

Azbil Corporation

BC-R35 Burner Controller

ST-6300T Sample Project Ver. 1.00

Technical Guide



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1. Summary

This Sample Project File is used for connection with Azbil Corporation's burner controllers BC-R35 Series (Time-limited pilot).

The following functions/screens are provided to use this Sample Project File as a monitoring tool for BC-R35 Series (Time-limited pilot).

- Status monitoring screen which allows a user to check the operation state and the input/output state of the BC-R35 in real time
- Playback display function which displays the state change before and after the lockout occurs (8 seconds before the lockout and 1.9 seconds after the lockout).
- CSV file save function which outputs the data during playback display as a CSV file.
- Alarm history screen which displays the general-purpose alarm history display and BC-R alarm in detail.
- Automatic data collection of detailed alarms for BC-R and data for playback display (Data for 16 times are accumulated in the HMI device.)

2. Restrictions and Precautions

1) Restrictions

This screen data is taken from screenshots showing the representative features and functions of the ST6000 series.

When using the driver, be sure to reference our product manual or the connection device manual, including the usage restrictions and safety precautions. In addition, please be aware that we are unable to accept responsibility for damage arising from reasons that cannot be attributable to us, loss of customer opportunity or profit arising from the malfunction of our product, damage arising from special circumstances regardless of whether or not we had foreknowledge of those circumstances, secondary damage, compensation for accidents, damage to our commercial goods, or other business-related guarantees.

2) Notes

1. The intellectual property right of the file that our company offers is assumed to be the one that belongs to our company.
2. The data extracted from the downloaded file and the file doesn't guarantee the specification of the product of our company. Please acknowledge it beforehand.
3. Please use this service (including modification, alteration, and diversion) in customer's responsibility.
4. It is not the one to secure the operation of the system that uses this screen data, in any case.
5. Please acknowledge that we do not give any instructions for the inquiry on modification and diversion.
6. The screen data, contents and descriptions of the document are subjected to variation without a previous notice.
7. If there are differences between the project file and the document therefor, a priority is given to the content of the project file.

3. How to Use This Project File

When using this project file (henceforth known as “the file”), be sure to confirm the following details:

1) When using the file as-is

Confirm the communication settings. When using this file as-is, transfer it in GP-Pro EX to a display console with a touch panel.

2) How to combine with other files

In GP-Pro EX, select [Project] → [Utilities] → [Copy from Another Project].

However, there are issues to be aware of, such as overlapping screen numbers, so also refer to sections 3) and later.

3) Screen numbers when combining

When combining the file with a file currently being created, be aware of the screen numbers.

The screen numbers may be overwritten if they are overlapped. Refer to the “Screen Transition” sections for screen numbers that are being used by the file.

When combining with “Copy from Another Project”, it is possible to designate a copy destination screen number before starting to copy. Before combining, be sure to either designate a screen number when copying, or change the screen number in advance.

When changing a screen number, be sure to change the screen number for the screen replacement switch in the lower part of the screen as well.

Be aware that if no changes are made to the screen replacement destination screen number, unexpected operations may occur.

4) Changing addresses

When changes are made to the address of a connection device that has been configured on the screen, it will not operate properly.

Do not make changes to these addresses.

5) Alarm settings when connecting files

N/A

6) Sampling settings when connecting files

N/A

7) D-script settings when connecting files

Be careful of overlapping since Global D-script and user-defined functions are used in this sample project file.

4. Device Configuration

4.1. System Configuration

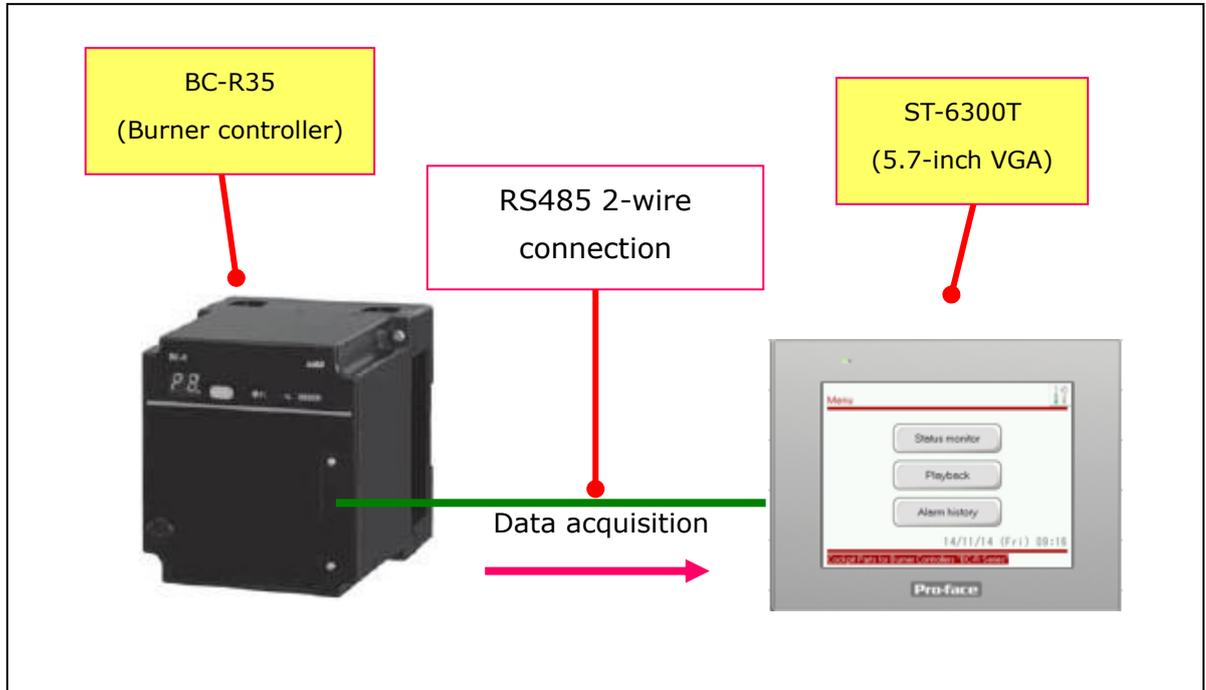


Figure 4-1 System Configuration

4.2. Target Model

The sample project file is available in the models as shown below.

Display	Target Project Model	Target Model
ST-6***	ST6300T	○
	ST-6500T	
	ST-6200WA	
	ST-6400WA	
	ST-6500WA	
	ST6600WA	
	ST6700WA	

Table 4-1 Target Display Model with Touch Panel

* The model with the "○" mark can be used.

* When using in the other model, screen adjustment is necessary with Resolution Convert and change of script.

4.3. Connection Device

No	Manufacturer	Name	Series	Model	Note
1	Azbil Corporation	Burner Controller		BC-R35	Time limited pilot function provided

Table 4-3 Connection Device

4.4. Software

No	Manufacturer	Name	Series	Model	Note
1	Digital	GP-Pro EX		PFXEXEDV40	Ver4.09.500

Table 4-4 Software

The sample project file is created using GP-Pro EX (Ver.4.09.500).
If the version you use is lower than Ver.4.09.500, update is required.

4.5. Communication Settings

4.5.1. GP-ProEX Communication Settings

One BC-R35 and one temperature controller SDC35 are connected and set for this sample project.

Change the settings (e.g. communication conditions) on the "Device/PLC" screen as shown below, if necessary.

