

MEMOPACK - MEMORACK EURORACK 50+ - EURORACK 60 EURODIM 3

Programming Digital
Dimmers and NETBUS

ADB
Lighting Technologies



ADB
Lighting Technologies

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

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Dimmer firmwave: v 2.04. NETBUS firmwave: v 2.04.

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MENU

Operation of your dimmer is very straightforward; by means of the five control keys, the alphanumeric display, and a simple but powerful Menu.

Principle of operation

By pressing the + or - keys, you can display the list (loop) of subjects or 'Menu items'. When you reach the item of interest, you depress the **YES** key.

Simplicity tailored to your needs

The number of items on the Menu list can be adapted by the user, so that the functionality of the dimmer can match the level of experience of the individual user.

Five levels of display are available. The higher the Menu Level, the more features are added to the Menu list (loop). The five levels are known as **SimplestMenu** and **Menu 0** through **Menu 3**.

Menu 1 is set in the factory, and also when you perform the **ClearCONFIG** function.

If you select a different Menu level, then your selection will also be maintained after power-up.

SimplestMenu avoids menu selections altogether.



Menu 0

Menu 0 is the save menu and protects your selected data (DMX address, patch info, ...).

The current patch (DMX addresses) and Network Address on the Advanced Dimmer Network (ADN) (not on EURORACK 50+) can be read but cannot be modified: press **Info** and then + or -

Menu 1

Menu 1 opens up a few basic functions:

- you can set the DMX start address, with automatic numbering
- you can view and edit the patch, with individual dimmer addresses
- you can test dimmers individually
- you can flash a dimmer, to find it in a rig
- you can set dimmer laws per dimmer

Menu 2

Menu 2 is for the user interested in the full range of features of the dimmer

- the "DMX address", Patch and Test functions of Menu 1, and additional to that
- you can scan and learn the dimmer loads (not on EURORACK 50+)
- you can view the learned loads for fault finding purposes
- you can set a proportional factor per dimmer
- you can use the memories
- you can display incoming control levels (DMX512 and Analogue)

Menu 3

The maintenance Menu, Menu 3, is not required for day-to-day use of the dimmer. Its functions are intended **for maintenance engineers only**. Details of Menu 3 are included in the Maintenance chapter of this manual. **WARNING** : The dimmer should not be left unattended in Menu Level 3.

SimplestMenu

When the unit is set to SimplestMenu, the only accessible function is the DMX start address (no patch). So prior to enabling SimplestMenu, the patch must be cleared, or DMX addresses must be continuous.

How to Enable and Disable SimplestMenu:

- | | | |
|---------|------------------|-----------------------------------|
| • press | + or - until | DMX start @ ...? |
| • press | <-- | for 5 seconds |
| • press | + or - to select | SimplestMenu or NormalMenu |
| • press | YES | |

To lock the dimmer unit: first select Menu Level 0 and then select **SimplestMenu**.

To unlock: restore NormalMenu and then increase Menu Level.

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List of Menu Items

Simplest Menu

- DMX start @ ...
- ...Locked!
if set to Menu Level 0 and SimplestMenu

Menu 0

- Menu Level ?
- or DMX start @ ...
or DMX Patch On
or House Patch On

Menu 1

- Menu Level ?
- or DMX start @ ...
or DMX Patch On
or House Patch On
- View Patch ?
- Edit Patch ?
- Test & Patch ?
- Flash a dim ?
- Dimmer Law ?
- Clear ?

Menu 2

- Menu Level ?
- or DMX start @ ...
or DMX Patch On
or House Patch On
- View Patch ?
- Edit Patch ?
- Test & Patch ?
- Flash a dim ?
- Dimmer Law ?
- Clear ?
- Scan Loads? (not on ERACK 50+)
- Learn Loads ? (not on ERACK 50+)
- View Loads ? (not on ERACK 50+)
- Mult. Factor ?
- Memories ?
 - Play memory
 - Chaser memory
 - Record memory
 - Edit memory
 - Erase a memory
 - Prior New/DMX
- Compare (on EURODIM 3 only)
 - Data Base A
 - Data Base B
- View DMX ?
- View analogue ?

Menu 3 (for Maintenance)

- Menu Level ?
- or DMX start @ ...
or DMX Patch On
or House Patch On
- View Patch ?
- Edit Patch ?
- Test & Patch ?
- Flash a dim ?
- Dimmer Law ?
- Clear ?
- Scan Loads? (not on ERACK 50+)
- Learn Loads ? (not on ERACK 50+)
- View Loads ? (not on ERACK 50+)
- Mult. Factor ?
- Memories ?
 - Play memory
 - Chaser memory
 - Record memory
 - Edit memory
 - Erase a memory
 - Prior New/DMX
- View DMX ?
- View analogue ?
- House Patch
- If DMX fail
- An. in mode ?
- Smoothing ?
- ClearConfig ?
- Dimmer quantity ?
- Network address ?
(not on ERACK 50+)
- Mains freq. ?
- ADB Tests ?
- View Peak

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“Hidden” items are not disabled

Menu items that are hidden are still active.

Example: a more experienced operator may use Menu 2 to program the dimmer laws, and then set the dimmer to SimplestMenu. The next users will then have the selection of the DMX start address selection at their disposal, with the dimmer laws still active as programmed.

Protection against tampering

This is achieved by selecting Menu 0

- press + or - until **Menu Level ?**
- press **YES**
- press + or - until **Menu Level 0**
- press **YES**
- the display returns to the main Menu **Menu Level ?**

The display will, after a certain time, show the address of the first dimmer.
But if Menu Level is set to Menu 0, it will not be possible to modify this address.

How to select the Menu level

Example: you want to modify the dimmer address, so you need access to Menu 1.

- press + or - until **Menu Level ?**
- press **YES**
- press + or - until **Menu Level 1**
- press **YES YES YES**
- the display returns to the main Menu **Menu Level ?**

You can now modify the DMX address, but no other parameter.

How to increase the Menu Level - Protection

All parameters are stored in the dimmer EEPROM for an infinite time. No battery needs to be maintained.

Non-volatile memory

As described above, an increase in Menu Level must be confirmed by a **triple YES**, to protect the equipment against tampering.

For a decrease in Menu Level, e.g. back to Menu Level 0, one simple YES is sufficient.

Default display

After a certain time, the display will default to one of three modes:

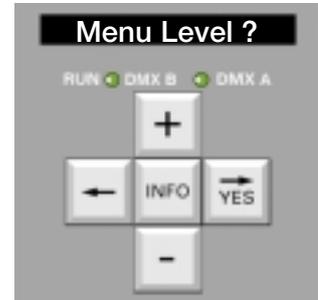
- **DMX start @ ...** when DMX addresses are sequential, starting at...
- **House Patch On** when the house patch is active
- **DMX Patch On** when a patch has been set which is different from House Patch

This information alternates with the unit's Advanced Dimmer Network (ADN) address:

- **Netw. Addr. ...**

If no Network Address is shown, then the unit is not linked to the ADN (address is set to ---).
(not available on EURORACK 50+)

Note: if the House Patch contains sequential DMX addresses, then the default display will show
DMX start @... when the House Patch is active.



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Dimmer Address

The DMX address

Every dimmer receives a digital signal on its DMX input, which contains the dimmer levels for all the dimmers in the system. The Dimmer Address function defines which dimmer levels are relevant for the dimmers in the rack. The number which is set via the **DMX start @ ...** menu is the 'DMX address' of the first dimmer in the rack. The other dimmers will automatically respond to the next DMX addresses. For non-sequential addresses, see **"Patch"**. EURODIM 3 features two DMX inputs, A and B. These provide two independent patches and house patches.

Example : the dimmer's Address is set to 25 (display: DMX start @ 25). The first dimmer's address is 25, dimmer position 2 has address 26,... dimmer position 24 has address 48.

Setting the dimmer address

Example: the DMX Address is currently set at 1, and you wish to set it to 25:

- select Menu 1 or Menu 2, as indicated above
- press + or - until **DMX start @ 1?** (DMX A ou B pour ED3)
- press **YES**
- the display shows **Dim 1... DMX 1**
- press + or - until **Dim 1... DMX 25**
- press **YES**



If a patch was programmed previously,

- the display will show **Erase Patch?** (DMX A ou B pour ED3)
- press **YES** if you agree to erase that patch
- press **<---** to save the old patch
- the display returns to the main Menu list **DMX start @ 25 ?**

Dimmer position

The "dimmer position" is a number which describes the physical position.

For EURORACK :

- the "next" dimmer position dimmer is on a different phase
- one row of fuses = one phase

The following sketch shows the dimmer positions in a 24-dimmer EURORACK.

For a 12 dimmer EURORACK, the positions are the same, numbering stops at 12.

