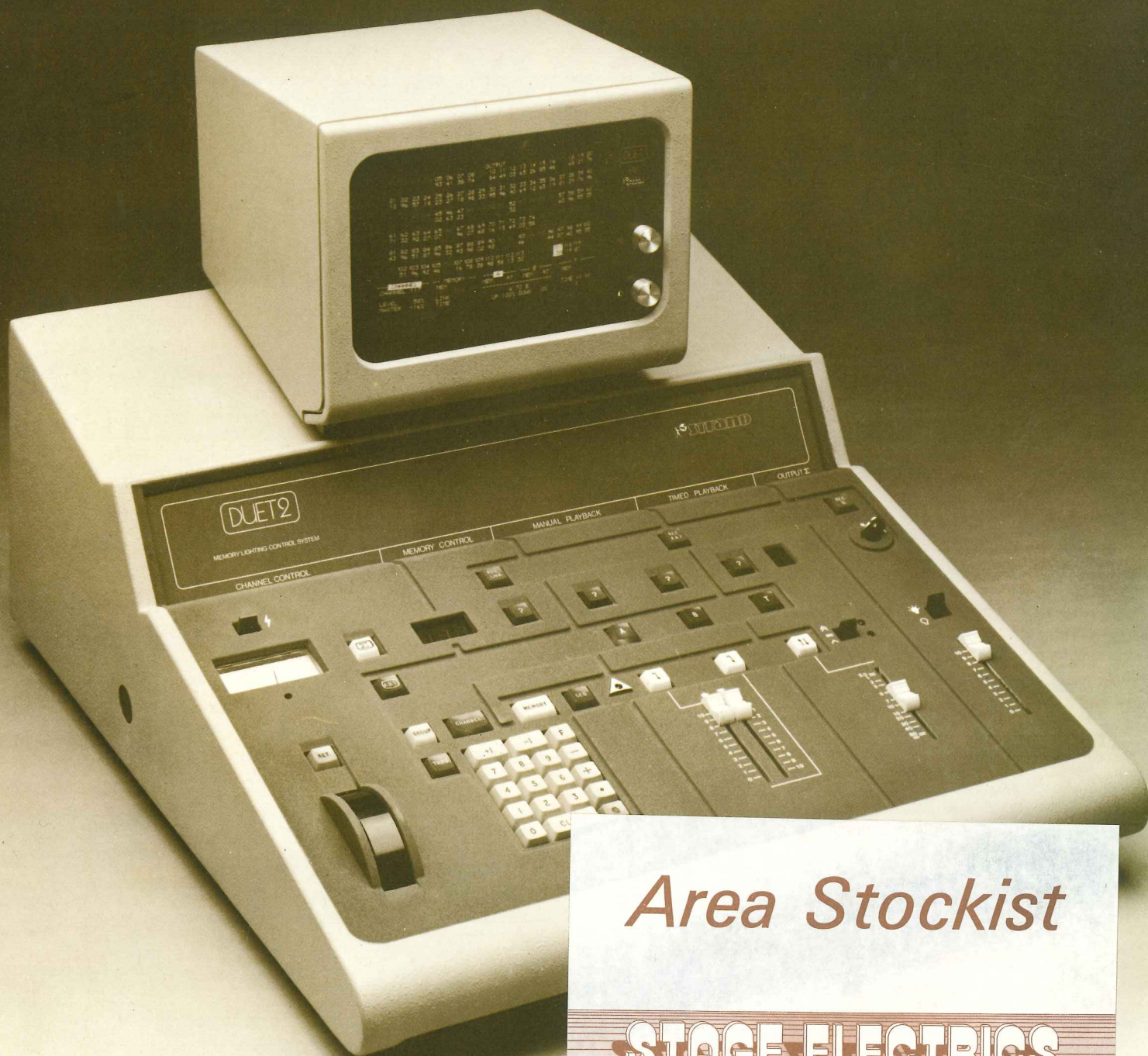


DUET 2 ●

MEMORY LIGHTING CONTROL SYSTEM



Area Stockist

STAGE ELECTRICS

12 Lower North Street Exeter Devon EX4 3ET (0392) 70498
 9 Victoria Road Avonmouth Bristol BS11 9DB (0272) 827282
 3 Pike Road Plymouth PL3 6HF (0752) 660757



