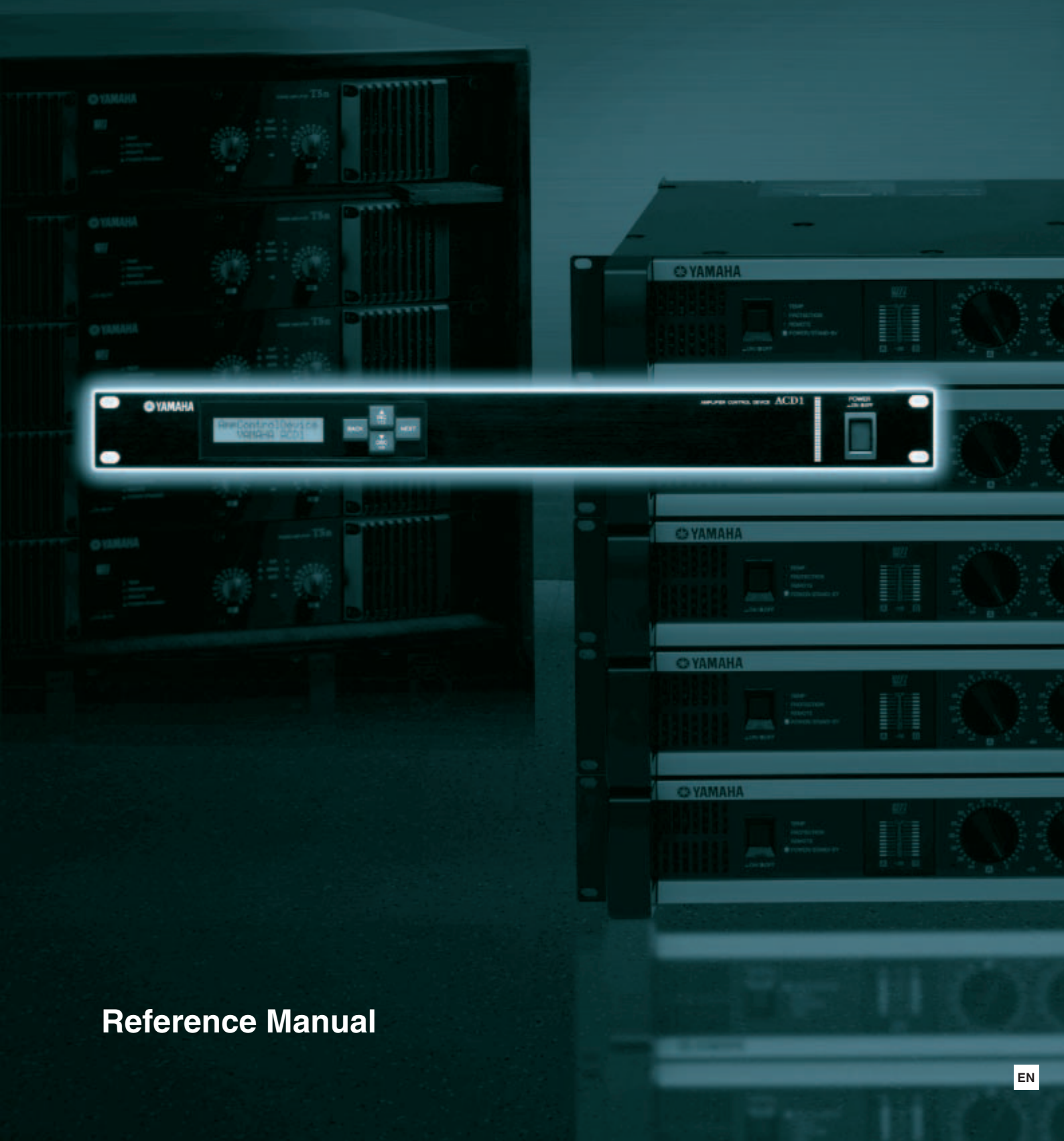




AMPLIFIER CONTROL DEVICE

ACD1



Reference Manual

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Introduction

About the documentation

This document explains mainly the operation and specifications of the ACD1 amplifier control device itself. When using the ACD1, you will also need to consult various manuals other than this document.

● Manuals other than this document

ACD1 Owner's Manual (printed)	Primarily explains initial connections
Amp Editor Installation Guide (PDF)	Explains the installation procedure for Amp Editor, and the uninstallation procedure
Amp Editor Owner's Manual (PDF)	Explains how to set up the ACD1 and Amp Editor and to use Amp Editor

NOTE • Please use Amp Editor Version 1.1 or later.

PDF manuals and Amp Editor can be downloaded from the following URL.

<http://www.yamahaproaudio.com/downloads/>

NOTE • In order to view the downloaded manuals, Adobe Reader must be installed in your computer. If you don't have Adobe Reader, please access the Adobe Corporation's website at the following URL, and download Adobe Reader (free of charge).

<http://www.adobe.com/>

Supported amplifiers

As of September 2009, the following amplifiers support connection with the ACD1.

- **XP series** : XP7000, XP5000, XP3500, XP2500, XP1000
- **XM series** : XM4180, XM4080
- **XH series** : XH200
- **PC-N series** : PC9501N, PC6501N, PC4801N, PC3301N, PC2001N, PC9500N, PC4800N, PC3300N
- **Tn series** : T5n, T4n, T3n

* For the most recent information, refer to the following URL.

<http://www.yamahaproaudio.com/>

Setup

For details on setting up the ACD1 and Amp Editor, refer to the “Amp Editor Owner's Manual.”
The “Amp Editor Owner's Manual” can be downloaded from the download page of the following website.

<http://www.yamahaproaudio.com/downloads/>

Terms

This section explains terminology specific to the ACD1.

■ Amp Editor

This is computer application software. With this software, you can use your computer to monitor and control the ACD1 and the amplifiers connected to the ACD1.

■ Scene

Settings such as Power-On/Standby or mute for each amplifier are collectively called a “scene.” By recalling a scene, the saved settings can be immediately applied to the amplifiers. The ACD1 can specify 49 scenes for each connected amplifier.

■ Scene link

Settings for simultaneously recalling scenes for multiple amplifiers within an area are called a “scene link.” By recalling a scene link, scenes can be simultaneously recalled for multiple amplifiers. Scene links can be created and recalled using Amp Editor.

■ Device ID

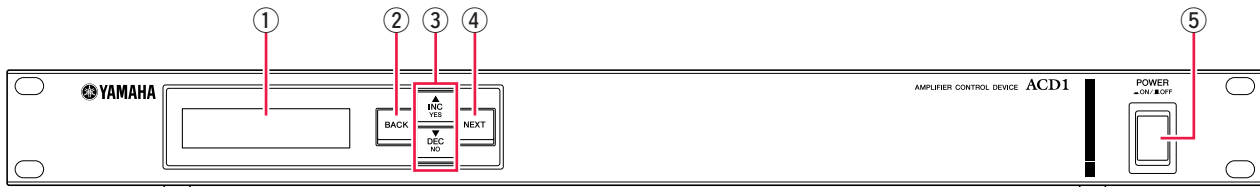
This is an ID for uniquely identifying an ACD1 unit within a network. If there are duplicate IDs within an area, it will be impossible to monitor/control them from Amp Editor.