Position	1	4	7	10	13	16	19	22	Phase L1
Address	...	...	...	...	...	...	...	...
Position	2	5	8	11	14	17	20	23	Phase L2
Address	...	...	...	...	...	...	...	...
Position	3	6	9	12	15	18	21	24	Phase L3
Address	...	...	...	...	...	...	...	...

You will notice that

- for all EURORACKs dimmer position No. 2 is on row 2, far left
- the "dimmer position" is the reference number which is used in the various menus (patch, individual dimmer law, individual multiplication factor, dimmer levels in cues,...)
- the dimmer position is pre-printed on the label under the dimmer fuses
- the DMX address ... is left blank. It is set by the "DMX address" or "Patch" functions.

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EURORACK terminal strip

The output terminals are, from L to R, the outputs of dimmer pos. 1 through dimmer pos. 24.
This will also be the address sequence for automatic numbering **DMX start @ ...**

The terminals have pre-printed labelling and space for custom labelling

- pre-printed: the number of the physical dimmer = which fuse is protecting this output
- custom: space is provided for the DMX address (or the circuit number); this must be added on site by the contractor or the customer

Example : with “dimmer address” set to 101, and no additional patching, the labelling of the terminals would be (from L to R)

Pre-printed	1	2	3	4	5	6	7	8
Hand-written	101	102	103	104	105	106	107	108
Pre-printed	9	10	11	12	13	14	15	16
Hand-written	109	110	111	112	113	114	115	116
Pre-printed	17	18	19	20	21	22	23	24
Hand-written	117	118	119	120	121	122	123	124

EURORACK and EURODIM 3 : other functions

For Patch, Dimmer Laws, Memories, etc... please refer to the next paragraphs.

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Personal Notes

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MEMOPACK 15 XT



MEMOPACK 30



MEMORACK 15



MEMORACK 30

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MEMOPACK, MEMORACK Dimmer Address

The DMX address

Every MEMOPACK and MEMORACK receives a digital signal on its DMX input, which contains the dimmer levels for all the dimmers of the system. The Dimmer Address function defines which dimmer levels are relevant for the dimmers in this particular unit. The number which you set via the **DMXStart@** menu is the 'DMX address' of the first dimmer in the MEMOPACK. The other dimmers will respond to the next DMX addresses. For non-sequential addresses, see "Patch".

Example : the MEMOPACK's Address is set to 19 (display: **DMX Start @ 19**). The first dimmer's address is 19, dimmer No. 2 has address 20,... dimmer No. 6 has address 24.

Setting the dimmer address

Example: the DMX start Address is currently set at 1, and you wish to set it to address 19:

- select Menu 1 or Menu 2, as indicated above
- press + or - until **DMX start @ 001**
- press **YES**
- the display shows **Dim 1..DMX 1**
- press + or - until **Dim 1..DMX 19**
- press **YES**

If a patch was programmed previously,

- the display will show **Erase Patch?**
- or press **YES** if you agree to erase that patch
- or press **<---** to save the old patch
- the display returns to the main Menu list **DMX Start @ 19**



Patch, individual dimmer address

Example : you wish to set dimmer No. 2 to 120.

- select Menu 2, as indicated above
- press + or - until **Edit Patch ?**
- press **YES**
- the display shows **Dim 1 : DMX ...**
- press + or - until **Dim 2 : DMX ...**
- press **YES**
- press + or - until **Dim 2 : DMX 120**
- press **YES**
- press **<---** to return to main Menu

How to display the current patch

At any position in any menu item :

- press **INFO**
- press + or - to view the addresses
- press **INFO** or wait 3 seconds

DMX address zero

If a dimmer address is set to 0, then that dimmer will not respond to DMX. It will still respond to other inputs such as Analogue input, Memory Play, or remote control using Special 1, Special 3 and Special 4.

Example of application: see 'How will the Memories combine with DMX'.

Note: the "View Patch" menu is identical to the "Edit Patch" menu, but only permits to view the dimmer addresses, but not to modify them.

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Individual Dimmer Test

This function is included in Menus 1 and 2.

With the Test function you can select one of the dimmers and set it to a preset level of 50% or at a level of your choice.

The Test mode only affects the dimmer under test. DMX and Analogue inputs will be discarded for that dimmer, while other dimmers in the unit will not be affected.

To restore normal operation (control via DMX and/or Analogue inputs), leave the Test mode.

Example 1 : to test dimmer 3 at 60%

- select Menu 2, as indicated above
- press + or - until
- press **YES**
- the display shows (for example)
- press + until
- press **YES**
- the display shows (for example)

- press + or - until

Test a Dim ?

Test 1 : 50% and N° of the dimmer blinks

Test 3 : 50%

Test 3 : 50% dimmer 3 is now on, at 50%
(Dimmer ON when level blinks)

Test 3 : 60% the level increases to 60%

To leave the Test mode

- press <---
- the display shows (for example)
- press <---

Test 3 : 60% the N° of the dimmer blinks

Test a Dim ?

Example 2 : test all dimmers, one after the other, at 50%

If you wish to test the next dimmer at the same level, then simply depress **YES** twice

- select Menu 2, as indicated above
- press + or - until
- press **YES**
- the display shows (for example)
- press **YES**
- the display shows

- press + or - until
- press **YES YES**
- the display shows
- depress **YES YES**
- the display shows
etc.

Test a Dim ?

Test 1 : 60 % the N° of the dimmer blinks

Test 1 : 60 % dimmer 1 is now on, at 60%
(The dimmer is ON when level blinks)

Test 1 : 50 % dimmer 1 is now on, at 50%

Test 2 : 50 % dimmer 2 is now on, at 50%

Test 3 : 50 % dimmer 3 is now on, at 50%

How to view the DMX address of the dimmer under test?

- press **INFO** to view the address

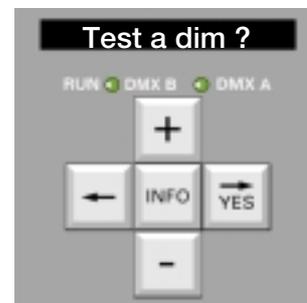
To end the Test mode and to restore normal operation

- press <---
 - the display shows (for example)
 - press <---
- Test 4 : 50 %** the N° of the dimmer blinks
Test a Dim ?

Test and Patch

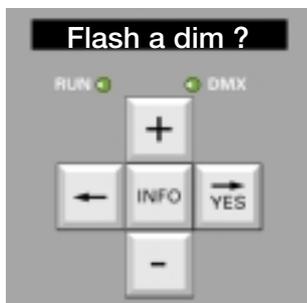
This function was introduced in dimmer firmware v. 3.02. It is included in menus 1 and 2.

It combines the earlier **Test a Dim** function with a direct access to the DMX address of the dimmer-under-test. If Test shows an error in the DMX patching, you can immediately modify the DMX address and proceed with the Test.



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Individual Dimmer Flash

This function is included in Menus 1 and 2.

With the Flash function you can select one of the dimmers and flash it continuously at a level of 50%. This is very useful for finding a dimmer in a rig.

The Flash Test mode only affects the dimmer under test. DMX and Analogue inputs will be discarded for that dimmer. The other dimmers in the same EURORACK, MEMOPACK, MEMORACK will not be affected.

To restore normal operation (control via DMX and/or Analogue inputs), leave the Flash mode.

Example 1 : flash all dimmers, one after the other.

If you wish to flash the next dimmer then simply press **YES** twice.

- select Menu 2, as indicated above
- press + or - until
- press **YES**
- the display shows (for example)
- press **YES**
- the display shows
- press **YES YES**
- the display shows
- press **YES YES**
- the display shows

Flash a Dim ?

Flash 1 : 50 % the number flashes

Flash 1 : 50 % dimmer 1 flashes at 50%

Flash 2 : 50 % dimmer 2 flashes at 50%

Flash 3 : 50 % dimmer 3 flashes at 50%

To end the Flash mode and to restore normal operation

- press <---
- the display shows (for example)
- press <---

Flash 3 : 50 % the number flashes

Flash a Dim ?

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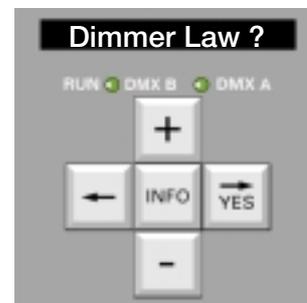
Dimmer Law

The dimmer law gives the relation between the output voltage (Volts rms, usually in % of the supply voltage), and the control signal (usually given in %).

The Linear law, for example, will give an output voltage which is linear with (proportional to) the control signal. If the control level is 70%, then the output (rms) voltage will be 70% of the supply voltage.