Rank Strand

DUET 2 Memory Lighting Control

There are already more DUET consoles in daily use than any other memory lighting control – more than 400 DUET systems in theatres, hotels, conference centres, TV studios and colleges all around the world, including many touring with nationally-renowned companies. DUET has all the facilities and the flexibility required for medium-sized lighting installations, and a full range of optional peripherals to suit differing styles and methods of lighting. Equally important, for peace of mind, DUET has established service support available worldwide.

DUET is not a table-top computer adapted to bend arithmetic to serve as a lighting control; DUET was developed wholly within Strand to control production lighting effectively, conveniently and reliably. To cater for different levels of operator skills the relatively few pushes in the contoured desk can be operated on at least two different planes – or even as simply as pressing one and the same push, on cue, for each pre-recorded lighting change. Strand know, from their long and wide experience, that sooner or later the more sophisticated built-in facilities will prove invaluable.

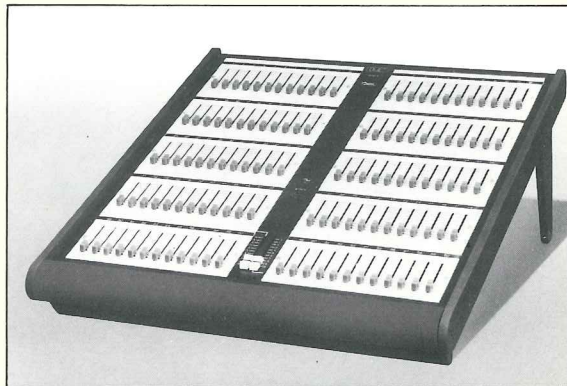


The DUET 2 table-top console with its Visual Display Unit is a complete and powerful memory control. The number of channels controlled can be varied in multiples of 12 up to a maximum of 120; similarly, the number of fast-access built-in memories can be varied up to a maximum of 199. Both the number of channels and memories can be extended, on site, by plugging-in extra printed circuit cards. The VDU provides a comprehensive alpha-numeric mimic of all channels and masters and can sit on top of the console, as illustrated, but is free-standing so it can be sited to avoid obstructing a direct view of the lighting controlled.

To the DUET 2 console can be added, initially or on-site, a variety of peripheral units to meet the particular needs and preferences of different users. These add-on options extend, not alter, the fundamental layout, philosophy and facilities of the console.



The Floppy Disc Unit is one optional peripheral unit; like the VDU it is free-standing and need not be sited on top of the console. It can be used to supplement the fast-access memory of the DUET 2 but is especially useful for repertoire library storage. For a hard copy a desk top Printout Unit is available to list the recorded level of every channel for each DUET 2 console memory, plus recorded fade time and any recorded link sequence.



For those who prefer to initiate lighting by fader lever control of every channel, a 2-Preset Desk with a split, dipless crossfader is offered. The totally independent outputs of this desk can be recorded, subsequently recalled and, if necessary, modified by the DUET 2 console. A similar, alternative option with independent outputs is a 10-group Pin Patch for pile-on, or inhibit, grouping to ten fader levers.



If submastering is required a free standing desk is available with 10 submaster stores, each with a group fader with 50% overrun capability. The DUET 2 memory can be used to record and recall the allocation of channels to particular submaster groups.



The Rigger's Control is a one-hand held remote channel control for on/off, raise/dim control for setting and focusing luminaires.

The DUET 2 console, VDU and optional peripherals are described in more detail in the following pages, but already it should be evident that DUET 2 is the definitive memory control for all small to medium sized stage and studio needs.

A PLAYBACK STORE SELECT PUSHES A B T

These select which one of the three playback stores is to be controlled by the Channel Control facilities, both for initial composition and for any subsequent modifications necessary to suit the needs of the moment. Providing the ABT display select push adjacent to the meter is lit, the VDU mimic will display the content of the selected store. Any store can be selected at any time without changing the lighting in any way.