■ Amp ID

This is the ID of each amplifier connected to the ACD1. Amplifiers connected to the [DATA PORT] connector of the same ACD1 must be set to non-overlapping IDs using the [AMP ID] switch located on the rear panel of each amplifier. For amplifiers connected to a [MONITOR/REMOTE] connector, the Amp ID is determined by the connector that is used.

Controls and Connectors

Front Panel



① Display

This shows information about the scene, the ACD1 itself, or the connected amplifiers. This will light red when an abnormality (a WARNING or higher alert) occurs. This will also blink blue and white when the Identify operation is performed in Amp Editor.

When you turn on the power, a HOME screen like the following will appear. The HOME screen shows the Device ID and the name of the ACD1 specified by Amp Editor.



② [BACK] button

Use this to move to the previous screen or parameter.

NOTE • If you press and hold down this button for three seconds or longer while the HOME screen is displayed, the Device ID setting screen will appear.

③ [▲INC/YES]/[▼DEC/NO] buttons

Use these to increment or decrement (INC/DEC) the value of a parameter, or to respond YES/NO to a confirmation message.

NOTE • To temporarily unlock the panel operation, press and hold down both the [▲INC/YES] and [▼DEC/NO] buttons for at least three seconds to display the message "Unlock panel: Are you sure?". Press the [▲INC/YES] button. The panel lock will be temporarily defeated until the power to the ACD1 is turned off.

• To reset the FAULT OUTPUT connector output (to connect NC and C), press and hold down the [BACK] and [▼DEC/NO] buttons simultaneously for a few seconds while the HOME screen is displayed to display the message "Reset FaultOut Are you sure?". Then press the [▲INC/YES] button. This operation is effective only when the FAULT OUTPUT connector indicates an abnormality.

④ [NEXT] button

Use this to move to the next screen or parameter.

⑤ [POWER ON/OFF] button

Turns mains power to the ACD1 on and off.

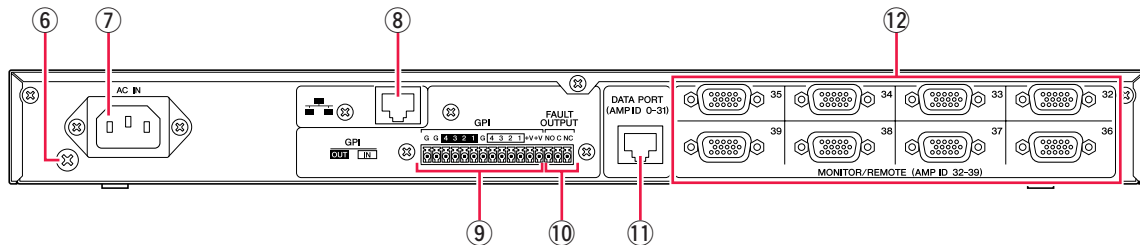
NOTE • The settings at the time you powered-off are remembered. When you turn on the power again, the unit will start up with the same settings. You can use the "Last Mem. Resume" setting to set up the unit so that at startup it will recall the scene number selected before you turned off the power to the device.



• If Last Mem. Resume is ON, data will be backed-up to internal memory at regular intervals, so you should not turn off the power within five seconds after operating a parameter.

• Do not turn off the power while the display indicates "Do not turn off!"

Rear Panel



⑥ Ground screw

The AC power cord is a 3-wire type. If the AC outlet used is earthed (grounded), this device will be properly earthed as well. Also, grounding the screw sometimes reduces hum and interference noise.

⑦ [AC IN] connector

Connect to the AC mains using the supplied AC power cable.

First connect the power cord to the ACD1, then insert the power cord plug into an AC outlet.

⑧ [NETWORK] connector

This is a 100Base-TX/10Base-T Ethernet connector for connection to a computer or other device in the network.

- NOTE**
- Use a UTP cable or STP cable for connection to the [NETWORK] connector. (Use an STP cable in countries where FCC regulations apply.) Since the ACD1 supports Auto MDI/MDI-X, it will automatically detect whether the connected cable is of the straight type or crossover type, and will configure itself to create the appropriate connection. Therefore, you can use either a straight or crossover cable.
 - The maximum length of a cable between a network switch and the ACD1 is 100 meters. Due to the quality of cables and network switch performance, however, proper operation at the maximum length cannot be guaranteed in some cases.

⑨ [GPI] connector

This Euroblock connector provides access to the unit's GPI (General Purpose Interface) interface for transfer of control signals to and from external equipment. The ACD1 provides 4-port input and 4-port output. The +V terminals have an output voltage of 5 volts. The IN terminals detect voltage changes from 0V to 5V. The OUT terminals are open-collector outputs, and change between Open and Close. For details on connections and usage, refer to “[Connector wiring](#)” (page 18). For details on calibrating the [GPI IN] connectors, refer to “[Utility](#)” (page 13).

⑩ [FAULT OUTPUT] connectors

This is a Euroblock connector that can inform an external device when an abnormality occurs with the ACD1's CPU, or when there is an event for which Fault Output has been specified in the Alert Setup dialog box of Amp Editor. For details on connections and usage, refer to “[Connector wiring](#)” (page 18).

⑪ [DATA PORT] connector

This is an RJ-45 connector that can be connected to a maximum of 32 PC-N/Tn series units so that they can be monitored/controlled from the ACD1. You can use CAT5 or better UTP straight cables to make daisy-chain connections for a maximum of 500 meters.

The Amp ID of amplifiers connected to this connector must be set to non-overlapping numbers in the range of 0 to 31.

- NOTE**
- Use a UTP cable in which all eight pins are connected.

⑫ [MONITOR/REMOTE] connector

These are D-Sub 15-pin connectors that allow up to eight XP/XH/XM series units to be connected so that they can be monitored/controlled from the ACD1. You can use three-row D-Sub 15-pin straight cable to make a connection for a maximum of 50 meters.

Amplifiers connected to these connectors will be assigned an Amp ID between 32 and 39 according to the connector to which they are connected.

Panel operations

By pressing buttons on the panel you can monitor or control various parameters of the ACD1 itself or of the connected amplifiers.

The following parameters can be monitored/controlled.