The screenshot shows the "Device/PLC" configuration screen. At the top right, there are links for "Add Device/PLC" and "Delete Device/PLC". The main section is titled "Device/PLC 1" and includes a "Summary" section with fields for "Manufacturer" (Azbil Corporation), "Series" (Controller(CPL)), and "Port" (COM2). Below this is the "Text Data Mode" set to 1 with a "Change" link. The "Communication Settings" section includes radio buttons for SIO Type (RS232C, RS422/485(2wire), RS422/485(4wire)), a "Speed" dropdown (19200), "Data Length" (7, 8), "Parity" (NONE, EVEN, ODD), "Stop Bit" (1, 2), and "Flow Control" (NONE, ER(DTR/CTS), XON/XOFF). There are also spinners for "Timeout" (3 sec), "Retry" (2), and "Wait To Send" (10 ms), along with a "Default" button. The "Device-Specific Settings" section shows "Allowable Number of Devices/PLCs" as 31 with an "Add Device" link. A table lists two devices:

No.	Device Name	Settings	Add Indirect Device
1	BCR01	Series=CMQV,Device Address=1,Sub Address=0	
2	SDC01	Series=SDC35/36,Device Address=2,Sub Address=0	

Figure 4-5-1 GP-ProEX Communication Settings

4.6. Connection

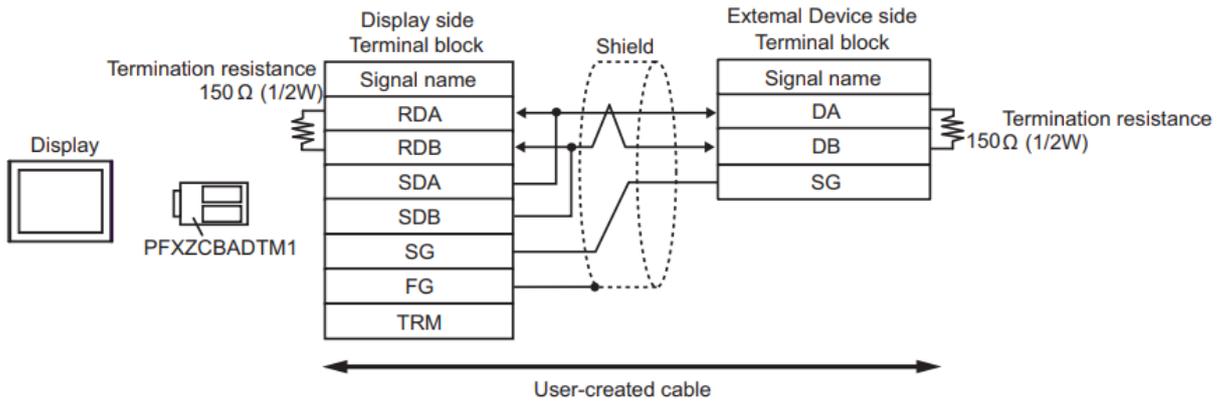
4.6.1. Connection with RS485 2-Wire

Display (Connection Port)	Cable		Remarks
ST6000 (COM2)	1A	RS-422 terminal block conversion adapter by Pro-face PFXZCBADTM1 +	Cable length : 500m or less
	1B	User-created cable	

Table 4-6-1 Connection Diagram

1A)

- 1:1 Connection



- 1:n Connection

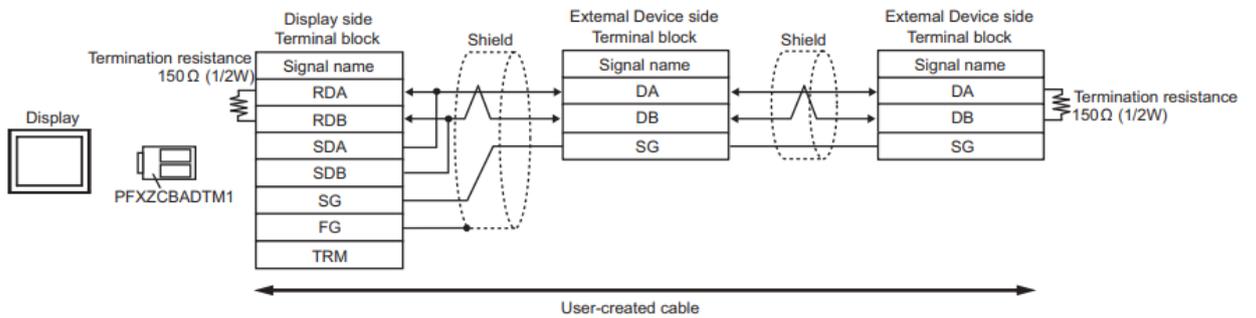
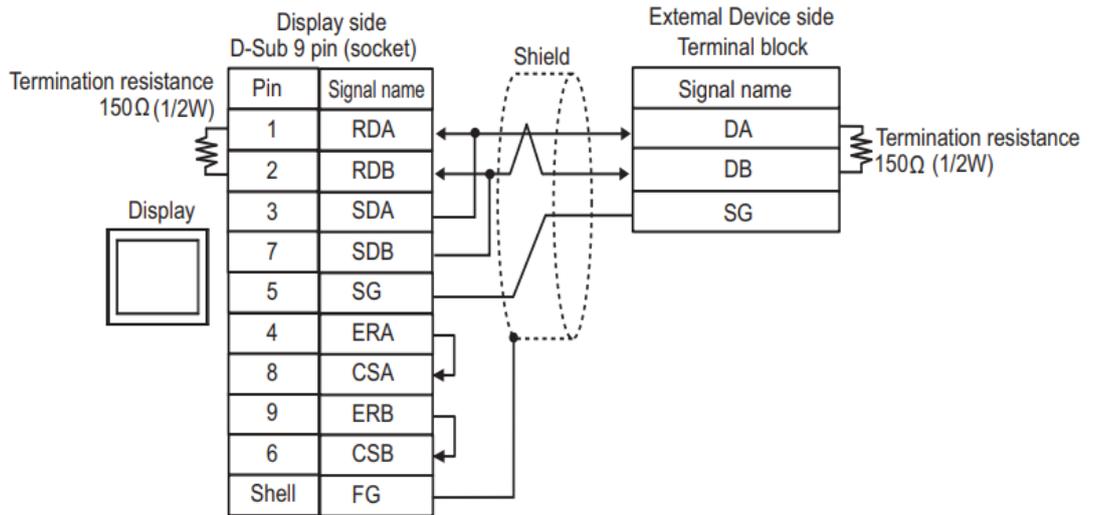


Figure 4-6-1 Connection Diagram 1A

1B)

- 1:1 Connection



- 1:n Connection

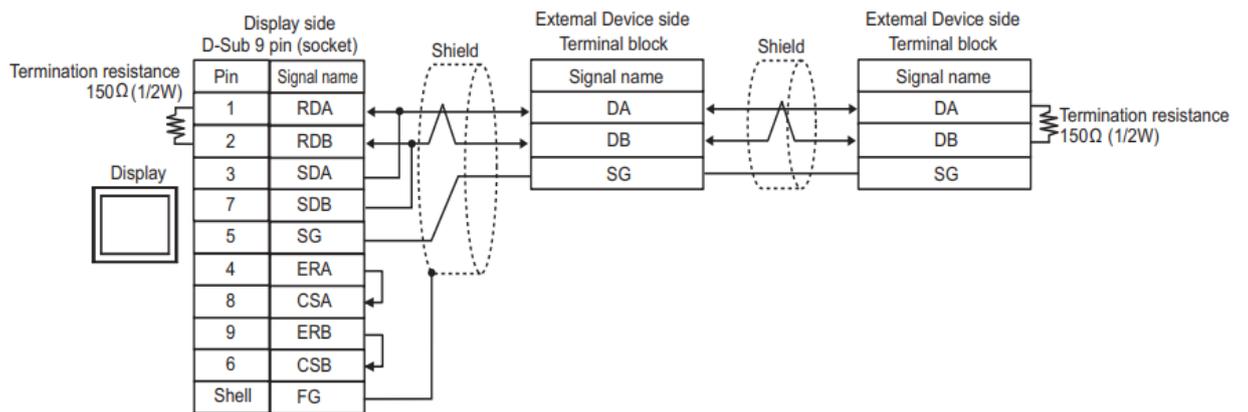


Figure 4-6-2 Connection Diagram 1B

(Connection Example with User-created Cables)

4.7. Setting for Project File Transfer

In this project, the Enhanced Recipe function is used.