Your dimmer stores 10 dimmer laws, which can be set for each dimmer individually:

Dimmer law	Display
• linear rms voltage	Lin
• linear rms to 120V	120V
• fluorescent lighting	Fluo
• linear rms with 5% preheat level	Preh
• square law	Sqr.
• TV	TV
• BBC	BBC
• non-dim (on at 15 %, off at 12 %)	OnOf
• TV 2	TV2
• customer-defined law	Cust



Important notes on dimmer laws

- a dimmer which is set to the Non-dim (On/Off) law will not dim: the output will be On when the control level rises above 15 %. The dimmer channel will remain on until the control level drops below 12 % (hysteresis).
- the 120 V law will give an output varying linearly between off (0%) and 120 Vrms (100%) for a 230 V mains supply. For operation at 240 V: also set an individual factor of 96 %. Please note that even though the rms voltage is reduced by the dimmer, the luminaire is still connected to the 230 V mains. You must verify that isolation, lamp socket, cable etc... are suitable for connection to a 230 V supply.
- a 120 V law should preferably be set in the dimmers rather than in the lighting control desk, to avoid damage to bulbs in the event of DMX data transmission problems.
- use of a 120 V dimmer law reduces the load - expressed in kW - you can connect to the dimmer. A dimmer with a rated current of 13 A (3 kW at 230 V), is suitable for approx. 1,6 kW at 120 V output.

How to view the DMX address while programming the dimmer law?

- press **INFO** to view the address
- press **INFO** or wait 3 seconds

How to verify whether individual dimmer laws have been set ?

- select Menu 1 or 2, as indicated above
- press **+ or -** until **Dimmer Law ?**
- press **YES**
- if the display shows **Dim All : mix** then at least one dimmer has a different setting
- if the display shows **Dim All : Lin** then all dimmers are set to the same law, Linear.

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Selection or reset of the dimmer law, valid for all dimmers

This function is included in Menus 1 and 2.

The dimmer law can be selected simultaneously for all the dimmers, by means of a single operation. This will clear any previous individual dimmer law settings. The most frequently used law is Linear.

Example : to set all dimmers to Linear:

- select Menu 2, as indicated above
- press + or - until
- press **YES**
- the display shows (for example)
- press **YES**
- press + or - until
- press **YES**
- the display returns to the main Menu

Dimmer Law ?

Dim All : mix and **All** blinks

Dim All : Lin

Dimmer Law ?

Selection of the dimmer law, per dimmer

This function is included in Menus 1 and 2.

The dimmer law can be selected for each dimmer individually, to match the different types of loads that may be connected to a dimmer.

Example : all dimmers are now set to Lin (see example above). You now wish to set No.2 to On/Off, and No. 5 to Fluo.

- select Menu 2, as indicated above
- press + or - until
- press **YES**
- the display shows
- press +
- the display shows
- press + until
- press **YES**
- press + or - until
- press **YES**
- we now proceed with dimmer 5 :
- press + or - until
- press **YES**
- press + or - until
- press **YES**

Dimmer Law ?

Dim All : Lin and **All** blinks

Dim 1 : Lin

Dim 2 : Lin

Dim 2 : OnOf

dimmer 2 has now been set to **On/Off**.

Dim 5 : Lin

Dim 5 : Fluo

dimmer 5 has now been set to **Fluo**.

To return to the main Menu:

- press <---

Dimmer Law ?

How to view the DMX address while programming the dimmer law?

- press **INFO** to view the address
- press **INFO** or wait 3 seconds

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Custom dimmer law

You can easily program a custom dimmer law on site, without external equipment. It can also be programmed or downloaded from a PC with ADB's Dimmer Manager software, which can store a library of dimmer laws.

Application example: if new dimmers are used in combination with existing analogue dimmers, then the old dimmer law can be programmed in the new dimmers, so that all dimmers in the system have a similar response. Please note that a 'true-rms' voltmeter is required for a correct measurement of dimmer output voltages.

You define the new dimmer law by entering 25 values, for various control levels between 0 (0%) and 255 (100%). The dimmer will automatically calculate the other values by interpolation.

To achieve maximum precision, the 25 predefined control levels are described as values from 0 to 255. The matching rounded off values in % are shown between brackets.

The predefined control levels are

0 (0%); 3 (1%); 5 (2%); 8 (3%); 10 (4%); 13 (5%); and then increments of 5% up to Full: 25 (10%); 38 (15%); 51 (20%); 64 (25%); 76 (30%); 89 (35%); 102 (40%); 115 (45%); 127 (50%); 140 (55%); 153 (60%); 166 (65%); 178 (70%); 191 (75%); 204 (80%); 217 (85%); 229 (90%); 242 (95%); 255 (100%).

To achieve maximum precision, you must enter the 25 output levels as values on a scale from 0 to 255. If you set the same value for 'In' as for 'Out', then the resulting law is the Linear law.

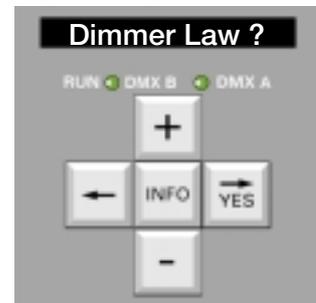
- select Menu 1 or 2, as indicated above
- press **+** or **-** until **Dimmer Law ?**
- press **YES**
- the display shows **Dim All : Lin** and **All** blinks
- press **-**
- the display shows **Edit Cust. Law** and **Edit** blinks
- press **YES**
- the display shows **in:0 -> out:0** and the input value blinks
- press **+** to select one of the predefined input levels
- press **YES**
- the display shows **in:0 -> out:0** and output value blinks
- press **+** or **-** to enter the required output level
- press **YES**
- press **+** to select an other predefined input level
- press **YES**
- press **+** or **-** to enter the required output level
- press **YES**
- etc.
- the display shows **Edit Cust. Law** and **Edit** blinks

To return to the main Menu:

- press **<---** **Dimmer Law ?**

Graphical representation on a PC

The custom dimmer law can also be edited by means of the Dimmer Manager software for PC. This includes a graphical representation of the dimmer laws, and a library of dimmer laws stored in the PC. The graphical user interface includes a visual comparison between the custom law you're editing and an other dimmer law.



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Clear

The **Clear** function returns all or part of the patch, loads, dimmer laws, multiplication factors and memories to the factory default settings. This is particularly useful for dry rental and touring dimmers where the patch etc. are likely to change and need resetting on a regular basis.

Selection of Clear functions

This function is included in Menu 1 and 2.

The patch, dimmer laws, multiplication factors, memories, and reference loads can be reset individually, or all at once by a single operation. (A or B for EURODIM 3)

Example: Clear Patch: to restore the patch to a one-to-one factory default:

- press + or - until **Clear ?**
- press **YES**
- the display shows **All**
- press + or - until **Patch ?**
- press **YES** the display shows ... **Cleared !**

Example: Clear Laws: to restore the linear law for all the dimmers:

- press + or - until **Clear ?**
- press **YES**
- the display shows **All**
- press + or - until **Laws ?**
- press **YES** the display shows ... **Cleared !**

Note: this will not clear the values in the definition of the Custom Law.

Example: Clear Factors: to restore a multiplication factor of 100% for all the dimmers:

- press + or - until **Clear ?**
- press **YES**
- the display shows **All**
- press + or - until **Factors ?**
- press **YES** the display shows ... **Cleared !**

Example: Clear Cues: to delete all the memories (levels and time settings):

- press + or - until **Clear ?**
- press **YES**
- the display shows **All**
- press + or - until **Cues ?**
- press **YES** the display shows ... **Cleared !**

Example: Clear Loads: to delete all the reference values for the loads:

- press + or - until **Clear ?**
- press **YES**
- the display shows **All**
- press + or - until **Loads ?**
- press **YES** the display shows ... **Cleared !**

Example: Clear All: to restore the factory default settings for all of the above:

- select Menu 1 or 2, as indicated above
- press + or - until **Clear ?**
- press **YES**
- the display shows **All**
- press **YES** the display shows ... **Cleared !**

Note: this Clear All is far less comprehensive than in earlier firmware versions. For a comprehensive clear see ClearCONFIG in the Maintenance Menu Level 3.

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

Scan, Learn, and View Loads (*)

Scan Loads, Learn Loads and **View Loads** are optional Diagnostic tools for checking the connected load on each dimmer in the pack or rack.

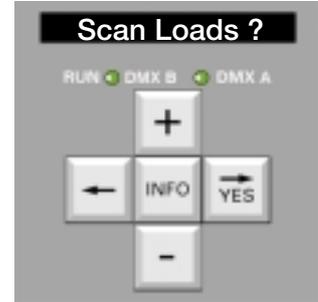
Learn Loads tests the dimmers, measures the load connected, and will memorize that load as a reference value for future comparison. Learn Loads is performed on a rig known to be OK.