Category	Sub category	Operation performed
1. Scene (page 10)	Recall	Recalls a scene on the specified amplifier.
	Store	Saves a scene for the specified amplifier.
2. Amp Control (page 11)	On/Standby	Switches the power of the specified amplifier between On and Standby.
	Mute	Mutes or unmutes the channel of the specified amplifier.
	Attenuation	Adjusts the channel attenuator value of the specified amplifier. (PC-N/Tn series only)
3. Output Monitor (page 12)		Displays the output level of the specified amplifier.
4. Device Setup (page 12)	Device ID	Specifies the ACD1's Device ID address.
	Device Label	Displays the name of the ACD1 assigned by Amp Editor.
	Identify	Blinks the "Identify" icon of the corresponding ACD1 in Amp Editor.
5. Utility (page 13)	Battery	Displays the state of the ACD1's internal backup battery.
	Firmware Ver.	Displays the ACD1's firmware version.
	LCD Backlight	Selects whether the ACD1's LCD backlight will be always lit (ON) or lit only during operation (Auto OFF).
	Panel Operation	Restricts panel operations of the ACD1.
	Scene Recall	Specifies whether scene recall from the ACD1's panel is enabled (Enable) or disabled (Disable).
	EMG Scene Setup	Specifies the scene number that will be recalled when the EMG (Emergency) signal is received from an external controller. If this is OFF, a scene will not be recalled even if an EMG signal is received.
	Last Mem. Resume	Specifies whether the ACD1 will start up with the settings that were in effect when the power was last turned off (ON) or whether it will start up by recalling the amp's scene number that was in effect when the power was last turned off (OFF).
	Clock	Sets the date and time of the ACD1's internal clock.
	GPI Calibration	Calibrates the [GPI IN] connector input voltage.
6. Network Setup (page 16)	IP Address Mode	Selects whether the ACD1's IP address will be set automatically from Amp Editor (Auto) or set manually (Manual).
	IP Address	Specifies the ACD1's IP address.
	MAC Address	Displays the ACD1's MAC address.
	IP Ctrl Port #	Specifies the port number used when controlling the ACD1 via Ethernet from an external controller such as AMX/Crestron.

The main roles of each button are as follows.

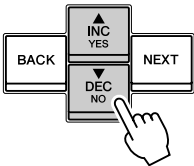
Button	Role	
[NEXT]	Moves to the next screen or parameter.	
[BACK]	Moves to the previous screen or parameter.	
[▲INC/YES]	Increments the value of a parameter (INC) or responds YES in response to a confirmation message.	
[▼DEC/NO]	Decrements the value of a parameter (DEC) or responds NO in response to a confirmation message.	
Press the [▲INC/YES] button	Press	Increments the value of a parameter.
	Press and hold	Continues to increment the value of a parameter while you hold down the button.
	While holding, press the [▼DEC/NO] button	Increments the value faster than when you hold down the [▲INC/YES] button.
Press the [▼DEC/NO] button	Press	Decrements the value of a parameter.
	Press and hold	Continues to decrement the value of a parameter while you hold down the button.
	While holding, press the [▲INC/YES] button	Decrements the value faster than when you hold down the [▼DEC/NO] button.

Basic operation

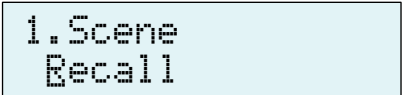
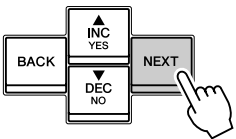
As an example, we'll explain how to store the scene of an amplifier connected to the ACD1.
The basic operation is the same for all parameters.

1. From the HOME screen, press the [NEXT] button and then use the [▲INC/YES] / [▼DEC/NO] buttons to select the [Scene] category.

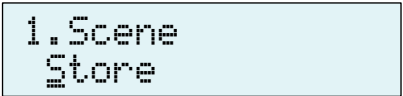
NOTE • If the screen shows “Locked,” the User Lock setting is set to “Panel.” Enter the password to temporarily defeat User Lock. If no password has been specified, refer to “User Lock” (page 14).



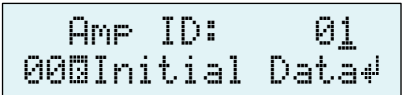
2. Press the [NEXT] button to move to the “Scene” sub-category.



3. Use the [▲INC/YES]/[▼DEC/NO] buttons to select “Store.”



4. Press the [NEXT] button to move to “Amp ID.”



5. Use the [▲INC/YES] / [▼DEC/NO] buttons to select the ID of the amplifier for which you want to store settings.

```
AMP ID: 02
00 Initial Data
```

6. Press the [NEXT] button to move to the scene number.

```
AMP ID: 02
00 Initial Data
```

7. Use the [▲INC/YES] / [▼DEC/NO] buttons to select the scene number that you want to store.

```
AMP ID: 02
03: NO SCENE
```

8. Press the [NEXT] button to move to `↓`.

```
AMP ID: 02
03: NO SCENE ↓
```

9. Press the [▲INC/YES] button to move to the screen where you can specify the scene name.

```
03: Initial Data
```

10. Use the [▲INC/YES] / [▼DEC/NO] buttons to edit the first character of the scene name.

```
03: Initial Data
```

11. Press the [NEXT] button to move to the next character of the scene name.

```
03: Initial Data
```

12. Repeat steps 10 and 11 to edit the scene name.

```
03: 1stStage 01 ↓
```

13. Press the [NEXT] button to move to `↓`.

NOTE • `↓` indication is not shown for display-only parameters, or for parameters that reflect changes in realtime.

```
03: 1stStage 01 ↓
```

14. Press the [▲INC/YES] button to move to the confirmation screen.

```
03: 1stStage 01
Are You Sure?
```

15. Press the [▲INC/YES] button to execute the Store operation.

Do not turn off the power while the “Do not turn off!” indication is shown.

If you press the [▼DEC/NO] button, you will return to step 13 without storing.

```
File writing
Do not turn off!
```

NOTE

- If the display indicates “Parameter Locked!”, Panel Operation is set to “View Only.” To temporarily defeat the panel lock, hold down both the [▲INC/YES] / [▼DEC/NO] buttons for at least three seconds. To disable the panel lock, first defeat it temporarily, and then turn the Panel Operation setting Normal ([page 14](#)).
- If the screen indicates “Scene Store: XX Overwrite?”, scene data has already been stored in the selected scene. If you want to overwrite the existing data, press the [▲INC/YES] button. If you want to store the settings to a different scene number without overwriting, return to step 7, and re-select the scene number for storing.

Scene (“1. Scene”)

Here’s how to recall or store scenes for a specified amplifier.

1. Scene
Recall

■ Recalling a scene (“1. Scene” → “Recall”)

Recalls a scene for the specified amplifier.

Amp ID: 01
01: Scene Name ↵

Parameter	Range	Explanation
Amp ID	00–39, ALL	Selects the ID of the amplifier for which to recall a scene. If you select “ALL,” the correspondingly-numbered scene will be recalled for all amplifiers.
Attributes of the scene		Preset scene
		A user scene that is protected
	:	A user scene that is not protected
Scene No.	00–49	Selects the scene number to be recalled.

