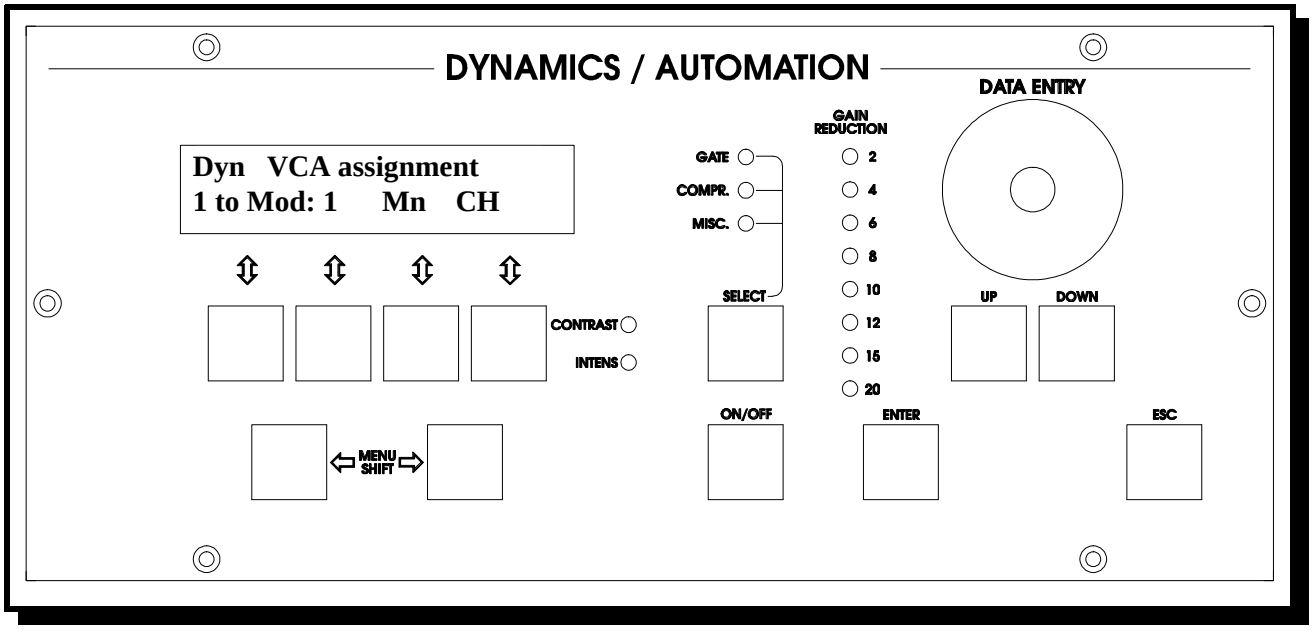
POWER DYNAMICS manual

"POWERDYNAMICS"



HARDWARE DESCRIPTION **Display Merlin remote control**

D&R's "PowerDynamics" is a combination of sophisticated real time dynamics software and hardware designed to be integrated into your Cinemix or Merlin mixing console.
"PowerDynamics" provides real time dynamic control of the audio signal by way of built in VCA cards controlled by microprocessor technology up to a maximum of 128 channels.
Every PowerDynamics card contains 8 high quality VCA's to be internally mounted inside the mixing console. Interfacing into the signal path is by way of a two pole connector.

The VCA is inserted in series with the original insert point, permitting external processors to be inserted as well.

PowerDynamics can perform the following functions: It can be used as a gate and a compressor limiter. All functions can be activated to work simultaneously.

Control voltages can be "soft" linked on one card of 8 VCA's. All VCA's can be hard bypassed under software control by way of reed relays, completely eliminating the VCA's from the signal path. Every module in both the Cinemix and Merlin consoles has a Led showing that dynamics is active, when activated.

The Cinemix console can control all parameters in its own L.C. Display with the same switches normally used to activate ARM functions and other control functions of the automated master section.

The Merlin console has a complete dynamic control panel of its own to set all parameters of PowerDynamics. Apart from the usual Threshold, Ratio, Attack, Release, there is a gain reduction meter showing actual performance of the dynamics per selected module.

Direct led indicators show that either the Gate and/or Compressor/limiter is active.
A menu shift button easily shifts the two L.C. Display modes from gate to compressor.
A hardware dynamics ON/OFF switch lets you easily compare treated and untreated signals.

The Cinemix console only needs the individual VCA cards and software to perform.

The Merlin needs apart from the above mentioned VCA cards also the master control panel to perform its functions. Building in of PowerDynamics in both consoles can only be performed in the factory. Due to extensive wiring to be installed and removal of all modules it is advisable to consider the PowerDynamics as a factory installed product only.