Scan Loads tests the dimmers, measures the connected load, and compares it with the reference value.

View Loads is a display menu, showing the results of the latest Scan Loads test, and load errors i.e. differences between the latest values and the reference values.

All the dimmers in the pack can be scanned sequentially and automatically, or a dimmer can be individually scanned. During scanning the dimmers are either turned off, or faded up to 50%. Other control levels (DMX, Memories, Analogue) are ignored during scanning. The connected load is displayed when the scan is complete.

When the Diagnostics option is not installed, Scan Loads will run a Test Chaser through the dimmer unit, without measurement of load. The display will then show messages **kW NotAvail..** This Test Chaser will set all dimmers to Off and will fade up each dimmer in turn to 50%.



Selection of Scan Loads

This function is included in Menu 2.

Scan All sequentially tests each dimmer in the unit and calculates its connected load. If any connected load is different from a previously learned load, the dimmer load will be flagged as an error. This display can be used to help identify blown lamps, etc.

Example

The ease of use is best described with a practical example. Let us assume a portable dimmer MEMOPACK 15 XT - 3 x 5 kW with

dimmer No. 1	connected load: 6 x 500 W
dimmer No. 2	connected load: no load is connected
dimmer No. 3	connected load: 6 x 1 kW

To sequentially scan the loads of all dimmers in the unit

- select Menu 2, as indicated above
- press **+ or -** until **Scan Loads ?**
- press **YES**
- the display shows **Scan All** and **All** blinks
- press **YES**
- the display shows the level for the 1st dimmer **1: ... % (...)**
- followed by the result for the 1st dimmer **1: 3 kW**
- then automatically for the next dimmer **2: No Load**
- and so on... **3: Overload**
- then the display returns to the main menu **Scan Loads ?**

To review all the results, without affecting the output on the stage

- press **+ or -** until **View Loads ?**
- press **YES**
- the display shows **1: 3 kW**
- press **YES or +** **2: No Load**
- press **YES or +** **3: Overload**
- then the display returns to the main menu **View Loads ?**

The Overload in our example is an excess of 1 kW for dimmer No. 3. You correct that by disconnecting one of the 1 kW luminaires. After correcting the Overload, you can re-do a Scan Loads on dimmer No. 3 only (see next page).

(*) not available on EURORACK 50+

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Practical example (continued)

To scan the load of one dimmer in the unit:

- select Menu 2, as indicated above
- press + or - until
- press YES
- the display shows
- press + or - until
- press YES
- the display shows

Scan Loads ?

Scan All and **All** blinks

Scan Load 3 ?

3: 5kW

Our example: as all the loads are now correct (3kW, No Load, 5 kW) you can do a Learn Loads for all the dimmers in the unit. This will store the correct load values in the dimmer unit, for later reference.

To sequentially scan and learn the loads of all dimmers in the unit

- select Menu 2, as indicated above
- press + or - until
- press YES
- the display may show
- press YES
- can be erased
- or press <--
- to keep the old reference values
- the display shows
- press YES
- the display shows

Learn Loads ?

Erase ref.?

to confirm that old reference values

to keep the old reference values

Learn All ?

1: 3 kW

2: No Load

3: 5 kW

These learned loads are stored and will be referenced during the next Scan Loads test.

How can I detect blown bulbs or load changes

The reference loads have been 'learned' by the dimmer unit. Let us now introduce two load errors:

dimmer No. 1	reference: 6 x 500 W	let's remove 1 x 500 W
dimmer No. 2	reference: no load	let's add 500 W
dimmer No. 3	reference: 5 x 1000 W	unchanged

Scan Loads will detect these changes

- press + or - until
- press YES
- the display shows
- press YES
- the display shows
- then
- then
- then the display returns to the main menu

Scan Loads ?

Scan All and **All** blinks

1: 2.5 kW -

2: 500 W +

3: 5 kW =

Scan Loads ?

The - sign indicates that the 2.5 kW load found is lower than the reference value.
The + sign indicates that the 500 W load found is higher than the reference value.
The = sign indicates that the 5 kW load found is equal to the reference value.
The absence of - or + or = indicates that no reference value is known for that dimmer.

You can review the results at your convenience, without affecting the lighting on the stage:

- press + or - until
- press YES
- the display shows
- press YES or +
- press YES or +
- press <-- to return to the main menu

View Loads ?

1: 2.5 kW -

2: 500 W +

3: 5 kW =

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Scan Loads on a short-circuit

If there is a short-circuit in the output wiring or in the luminaire, then Scan Loads will detect and report this without blowing the fuse or circuit-breaker (mcb) of that dimmer.

Example for dimmer No. 3:

If there is a short on dimmer No. 3:

- select Menu 2, as indicated above
- press **+** or - until the display shows **YES**
- press **+** or - until the display shows **YES**
- the display shows and the load after you have corrected the fault.

Scan Loads ?

Scan All and **All** blinks
Scan Load 3 ? and **3** blinks

3: SHORT!



How to test a lighting rig without blowing fuses

After rigging new lights, it is suggested to perform the very first rig test by means of the **Scan Loads** function rather than with the lighting control desk or the **Test a Dim** and **Flash a Dim** functions. A preliminary rig test with Scan Loads will detect shorts and can prevent fuse tripping.

Scan Loads and non-dim dimmers

The non-dim dimmer law is selected when the load should not be dimmed.

Scan Loads and Learn Loads will therefore not test dimmers which are set to the Non-dim law in the dimmer unit.

If for example dimmer No. 2 is set to the non-dim law, then during the Scan the display will show **2: Non Dim**.

Scan Loads and a thyristor failure

The MEMOPACK, MEMORACK, EURORACK, EURODIM 3 family of digital dimmers has an excellent track record for reliability. In the very rare event of a thyristor failure (shorted thyristor), the luminaires connected to that dimmer will stay permanently On.

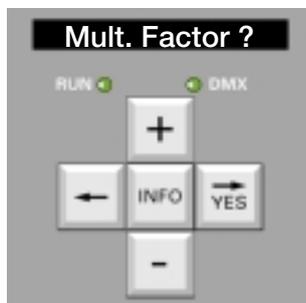
Scan Loads will also detect and report this failure, and will show a message **Thyr. failure**.

A thyristor failure requires an intervention at the dimmer:

- set the dimmer fuse or circuit-breaker (mcb) in the 0/Off position
- have the dimmer unit serviced
- replace an EURODIM 3 module

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Multiplication Factor

Application examples of the reduction factor

The reduction factor in the dimmer cabinet is similar to the multiplier in a proportional patch: if the lighting control desk transmits a DMX level of e.g. 80%, then the actual dimmer level will be the DMX level multiplied by the factor in the dimmer.

Example : the factor in the dimmer is set at 90%
 the lighting control desk transmits a DMX level of 80%
 the actual dimmer level will be 80% x 90% = 72%

This multiplication in the dimmer is very useful as it avoids tying up the patch in the desk to solve problems that are "not artistic" and/or permanent, i.e. related to the physical lay-out of the studio or theatre.

These "permanent" settings, stored in the dimmer as a reduction factor, will not be lost when the patch is deleted in the lighting desk.

The reduction factor can have any value between 0% and 100% (symbol: FF%).

Application No.1 : increase the useful life of the lamps
The factor can be set at e.g. 98% for all dimmers.

Application No.2 : use of 220 V lamps on a 240 V mains
The factor can be set at 91%, for those dimmers that require it.
Note: for 120 V lamps on 220 V mains there is also dimmer law 120 V.

Application No.3 : voltage drop on the outgoing line
In some installations, the mains supply transformer may be set to a boosted output voltage, to try to compensate for the voltage drop in the longest output cables. In that case the luminaires connected to outlets very close to the dimmer room will suffer a voltage which may be too high for their lamps. Now you can set an "electronic" factor for all the dimmers with short output cables. By setting this permanent factor in the dimmer, you make it independent of any "artistic" factor in the patch of the lighting control desk.

Application No.4 : to disable a dimmer. If removing the fuse is not a satisfactory solution, you can also set a factor 0% for the dimmer.

Selection or reset of the factor, valid for all dimmers

This function is included in Menu 2.

The factor can be selected simultaneously for all the dimmers, by means of a single operation. This will clear any previous individual factor settings.

The most frequently used factor is 100 % (FF%).

Example : to set the factor for all dimmers to 100 % :

- select Menu 2, as indicated above
- press + or - until **Mult. Factor ?**
- press **YES**
- the display shows (for example) **Fact All : mix and All blinks**
- press **YES**
- press + or - until **Fact All : FF%**
- press **YES**
- the display returns to the main Menu **Mult. Factor ?**

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How to verify whether individual factors have been set ?