- NOTE**
- If you select “ALL” as the Amp ID, the scene name will not be displayed.
 - If you select “ALL” as the Amp ID, amplifiers for which there is no correspondingly-numbered scene data will not recall a scene; they will retain their previous state.
 - Scene number 00 is for returning the amplifiers to their default settings.
 - If characters not supported by the ACD1 were used for the scene name in Amp Editor, the corresponding locations will be shown as “■.” For details on the characters supported by the ACD1, refer to [“List of supported characters” \(page 21\)](#) at the end of this manual.
 - Scene names that can be displayed by the ACD1 are a maximum of 12 characters. If a scene name of 13 characters or longer is specified in Amp Editor, the ACD1 will not display the thirteenth and subsequent character.
 - If you edit a parameter after recalling a scene, the E symbol (edit symbol) will be shown in screens that show the scene number.

■ Storing a scene (“1. Scene” → “Store”)

Stores a scene for the specified amplifier.

Amp ID: 01
01: Scene Name ↵

Parameter	Range	Explanation
Amp ID	00–39, ALL	Selects the ID of the amplifier for which to store a scene. If you select “ALL,” the current scene will be stored to the selected scene number of all amplifiers.
Attributes of the scene		Preset scene
		A user scene that is protected
	:	A user scene that is not protected
Scene No.	01–49	Selects the scene number to be stored.
Scene name	See character list at the end of this manual	Enter the name of the scene to store. A maximum of 12 characters can be entered.

- NOTE**
- If the screen indicates “(scene number):(scene name) Overwrite?”, scene data has already been stored in the selected scene. If you want to overwrite the existing data, press the [INC/YES] button. If you want to store the settings to a different scene number without overwriting, press the [DEC/NO] button, then press the [BACK] button several times, and re-select the scene number for storing.
 - Scene data is saved in the ACD1, not in each amplifier.
 - Stored scene data is valid only for the identical model of amplifier. Scene data will be ignored if a different model of amplifier is connected with the same Amp ID.
 - When you store a scene, the E symbol shown in screens that indicate the scene number will disappear.

Controlling an amplifier (“2. Amp Control”)

These settings allow you to control an amplifier connected to the ACD1.

```
2.Amp Control
Standby
```

■ Power on/standby (“2. Amp Control” → “Standby”)

Switches the power of the specified amplifier between On and Standby.

```
Amp ID: 01
Standby
```

Parameter	Range	Explanation
Amp ID	00–39, ALL	Selects the ID of the amplifier whose power will be switched. If you select “ALL,” the power of all amplifiers will be switched to the specified state.
Power supply status	Standby/On	Selects the status of the power supply.

NOTE • If you select “ALL” as the [Amp ID], the power supply status may indicate “Some Standby.” This means that the power is On for some amplifiers, and Standby for others.

■ Mute (“2. Amp Control” → “Mute”)

Mutes or unmutes the channel of the specified amplifier.

```
Amp Ch: A
Muted
```

Parameter	Range	Explanation
Amp ID	00–39, ALL	Selects the ID of the amp whose channel is to be muted. If you select “ALL,” the mute status for all channels of all amplifiers will be switched.
Amp Ch	A–H, ALL	Selects the channel whose mute status is to be switched. The range of channels that can be selected will depend on the amplifier you select. If you select “ALL,” the mute status for all channels of the selected amplifier will be switched.
Mute status	Muted/Unmuted	Selects the mute status.

NOTE • If you select “ALL” as the [Amp ID], the mute status may indicate “Some Muted.” This indicates that there are both muted and unmuted channels.

■ Attenuator value adjustment (“2. Amp Control” → “Attenuation”)

Adjusts the channel attenuator value of the specified amplifier. The attenuator value can be adjusted only for amplifiers (as of September 2009: the PC-N/ Tn series) connected to the [DATA PORT] connector.

```
Amp Ch: A
-48.0dB
```

Parameter	Range	Explanation
Amp ID	00–31	Selects the ID of the amp for which the attenuator value of a channel is to be adjusted.
Amp Ch	A–H	Selects the channel whose attenuator value is to be adjusted. The range of channels that can be selected will depend on the amplifier you select.
Attenuator value	0 dB–78 dB, -∞	Selects the attenuator value. The selectable range is 0 dB through -44 dB in 1 dB steps, -44 dB through -78 dB in 2 dB steps, with -78 dB followed by -∞.

Amplifier output monitor (“3. Output Monitor”)

This indicates the output level of the amp connected to the ACD1.

3. Output Monitor

■ Amplifier output (“3. Output Monitor”)

Displays the output level for each channel of the specified amplifier.

AMP ID: 01
A B

Parameter	Range	Explanation
Amp ID	00–39	Selects the ID of the amp whose output level you want to view.
Level	0	Nothing will appear in the meter if the level is below 0 dBu.
	1 ▬	0–6 dBu
	2 ▬▬	6–16 dBu
	3 ▬▬▬	16–22 dBu
	4 ▬▬▬▬	22–28 dBu
	5 ▬▬▬▬▬	28–34 dBu
	6 ▬▬▬▬▬▬	34–41 dBu
	7 ▬▬▬▬▬▬▬	41 dBu–

Device setup (“4. Device Setup”)

Here you can make settings to identify the ACD1 connected to the network and the amplifiers connected to the ACD1.

4. Device Setup
Device ID

■ Device ID setting (“4. Device Setup” → “Device ID”)

Specifies the ACD1’s Device ID. Set the Device ID so that it does not conflict with another ACD1 etc. connected to the network.

Device ID
001 ↵

Parameter	Range	Explanation
Device ID	000–255	Selects the ACD1’s Device ID.

NOTE • If you press and hold down this button for three seconds or longer while the HOME screen is displayed, the screen will appear.

■ View ACD1 name (“4. Device Setup” → “Device Label”)

Displays the name of the ACD1 assigned by Amp Editor.

NOTE • This shows up to 14 alphanumeric characters. The fifteenth and following characters will not be shown.

• Characters not appearing in the character list at the end of this manual are displayed as “■.”

Device Label
[Rack L-ACD1]

■ Identify (“4. Device Setup” → “Identify”)

Blinks the “Identify” icon of the corresponding ACD1 in Amp Editor.

Identify
ON

Parameter	Range	Explanation
Identify	ON/OFF	If this is [ON], the “Identify” icon of the corresponding ACD1 in Amp Editor will blink. Turning this [OFF] will defeat the blinking.

Utility (“5. Utility”)

Here you can make overall settings for the ACD1 and view various types of information.

5. Utility
Battery

■ Backup battery check (“5. Utility” → “Battery”)

Displays the state of the ACD1’s internal backup battery.

Battery
OK

Parameter	Range	Explanation
Battery	OK	Satisfactory.
	Low Battery	The battery is running low.
	No Battery	A battery is not installed, or has malfunctioned. The backup data has been lost.



- As the battery runs down, the display will successively indicate “Low Battery,” “Critical Battery” (only when the power is turned on), or “No Battery.” In this case, immediately save the data to a computer or other external device, and then contact your Yamaha dealer listed at the end of the ACD1 owner’s manual to have the backup battery replaced.

■ Version indication (“5. Utility” → “Firmware Ver.”)

Displays the ACD1’s firmware version.

NOTE

- You can use Amp Editor to update the ACD1’s firmware. For details, refer to the Amp Editor owner’s manual. You can download the latest firmware from the download page of the following Yamaha website.

