

ULTRA 3710 MULTICHANNEL CHART RECORDER

CHART DISPLAY

Paper:	Low cost thermal facsimile paper, 100m x 315mm roll (330ft x 12.4in)
Scan width:	305mm (12in)
Dynamic range:	16 shades of grey from white to solid black
Resolution:	9 pixels/mm ² 896 pixels/line Image edge definition 1/12mm
Rapid chart advance:	450mm/minute
Illumination:	Subdued red illumination of record for night vision conditions
Paper take-up:	On 1in bore cardboard spool

THERMAL SCANNING SYSTEM

Print head:	Fixed thermal print head
Dot format:	Line array of 3584 dots on 1/12mm pitch
Cleaning:	Print head active area can be easily cleaned by means of soft tissue moistened in alcohol when changing paper roll.

INPUT POWER

Supply:	115V/230V AC \pm 10% 50/60Hz 350 Watts max
Fuse:	5 amp anti-surge (230V) 10 amp anti-surge (115V)

FRONT PANEL CONTROLS AND INDICATORS

The controls consists of a number of pushbuttons which operate in conjunction with a back-lit LCD display and a beeper to give audible and visual confirmation of entries and "warning" conditions.

A line of LEDs give information of power on, the status of the IEEE488 GPIB (General Purpose Interface Bus) and a comparison of the operating configuration with that of the stored configuration. The pushbuttons are arranged in functional groups, viz:

1 GENERAL CONTROLS

"RESET"	This hardware reset selects the stored or default configuration and is identical to the "power-on" reset.
"NUMERICS"	To input numerical parameters within commands.
"I"	Updates the operating configuration and executes the preceding command.
"C"	Rejects the preceding command.
"L", "R"	Selects left or right recorder channels respectively.
"DISPLAY STATUS"	Displays the operating configuration in the LCD display.
"PRINT STATUS"	Prints in total the machine configuration on the paper.
"STORE"	Stores the operating configuration to non-volatile memory.
"TEST"	Prints a grey-scale test pattern across the full paper width.
"TAKE-UP"	Toggles the take-up roller motor on and off.
"SET TIME"	Displays/changes time or date.
"LOCAL"	Restores local control following GPIB (IEEE488) intervention

2 CHART DISPLAY

"Display %"	Selects the proportion of the 305mm print width allocated to the left or right channel from 10 to 100% in 2.6mm increments.
"DIRECTION"	Selects a data display direction from left to right, or vice versa, for either channel.
"MANUAL EVENT"	Print an event line across the full paper width.
"AUTO EVENT"	Prints an event line periodically at 0.5, 1.0, 2.0 or 5.0 min intervals with or without time and date information.

3 DATA CONTROL

"INPUT"	Selects analogue A, analogue B, or the corresponding digital input, for each channel.
"SENSITIVITY"	When analogue input is chosen, a full-scale sensitivity can be selected between 0.1V and 10V in 0.1dB steps for either left or right channels.
"WHITE", "BLACK"	Selects the desired contrast for left and right channels.

Note: When an analogue input is chosen, the data is digitised by means of a 6-bit A/D converter and the digital data is available at the I/O connector.

When a digital input is chosen, the data must be presented at the I/O connector.

Since the data is 6-bit (ie 64-level) white and black may be selected to be any of these levels and the recorder will interpolate between them to generate a 4-bit (16-level) grey scale.

4 TRIGGER

"MODE"	Selects internal or external triggering for left and right channel data inputs.
"TRIGGER TIME"	When internal trigger is chosen a trigger period of 10ms to 10s may be selected for either channel with 1% resolution.
"SWEEP TIME"	Selects the time period over which input data is captured for either channel.
"TRIGGER DELAY TIME"	Selects a delay interval between the trigger and the start of the sweep between 0 and 10 seconds for either channel.

5 PAPER DRIVE

"ON/OFF"	Toggles the paper drive on and off.
"INT/EXT"	Selects between internally or externally controlled paper speed.
"SPEED"	When internally controlled, selects a chart speed up to 450mm/min (45 lines/sec.)
"ADVANCE"	Selects paper advance at 450mm/minute with no record being printed.

DATA INTERFACE & TRIGGER

The analogue and trigger inputs are via 4 BNC connectors on the front panel:

Channel A Analogue Input (100mV to 10V)
Channel B Analogue Input (100mV to 10V)

The digital inputs and outputs are grouped on a 37-way "D" connector on the front panel:

Digital ground
+5V DC
Paper drive input (TTL)
Paper drive output (TTL)
Trigger pulse L input (TTL)
Trigger pulse R input (TTL)
Trigger pulse L output (TTL)
Trigger pulse R output (TTL)
Clock pulse L output (TTL)
Clock pulse R output (TTL)
Digital input/output L (6-bit TTL)
Digital input/output R (6-bit TTL)

GPIB INTERFACE

Includes:
Full talk and listen capability
Service Request (selectable)
Remote and Local operation, including local lockout.
Facilities
Interrogation of the recorder configuration.
Remote control of the recorder configuration.
Service requests on error or warning conditions.
Reading of graphics data from the recorder.
Printing of graphics data over the GPIB.
Annotation of records.
Text printing.

PHYSICAL

Dimensions:	Bench mounting version excluding feet, handles and front panel controls
Width:	430mm (16.99in)
Height:	180mm (7.09in)
Depth:	443mm (17.44in)
Weight:	22kg (49lb) excluding paper
Mounting:	Fitting with rubber feet to permit horizontal or vertical free-standing. Angles available to permit 19" rack mounting (10U panel height) when bottom feet and handles removed.
Cover:	Fitted with removable metal protective cover.