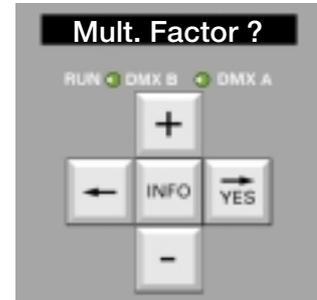
- select Menu 2, as indicated above
- press + or - until
- press **YES**
- if the display shows

- if the display shows

Mult. Factor ?

Fact All : mix then at least one dimmer has a different setting

Fact All : FF% then all dimmers are set to FF% (100 %).



Selection of the factor, per dimmer

This function is included in Menu 2.

The factor can be selected for each dimmer individually.

Example : all dimmers are now set to FF% (100 %) (see example above).
You now wish to set the factor of No. 2 to 95 %, and No. 5 to 80 %.

- select Menu 2, as indicated above
- press + or - until
- press **YES**
- the display shows
- press +
- the display shows
- press + until
- press **YES**
- press + or - until
- press **YES**
- we now proceed with dimmer 5 :
- press + or - until
- press **YES**
- press + or - until
- press **YES**

Mult. Factor ?

Fact All : FF% and **All** blinks

Fact 1 : FF% and dimmer N° blinks

Fact 2 : FF%

Fact 2 : 95%
dimmer 2 has now been set to **95 %**.

Fact 5 : FF% and dimmer N° blinks

Fact 5 : 80%
dimmer 5 has now been set to **80 %**.

To return to the main Menu:

- press <---

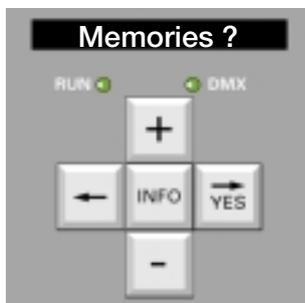
Mult. Factor ?

How to view the DMX address while programming the factor?

- press **INFO** to view the address
- press **INFO** or wait 3 seconds

Programming Digital Dimmers

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Memorised Dimmer Cues

Your dimmer can permanently memorise up to 20 lighting cues (memories), with individual level settings for every dimmer, wait and fade times.

How will the Memories combine with DMX ?

You can select how Play Memory will coexist with the control inputs (DMX, and Analogue 0/+10 V if applicable).

HTP : Highest-Takes-Precedence between the control inputs and the local memories.
Masked : during Play Memory the control inputs are discarded.

Application example: house lights

The house-lights are controlled by the local Memories, which contain various presets for the house-lights. They can be recalled even when the main desk is not accessible or switched off. The house-lights can also be controlled by the main control desk, via DMX.

Setting : DMX and Memories: HTP

Application example: same dimmers for club and stage

A club is equipped with 30 dimmers:

- 25 dimmers are wired to the stage area
- 5 dimmers are wired for the lighting of the bar area.

Up to 19 'atmospheres' can be programmed, some can include the stage area. Push-button panels wired in parallel: behind the bar, near the stage, and in the 'control booth'. DMX can be mixed with the memories. During a show, recall a memory which lights the bar area only. The DMX desk takes care of the stage.

Application example: shared dimmer unit

One EURORACK or EURODIM 3 covers two separate and independent areas: some dimmers are wired to the foyer, for the architectural lighting. Other dimmers of the same EURORACK are wired to the stage. Because stage and foyer operate independently, Memory Playing should not affect the stage, and DMX should not affect the foyer.

Setting : DMX and Memories: HTP

The various presets for the foyer are stored in the local memories; in all Memories, the levels for the Stage dimmers should be at 0%. The DMX address of all the foyer dimmers should be set to 0; they will not respond to the DMX desk for the Stage.

Application example: basic back-up for the lighting console

Local memories are used as a back-up for the DMX control desk. When the desk operates incorrectly or fails altogether, local memories are played.

The last valid DMX message should be faded out and a memory should fade in.

Setting : DMX masked.

Note playing Cue #0, the priority cue, always masks the other inputs. See 'Priority cue'.
The selection HTP/Masked applies to cues 1 through 19.

How to set "DMX and Memories : HTP"

- select Menu level 2, as indicated above
- press + or - until **Memories ?**
- press **YES**
- press + or - until **Prior Mem/DMX**
- press **YES**
- press + or - until **DMX & Mem.: HTP**
- press **YES**
- press ← to return to the main Menu

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How to set "Memories replace DMX"

- select Menu level 2, as indicated above
- press + or - until **Memories ?**
- press **YES**
- press + or - until **Prior Mem/DMX?**
- press **YES**
- press + or - until **DMX: masked**
- press **YES**
- press <— to return to the main Menu



Priority Cue 0

The EURORACK, MEMOPACK, MEMORACK and EURODIM 3 family of digital dimmers can store 20 memories, including a Priority Cue, Cue #0.

When playing Cue #0, DMX is always masked. Cue #0 always has priority over DMX and analogue, if applicable. Cue #0 is not included in the Memory Chaser, nor in a Next Cue sequence.

Application - example N° 1

The DMX control desk fails, and you do not want to keep its last DMX message on the stage. By calling Cue #0 you will fade out this last DMX message. See also 'How will the memories combine with DMX'.

Application - example N° 2

Cue #0 is similar to a 'panic' cue, which provides lighting conditions required for the evacuation of the premises.

Application - example N° 3

Some installations have an emergency power source, which can supply a limited power to the lighting system. You don't want this to be exceeded, so you'll need to mask DMX to prevent overloading the emergency power source. Set the levels in the 'Priority Cue No. 0' cue to stay within the power limits of the emergency source.

To Record a cue, using the front panel keys

The first way to record a cue, is to use your lighting control desk (DMX and/or Analogue) to set the levels of the dimmers. The Record function of the dimmer will then make a snapshot, and the levels will be stored.

Example : to record into cue N° 2

- select Menu 2, as indicated above
- press + or - until **Memories ?**
- press **YES**
- the display shows **Play Mem ?** and **Play** blinks
- press + until **Record Mem ?** and **Record** blinks
- press **YES**
- press + until **Rec.Mem 2** to select memory N°
- press **YES**
- the display shows **Rec. M 2 : wait** for two seconds to confirm that the dimmer levels were recorded.
- the display returns to the main Menu **Memories ?**

To Record a cue, using remote control pushbuttons

See "Analogue Input Mode", Special 3 or Special 4. Or see NETBUS, the Remote Dimmer Controller.

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To display the contents of the cue

- select Menu 2, as indicated above
- press + or - until
- press **YES**
- the display shows
- press + until
- press **YES**
- press +
- press **YES**
- the display shows
- press **YES**
- the display shows the level for dimmer 1 level
- press +
- the display shows the level for dimmer 2
- press +
- the display shows the level for dimmer 3
- press <---
- the display shows
- press +
- the display shows the fade time
- press +
- the display shows the wait time
- press <--- 3 times
- the display returns to the main Menu

Memories

Play Mem ? and **Play** blinks
Edit Mem ? and **Edit** blinks

to select the cue number

Dim 1 : ...% and **Dim** blinks
to view the dimmer levels

Dim 1 : xx % where xx is the current

Dim 2 : xx %

Dim 3 : xx %

Dim.xx : xx% and **Dim** blinks

Fade : xx m xx s

Wait : xx m xx s

Memories ?

To edit the dimmer levels in a cue

You can create a lighting cue directly on the dimmer, without a lighting control desk.

You can also modify a lighting cue which is currently stored in your dimmer.

You can see the effect of the adjustment that you make: in the **Edit mode** the lighting levels are visible on the stage. In the **Edit mode** the control inputs (DMX and/or Analogue) are temporarily discarded, they do not influence the dimmer levels.

Example : all the current levels are 0%, and you would like to create a new cue, N° 3, which uses three dimmers at different levels:

- dimmer 2 at 20%
- dimmer 4 at 60%
- dimmer 5 at 80%
- the other dimmers should remain at 0%

- select Menu 2, as indicated above
- press + or - until
- press **YES**
- the display shows
- press + until
- press **YES**
- the display shows
- press + until
- the display shows
- press **YES**
- the display shows

Memories ?

Play Mem ? and **Play** blinks
Edit Mem ? and **Edit** blinks

Edit Mem 1 and memory N° blinks
Edit Mem 3

Dim 1 : 0 % and **Dim** blinks

Dim 1 : 0 % which tells us that in the current cue, the level of dimmer 1 is 0%.