<http://www.yamahaproaudio.com/>

Firmware Ver.
V1.10

■ LCD backlight (“5. Utility” → “LCD Backlight”)

This specifies the lit status of the ACD1’s LCD backlight.

```
LCD Backlight
ON ↵
```

Parameter	Range	Explanation
LCD Backlight	ON	The backlight will stay lit.
	Auto OFF	The backlight will go dark automatically. It will light when you perform a panel operation, and will automatically go dark ten seconds afterward.

■ Restricting panel operations (“5. Utility” → “Panel Operation”)

Here you can turn panel operation lock on/off. By locking panel operations you can prevent unintended operation.

```
Panel Operation
Normal ↵
```

Parameter	Range	Explanation
Panel Operation	Normal	Panel lock (locking of all panel operations) will be turned off.
	View Only	It will be impossible to edit parameters via the panel. It will be possible to switch the screen display.
	Full Lock	All panel operations other than temporarily defeating the panel lock will be disabled.

- NOTE**
- You can hold down both the [▲INC/YES] and [▼DEC/NO] buttons for approximately three seconds until the display indicates “Unlock panel: Are you sure?”, then press the [▲INC/YES] button to temporarily defeat Panel Lock until the ACD1 is powered-off.
 - You can also clear it by turning the Front Panel Operation setting Normal from Amp Editor.

■ Enabling scene recall operations from the panel (“5. Utility” → “Scene Recall”)

This specifies whether scene recall by operating the ACD1’s front panel will be allowed or disabled.

```
Amp ID: 01
Enable ↵
```

Parameter	Range	Explanation
Amp ID	00–39, ALL	Specifies the ID of the amp for which scene recall will be enabled. If you select “ALL,” the scene recall enable status of all amplifiers will be switched to the specified state.
Scene Recall	Enable	Enabled.
	Disable	Disabled. Scene recall can be executed from Amp Editor.

- NOTE**
- If you select “ALL” as the [Amp ID], the Scene Recall area may indicate “Some ON.” This means that scene recall is enabled for some amplifiers but disabled for other amplifiers.

■ Enabling scene recall operations via EMG commands ("5. Utility" → "EMG Scene Setup")

Specifies whether the EMG scene will be recalled when the EMG (Emergency) signal is received.

The following three types of EMG signal can be received.

- EMG command sent from AMX/Crestron
- Input signal to the GPI IN assigned to the Emergency scene
- EMG command sent from a different ACD1 unit

```
AMP ID: 01
OFF ↵
```

Parameter	Range	Explanation
Amp ID	00–39, ALL	Specifies the ID of the amp for which EMG scene recall will be enabled. If you select "ALL," the EMG scene recall enable status of all amplifiers will be switched to the specified state.
EMG Scene Setup	00–49	Recalls the specified scene.
	OFF	A scene will not be recalled even if an EMG signal is received.

NOTE • If you select "ALL" as the [Amp ID], the EMG Scene Setup area may indicate "Some ON." This means that EMG scene recall is enabled for some amplifiers but disabled for other amplifiers.

■ LAST MEMORY RESUME setting ("5. Utility" → "Last Mem. Resume")

This specifies whether the unit will start up in the state in which it was powered-off, or recall the scene of the scene number that was selected at power-off.

```
Last Mem. Resume
ON ↵
```

Parameter	Range	Explanation
Last Mem. Resume	ON	The unit will start up in the state in which it was powered-off.
	OFF	At start-up, the unit will recall the scene that was last recalled or stored before the power was turned off.

■ Clock setting ("5. Utility" → "Clock")

Sets the date and time of the ACD1's internal clock.

```
Clock DST
01-Oct-09 16:43↵
```

Parameter	Range	Explanation
Date	01–31	Sets the date.
Month	Jan–Dec	Sets the month.
Year	00–99	Sets the year. The last two digits of the Western calendar year can be specified.
Hour	00–23	Sets the hour.
Minute	00–59	Sets the minute.

NOTE • The seconds will be set to 00 when you finalize the time.
• If Daylight Saving Time is enabled in Amp Editor, this will indicate "DST."

■ GPI IN calibration (“5. Utility” → “GPI Calibration”)

Calibrates the detected range of the [GPI IN] connector input voltage.

```
Port No.: 3
Min:3.4V->4.2V
```

Parameter	Range	Explanation
Port No.	1–4	Selects the port of the [GPI IN] connector that will be calibrated.
Minimum/maximum value setting	Min/Max	Selects whether you will be setting the minimum (Min) or maximum (Max) value for the input voltage.
Voltage value	--	Indicates the input voltage. At the left of the “->” symbol is shown the specified voltage (maximum/minimum value), and at the right is shown the current input voltage. When you confirm the setting, the current input voltage will be assigned as the maximum/minimum value.

Network settings (“6. Network Setup”)

Here you can make network settings for the ACD1.

```
6. Network Setup
IP Address Mode
```

■ IP Address Mode setting (“6. Network Setup” → “IP Address Mode”)

This specifies whether the ACD1’s IP address will be set automatically by Amp Editor’s Network Setup or a DHCP server, or manually.

```
IP Address Mode
DHCP
```

Parameter	Range	Explanation
IP Address Mode	DHCP	The address will be set automatically. If you power-off in this mode, the IP address setting will be cleared.
	Manual	The address will be set manually. In this mode, the IP address setting will be saved even if you power-off.

- NOTE**
- If you’re using a DHCP server, start up the DHCP server before the ACD1.
 - For details on this mode, refer to the Amp Editor owner’s manual.

■ IP Address setting (“6. Network Setup” → “IP Address”)

If the IP Address Mode is Manual, the ACD1’s IP address will be specified manually.

If the IP Address Mode is DHCP, the assigned IP address will be displayed.

```
IP Address
192.168.000.002
```

Parameter	Range	Explanation
IP Address	001.000.000.001–223.255.255.254	Specifies the ACD1’s IP address.

- NOTE**
- If the IP Address mode is DHCP, the manually assigned IP address will be ignored.

■ Checking the MAC address (“6. Network Setup” → “MAC Address”)

This displays the MAC address of the ACD1’s [NETWORK] connector.

```
MAC Address
00A0DE251500
```

■ Port settings for an external controller ("6. Network Setup" → "IP Ctrl Port #")

Here you can specify the port number that will be used to control the ACD1 from an external device such as an AMX or Crestron unit.

```
IP Ctrl Port #
49153 ↵
```

Parameter	Range	Port number (hexadecimal)
Port No.	49153–50049	Specifies the ACD1's port number. Change the port number if there are other devices (other than the ACD1) that use the same port number.

Initializing the ACD1

Here's how to initialize the ACD1's internal memory.

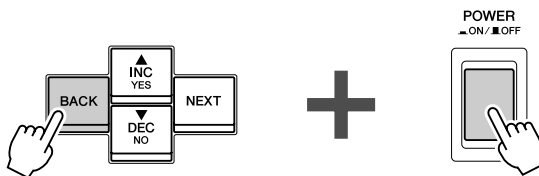


- When you initialize the internal memory, the content that had been saved in memory (scenes for each amp, and ACD1 settings) will be lost.
Use caution when performing the following steps.