System Hardware Features"

* "PowerDynamics" is a software based gate and compressor/limiter for Cinemix, Merlin and Orion mixing consoles.
* It uses internally built in VCA cards (8 VCA's per card).
* Built in Reed Relay By-pass switching creating true Hardware VCA Bypass On Each Channel.
* High Quality 4302 THAT VCA's as standard with extremely low (2nd harmonic) distortion.
* 80 dB control range in 10 bit AD reading 0.5 dB min.
* High-Speed Communication with microprocessor.
* Noise -84dBr
* Frequency response: 10-20.000 Hz within 0.25dB
* Input impedance: > 10 k Ohm
* Output impedance: < 47 Ohm
* Dynamics LED ON indicator: 10 mA
* Optional gain reduction meter.

"System Software Features"

* GateThreshold range:	-61dB up to +20dB
* Gate Attack time:	50 uSec up to 0.5 Sec
* Gate Release time:	5 mSec up to 0.4 Sec
* Gate range:	85dB
* Compressor Threshold:	-61dB to +24dB
* Compressor Ratio:	1:1 up to 10:1
* Compressor Attack:	1 mSec up to 0.2 Sec
* Compressor Release:	5 mSec up to 1 Sec
* Hysteresys range:	10dB

* Link function for a maximum of 8 VCA's within one dynamics PCB
* Key function for a maximum of 8 VCA's within one dynamics PCB
* Hold function for gate: 0.5 mSec to 0.2 Sec
* Adjustment of hysteresys with a range of 10 dB

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USERS MANUAL POWER DYNAMICS

The difference between operating the Merlin and Cinemix Powerdynamics lies in a more dedicated frontpanel lay-out which makes working with the Merlin faster (but the hardware is more expensive). Software is identical for both consoles.

The LC Display shows when powering up the Cinemix console the following display. Both ARM and Proj relate to the routing system, DYN and Set-up relate to PowerDynamics

```
CRM   -20dB
ARM    DYN    Proj    Set-up
```

Set-up needs to be activated first to assign the VCA's to the modules/master.
As soon as you push the switch below Set-up the following display will be shown.

```
          -Setup-
SetM   ResetM   Mod    Dyn
```

Now push the Dyn related switch and the display changes into the display showed at the right.
Only switch 1 and 3/4 below the display is active to change parameters in the display and console. Now you can assign the VCA's to the module numbers, either the Chan or Mix section, or to the master outputs individually. The Data entry knob selects CH or Mix or the module number. This set-up menu can be closed by activating the ESC switch

```
Dyn  VCA assignment
 1  to Mod: 1     Mn        CH
```

When you now select the DYN by pushing the related knob below the text DYN shows the following display

```
Thr Gt    Range    Att     Rel >>
-20dB     40dB     40uS    0,45
```

The LED's in the switches below the LCD indicate which data could be altered, in this case all four data.
The ranges of all the parameters are:

Threshold gate:	-61dB	+24dB
Range:	0	-85dB
Attack:	50uSec	0.5 Sec
Release:	5mSec	0.4 Sec
Hold:	0.5 mSec	0,2 Sec (next menu)

The Hold function becomes visible when pushing the ">>" switch below the Data wheel in the Cinemix and pushing the menu shift switch ">" in the Merlin console.

By once again pushing the ">>" switch, the Limiter section parameters are shown.
The LCD in the Cinemix looks like:

```
Th Lim    Th Cm    Ratio   At
20dB      14dB     1:4     20mS
```

In the Merlin console a dedicated select switch is built in for selecting gate/Compressor or other parameters (Misc.)
Ranges of the Limiter section are:
Note: *Limiter threshold can never be set below Compressor threshold*

Threshold Limiter	- 61dB	24dB
Threshold compressor	- 61dB	24dB
Ratio Compressor	1:1	1:10
Attack	1 mSec	0.2 Sec
Release	5 mSec	1 Sec (next menu)

The next menu shift ads the Release function to the already displayed values.

The next menu shift shows the following display as seen on the right sight

hyst G	Dyn	Key	Link
6dB	on	none	none

All four functions can be activated by the push buttons located below the display.

Ranges of the parameters are

Hysteresis gate	0	10dB
Dynamics	On	Off
Keying	None	by one of the other 7 VCA's on that card)
Link	None	to one of the other 7 VCA's on that card

The next menu shift only moves all parameters one position.
NOTE: During all menu's the ENTER switch switches Dynamics on and off when needed for comparison

LIBRARY

It is possible to create a library of favourite dynamics settings in the following way
Go back to the main menu by pushing the ESC button, now the main menu shows:

DYN	Mod	All	DynMod
DYN	ARM	Proj	Lib

Now push the Lib switch and the following menu will be shown.

Dyn lib	1	"voice settings"____	
Save	Call	Name	Esc

SAVE

There are in total 24 memory locations (0 to 23).
Each memory location could be given a name by rotating the data wheel in conjunction with the position switches below the name area.
To check which setting your storing in the Library you can push the enter switch and see if the Dyn led goes on or off indicating that that was the channel you were in. By going back in the previous menu's you can also see in which module you were editing.

CALL

A blinking memory location can be called up to be loaded. After loading blinking stops indicating that the data has been stored in the active dynamics module.

We hope that this relatively simple manual sheet was able to help you with this exciting part of your console. If not do not hesitate to fax or E-mail us with your questions.

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