Before transferring the project file (screen) to the Display unit, be sure to enable the "Transfer Enhanced Recipe Data" checkbox in the "Transfer Settings" screen.

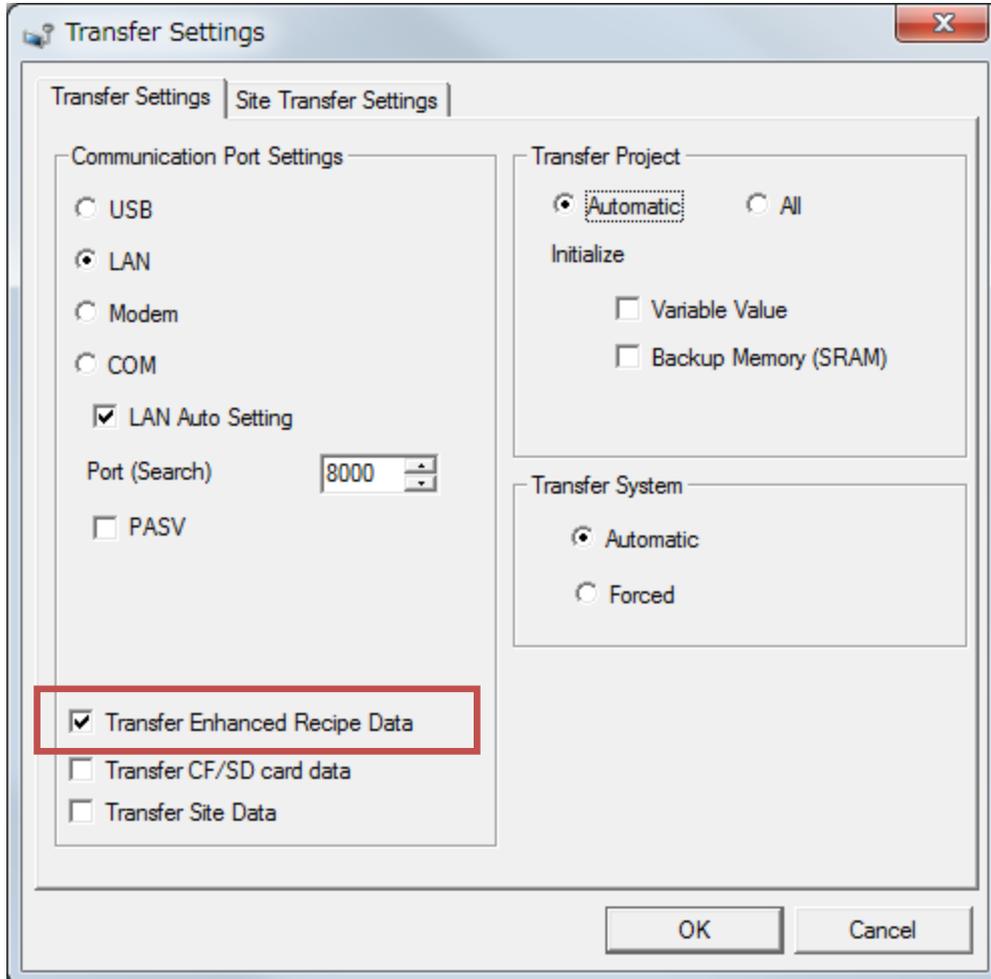


Figure 4-7-1 GP-ProEX Transfer Settings

[NOTE]

When the Enhanced Recipe setting is changed with GP-ProEX and the project data is transferred to the Display without enabling the "Transfer Enhanced Recipe Data" checkbox, the changed setting of the enhanced recipe data is not reflected to the Display.

5. Screen Composition

The following content is explained on the basis of the "Azbil_BCR35_100.prx " project data.

5.1. Screen Layout

This sample project is composed of the following screen layout. Although some menus vary depending on the screen, the basic operation is the same.

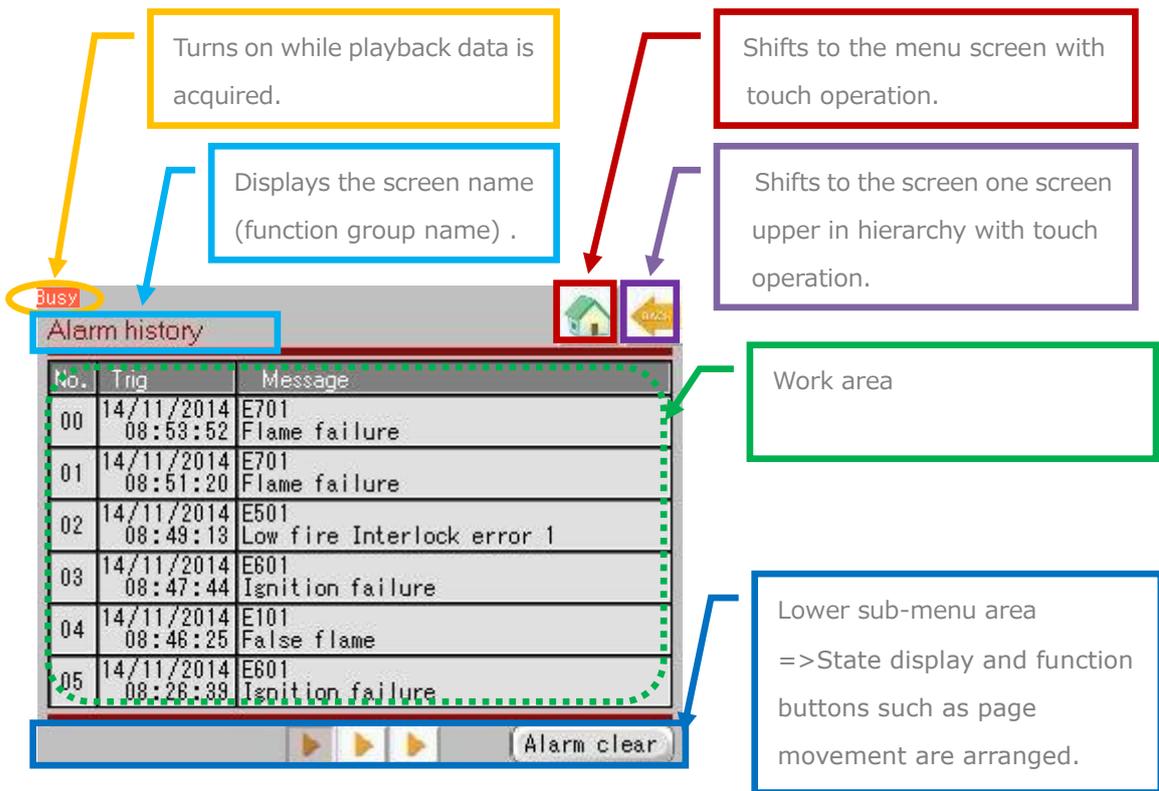


Figure 5-1-1 Example of Screen Composition

5.2. Screen Hierarchy

The screen of this sample project is composed of the following hierarchy.

