User's Manual

Notice of Alterations

Model 3701/3702
LR8100E/LR12000E RECORDER

Please note the following alterations to the IM3701-01E.

■ Page 1-6 "1.2 Checking the Accessories and Appearance"

The Recorder with /FDD(floppy disk drive) option is not delivered with IC memory card as an accessory.

■ Between Page 6-42 and 6-43 Added "[AUX]"

[AUX]

Function : Reads sampled measurement data into an IC memory card for a recorder other than an LR model.

Setting Parameters : ① CH: channel number
② SPAN L: value of left-side span
③ SPAN R: value of right-side span
④ UNIT: unit (6 characters maximum)

Example of Setting : ① CH: 4 CH
② SPAN L: 1.000
③ SPAN R: 5.000
④ UNIT: V

[Key Operation] **[Setting Display]** **[Description]**

NEXT
NEXT
F2

```
4CH
MODE : OFF

↓ OFF   VOLT  TC    RTD
↓ DELT  SCAL  COPY  COM
↓ MATH  AUX
```

When a channel is selected, the cursor moves to MODE. Press the NEXT key twice and then the F2 key (AUX setting display) switches to the AUX setting display.
* Some models of LR recorders may use a different function key in this procedure.

* : A single-pen model does not require entry of a channel number. In addition, options for the mode do not include DELT and COPY.

NEXT
NEXT
F2

```
4CH
MODE : OFF

↓ OFF   VOLT  TC    RTD
↓ DELT  SCAL  COPY  COM
↓ MATH  AUX
```

When a channel is selected, the cursor moves to MODE. Press the NEXT key twice and then the F2 key (AUX setting display) switches to the AUX setting display.
* Some models of LR recorders may use a different function key in this procedure.

* A single-pen model does not require entry of a channel number. In addition, options for the mode do not include DELT and COPY.

Note : The 10CH, 11CH and 12CH channels are indicated as "XCH," "YCH" and "ZCH," respectively.

[Key Operation]	[Setting Display]	[Description]
' 1 y 0 • / N 0 #	4CH MODE : AUX SPAN L : 0.000 SPAN R : 5.000 UNIT : ← → del	This operation sets the value of the left-side span. Type the desired value of the span from the programming keypad. When you are done with the span setting, press the ▽ key to move to the next parameter. (The value must be within ±22.000.)
F 5 V 0 • / N 0 #	4CH MODE : AUX SPAN L : 0.000 SPAN R : 5.000 UNIT : ← → del	Likewise, set the value of the right-side span.
SHIFT SHIFT F 5 V ENTRY	4CH MODE : AUX SPAN L : 0.000 SPAN R : 5.000 UNIT : ↓ ← → del ↓ Ω μ % &	This operation sets the unit allocated to the value of a span. Type in the unit from the programming keypad. The units Ω, μ, % and & can be entered using function keys. Each unit can have up to six characters, although only five are shown for the indication of the left- and right-side scales. In the data display mode, only the first two characters are visible in the indication of the unit. Changing the unit of span also changes the unit of scale.
ENTRY	4CH MODE : AUX SPAN L : 0.000V SPAN R : 5.000V UNIT : V	These operations complete the configuration of the AUX setting display. To continue, begin with the channel setting. To exit the setting display, press the ENTRY key once again.

Note : After having finished with the AUX setting display using the procedure noted above, follow the readout (READ) procedure in Subsection 6.4.13, "IC Memory Card Setting," to read measurement data.

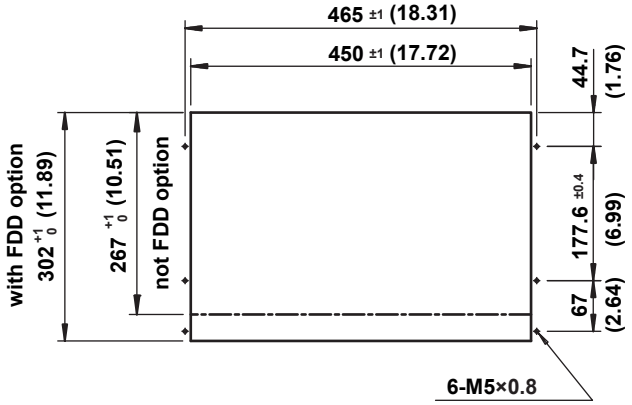
■ Page 2 "SAFETY PRECAUTIONS"

CAUTION

This instrument is a Class A product. Operation of this instrument in a residential area may cause radio interference, in which case the user is required to take appropriate measures to correct the interference.