- press + and then **YES**
- the display shows
- we want to increase the level of dimmer 2 to 20%

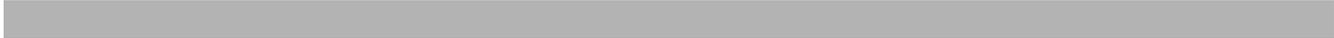
Dim 2 : 0 % the current level blinks

- press + or - until
- press **YES**

Dim 2 : 20 % the level blinks

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- the display shows
 - press **+** and then **YES**
 - the display shows
 - we want to bring the level of dimmer 4 to 60%
 - press **+** or - until
 - press **YES**
 - the display shows
 - press **YES**
 - we want to bring the level of dimmer 5 to 80%
 - press **+** or - until
 - press **YES**
 - the display shows
 - press **<---**
 - the display shows
 - or press **+** or -
 - or press **<---**
 - or press **<--- <--- <---**
- Dim 3 : 0 %** the dimmer N° blinks
 - Dim 4 : 0 %** the level blinks
 - Dim 4 : 60 %** the level blinks
 - Dim 5 : 0 %** the dimmer N° blinks
 - Dim 5 : 80 %** the level blinks
 - Dim 6 : 0 %**
 - Dim 1 : 0 %** and **Dim** blinks to display the **Fade** and **Wait** times to edit an other memory to return to the main Menu **Memories ?**



Editing the Wait and Fade Times is described in a separate paragraph.

To play-back a cue

This function is included in Menu 2. Any cue stored in memory can be played-back at any moment by means of the Play function.

- select Menu 2, as indicated above
 - press **+** or - until
 - press **YES**
 - the display shows
 - press **YES**
 - the display shows
 - press **+** to select the memory (must be preceded by the # symbol)
 - press **YES**
 - the display shows a sequence
 - followed by
- Memories ?**
 - Play Mem ?**
 - Play Mem 1**
 - Fading ---> Mem # . .** during the fade
 - Playing Mem # . .** to confirm that the cue is played.

This message is continuously displayed, and informs you that the local memories contribute to the lighting levels.

How to fade from a cue to an other cue

You can fade from a cue to an other cue. Such crossfade is possible while playing a cue, as well as while a fade is still in progress. The crossfade is dipless.

Example:

Cue #2 is now playing, and you want to fade to Cue #4. The crossfade time will be the fadetime of Cue #4.

- display shows
 - press **+** or - until
 - press **YES**
 - the display shows followed by
- Playing Mem. # 2**
 - PI # 2; Go # 4?** and the destination # blinks to start the crossfade
 - Fading -> Mem # 4**
 - Playing Mem. # 4**

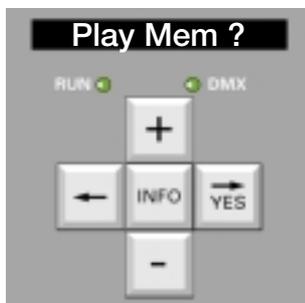
Example:

Cue #2 is now fading up, and you want to fade to Cue #4.

- display shows
 - press **+** or - until
 - press **YES**
 - the display shows followed by
- Fading Mem. # 2**
 - F-># 2; Go # 4?** and the destination # blinks to start the crossfade
 - Fading -> Mem # 4**
 - Playing Mem. # 4**

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To stop play-back and resume normal operation

- press <---
- display shows + and YES
- or press <---

and to return to the main menu

At # ...; Go # ...? and the destination N° blink to select an other memory to resume normal operation (fade to DMX in 5 s)

Memories ?

Automatic play-back of a cue at power-up

If the mains supply was switched off while in the **mem playing** mode, then the dimmer will automatically resume that **mem playing** mode when it is switched on again. The **mem playing** message is continuously displayed, and informs you that the local memories contribute to the lighting levels.

Application example :

this function is very useful for stand-alone operation without control desk, such as when lighting a display or an exhibition booth. The dimmer is set to the Memo Play mode and the user only has to switch the power supply on and off. The dimmer will automatically play the levels stored in the memory.

Automatic play of memory chaser at power-up

Similar to Automatic play-back of a cue at power-up.

To erase one single cue

This function is included in Menu 2.

Any cue stored in memory can be erased by means of the Erase function.

Example : you wish to erase Memory N° 3

- select Menu 2, as indicated above
- press + or - until YES
- the display shows + until YES
- press + until YES
- the display shows + until YES
- press + until YES
- the display shows

- press <---

Memories ?

Play Mem ? and **Play** blinks
Erase a Mem ? and **Erase** blinks

Erase Mem # xx and **xx** blinks
Erase Mem # 3 and **3** blinks

Mem 3 erased

for 3 seconds to confirm that the cue is erased.
to return to main menu

All cues can be erased in one operation by mean of the "**Clear Cues**" function in Menu Level 2.

Example fade and wait times for the memories.

Fade and wait times are expressed in (minutes) m . and (seconds) s.

The fade time is used for the fade-in of the cue.

When fading from cue to cue, see diagram below.

The wait (hold) is only used in the "Memory Chaser" mode (see relevant paragraph).

Fade and wait times can be set between 0 m 0 s and 99 m 59 s.

Wait time can be set to infinite, to make a non-looped sequence.

The default values are 0m 0 s for Wait, and 0 m 5 s for fade.

Programming Digital Dimmers

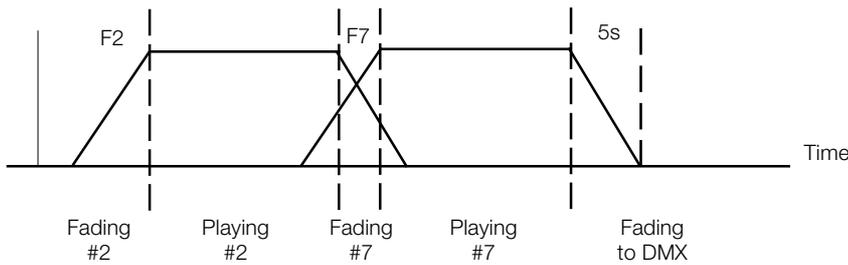
MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

Manual play-back of memories

Example : You wish to play Memory # 2. Fade time : F2
 After some time you wish to play Memory # 7. Cross-fade time : F7
 Then you wish to resume normal operation (back to DMX control).
 Cross-fade time : 5s
 The sequence of events is as follows :

- select the memory
- press **YES**
- the display shows followed by
- press **<--- or + or -**
- press **YES**
- the display shows followed by
- press **<--- <---**
- the display shows

Play Mem # 2
 to start the fade-in
Fading ---> Mem # 2
Playing Mem # 2
 to select the next cue # 7
Fading ---> Mem # 7
Playing Mem # 7
 to return to normal operation DMX
Fading ---> DMX
 fade time 5 s fixed



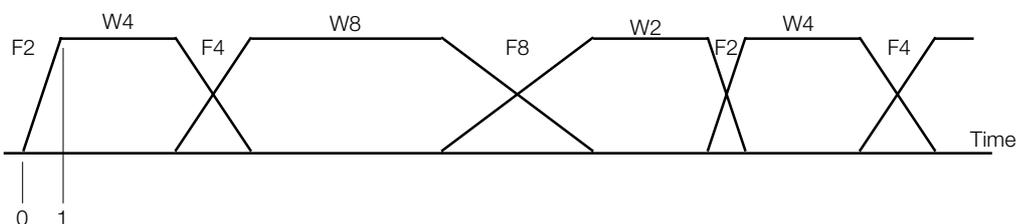
Note :

This example describes the sequence when the priority of memories and DMX is set to "DMX masked".
 Should the priority be set "HTP between DMX and memories", then DMX will be active all the time.

Automatic chaser through the memories

The "Memory Chaser" creates a continuous loop through the memories.
 You can start the chaser at any memory number.
 Only cues preceded by a # symbol, i.e. existing cues, are included in the "Memory Chaser" loop.
 Priority cue No. 0 is never included in the chaser.
 The fade and wait times are defined on the following example :

- **Cue # 2** **Wait 3 s, fade 1 s**
- **Cue # 4** **Wait 5 s, fade 2 s**
- **Cue # 8** **Wait 6 s, fade 4 s**
- in this example, the memory chaser is started at **Cue # 2**



Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3



How to make a non-looped chaser

The Memory Chaser is usually looped, i.e. the cue with the highest number is followed by the cue with the lowest number.

If you wish the chaser to stop after the last cue then you should set Wait time = Infinite for the first cue. See example below. You can actually set the chaser to stop after any cue: set the Wait time for the next cue to Infinite.

For examples of applications, please refer to 'Analogue inputs - Special 3 / Special 4'.

Example :

The first existing cue is #2, the last existing cue is #15. If you set the Wait time of Cue #2 to Infinite, then the Memory Chaser will not loop back after Cue #15 and will stay on Cue #15.

- select Menu Level 2, as indicated above
- press + or - until **Memories ?**
- press **YES**
- press + or - until **Edit Mem.?**
- press **YES**
- press + or - until **Edit Mem # 2**
- press **YES**
- display shows **Dim 1:..%** and **Dim** blinks
- press + or - until **Wait: 0 m 0 s** and **Wait** blinks
- press **YES**
- the display shows **Wait: 0 m 0 s** and **0 m** blinks
- press - to get **Wait:infinite** and **Infinite** blinks
- press **YES** to confirm Infinite Wait time
- press ← ← ← to return to the main Menu

In our example, the existing memories will be played in sequence, and Cue #15 will be played indefinitely.