All intensity levels are achieved by combining the outputs from one or more of the A, B or T playback stores. A and B are either end of a manually operated crossfader, the output of which is further combined on a highest-takes-precedence basis with the output from the Timed playback.

It is the intensity levels present in any of these playback stores which is eventually recorded and when a Memory number is recalled the intensity level content is subsequently transferred to any one of these stores.

When the Console is first switched-on a logical starting state is automatically set-up - Channel mode and the A playback store selected. The twin-lever crossfader should be set to top, A, position, the master fader at the extreme right hand side should also be set to full (10 on the scale) and the master blackout switch mounted immediately above the fader, should be in the top position.

B CHANNEL/MEMORY

These mode switches determine whether the keyboard is to select Channel numbers or Memory numbers, and also changes the numeric display to show the last-selected Channel or Memory number.

Pressing Memory cancels Channel mode, and vice-versa, *but* the last-selected number, whether Channel or Memory, remains selected and available for use.

C GROUP

When Channel mode is selected, and then Group, the keyboard can select any Memory number and all channels that are above zero in that particular Memory will be selected, as a group, for *Channel* control.

D KEYBOARD 0-9 CLEAR +1 -1 + -

The keyboard selects the Channel number when in the Channel mode, and the Memory number when the Memory mode is selected. The digits keyed appear in the numerical display above for verification. If a non-valid Channel or Memory number is selected, beyond the fitted capacity, the numerical display changes to flashing decimal points.

When CLEAR is pressed the selection is cancelled *but* this is also automatically invoked when a new number selection is entered, provided the previous number has been used.

+1 and -1 increment or decrement the selected Channel/Memory number by 1, but + or - used prior to entering a new number will clear the numerical display only, and substitute a + or - sign. The number selected subsequently will be added to, or subtracted from, the previously selected number(s) for simultaneous control or routing.

E THRU

In Channel mode a consecutive sequence of channel numbers can be selected for control simultaneously by entering the lowest number, pressing THRU, then entering the highest number of the sequence.

F FADER WHEEL

This increases or decreases, the existing intensity level(s) of selected channel(s), or Groups of channels, according to the amount, the rate, and the direction of movement applied. One full quadrant movement of the wheel will change the level from zero to full. Movement beyond full, or below zero, is ignored, but immediate control is regained when the fader wheel is reversed. If more than one Channel is controlled, then the relative balance of the Channels is maintained as they are raised or lowered, until one or more reach full or zero.

G KEYBOARD @ · F + -

When the @ (at) key is pressed this changes the response of the keyboard so that the next digit, or F, entered sets the intensity of the selected channel(s) to 0 to 90%, or Full. More precise levels are available by subsequently pressing · (decimal point) and then another digit. If the second number is not preceded by · then this will be interpreted as the start of another channel number selection.

While @ (at) is invoked the + and - keys used, prior to a digit key, increase or decrease the existing intensity of selected channels by a keyed-in percentage.

H FLASH

This sprung-centre switch changes selected channels to full light when pressed upwards, or to zero downwards.

I METER Σ ABT

The meter displays the intensity level of the last-selected channel. If the Σ push is illuminated the level shown is that of the output of the system, but if the alternate ABT push is lit then the level is that of the selected A, B or T Playback store.

The same two pushes also determine the source of information displayed on the detailed mimic of the Visual Display Unit.

J RETURN

This push lights as soon as the intensity levels of one or more Channels are changed from the levels they were at when they were selected. If the fader wheel is reversed until the push is extinguished, starting levels are restored. Whenever the push is pressed starting levels are restored immediately.