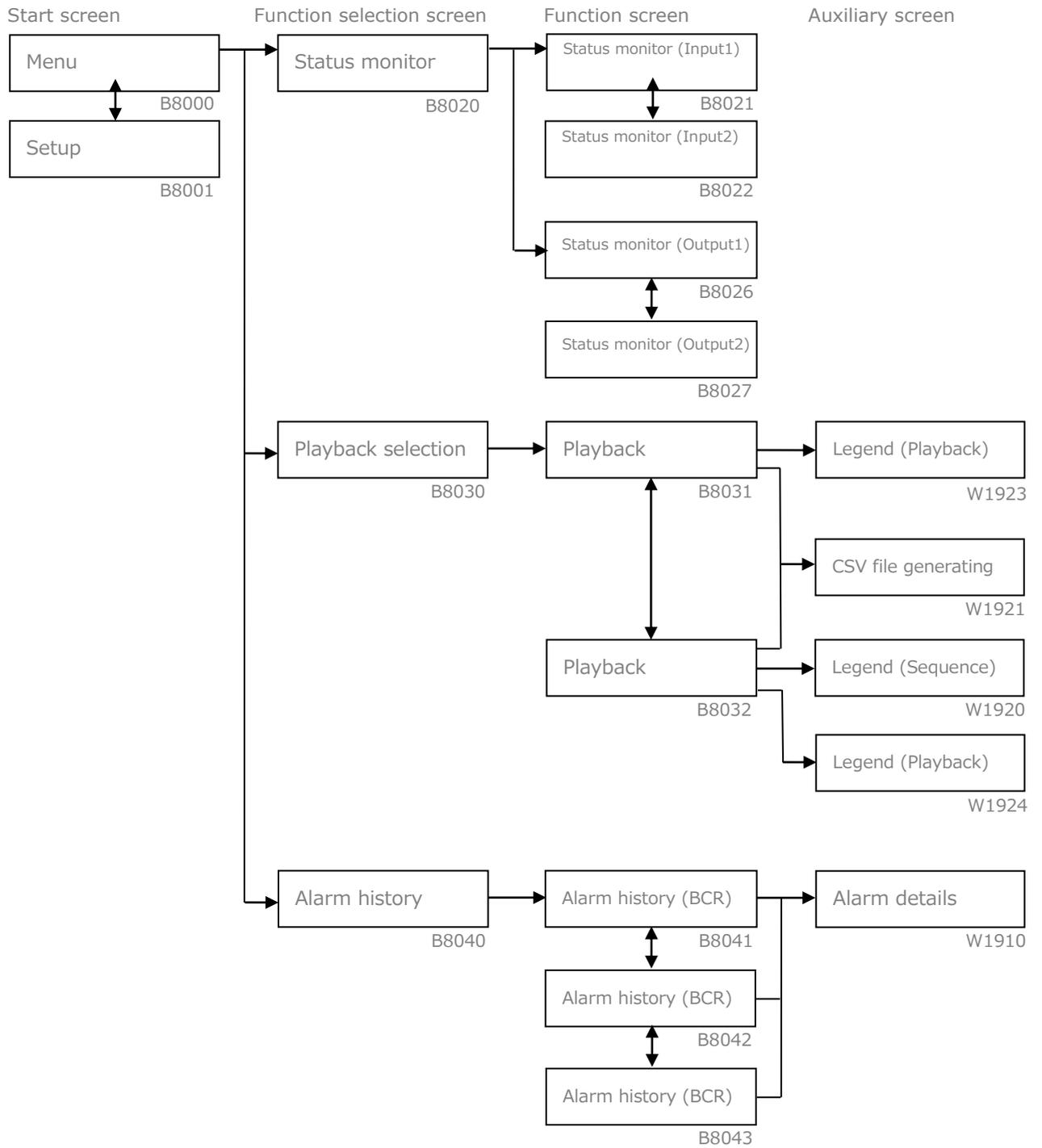
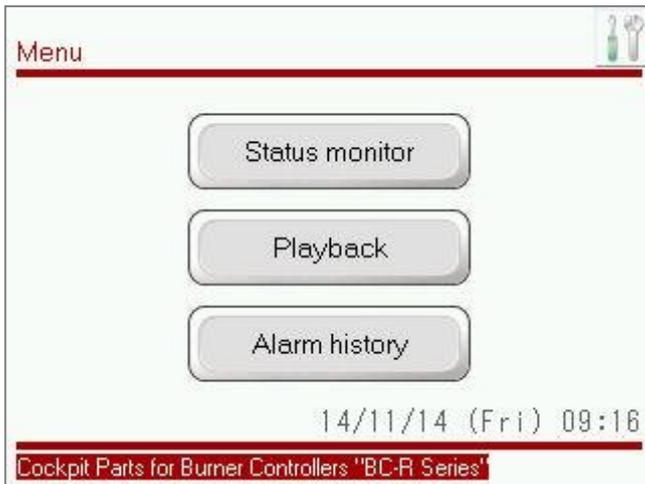


Figure 5-2-1 Screen Hierarchy

5.3. Screen Transition (Screen Description)



* The screen is shifted to the setting screen (B8001) with the button in the upper right of the screen.

Menus to shift to each function screen are displayed.

Menu Buttons

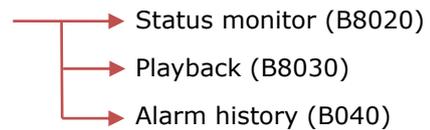
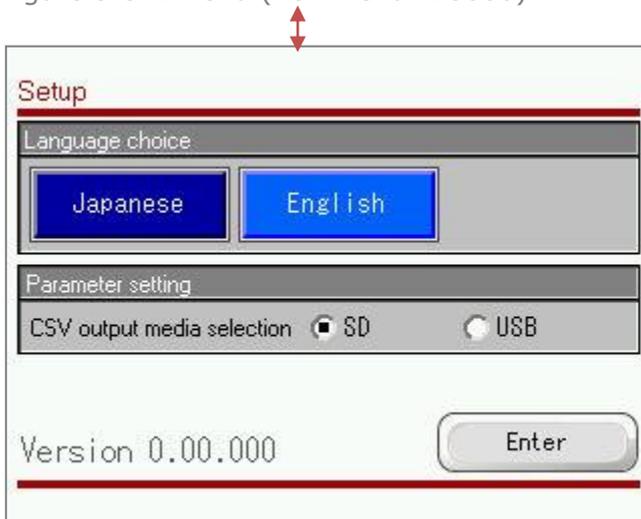


Figure 5-3-1 Menu (TOP Menu: B8000)

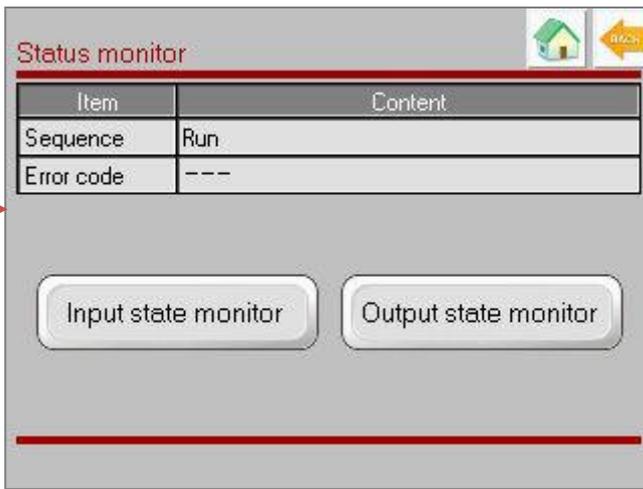


Operation setting of the touch panel screen is made.

- Display language is switched (Japanese/English) with each language button.
- "SD" or "USB" in "CSV output media selection" is selected for the CSV file output destination for playback data.

* The screen is shifted to the menu screen (B8000) with the "Enter" button.

Figure 5-3-2 Setup (Settings: B8001)



* The screen is shifted to the higher one in the hierarchy with the button in the upper right of the screen.

Operation status is displayed in real time.

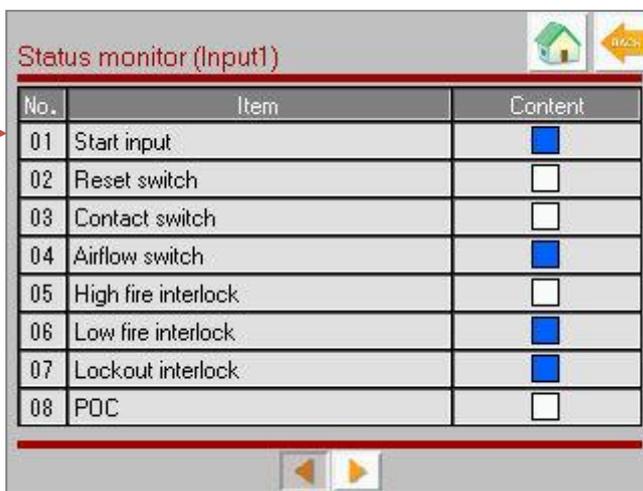
- A current control sequence is displayed.
- A currently-generated error is displayed.
- Shifted to the display screen in which input/output status is displayed with the selection button.