To leave this mode:

- or re-start the chaser, at any cue, using + or - and then **YES**
- or press ← ← to fade to DMX and return to the main Menu

Note: to get 'lights out' after the sequence of memories has been played, you can edit cue #19 and set all its dimmer levels to 0%.

To start the "Memory Chaser"

- select Menu 2, as indicated above
- press + or - until **Memories ?**
- press **YES**
- the display shows **Play Mem ?** and **Play** blinks
- press + until **Chaser Mem ?** and **Chaser** blinks
- press **YES**
- the display shows **Start Mem # . .**
- press + or - to select the starting cue of the chaser
- press **YES** to start the chaser

You can follow the progress of the chaser on the display :

- the display shows a sequence **Chaser Fading ---> Mem # . .** during crossfades
- followed by **Chaser Playing Mem # . .**

To pause (freeze) the chaser

- the display shows **Chaser Fading ---> Mem # . .**
- or **Chaser Playing Mem # . .**
- press <--- to pause the chaser
- the display shows **At # . . ; Go # . . ?**
- or press **YES** to resume chaser operation
- or press + or - and then **YES** to resume at an other cue in the chaser
- or press <--- to fade to DMX

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To edit the Fade and Wait times of a cue

Example : all the current settings are at the default values :

- fade time 0 m . 5 s
- wait time 0 m . 0 s

For Memory # 3 you would like to set :

- select Menu 2, as indicated above
- press + or - until
- press YES
- the display shows
- press + until
- press YES
- the display shows

Memories ?

Play Mem ? and **Play** blinks

Edit Mem ? and **Edit** blinks

Edit Mem 1 and memory N° blinks

- press + until

Edit Mem 3

If the memory number is preceded by a # symbol, then the memory already exists.

- the display shows

Dim 1 : 0 % and **Dim** blinks

- press + until

Wait : 0m 0s (the current Wait time is 0 s)

- press YES

- press + until

Wait : 1m 0s and **1m** blinks

- press YES

- press + until

Wait : 1m 10s and **10s** blinks

- press YES

- the display shows

Fade : 0m 5 s (the current Fade time is 5 s)

- press YES

- press + until

Fade : 1m 5s and **1m** blinks

- press YES

- press + until

Fade : 1m 30s and **30s** blinks

- press YES

- press <---

to edit an other memory

- press <--- <--- <---

to return to the main Menu **Memories ?**



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EURODIM 3 with instant back-up electronics

Active processor selection

As an option a back up electronic processor may be installed duplicating the CPU. A three position switch performs CPU1/CPU2 selection.

Assuming an identical database and DMX input the result is an identical dimmers level output. The selector switch central position enable the use of a REMOTE control selector.

This REMOTE switch located e.g. in the control room change all EURODIM's active CPU in case of failure. The selected CPU display "it is active" once per 5 sec.

If the selector switch is in REMOTE and the external REMOTE control in neutral position, both CPU are working in parallel following HTP.

The CPU SELECT terminal is closed with the DMX entry in the contractor area on the DATA IN printed circuit board. Please refer to EURODIM 3 Installation Manual DMX input.



How to compare both CPU's data base

To ensure a compatible data base CPU's comparison is available in menu 2. Assuming a doubt about CPU1 content and the master CPU2.

- press + or - until **Compare Dbase ?**
 - press **Yes**
 - the display shows **Dbase Are** = if CPU1 and CPU2 content are =
 - the display shows **Dbase Not** = if any difference exist.
- In this case a prompt **Get Database ?** invite you to copy CPU2 in CPU1.

Important Notice

The used CPU gets the database from the second as a reference.

Example: CPU2 is a spare part and has to be updated from CPU1.

The used keyboard is CPU2 to perform a **Compare Dbase** with the answer **Dbase Not=** CPU2 issues **Get Database ?** , press **Yes**.

- The display shows **Are you sure ?**
- press **Yes** and the copy of CPU1 to CPU2 is done.

Programming Digital Dimmers

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EURODIM 3 Network Address

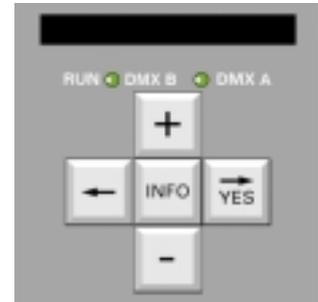
The network address is not affected by a **Get Dbase** but must be adapted in case of CPU replacement.

CPU1 and CPU2 Network address must be different but closed as possible to avoid any confusion. An even, odd numbering is a good practice.

Network address is locally programmable only.

EURODIM 3 DMX indication

The DMXA LED shows the DMX activity on the A input the second LED is a processor run and a DMXB indication.



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Architectural Applications



Introduction

The ADB family of digital dimmers - with the wall-mount EURORACK, the portable dimmer packs MEMOPACK, and the 19" mounted MEMORACK - has been designed for use for stage and TV studio lighting and in architectural applications. The dimmers can store up to 20 lighting cues (memories), providing lighting control without a lighting control desk. These lighting cues can be operated in several ways:

- with passive push-button stations
- with NETBUS Remote Dimmer Controllers
- with the Dimmer Manager PC software and graphical interface

Remote control by means of passive push-buttons

Several functions have been included for operation by remote normally-open push-buttons, without a control desk. This is a very cost-effective solution for small dimmer systems and for systems where dimmers are physically grouped. These functions use the analogue input connectors, so remote control with push-buttons is mutually exclusive with the classic analogue control 0/+10 V.

Remote control by means of NETBUS

NETBUS, the Remote Dimmer Controller, is fitted with the same push-buttons, and it sends instructions to all the dimmers over the digital Advanced Dimmer Network. NETBUS also displays status information about the dimmer units, and can remotely program dimmer parameters. Additional passive push-button stations can be connected to the NETBUS.

Remote control by means of a PC

A PC running the Dimmer Manager software provides additional memory management and dimmer control possibilities, and a graphical control environment.

Programming Digital Dimmers

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Push-button control without NETBUS

This part of the manual describes the operation when the dimmer is fitted with Analogue Input boards, and lighting levels can be controlled by means of passive push-buttons and is not compatible with the EURODIM 3.

Alternatively, you can control the dimmer unit by means of a NETBUS Remote Dimmer Controller. The NETBUS will control the dimmers over the Advanced Dimmer Network, ADB's serial communication network. In that case, please refer to the NETBUS part of this user manual.

What can I do with passive push-buttons?

Passive push-buttons provide a cost-effective and elegant solution for stand-alone dimmer control. They can be selected from the range of switches already used in the project, and are thus easily and elegantly be integrated in the global visual concept.

Interfacing to other management systems with 'closing contact outputs' is straightforward.

The possibilities are

- Special 1: passive push-buttons to fade individual dimmers up and down. The push-buttons replace a manual desk. Special 1 does not use the dimmer memories.
- Special 3: passive push-buttons give direct access to 20 memorised dimmer cues.
- Special 4: passive push-buttons give direct access to 17 memorised dimmer cues, as well as fade Up and Down of these memories. Also adds 'Start Memory Chaser'.
- Special 3 and Special 4 both include function keys like 'next cue' and 'record from DMX'

How to fade dimmers up or down with remote switches?

Application: this feature is ideal for situations where several control stations are required, or where a basic manual desk is too large or too complicated.

Requirement: the dimmer unit must be equipped with analogue inputs (option).

Remote control of the memories with push-buttons (Special 3 and 4)

Your EURORACK, MEMOPACK, and MEMORACK can be used with remote push-button panels, for architectural applications. In the modes of operation 'Special 3' and 'Special 4', cues can be called up by means of a simple normally-open low-voltage switch or contact.

Requirement: the dimmer unit must be equipped with analogue inputs (option).