K SET LEVEL (alternative to Thru)

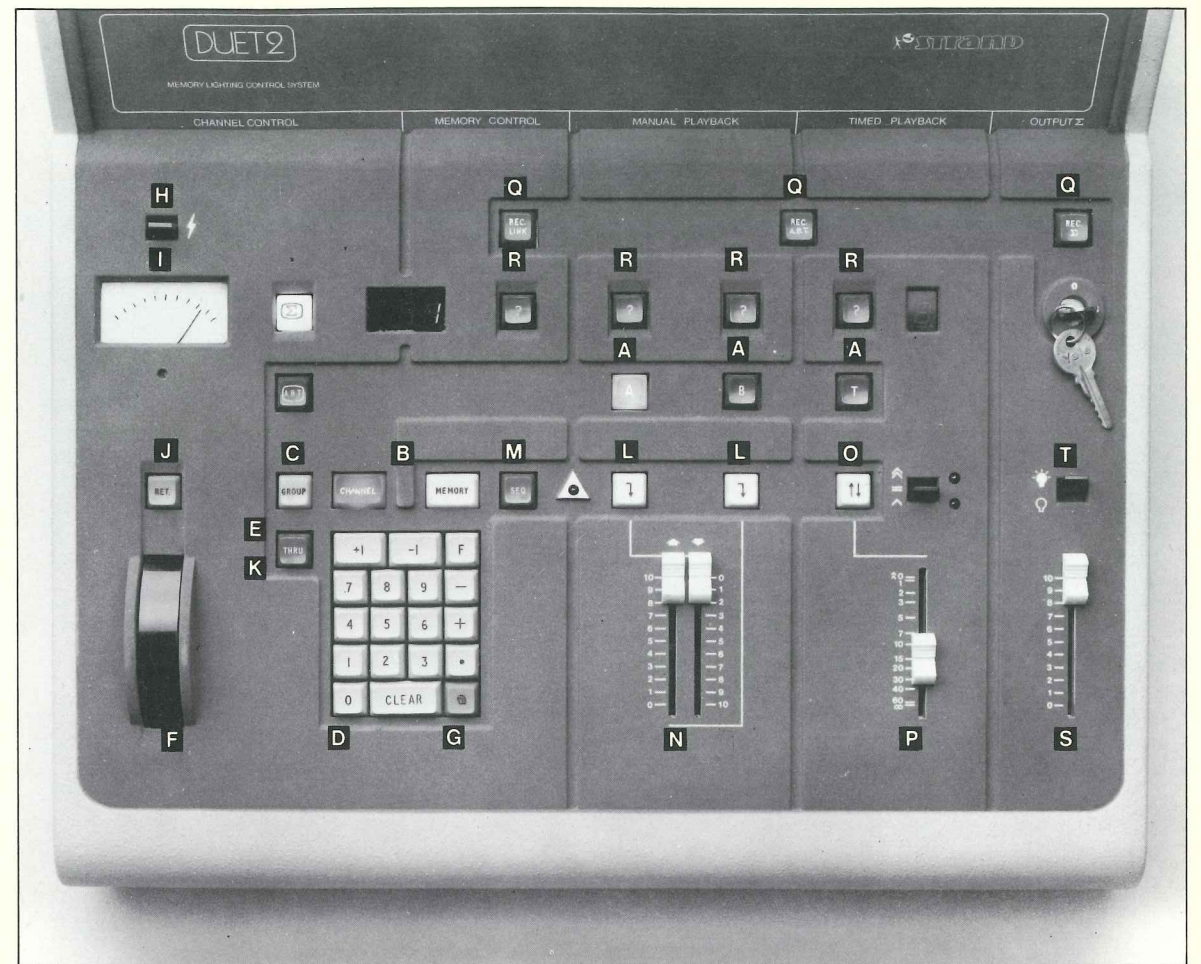
When first pressed this push switch-changes the selected channel to a common reference level (initially 70%) and the push is illuminated. If the push is then pressed again the channel switches to zero and the push is extinguished. If the channel level is changed whilst the push is illuminated that then becomes the future common reference level.

L A AND B ∇ PUSHES

Either of these transfer the intensity level content of the selected Memory number (whether displayed or not in the numerical indicator) to the A or the B playback stores. The selected Memory replaces the existing content unless the Memory number has been prefixed with a + or - on the keyboard. To obtain an empty store (wipe) the transfer push is pressed after CLEAR has been selected, in Memory mode, on the keyboard.

M SEQUENCE

While illuminated this facility automatically advances the Memory number by one, or to the Recorded Link number, each time a Memory number has been transferred to Playback A, B or T SEQUENCE also



automatically transfers the next required Memory number to the inactive Playback on completion of a manual crossfade.