Screen transition with a button

Input status monitor 1 (B8021)

Output status monitor 1 (B8026)

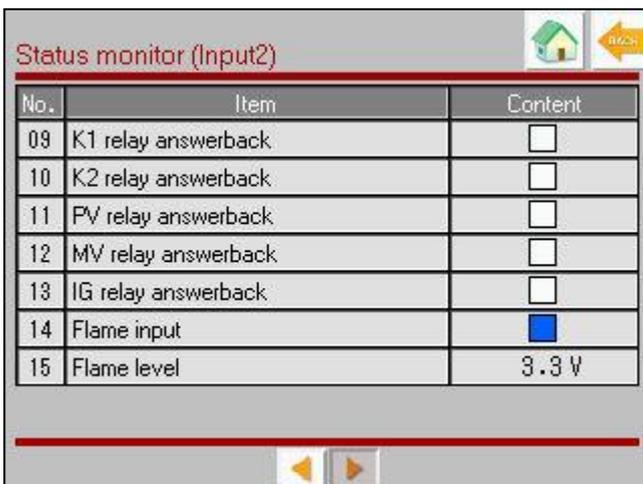
Figure 5-3-3 Status monitor (Status monitor: B8020)



Input signal is displayed in real time.

- Blue lamps are turned on when a signal is ON.

Figure 5-3-4 Status monitor (Input 1) (B8021)



Input signal is displayed in real time.

- Blue lamps are turned on when a signal is ON.
- Fire flame level: displayed in the voltage of 0-5V.

Figure 5-3-5 Status monitor (Input 2) (B8022)

→ **Status monitor (Output1)**

No.	Item	Content
01	Blower output	<input type="checkbox"/>
02	K1 relay output	<input type="checkbox"/>
03	K2 relay output	<input type="checkbox"/>
04	PV relay output	<input type="checkbox"/>
05	MV relay output	<input type="checkbox"/>
06	IG relay output	<input type="checkbox"/>
07	Alarm	<input checked="" type="checkbox"/>
08	Damper output(open/close)	<input type="checkbox"/>

Output signal is displayed in real time.

- Blue lamps are turned on when a signal is ON.

Figure 5-3-6 Status monitor (Output 1) (Status monitor (Output 1):B8026)



Status monitor (Output2)

No.	Item	Content
09	Damper output(Proportional)	<input type="checkbox"/>
10	Monitor:Flame	<input checked="" type="checkbox"/>
11	Monitor:Ignition failure	<input type="checkbox"/>
12	Monitor:Flame failure	<input type="checkbox"/>
13	Monitor:Lockout interlock	<input type="checkbox"/>

Output signal is displayed in real time.

- Blue lamps are turned on when a signal is ON.

Figure 5-3-7 Status monitor (Output output 2) (Status monitor (Output 2): B8027)



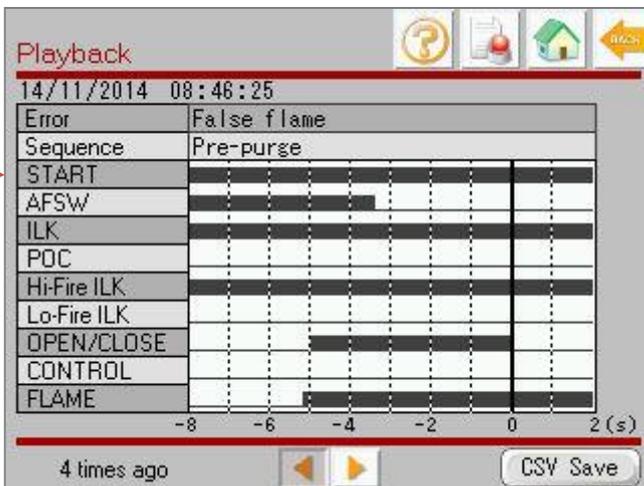
* The screen is shifted to the higher one in the hierarchy with the button in the upper right of the screen.

Display data of the playback is selected.

- Select the data from among 16 data from "Latest" to "15 times ago".

* After the selection, the screen is shifted to the playback screen with the "Enter" button.

Figure 5-3-8 Playback selection (Playback selection: B8030)



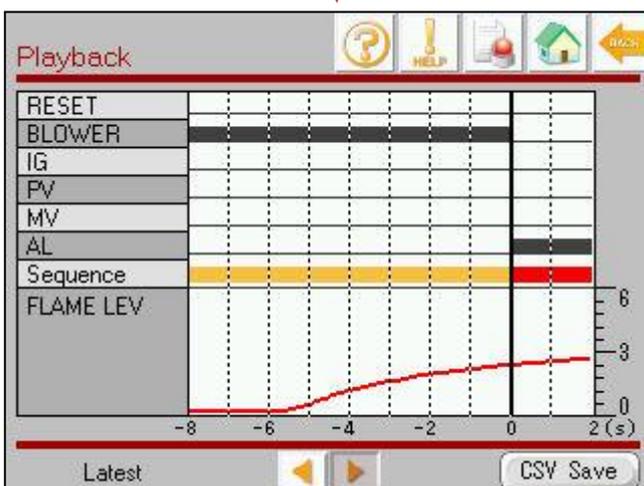
Selected playback data is displayed in the graph.

The followings are displayed:

- Error when a lockout occurs.
- Sequence when a lockout occurs.
- Value in the bold line when signal data is ON.

* The "CSV File generating" (W1921) screen is displayed with the "CSV Save" button.

Figure 5-3-9 Playback (Playback: B8031)



Selected playback data is displayed in the graph.

The followings are displayed:

- Value in the bold line when signal data is ON.
- Control sequence in the "Sequence" area with color change.
- Line chart in the FLAME LEV area.

* The "CSV File generating" (W1921) screen is displayed with the "CSV Save" button.

* The "Legend" screen (W1920) for the "BLOWER" is displayed with the "! HELP" button.

Figure 5-3-10 Playback (Playback: B8032)



CSV file is output.

- Folder name and File name are automatically set according to the date and time on which the lockout occurs.
- File name can be changed with touch operation.
- Make sure the file name is 8 characters.
- * The "Execute" button starts file output.
- * The "Cancel" button returns the current screen to the playback screen.

Figure 5-3-11 CSV file generating (CSV Save: W1921)



The progress bar is displayed while the CSV file is output.

- Button operation is prohibited while a file is output.
- * When the CSV file output is completed normally, the current screen is returned to the playback screen automatically.
- When an error occurs, the current screen is switched to the error screen (W1922).

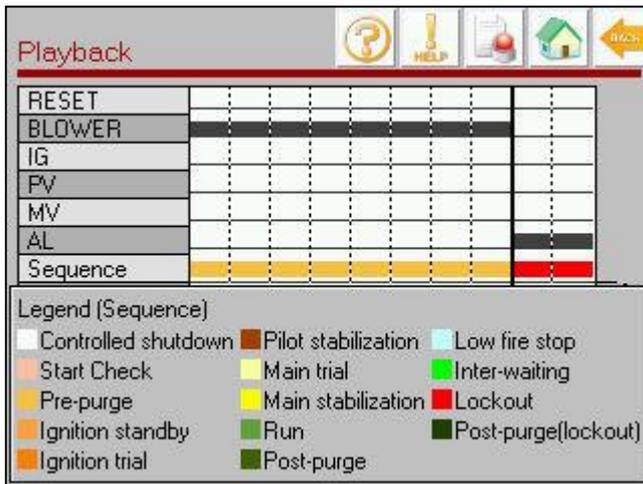
Figure 5-3-12 CSV file generating (CSV Save: W1921)



The error screen is displayed when an error occurs while the CSV file is output.

- Error description is displayed.
- * The "Close" button returns the current screen to the playback screen.