1. Power-off the ACD1.



2. While holding down the [BACK] button, turn the power on.



3. Press the [▲INC/YES] button to initialize the internal memory.



- Do not turn off the power during the initialization process.

4. When initialization is completed, the ACD1 will automatically restart.

- NOTE** • The log data is preserved even if you execute initialization.

Connector wiring

This section explains how to wire the [GPI] and [FAULT OUTPUT] connectors located on the ACD1's rear panel.

Euroblock plug connection

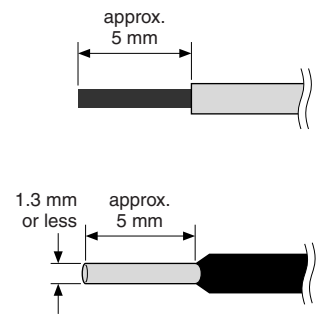
Be sure to use the supplied Euroblock connector. If you lose the connector, contact your Yamaha dealer.

● Cable preparation

- To prepare the cable for attachment to a Euroblock connector, strip the wire as shown in the illustration, and use stranded wire to make connections. With a Euroblock connection, the stranded wire may be prone to breakage because of metal fatigue due to the weight of the cable or due to vibration. When rack-mounting your equipment, use a lacing bar when possible to bundle and fasten the cables.
- If cables will be frequently connected and disconnected, as in the case of a portable installation, we recommend that you use ferrules with insulation sleeves. Use a ferrule whose conductor portion has an external diameter of 1.3 mm or less, and a length of approximately 5 mm (such as the AI0,5-6WH made by the Phoenix Contact corporation).

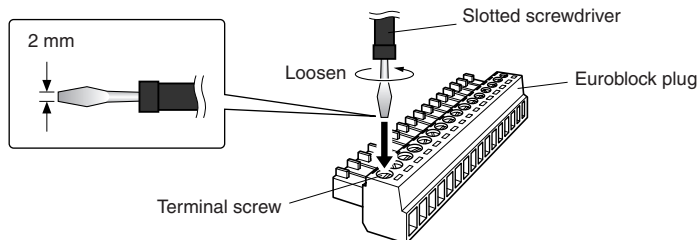


- If you use stranded wire, do not tin (plate with solder) the exposed end.

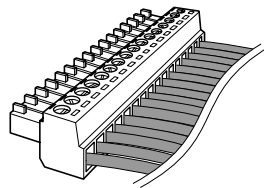


1. Loosen the terminal screws.

NOTE • Use a slotted screwdriver with a blade approximately 2 mm wide.



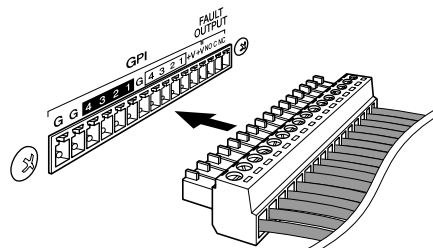
2. Insert the cables.



3. Securely tighten the terminal screws.

Pull the cables (not too strongly) to confirm that they are securely connected.

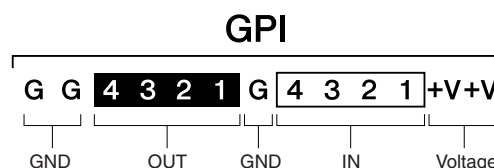
4. Connect the Euroblock plug to the ACD1's [GPI] connector / [FAULT OUTPUT] connector.



GPI connector

Connect GPI (General Purpose Interface) devices (e.g., controllers) to the rear panel [GPI] connector.

You can use GPI to send or receive control signals to or from an external device.



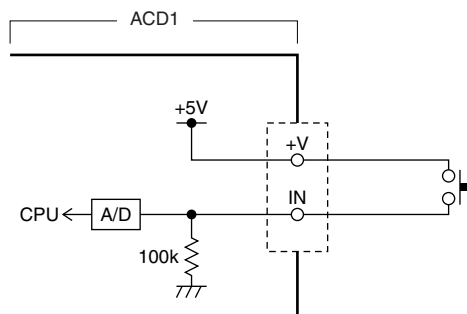
The ACD1 provides 4-port input and 4-port output.

- The +V terminals have an output voltage of 5 V. A maximum total of 100 mA of current can be drawn.
- The IN terminals detect voltage changes from 0 V to 5 V.
- The OUT terminals are open-collector outputs. A maximum voltage of +12 V can be applied.
- For each port, a maximum of 75 mA of current can flow.
- Use Amp Editor to make settings such as parameter assignments.
- A Euroblock plug is used for connection to the [GPI] connector.

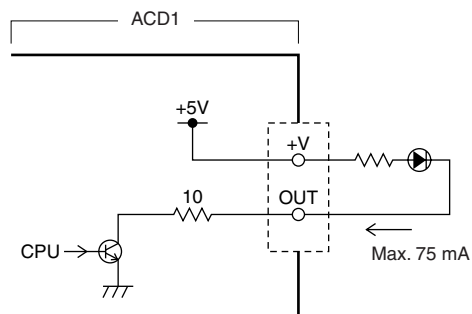
Euroblock connection methods are described in “Euroblock plug connection” (page 18) in this manual.

NOTE • By specifying the input/output channels in Amp Editor, you can recall scenes or edit parameters from a connected external GPI device, or send signals to an external GPI device. For details on making settings, refer to the “Amp Editor owner’s manual.”

● Example : Controlling the ACD1 from a switch

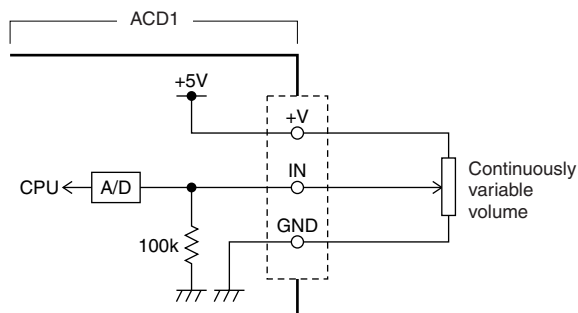


● Example : Lighting the LED of an external device from the ACD1

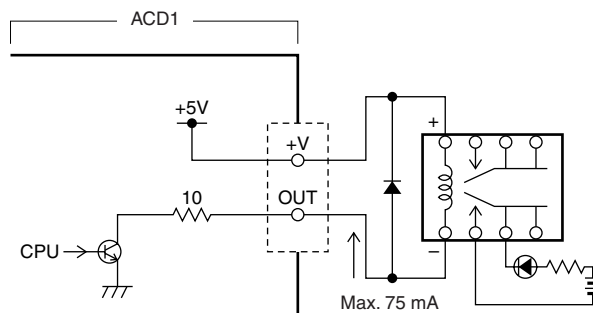


• Do not allow the current flowing from the OUT connector to exceed 75 mA.