N MANUAL CROSSFADER

This twin-lever crossfader effects a dipless crossfade between the intensity level content of Playback A and that in Playback B, and vice-versa. As the left-hand fader lever controls only those channels *increasing* in intensity, and the other those *decreasing* in intensity, crossfades can be easily profiled.

O ∇ PUSH

In effect this push transfers (but does not immediately replace) the content of the selected Memory number to the T Playback and also starts a time crossfade from the current intensity levels in the T Playback to the levels in the new Memory number. If, before completion of the crossfade, the push is pressed again a new fade will start from that point to the content of the latest Memory number.

P TIMED FADE CONTROLS

The fader calibrated 1 to 60 and infinity (∞), and the switch above to choose seconds or minutes, determine the time taken to complete the crossfade. The progress towards completion is shown on a numerical display which counts from 0 (start) to 9 and then blanks on completion. The fade can always be overridden, or stopped by moving the time fader to the bottom. The centre position of the switch = ensures that the timing of the crossfade is that which was recorded with the Memory number.

Q RECORD PUSHES

These are inoperative unless a valid Memory number has been selected and unless the key is inserted in the

keyswitch and turned to the I position. Memories can be recalled from the fast, random-access memory without inserting the key.

The REC A.B.T. push records the intensity level content of the selected A, B or T store. All intensity levels from zero to full light are recorded for each valid Channel number.

The REC Σ push records the total output of the system which may be a combination of the Manual Playback in mid-crossfade, and the Timed Playback and/or output of optional 2-Preset Desk.

The recording process also always includes the timing set on the Timed Fade Controls.

The REC LINK push allows any Memory to be assigned a link number to modify normal numerical progression when Sequence is used.

R MEMORY A B T ? VIEW PUSHES

While any of these View Pushes is pressed the numerical display will change to show the last Memory number viewed or transferred into the A, B or T Playback. At the same time the VDU mimic will change to show the content of that Memory or Playback in precise detail.

S MASTER FADER

This provides proportional mastering of all Channels. Proportionally-reduced output can be recorded by the RECO Σ push.

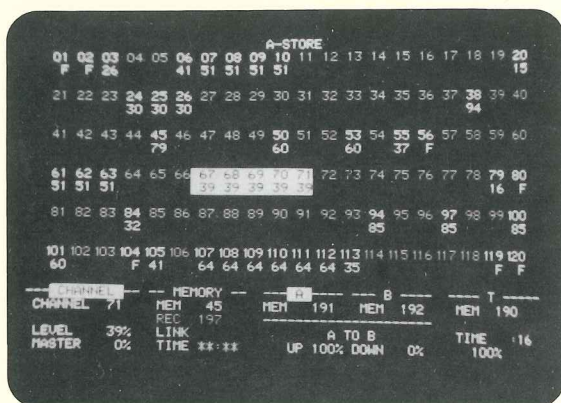
T BLACKOUT SWITCH

When moved to the bottom position this switch blacks-out all Channels.

DUET VDU MIMIC

The Visual Display Unit is a standard feature of DUET 2; no longer is it an optional extra. It is a free-standing unit, locally powered and connects to the Console by a single co-axial cable.

The top line of the screen describes the source of the Channel mimic information – Output, A, B or T playback stores or, if the Submaster peripheral is supplied, the channels and stored levels of any interrogated submaster. Below the source title, each row contains 20 Channel numbers. All valid Channel numbers are displayed at half brilliance except when the intensity level of any Channel is above zero when the number changes to full brilliance and the percentage level (01-99,F) is shown at full brilliance immediately below. Channels selected and under channel control are displayed as a reversed black on white image.



The lower part of the screen is partitioned to be similar to the contoured layout of the DUET 2 Console. The Channel section shows the last-selected Channel number, its intensity Level, and a display of Master movement showing percentage change.

The Memory section shows the selected Memory number, the last-Recorded memory number at half brilliance, then the recorded Link number and the recorded Time in minutes/seconds.