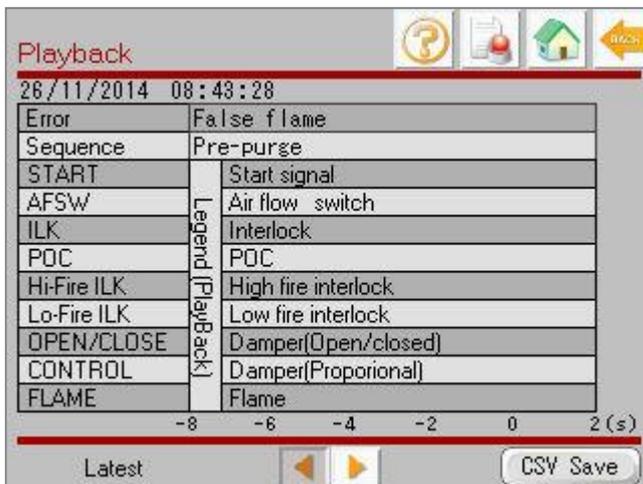
Figure 5-3-13 Error Screen (CSV Save Error: W1922)



“Legend (Sequence)” of the playback screen is displayed.

* When the "!" HELP" button or the legend part is touched, the legend display is not displayed.

Figure 5-3-14 Legend (Sequence) (Legend: W1920)



“Legend (Playback)” of the Playback screen is displayed.

* When the "!" HELP" button or the legend part is touched, the legend display is not displayed.

Figure 5-3-15 Playback (Legend (Playback 1): W1923)

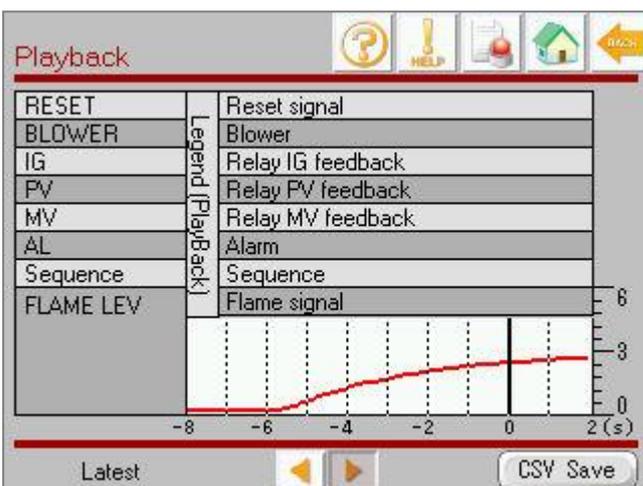


Figure 5-3-16 Playback (Legend (Playback 2): W1924)



Figure 5-3-17 (General) Alarm history (Alarm history: B8040)

* The screen is shifted to the higher one in the hierarchy with the button in the upper right of the screen.

Alarm history screen using the standard alarm function of ST is displayed.

- Alarms registered in Block 8 are displayed in a list.
- The "CLR" button clears the selected alarm history.
- The "ALLCLR" button clears all alarm history.

[NOTE]

Alarms of BC-R are not cleared.

* The "BC-R Alarm" button shifts the current screen to the "Alarm history" screen (B8041) using the "BC-R Alarm" button.

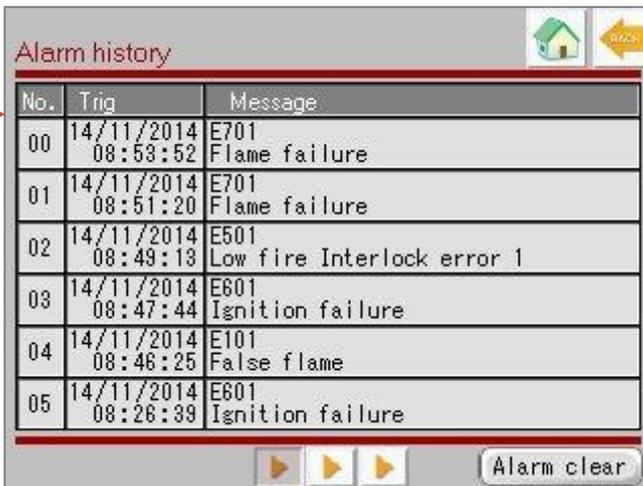


Figure 5-3-18 Alarm history (Alarm history 1: B8041)

Alarms of the BC-R are displayed.

- 6 data are displayed from the latest one from among the 16 data.

(This is not synchronized with the alarm history of the BC-R.)

- The "Alarm clear" clears all alarm history.

[NOTE]

- Playback data is also cleared.

Save the playback data with CSV File Save before clearing the data, if necessary.

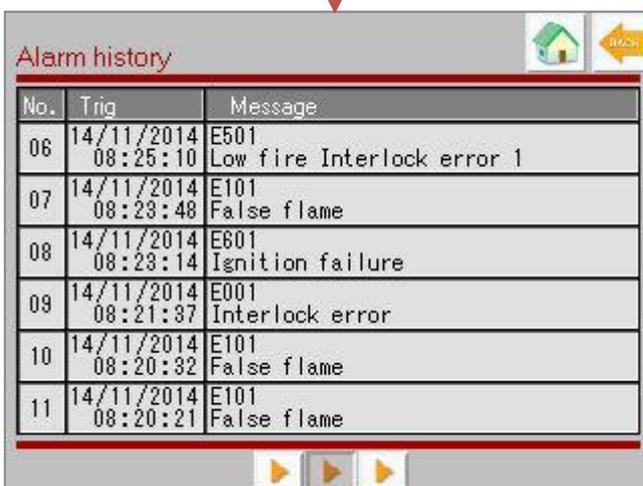


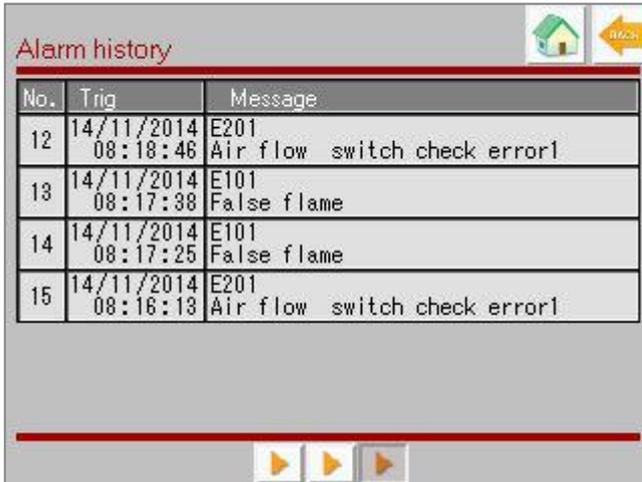
Figure 5-3-19 Alarm history (Alarm history 2: B8042)

Alarms of the BC-R are displayed.

- 6 data are displayed from the latest one from among the 16 alarms.

(This is not synchronized with the alarm history of the BC-R.)

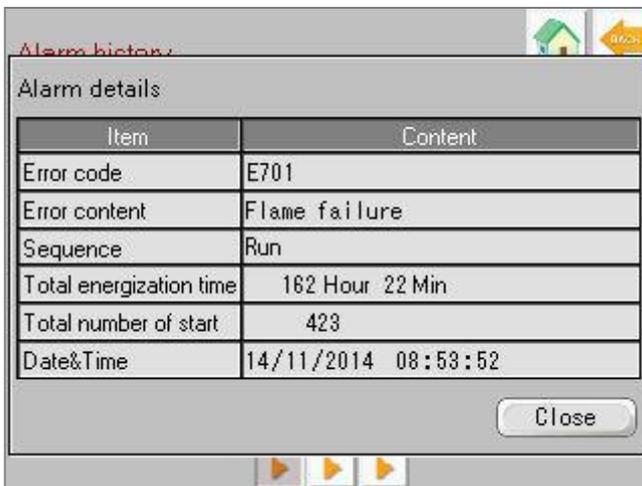
* When the "Message" area in the screen is touched, the alarm description screen (W1910) is displayed.



Alarms of the BC-R are displayed.

