Addresses	Remarks	
Basic function	F0000 ~ F4215	F00 ~ F42		L/H
Terminal function	E0100 ~ E4715	E01 ~ E47		
Controlling function	C0100 ~ C3315	C01 ~ C33		
Motor 1	P0100 ~ P0915	P01 ~ P09		
High level function	H0300 ~ H3915	H03 ~ H39		
Motor 2	A0100 ~ A1815	A01 ~ A18		
Option	o0000 ~ o2915	o00 ~ o29		
Command data	S0100 ~ S1115	S01 ~ S11		
Monitor data	M0100 ~ M4815	M01 ~ M48	*1	
Alarm reset	————	m00	*2	————

**1 Data write cannot be performed.*

**2 "m00" is a virtual device and is used to reset the history of alarms occurred on the inverter.*
Writing any data to "m00" will reset the alarm. However, data read cannot be performed.

■ FVR-E11S Series

Device	Bit Addresses	Word Addresses	Remarks	
Basic function	F0000 ~ F4215	F00 ~ F42		L/H
Terminal function	E0100 ~ E4215	E01 ~ E42		
Controlling function	C0100 ~ C3315	C01 ~ C33		
Motor 1	P0100 ~ P1015	P01 ~ P10		
High level function	H0100 ~ H4615	H01 ~ H46		
Motor 2	A0100 ~ A1915	A01 ~ A19		
Command data	S0100 ~ S1115	S01 ~ S11		
Monitor data	M0100 ~ M4815	M01 ~ M48	*1	
Alarm reset	————	m00	*2	————

**1 Data write cannot be performed.*

**2 "m00" is a virtual device and is used to reset the history of alarms occurred on the inverter.*
Writing any data to "m00" will reset the alarm. However, data read cannot be performed.

■ FRENICS5000G11S/FRENICS5000P11S Series

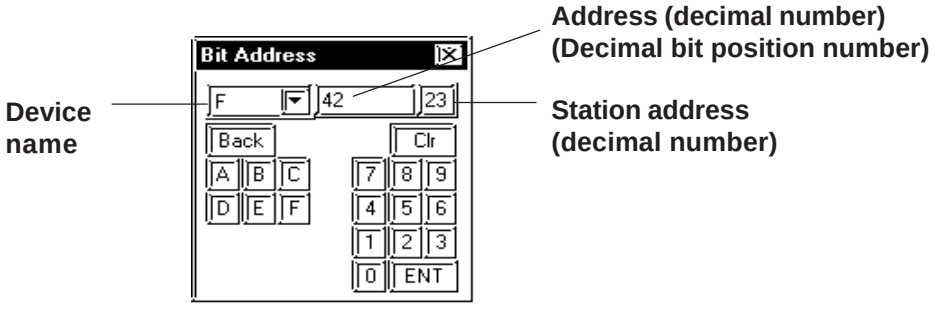
Device	Bit Addresses	Word Addresses	Remarks	
Basic function	F0000 ~ F3615	F00 ~ F36		L/H
Terminal function	E0100 ~ E0315	E01 ~ E03		
Controlling function	C0100 ~ C0715	C01 ~ C07		
Motor 1	P0000 ~ P0015	P00		
High level function	H0100 ~ H2515	H01 ~ H25		
Option	O0000 ~ O1115	o00 ~ o11	*1	
Command data	S05 ~ S06	S05 ~ S06		
Monitor data	M0100 ~ M4815	M01 ~ M48	*1	
Alarm reset	————	m00	*2	————

**1 Data write cannot be performed.*

**2 "m00" is a virtual device and is used to reset the history of alarms occurred on the inverter.*
Writing any data to "m00" will reset the alarm. However, data read cannot be performed.

Caution

- **The system area (20 words) cannot be used. Also, on the GP/GLC/LT offline screens and the screen editor software's system area selection screen, the protocol display and operation will be the same as that which appears when the system area can be used. Even if the system area is selected on these screens, however, it will automatically be designated as not selected.**
- **Depending on the inverter series, supported functions and ranges will vary. For more detailed information, refer to each inverter series' operation manual.**
- **On GP-PRO/PB III, enter the device address and station address as follows:**



4 Environment Setup

■ FRENICS5000G11S/FRENICS5000P11S Series

GP/GLC/LT Settings		Inverter Settings		Setting Function
Baud Rate	9600bps	Baud rate	9600bps	H34
Data Length	8bit	Data Length	8bit	H35
Stop Bit	2bit	Stop Bit	2bit	H37
Parity Bit	None	Parity Bit	None	H36
Data Flow Control	ER	———	———	———
Communication Format	2-wire type	———	———	———
Station Address	1 ~ 31	Station Address	1 ~ 31	H31

■ FVR-E11S Series

GP/GLC/LT Settings		Inverter Settings		Setting Function
Baud Rate	9600bps	Baud rate	9600bps	H34
Data Length	8bit	Data Length	8bit	H35
Stop Bit	1bit	Stop Bit	1bit	H37
Parity Bit	None	Parity Bit	None	H36
Data Flow Control	ER	———	———	———
Communication Format	2-wire type	———	———	———
Unit No.	1 ~ 31	Station Address	1 ~ 31	H31

■ FVR-C11S Series

GP/GLC/LT Settings		Inverter Settings		Setting Function
Baud Rate	9600bps	Baud rate	9600bps	o04
Data Length	8bit	Data Length	8bit	o05
Stop Bit	2bit	Stop Bit	2bit	o07
Parity Bit	None	Parity Bit	None	o06
Data Flow Control	ER	———	———	———
Communication Format	2-wire type	———	———	———
Unit No.	1 ~ 31	Station Address	1 ~ 31	o01
———	———	Optional selection	1	o00

Caution

- **The FVR-C11S Series requires a communication card (Model: OPC-C11S-RS*). Be sure to set “o00” to 1 to enable the RS-485 communication option.**

5 Error Codes

<Error Codes Specific to Inverters>

The error codes specific to the inverters will appear on the GP screen's left bottom, as "Host Communication Error (02:**:##)". (The "**" characters indicate an error code specific to the inverter, and the "##" characters indicate the station address of the inverter on which an error occurred.)

■ Error Codes

Error Code	Error Name	Description
4AH	Format error	• Data transmission request statement characters are incorrect. The last character of the request statement is not in the correct position.
4BH	Command error	• A non-existent command has been sent.
4CH	Link priority error	• It was attempted to write command or operation command data, with the link option installed. (When the link option has been installed, the command and operation command data cannot be written via RS-485.)
4DH	No write authorizatior	• It was attempted to write new function data during data write from the link option.
4EH	Function code error	• A non-existent function code has been requested.
4FH	Write inhibit error	• It was attempted to write an operation inhibit function or write inhibit during run function while the unit was operating.
50H	Data error	• Data that has been written was exceeded an effective range.
51H	Write error	• It was attempted to write new function data during writing another function.

- **The latest communication error code has been stored in M26.**
- **Alarms occurred on the inverter will have either code numbers M16, M17, M18, or M19.**

  M16: Latest alarm

  M17: Previous alarm

  M18: Alarm before the previous alarm

  M19: Alarm before the two old alarms

For more detailed information, refer to your inverter's operation manual.