■ Page 4-3 “4.2 External Dimensions and Panel Cutout”

Panel Cutout



■ Page 6-97 “6.4.16 Error Messages”

31	Error in IC memory card or floppy disk error	• Disconnected card, or floppy not inserted. • Formatting error (not initialized). • Error detected in the file management area. → Disconnect then reconnect the IC card, or remove then reinsert the floppy disk. → Initialize the card or floppy.
32	Capacity error	• Insufficient capacity in the card or floppy (no free memory). • Attempted to carry out sampling with an 8-KB card. → Delete unnecessary files. → Reduce the sampling length, number of sampling channels. → Use a 512-KB card (against errors during sampling).
33	Error in file name	• No entry of volume/file names (or the name is blank spaces only) → Enter the correct volume/file names.
34	Busy sampling/playback	• Attempted to sample/play back when sampling/playback is in progress. → Wait until the current session of sampling/playback ends, or stop the session with the ABORT key and then resume sampling/playback.
35	Error in directory	• Unable to register any new files with the directory (the directory does not accept more than 47 files). → Use another card or delete unnecessary files.
36	Locked file	* • Attempted to delete a locked file. The file was created on a personal computer and is locked (or write-protected) to prevent deletion from the computer, while these protections are not supported by LR recorders. Or, attempted to delete a sub-directory or a system file.
37	All triggers off during trigger mode	
38	Error in position of starting data	• Start-of-playback number in excess of the actual number of sample data items
41	Error in the number of sampling channels	• Attempted to carry out sampling with all sampling channels turned off. • During the reading of measurement data sampled into an IC memory card or floppy disk with a model other than LR recorders, the mode of range has not yet been set on the AUX setting display (see "AUX," the measurement range setting, on page 6-43.)
42	Data too long	* • The playback data length is in excess of 32,000 (when playing back data sampled with a different measuring instrument).
43	Illegal format	* • The format of the sample data file in the IC memory card is not supported.
44	No sample data	* • Unable to play back data because there are no actual sample data.
45	Error in setup file	* • When setpoint values are being loaded: 1) the file is found to be too large, or 2) an error has been detected in the header information of the file.

* These errors are occured if playback the sampled data with a model other than LR recorders.

■ Page 8-1 “8 SPECIFICATIONS”

Input Types & Measuring Ranges:

RTD... Pt100 (1 mA), Pt50 (1 mA), JPt100 (1 mA), JPt50 (1 mA), Ni100 (1 mA), J263∗B
Pt100 : JIS C 1604-1989, JIS C 1606-1989, DIN IEC 751-1983, IEC 751-1983
Pt50 : Conforms to JIS C 1604-1989, JIS C 1606-1989, DIN IEC 751-1983, IEC 751-1983
JPt100 : JIS C 1604-1989, JIS C 1606-1989
JPt50 : JIS C 1604-1981, JIS C 1606-1986
Ni100 : DIN, SAMA

Accuracy:

TC... ± (0.05% of rdg + 0.5°C) for K, E, J, T, L, U and KP vs Au7Fe,
± (0.05% of rdg + 1°C) for R, S and B,
± (0.05% of rdg + 0.5°C) for N,
± (0.05% of rdg + 1°C) for W.

RTD... ± (0.05% of rdg + 0.2°C) for Pt 100 Ω and Ni 100 Ω,
± (0.05% of rdg + 0.3°C) for Pt 50 Ω and J263∗B

Change the above specifications according to the table below.

RTD Range

Range	Measuring Range °C	Accuracy
Pt100:1	-200.0 to 850.0	(0.05% of rdg +0.3°C)
Pt100:2	-200.0 to 400.0	(0.05% of rdg +0.2°C)
Pt100:3	-150.0 to 150.0	(0.05% of rdg +0.1°C)
Pt50:1	-200.0 to 640.0	(0.05% of rdg +0.3°C)
Pt50:2	-50.0 to 600.0	(0.05% of rdg +0.3°C)
JPt100:1	-200.0 to 640.0	(0.05% of rdg +0.3°C)
JPt100:2	-200.0 to 400.0	(0.05% of rdg +0.2°C)
JPt100:3	-150.0 to 150.0	(0.05% of rdg +0.1°C)
JPt50:1	-200.0 to 640.0	(0.05% of rdg +0.3°C)
JPt50:2	-50.0 to 600.0	(0.05% of rdg +0.3°C)
Ni100/DIN	-60.0 to 180.0	(0.05% of rdg +0.2°C)
Ni100/SAMA	-200.0 to 250.0	(0.05% of rdg +0.2°C)
J263∗B	0.0 to 300.0K	(0.05% of rdg +0.3K)

Filter: 0.1, 1 Hz or OFF (When OFF is selected, the frequency characteristic is 10 Hz selectable).

Additional Specifications

STANDARDS COMPLIANCE

CE: EMC directive; EN61326
EN61000-3-2
EN61000-3-3
Low voltage directive; EN61010-1; overvoltage category II, measurement category II, pollution degree 2

C-Tick: Conforms with AS/NZS CISPR11 Class A Group 1

■ Page 8-3 “8 SPECIFICATIONS”

Power Supply:

Rated Supply Voltage
LR8100E: 100 to 240 VAC (freely selected)
LR12000E: 100 to 120 VAC, 200 to 240 VAC; automatically adjusted
Rated Supply Frequency
50/60 Hz
Permissible Supply Voltage
LR8100E: 90 to 250 VAC, 48 to 63 Hz
LR12000E: 90 to 132 VAC, 180 to 250 VAC, 48 to 63 Hz

■ Page 8-3 “8 SPECIFICATIONS”

Transport and Storage Conditions

Environmental conditions during transport and storage:

Ambient storage temperature : –15 to 60°C

Ambient storage humidity: 5% to 95% RH (no condensation)

Vibration: 10 to 60 Hz, 4.9m/s^2 or less

Shock: 392 m/s^2 or less (packaged condition)