- 4 data are displayed from the latest one from among the 16 alarms.
- (This is not synchronized with the alarm history of the BC-R.)
- * When the "Message" area in the screen is touched, the alarm description screen (W1910) is displayed.

Figure 5-3-20 Alarm history (Alarm history 3: B8043)



Detailed information on the BC-R alarm is displayed.

- The followings are displayed:
- Control sequence at the time of occurrence of the alarm
 - Total energization time and total number of start at the time of alarm occurrence
 - * The "Close" button returns the current screen to the Alarm history screen.

Figure 5-3-21 Alarm details (Alarm details: W1910)

[NOTE]

- Playback data may not be acquired normally if an alarm of the BC-R is reset while "BUSY" is displayed (standby time for 3 seconds from occurrence of the lockout to data acquisition + data reading time).
- Alarms generated when the Display is turned off cannot be acquired.
- Playback data may not be displayed normally if the Display is turned off or communication error occurs. Turn on the Display again if alarm history is stacked and playback data cannot be stored.

[NOTE on Alarm history screen]

The alarm generated while the Alarm history screen is displayed is not reflected to the alarm history at once, but reflected when the screen is shifted to the Alarm history screen next time.

6. Address Map

6.1. Internal Addresses

"Type" in the table below indicates as follows:

- B: Bit device
- W: Word device

Table 6-1: Address Map (ST)

Name	Address	Type	Array	Number of Elements	Description
Playback data 00	USR24000-24209	W		210	Playback data (latest) holding area
	USR24000	W		1	[BCR:04000] Error code
	USR24001	W		1	[BCR:04001] Sequence number at the time of the error occurrence
	USR24002	W		1	[BCR:04002] Record data obtained 8.0 seconds before a lockout occurs
	USR24003	W		1	[BCR:04003] Record data obtained 8.0 seconds before a lockout occurs
	:	:		196	:
	USR24200	W		1	[BCR:04200] Record data obtained 1.9 seconds after a lockout occurs
	USR24201	W		1	[BCR:04201] Record data obtained 1.9 seconds after a lockout occurs
	USR24203	W		1	[BCR:03150] Recycling count H
	USR24204	W		1	[BCR:03151] Recycling count L
	USR24205	W		1	Year in which an error has occurred [20YY]
	USR24206	W		1	Month in which an error has occurred [MMDD]
	USR24207	W		1	Hour and minute in which an error has occurred [hhmm]

Name	Address	Type	Array	Number of Elements	Description
	USR24208	W		1	Second in which an error has occurred [ss]
	USR24209	W		1	Error index
Playback data 01	USR24210-24419	W		210	Playback data (1) holding area
Playback data 02	USR24420-24629	W		210	Playback data (2) holding area
Playback data 03	USR24630-24839	W		210	Playback data (3) holding area
Playback data 04	USR24840-25049	W		210	Playback data (4) holding area
Playback data 05	USR25050-25259	W		210	Playback data (5) holding area
Playback data 06	USR25260-25469	W		210	Playback data (6) holding area
Playback data 07	USR25470-25679	W		210	Playback data (7) holding area
Playback data 08	USR25680-25889	W		210	Playback data (8) holding area
Playback data 09	USR25890-26099	W		210	Playback data (9) holding area
Playback data 10	USR26100-26309	W		210	Playback data (10) holding area
Playback data 11	USR26310-26519	W		210	Playback data (11) holding area
Playback data 12	USR26520-26729	W		210	Playback data (12) holding area
Playback data 13	USR26730-26939	W		210	Playback data (13) holding area
Playback data 14	USR26940-27149	W		210	Playback data (14) holding area
Playback data 15	USR27150-27359	W		210	Playback data (15) holding area
Alarm history 00	USR27360-27374	W		15	BC-R Alarm history (latest) holding area
	USR27360	W		1	[BCR:05000] Error code
	USR27361	W		1	[BCR:05001] Sequence number
	USR27362	W		1	[BCR:05002] Total energizing time H
	USR27363	W		1	[BCR:05003] Total energizing time L
	USR27364	W		1	[BCR:05004] Total number of starting H
	USR27365	W		1	[BCR:05005] Total number of starting L
	USR27366	W		1	Year in which an error has occurred [20YY]
	USR27367	W		1	Month and day in which an error has occurred [MMDD]

Name	Address	Type	Array	Number of Elements	Description
	USR27368	W		1	Hour and minute in which an error has occurred [hhmm]
	USR27369	W		1	Second in which an error has occurred [ss]
	USR27370	W		1	Year in which an error has been restored [20YY]
	USR27371	W		1	Month and day in which an error has been restored [MMDD]
	USR27372	W		1	Hour and minute in which an error has been restored [hhmm]
	USR27373	W		1	Second in which an error has been restored [ss]
	USR27374	W		1	Error index
Alarm history 01	USR27375-27389	W		15	BC-R Alarm history (1) holding area
Alarm history 02	USR27390-27404	W		15	BC-R Alarm history (2) holding area
Alarm history 03	USR27405-27419	W		15	BC-R Alarm history (3) holding area
Alarm history 04	USR27420-27434	W		15	BC-R Alarm history (4) holding area
Alarm history 05	USR27435-27449	W		15	BC-R Alarm history (5) holding area
Alarm history 06	USR27450-27464	W		15	BC-R Alarm history (6) holding area
Alarm history 07	USR27465-27479	W		15	BC-R Alarm history (7) holding area
Alarm history 08	USR27480-27494	W		15	BC-R Alarm history (8) holding area
Alarm history 09	USR27495-27509	W		15	BC-R Alarm history (9) holding area
Alarm history 10	USR27510-27524	W		15	BC-R Alarm history (10) holding area

Name	Address	Type	Array	Number of Elements	Description
Alarm history 11	USR27525-27539	W		15	BC-R Alarm history (11) holding area
Alarm history 12	USR27540-27554	W		15	BC-R Alarm history (12) holding area
Alarm history 13	USR27555-27569	W		15	BC-R Alarm history (13) holding area
Alarm history 14	USR27570-27584	W		15	BC-R Alarm history (14) holding area
Alarm history 15	USR27585-27599	W		15	BC-R Alarm history (15) holding area
Work area for the playback display	USR27620-27931	W		312	Copy area from the holding area (for processing)
	USR27620	W		1	[BCR:04000] Error code
	USR27621	W		1	[BCR:04001] Sequence number at the time of the error occurrence
	USR27622	W		1	[BCR:04002] Record data obtained 8.0 seconds before a lockout occurs
	USR27623	W		1	[BCR:04003] Record data obtained 8.0 seconds before a lockout occurs
	:	:		196	:
	USR27820	W		1	[BCR:04200] Record data obtained 1.9 seconds after a lockout occurs
	USR27821	W		1	[BCR:04201] Record data obtained 1.9 seconds after a lockout occurs
	USR27823	W		1	[BCR:03150] Recycling count H
	USR27824	W		1	[BCR:03151] Recycling count L
	USR27825	W		1	Year in which an error has occurred [20YY]
	USR27826	W		1	Month and day in which an error has occurred [MMDD]

Name	Address	Type	Array	Number of Elements	Description
	USR27827	W		1	Hour and minute in which an error has occurred [hhmm]
	USR27828	W		1	Second in which an error has occurred [ss]
	USR27829	W		1	Error index
	USR27830	W		1	Flame level control word
	USR27831	W		1	Storage address of the number of channel data
	USR27832	W		1	Flame level obtained 8.0 seconds before a lockout occurs
	:			98	:
	USR27931	W		1	Flame level obtained 1.9 seconds after a lockout occurs
Work area for the alarm history display	USR27950-27964	W		15	Copy area from the holding area (for processing)
	USR27950	W		1	[BCR:05000] Error code
	USR27951	W		1	[BCR:05001] Sequence number
	USR27952	W		1	[BCR:05002] Total energizing time H
	USR27953	W		1	[BCR:05003] Total energizing time L
	USR27954	W		1	[BCR:05004] Total number of starting H
	USR27955	W		1	[BCR:05005] Total number of starting L
	USR27956	W		1	Year in which an error has occurred [20YY]
	USR27957	W		1	Month and day in which an error has occurred [MMDD]
	USR27958	W		1	Hour and minute in which an error has occurred [hhmm]
	USR27959	W		1	Second in which an error has occurred [ss]
	USR27960	W		1	Year in which an error has been restored [20YY]