The manual playback section displays the latest Memory numbers transferred to both the A and B playback stores, the direction of the crossfade A to B, or B to A, and the percentage positions of the split crossfader. The Timed playback section shows the latest Memory number transferred, the Time setting of the fade in minutes/seconds, and the percentage progress of the fade.

Any non-valid Channel or Memory numbers flash. Reversed black on white image is also used for titles in the lower part of the screen to highlight Channel/Memory mode selection, and active store(s).

DUET FLOPPY DISC

This optional, free-standing unit matches the size and style of the VDU Mimic and connects to the Console by a small flexible cable to an extra rear connector panel and internal printed circuit board.

The Floppy Disc unit provides a convenient means of repertoire library storage of the Console Memory, not just intensity levels but recorded fade Times and any recorded Links as well. The local keyboard allows the Memory numbers to be transferred to be defined in the adjacent numerical indicators. The D → M and M → D pushes initiate the transfer of data from Disc to console Memory, or from Memory to Disc. However, a notch on any of the Minidiskettes can be

covered with an adhesive tab to inhibit Memory to Disc transfer and therefore prevent accidental re-recording.



The momentary action keyswitch initiates a complete Clear of a disc and also the essential formatting of a brand new disc to suit the number of control channels. During a transfer the top numerical indicator changes to show the Memory number currently being transferred.

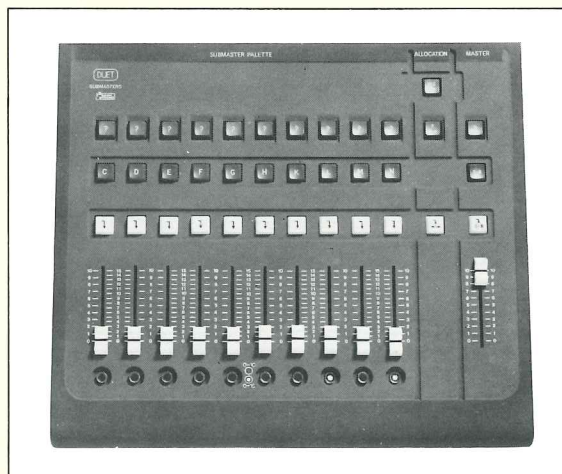
DUET PRINTOUT

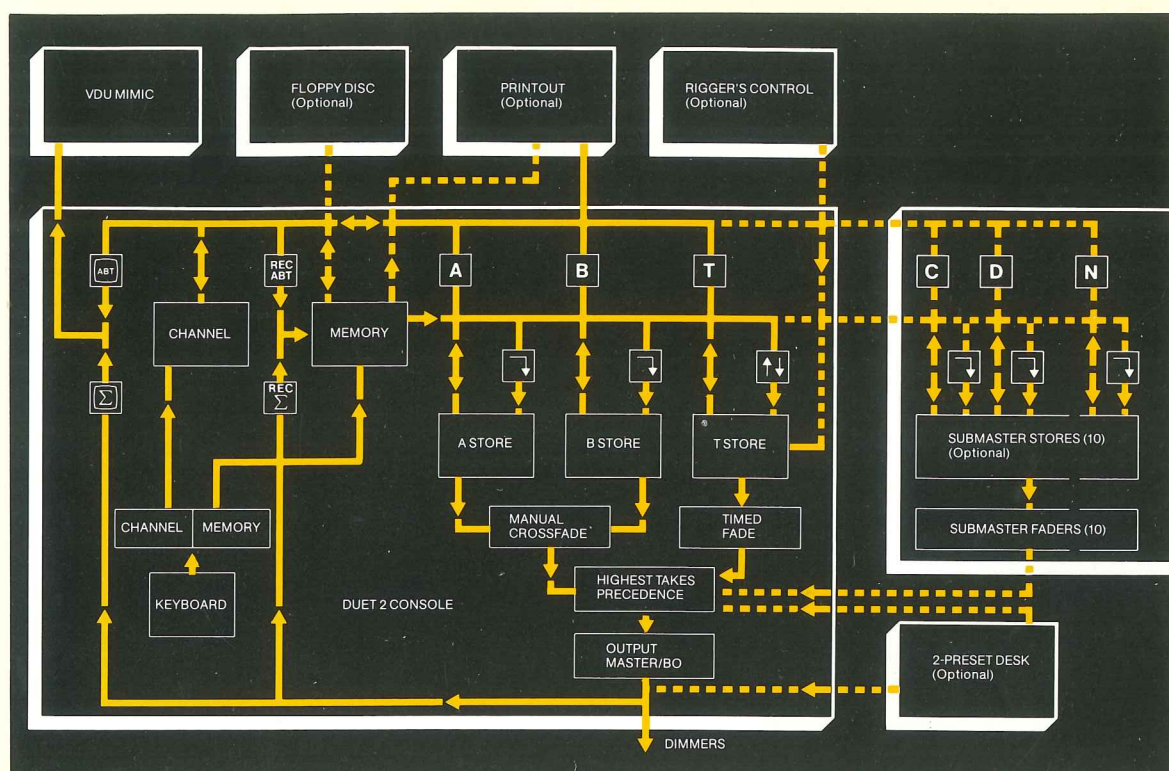
This optional desk-top printer requires an additional printed circuit board and connector panel in the Console. The keyboard on the Console is used to define the Memory number, or series, to be printed on 240mm wide fan-fold paper in a format similar to the VDU Mimic display but titled with Memory number, any Link number and fade Time in minutes/seconds.