● Example : Controlling the ACD1 via a 10k ohm linear taper potentiometer



● Example : Switching the relay of an external device from the ACD1 to light an LED



NOTE • To adjust (calibrate) the range over which the input voltage to the [GPI] connector is detected, refer to “5. Utility” (page 13).

FAULT OUTPUT connector

You can connect a lamp etc. to the rear panel [FAULT OUTPUT] connector to indicate that an abnormality has occurred.

The [FAULT OUTPUT] connector consists of NO (Normally Open), C (Common), and NC (Normally Closed). The [FAULT OUTPUT] connector is a relay circuit, and operates as follows.

	Normal state	Abnormal state	Powered-off
NO	Open	Closed	Closed
NC	Closed	Open	Open

The relay contacts used in the [FAULT OUTPUT] connector are rated for a load of 1A, DC 30V. Do not apply a load that exceeds this rating.

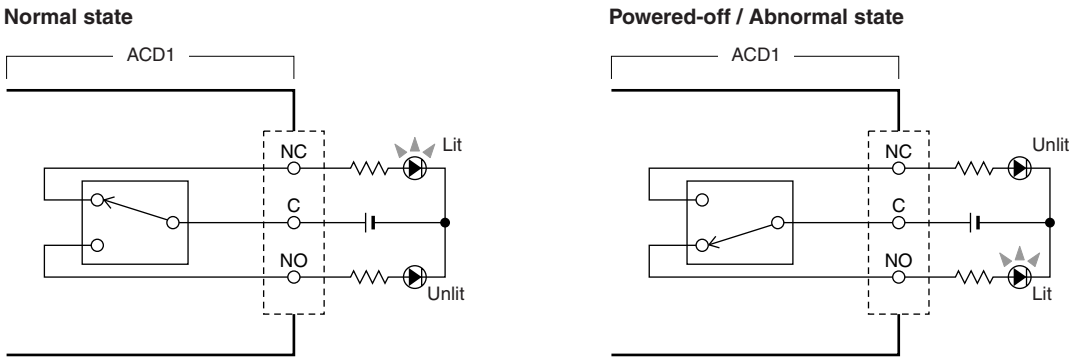
Use Amp Editor to make settings for the [FAULT OUTPUT] connector.

Euroblock plugs are used for the [FAULT OUTPUT] connector. Euroblock connection methods are described in “Euroblock plug connection” (page 18) in this manual.

NOTE • In Amp Editor's [Device Setup] menu → [Alert Setup], you can set Type to Fault so that a fault can be indicated by a connected lamp, etc. For details on making settings, refer to the “Amp Editor owner's manual.”



● Example : Using an LED to indicate normal/fault status of the ACD1



• The relay contacts are rated for a resistive load of 1A, DC 30V. Do not apply a load that exceeds this rating.

Appendix

Display messages

Messages that may appear in the ACD1's display and the appropriate responses are listed below. For more about alert messages, refer to the Amp Editor owner's manual.

Message	Response
Panel locked!	To prevent unintended operation, panel operations have been locked by the Panel Operation setting. To temporarily defeat Panel Operation, hold down both the [▲INC/YES] / [▼DEC/NO] buttons for at least three seconds. To turn Panel Lock off, first defeat it temporarily, and then change the "5.Utility" → "Panel Operation" setting to Normal.
Parameter locked!	To prevent unintended operation, parameter editing has been locked by the Panel Operation setting. To temporarily defeat Panel Operation, hold down both the [▲INC/YES] / [▼DEC/NO] buttons for at least three seconds. To turn Panel Lock off, first defeat it temporarily, and then change the "5.Utility" → "Panel Operation" setting to Normal.
Unlock panel: Are you sure ?	This is displayed when you temporarily defeat User Lock. To defeat the setting, press the [▲INC/YES] button.
Scene storing Do not turn off!	A scene is being stored. Never turn off the power while this message is shown.
Cannot edit while online!	Settings cannot be edited, because the unit is online with Amp Editor.
Scene protected!	You cannot store to a protected scene.
File writing Do not turn off!	A file is being written to internal memory. Never turn off the power while this message is shown.
Initializing Do not turn off!	Internal memory is being initialized. Never turn off the power while this message is shown.
Updating f/ware Do not turn off!	The firmware is being updated. Never turn off the power while this message is shown.
Synchronizing Do not turn off!	Now synchronizing with Amp Editor. Never turn off the power while this message is shown.
System error	Initialize the memory. If this does not solve the problem, contact your Yamaha dealer.
Saving failed	
Flash ROM error	
Network HW error	
Illegal MAC adr	
Scene recall err	It is likely that the device has malfunctioned; please contact your Yamaha dealer.
Current scn lost	
No battery	
Critical battery	When you turn off the power, the current settings will be lost, and will return to the default values. Immediately stop using the unit, and contact your Yamaha dealer.
Low battery	If you continue operation, settings may be lost and return to the default values. Contact your Yamaha dealer as soon as possible.
Duplicate IP adr	Re-specify the IP addresses so that they do not conflict.
Amp comm error	Make sure that each of the connected amplifiers has a unique ID. Alternatively, a cable may be short-circuited or noise may be affecting the connection.

List of supported characters

The ACD1 allows the following single-byte characters to be displayed and input.

Uppercase alphabet	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Lowercase alphabet	a b c d e f g h i j k l m n o p q r s t u v w x y z
Numerals	0 1 2 3 4 5 6 7 8 9
Symbols	! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { } (Space)

Troubleshooting

Symptom	Possible causes	Response
All scene data saved in the ACD1 has disappeared	The power was turned off while the ACD1's data was being saved	Once again synchronize the unit with Amp Editor to transmit the settings from Amp Editor.
	The internal battery has run down	Go to "5. Utility" → "Battery" to check the battery status. If the indication is "Low Battery" or "No Battery," contact your Yamaha dealer listed at the end of the ACD1 owner's manual to have the battery replaced.
Cannot edit parameters	Panel Lock is enabled	Change the "5. Utility" → "Panel Operation" setting to Normal, or use Amp Editor to defeat Panel Operation.
	You are attempting to edit a parameter of an amplifier that is not connected	Connect the amplifier whose settings you want to change.
	The corresponding amplifier is not powered-on	Power-on the amplifier whose settings you want to change.
Power will not turn on, display will not light	The power cable is not connected properly	Connect the power cable properly.
	The POWER switch is not turned on	Turn the POWER switch on.
	The backlight setting is "Auto OFF"	If you want the LCD backlight to stay lit, turn the "5. Utility" → "LCD Backlight" setting "ON."
Can't synchronize with Amp Editor	A cable is disconnected or broken	Check whether a cable might be disconnected or broken.
Amplifier does not operate as specified	The amplifier was powered-on before the ACD1	Power-on the equipment so that the ACD1 starts-up before the amplifiers connected to the ACD1.
Can't monitor/control an amplifier	A cable is disconnected or broken	Check whether a cable might be disconnected or broken.
	A cable exceeds the allowable length	Make sure that the cable connected to the [MONITOR/REMOTE] connector is no longer than 50 meters. Make sure that the cable connected to the [DATA PORT] connector extends no longer than a total of 500 meters to its last point. Make sure that each individual cable between your computer and the ACD1 is no longer than 100 meters.
	In the middle of a daisy-chain there is an amplifier whose T-switch is ON	Turn off the T-switch for all amplifiers other than the last amplifier.