Name	Address	Type	Array	Number of Elements	Description
	USR27961	W		1	Month and day in which an error has been restored [MMDD]
	USR27962	W		1	Hour and minute in which an error has been restored [hhmm]
	USR27963	W		1	Second in which an error has been restored [ss]
	USR27964	W		1	Error index
Playback selection	USR28001			1	Display selection of playback (0-15)
Number frame display of alarm history	USR28004	B		1	Mark displayed when having moved from a playback to the alarm history.
Control flag of the window screen	USR28010	B		1	0bit: Display of alarm details
Control flag of the window screen	USR28020	B		1	0Bit:Display of BLOWER legend 1Bit:Display of CSV Save 2Bit:Display of CSV Save Error 3bit:Display of playback legend
Work area for screen display 00	USR28100-28120	W		21	
	USR28100	W		1	Sequence
	USR28101	W		1	Sequence (Designation of the text number)
	USR28102	W		1	Sequence (Designation of the start line number)
	USR28110	W		1	Error code
	USR28111	W		1	Error code (Exxx)
	USR28113	W		1	Error content (Designation of the text number)
	USR28114	W		1	Error content (Designation of the start line number)
	USR28115	W		1	Year [20YY]
	USR28116	W		1	Month [MM]

Name	Address	Type	Array	Number of Elements	Description
	USR28117	W		1	Day [DD]
	USR28118	W		1	Hour [hh]
	USR28119	W		1	Minute [mm]
	USR28120	W		1	Second [ss]
Work area for screen display 01	USR28121-28130	W		10	
	USR28121	W		1	Error code (Exxx)
	USR28123	W		1	Error content (Designation of the text number)
	USR28124	W		1	Error content (Designation of the start line number)
	USR28125	W		1	Year [20YY]
	USR28126	W		1	Month [MM]
	USR28127	W		1	Day [DD]
	USR28128	W		1	Hour [hh]
	USR28129	W		1	Minute [mm]
	USR28130	W		1	Second [ss]
Work area for screen display 02	USR28131-28140	W		10	
	USR28131	W		1	Error code (Exxx)
	USR28133	W		1	Error content (Designation of the text number)
	USR28134	W		1	Error content (Designation of the start line number)
	USR28135	W		1	Year [20YY]
	USR28136	W		1	Month [MM]
	USR28137	W		1	Day [DD]
	USR28138	W		1	Hour [hh]
	USR28139	W		1	Minute [mm]
	USR28140	W		1	Second [ss]
Work area for screen display 03	USR28141-28150	W		10	

Name	Address	Type	Array	Number of Elements	Description
	USR28141	W		1	Error code (Exxx)
	USR28143	W		1	Error content (Designation of the text number)
	USR28144	W		1	Error content (Designation of the start line number)
	USR28145	W		1	Year [20YY]
	USR28146	W		1	Month [MM]
	USR28147	W		1	Day [DD]
	USR28148	W		1	Hour [hh]
	USR28149	W		1	Minute [mm]
	USR28150	W		1	Second [ss]
Work area for screen display 04	USR28151-28160	W		10	
	USR28151	W		1	Error code (Exxx)
	USR28153	W		1	Error content (Designation of the text number)
	USR28154	W		1	Error content (Designation of the start line number)
	USR28155	W		1	Year [20YY]
	USR28156	W		1	Month [MM]
	USR28157	W		1	Day [DD]
	USR28158	W		1	Hour [hh]
	USR28159	W		1	Minute [mm]
	USR28160	W		1	Second [ss]
Work area for screen display 05	USR28161-28170	W		10	
	USR28161	W		1	Error code (Exxx)
	USR28163	W		1	Error content (Designation of the text number)
	USR28164	W		1	Error content (Designation of the start line number)
	USR28165	W		1	Year [20YY]
	USR28166	W		1	Month [MM]
	USR28167	W		1	Day [DD]

Name	Address	Type	Array	Number of Elements	Description
	USR28168	W		1	Hour [hh]
	USR28169	W		1	Minute [mm]
	USR28170	W		1	Second [ss]
Work area for screen display	USR28171-28185	W		15	
	USR28171	W		1	Error code (Exxx)
	USR28173	W		1	Error content (Designation of the text number)
	USR28174	W		1	Error content (Designation of the start line number)
	USR28175	W		1	Year [20YY]
	USR28176	W		1	Month [MM]
	USR28177	W		1	Day [DD]
	USR28178	W		1	Hour [hh]
	USR28179	W		1	Minute [mm]
	USR28180	W		1	Second [ss]
	USR28181	W		1	Total energizing time: Hour (H)
	USR28182	W		1	Total energizing time: Hour (L)
	USR28183	W		1	Energizing time: Minute
	USR28184	W		1	Total number of starting H
	USR28185	W		1	Total number of starting L
Japanese output area of the recipe	USR28200-28249	W		50	4000: Sequence name 4001: Alarm name 4002: Text1 (CSV header) 4003: Text2 (Item name) 4004: BLOWER
English output area of the recipe	USR28250-28299	W		50	4000:Sequence name 4001:Alarm name 4002:Text1 (CSV header) 4003:Text2 (Item name) 4004:BLOWER
Data copy area of recipe	USR28350-28399	W		50	Area for saving processing of the character string acquired from a recipe

Name	Address	Type	Array	Number of Elements	Description
Data copy area of recipe	USR28400-28449	W		50	Area for saving processing of the character string acquired from a recipe
File name of the CSV	USR28610-28616	W		7	File name setting area to CSV output
Work area for CSV output	USR28700-28899	W		200	String generation area for the work of CSV output

6.2. Symbol Variables

Table 6-2: Address Map (ST)

Name	Type	Array	Number of Elements	Maintenance	Description
BCR_ALM_Clear	Bit Variable				BCR Alarm data clear flag
CSV_DataHiLo	Bit Variable				CSV export Hi/Lo flag
CSV_RecipeSend	Bit Variable				CSV recipe data read flag
FlashMediaCheck	Bit Variable				SD or USB Media not ready
History_data_collect_start	Bit Variable				Start bit of G-Script(ID0)
Playback_AlarmLinkage	Bit Variable				Enable of a linkage function
Sys_Busy	Bit Variable				Playback data reading
Sys_ChangeValue	Bit Variable	○	10		Button input flag of shared use
Sys_CSVExportDevice	Bit Variable			○	CSV device select (USB/SD)
Sys_DataCollectionTimeout	Bit Variable				Global D-Script Timeout Error
Sys_FirstBoot	Bit Variable			○	Distinction of the first startup
Sys_ScreenChange	Bit Variable				Distinction of a screen change
Sys_Semaphore	Bit Variable				D-Script semaphore flag
Sys_WorkBit	Bit Variable	○	10		Bit variable of shared use
CSV_ReadIndex	Integer Variable				CSV export readpointer
CSV_WriteIndex	Integer Variable				CSV export writepointer
Get_PlaybackCounter	Integer Variable				Execute playback data copy
Get_PlaybackStatus	Integer Variable				Phase of playback data copy
Playback_OffsetX	Integer Variable				Playback graph offset (Axis-X)

Name	Type	Array	Number of Elements	Maintenance	Description
Playback_OffsetY	Integer Variable				Playback graph offset (Axis-Y)
Recent_alarm	Integer Variable			○	Recent Alarm code
Recent_Sequence	Integer Variable			○	Recent sequence number
Sys_Language	Integer Variable			○	Language choice
Sys_ScreenResolution	Integer Variable				Resolution for playback graph
Sys_WorkData	Integer Variable	○	10		Word variable of shared use
Sys_WorkStatus	Integer Variable				Program sequence status

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