DUET SUBMASTER DESK

This optional, add-on desk and extra associated printed circuit board within the Console provides an extra playback store, similar to A, B or T, but one which is partitioned into 10 submaster groups each controlled by a fader lever to enable any group to be balanced up or down relative to the others. The push/push switch below each fader allows channel levels to be raised proportionally up to 50% above stored levels. A master fader for all submasters is also provided.

The C, D, E, etc pushes route the Console channel control facilities to set or modify channels and their intensity levels into the corresponding submaster group. The allocation of channels to groups can be recorded into, and recalled from, the Console memory and the content and levels of each group, or all groups, can be interrogated on the VDU Mimic by using the appropriate view push.





Dimensions	Width	Depth	Max Height	Weight
Console	560mm	710mm	285mm	19kg
VDU Mimic	280mm	250mm	240mm	6.5kg
Floppy Disc (option)	280mm	250mm	240mm	7kg
Printout (option)	470mm	360mm	185mm	10kg
Submaster Desk (option)	445mm	410mm	175mm	9kg
2-Preset Desk (option)				
Up to 60 channels	575mm	670mm	270mm	15kg
Up to 120 channels	1070mm	670mm	270mm	25kg
Pin Patch (option)	575mm	670mm	270mm	15kg

Power Input

220-240v or 110-120v, 47/63Hz.

Each unit (except Rigger's Control) requires separate power input.

Dimmer Output

-10v via 10K ohm & silicon diode = Full.

0v via 10K ohm & silicon diode = Off.

Connection via RTG 18/26 (per 24 channels) to DIN 41618.

Control Channels

In increments of 12, from 48 to 120 maximum.

Environment

Operating 0°C to 35°C, 10% to 90% maximum relative humidity (non-condensing). 'Office' level cleanliness.

Console Processor

M6800, 8-bit data, 16-bit address.

Cycle Time

Less than 35 milliseconds.

Fade Processing Accuracy

8-bit (256 step).

Recording Accuracy

6-bit (64 step), 8-bit to special order.

Console Memory

CMOS semi-conductor, battery maintained for minimum of a month, maximum recharge time 12 hours.

Console Memory Capacity

1 to 3 increments of 8192 stored channels. (Channels + 4 x Memories), with maximum of 199.

VDU Mimic Output

1v positive composite video 625/525 line, 50/60Hz field. Connection via 75 ohm BNC socket.

Floppy Disc (optional)

Uses Shugart SA 104 Minidiskette, soft-sectored. Connection via RTG 18/10 to DIN 41618.



Rank Strand

Rank Strand Limited,
PO Box 51, Great West Road, Brentford,
Middlesex TW8 9HR, United Kingdom.
Telephone 01-568 9222. Telex 27976.

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