Specifications

Scene Memory		50 scenes per amplifier
Number of amplifiers that can be connected	Via the DATA PORT connector	Up to 32 units
	Via the MONITOR/REMOTE connector	Up to 8 units
Display		16 characters × 2 lines backlit LCD
Power Requirements		100 V, 50 Hz/60 Hz
Power Consumption		15 W
Dimensions (W × H × D)		480 × 44 × 362 mm
Weight		4.0 kg
Operating temperature range		0 °C–40 °C
Storage temperature range		-20 °C–60 °C
AC Cable Length		250 cm
Accessories		AC power cord, Euroblock plug (16P), Owner's Manual, Rubber feet × 4

Control I/O

Terminal		Format	Level	Connector
MONITOR/REMOTE *1		—	—	D-SUB 15P (Female) × 8
DATA PORT *2		RS-485	RS-485	RJ-45
GPI *3	IN	—	0–5 V	Euroblock (3.5 mm pitch)
	OUT	—	Open Collector	
	+V	—	5 V	
FAULT OUTPUT *4		—	—	
NETWORK		IEEE 802.3	10Base-T/100Base-TX	RJ-45

*1 Supported models

XP7000, XP5000, XP3500, XP2500, XP1000, XM4180, XM4080, XH200

Guaranteed cable length: 50m

*2 Supported models

T5n, T4n, T3n, PC9501N, PC6501N, PC4801N, PC3301N, PC2001N, PC9500N, PC4800N, PC3300N

*3 Inputs: 4channels, Outputs: 4channels

Outputs: Withstanding Voltage $V_{max} = 12V$ (Open)

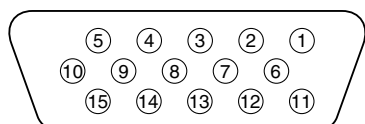
Outputs: Sink Current $I_{max} = 75mA/pin$ (Closed)

+V: $I_{max} = 100mA/2pins$

*4 Input: $I_{max} = 1A$, $V_{max} = 30VDC$

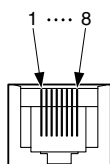
Pin Assignment

■ MONITOR/REMOTE



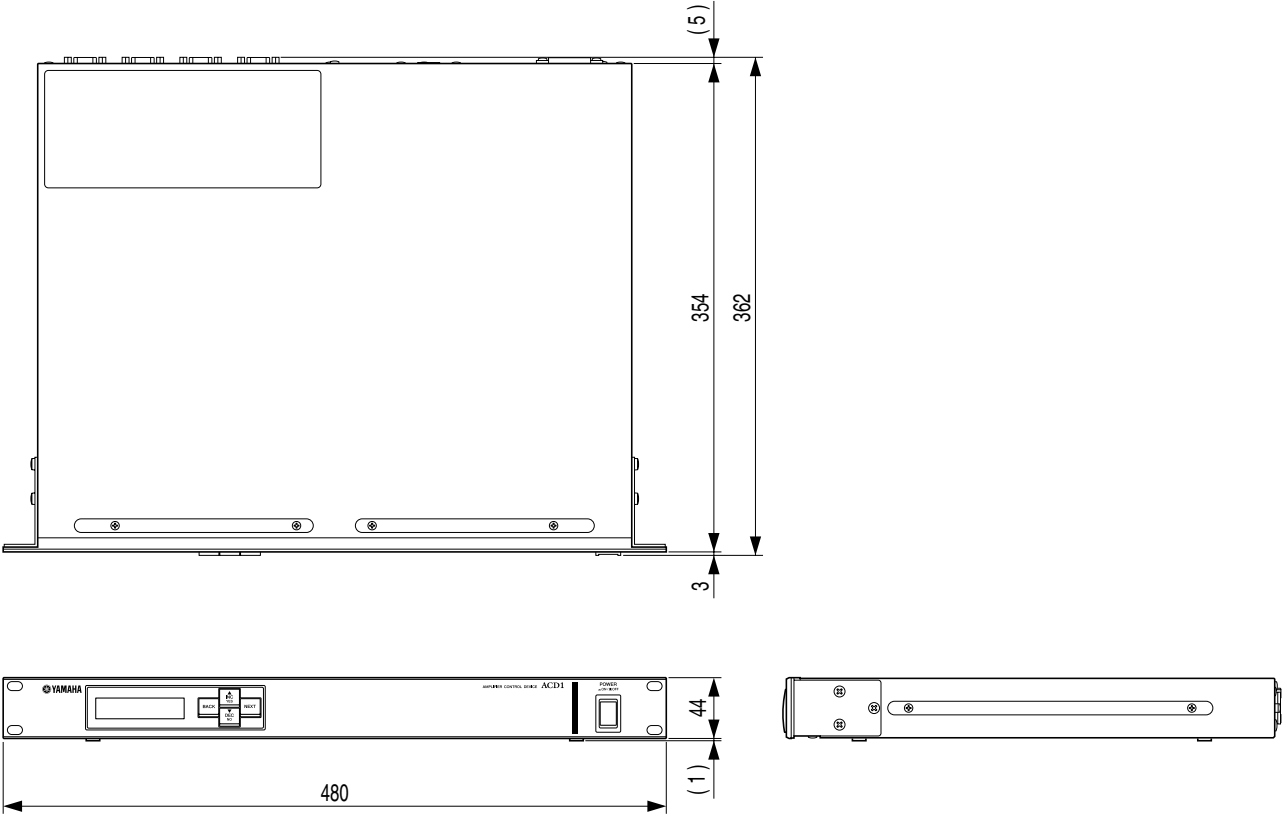
1	GND	
2	REMOTE CONTROL	STANDBY
3	MONITOR	MODEL ID
4	REMOTE CONTROL	MUTE CH D
5		MUTE CH C
6		MUTE CH B
7		MUTE CH A
8	MONITOR	PROTECT STATUS CH D
9		PROTECT STATUS CH C
10		PROTECT STATUS CH B
11		PROTECT STATUS CH A
12		OUTPUT LEVEL CH D
13		OUTPUT LEVEL CH C
14		OUTPUT LEVEL CH B
15		OUTPUT LEVEL CH A

■ DATA PORT



1	NC
2	NC
3	NC
4	RxD/TxD -
5	RxD/TxD +
6	NC
7	GND
8	GND

Dimensions



Unit : mm

* Specifications and descriptions in this owner's manual are for information purposes only. Yamaha Corp. reserves the right to change or modify products or specifications at any time without prior notice. Since specifications, equipment or options may not be the same in every locale, please check with your Yamaha dealer.