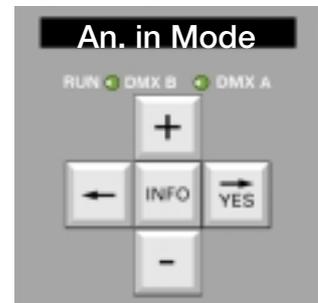
Which are the differences between Special 3 and Special 4

When set to **Analogue In: Special 3** it provides inputs for

- 20 push-buttons for direct access to all the cues
- a 'Record DMX' button
- a 'Fade to the next cue' button
- a 'Stop play-back of cue, back to DMX' button

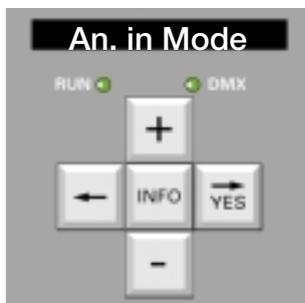
When set to **Analogue In: Special 4** it provides inputs for

- 17 push-buttons for direct access to cues 0 to 16
- a 'record DMX' button
- a 'fade to the next cue' button
- a 'stop play-back of cue, back to DMX' button
- a 'fade cue Down' button
- a 'fade cue Up' button
- a 'start the memory chaser' button



Programming Digital Dimmers

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Remote fading with push-button (Special 1)

Your EURORACK, MEMOPACK, MEMORACK can also be used with remote push-button panels, e.g. for basic architectural applications.

One of these modes is called 'Special 1'. When the dimmer unit is set to Special 1, each dimmer is controlled by a three-position push-button (up, steady and down).

All dimmers can be faded simultaneously by two "All" buttons.

This function requires the Analogue Input option, wired and set for Special 1 by means of menu Analogue Inp. mode.

Analogue Input Retrofit kits are available, their installation is described in a separate paragraph.

Special 1 - Operation

Pressing an "UP" switch will increase the "push-button input" level of the dimmer at a rate of approximately 10% per second, allowing fine setting of the dimmer levels.

Pressing the "All Up" switch will fade up all dimmers simultaneously.

Only one push-button should be pressed at a time.

To Enable the Remote Dimmer Fading

- select Menu 3, as described above
- press + or - until **An. in Mode ?**
- press **YES**
- press + or - until **Special 1**
- press **YES**
- the display returns to the main Menu **An. in Mode ?**

To Disable the Remote Dimmer Fading

- select Menu 3, as described above
- press + or - until **An. in Mode ?**
- press **YES**
- press + or - until **Muted / Absent**
- press **YES**
- the display returns to the main Menu **An. in Mode ?**

Multiple control sources

"Special 1" and "analogue 0/+10 V or 0/370 μ A control desk" are mutually exclusive. You can control the dimmer with DMX and Special 1 (highest takes precedence) or with DMX and an analogue desk (highest takes precedence).

NETBUS can be combined with "Special 1 - remote fading by means of pushbuttons". NETBUS can be combined with "control by analogue control desk".

Electrical connections : see "Installation Part"

Programming Digital Dimmers

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Memory control with push-buttons Special 3 : setting of the dimmer unit

Part One of the set-up includes installation of the necessary hardware, and perform some preliminary settings. This makes the dimmer 'ready for Special 3', but the push-buttons are not yet enabled. Part Two will enable Special 3 operation for the push-buttons.

Part One of the set-up :

- disconnect the dimmer unit from the mains
- install the analogue input board PCB1336 and the ribbon cable
- connect the ribbon cable to connector P3 (0/+10 V) on PCB1336
- on PCB1336: locate jumper W1; set it on pins 1 and 2
- on PCB1336: locate jumper W2; set it on pins 2 and 3 (or remove it)

Now we'll proceed with preliminary menu settings for Special 3.

- connect the dimmer unit to the mains
- select Menu Level 3, as described above
- press + or - until **An. in mode ?**
- press **YES**
- press + or - until **Special 3**
- press **YES**
- set **Menu Level 0** or **1** or **2**, as described above

You have now finished the preliminaries. You can easily verify these settings with View Analogue

- press + or - until **View Analog ?**
- press **YES**
- the display shows for 2 seconds the current setting of the analogue inputs; it should be **Special 3**
- the display then shows **An. in 1: 0 %**
- press + or - until **An. in 14: FF %**
this indicates that jumper W1 has been set on pins 1 and 2
- press + or - until **An. in xx: 0 %**
this indicates that jumper W2 has been removed
- press <--- to return to the main Menu.

Part Two will make the push-buttons operational.

Part Two: How to enable the remote push-buttons?

- press **INFO** for four seconds
- the display shows **Control?**
- press **YES**
- press + or - until **Control: by Sp.3**
- press **YES**
- the display shows **Sp.3 active** and will then show the events triggered by the Remote Push-buttons.

The RUN LED blinks with triple bursts : **Flash Flash Flash Pause**.

The unit is now ready to respond to the remote push-buttons.

How to see whether the push-buttons are enabled (Special 3)?

Observe the green RUN LED on the front panel

- if it blinks **Flash Pause Flash Pause...**, then Control is Local, the push-buttons are disabled
- if it blinks **Flash Flash Flash Pause...**, then Control is given to Remote Pushbuttons and Special 3

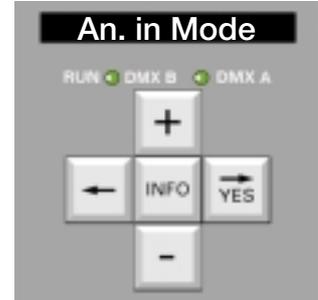
How to regain Local Control?

The keys + - <— and —> are disabled when **Control?** is set to **Control: by Sp.3**

This protects against tampering.

To regain Local Control:

- press **INFO** for four seconds
- the display shows **Control?**
- press **YES**
- press + or - until **Control: Local**
- press **YES**
- the display shows **RET. to Local** for 3 seconds



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Local control is now restored, **RUN** will blink Flash Pause Flash Pause...

The remote pushbuttons are named

Record - Fade to DMX - Play next cue - Cue 0 - Cue 1 - Cue 2 - ... - Cue 19

Please refer to the wiring diagrams for the exact connections.

Special 3 : how to record a cue created with DMX?

- you must be in **Control:by Sp.3.** the RUN LED blinks Flash Flash Flash Pause
- press **Fade to DMX**
- set the dimmer levels with your DMX control desk
- press **Record** and keep it depressed
- press **Cue 2**
- the display will show **Rec. Mem.2:** **wait** for one second, to confirm that the cue is recorded
- release **Record** and **Cue 2**

To check the recorded cue

- set the Master fader of the DMX control desk to 0%
- press **Cue 2** **to view the recorded setup**
- press **Fade to DMX** **to end viewing**

Special 3 : how to play-back a cue?

Example: to play-back cue #2

- press **cue #2**
- the display shows **Fading -> Mem#2** followed by **Playing Mem #2**

Note: if the selected Cue does not exist, the display will show a warning message **No Mem...**

Programming Digital Dimmers

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Memory control with push-buttons Special 4 : setting of the dimmer unit

Part One of the set-up includes installation of the necessary hardware, and perform some preliminary settings. This makes the dimmer 'ready for Special 4', but the push-buttons are not yet enabled.

Part Two will enable Special 4 operation for the push-buttons.

Part One of the set-up :

- disconnect the dimmer unit from the mains
- install the analogue input board PCB1336 and ribbon cable
- connect the ribbon cable to connector P3 (0/+10 V) on PCB1336
- locate jumper W1; set it on pins 1 and 2
- locate jumper W2; set it on pins 2 and 3 (or remove it)

Now we'll proceed with preliminary menu settings for Special 4.

- connect the dimmer unit to the mains
- select Menu Level 3, as described above
- press + or - until **An. in mode ?**
- press **YES**
- press + or - until **Special 4**
- press **YES**
- set **Menu Level 0** or **1** or **2**, as described above

You have now finished the preliminaries.

You can easily verify these settings with View Analogue

- press + or - until **View Analog ?**
- press **YES**
- the display will show for 2 seconds the current setting of the analogue inputs; it should be **Special 4**
- the display then shows **An. in 1: 0 %**
- press + or - until **An. in 14: FF %**
this indicates that jumper W1 has been set on pins 1 and 2
- press + or - until **An. in xx: 0 %**
this indicates that jumper W2 has been removed
- press <--- to return to the main Menu.

Part Two will make the push-buttons operational.

Part Two: How to activate the remote pushbuttons?

- press **INFO** for four seconds
- the display shows **Control?**
- press **YES**
- press + or - until **Control: by Sp.4**
- press **YES**
- the display shows **Sp.4 active;** and will then show the events triggered by the Remote Pushbuttons.

The RUN LED blinks with quadruple bursts : Flash Flash Flash Flash Pause.

The unit is now ready to respond to the remote pushbuttons.

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How to see whether Control is Local or set to Special 1 / 3 / 4?

Observe the green RUN LED on the front panel

- if blinking Flash Pause Flash Pause...: Control is Local
- if blinking Flash Flash Flash Pause...: Control is given to Remote Push-buttons 'Special 3'
- if blinking Flash Flash Flash Flash Pause...: Control is given to Remote Push-buttons 'Special 4'

How to regain Local Control?

The keys + - <← and → are disabled when **Control?** is set to **Control: by Sp.3** or **Control: by Sp.4**. This protects against tampering.

To regain Local Control:

- press **INFO** for four seconds
 - the display shows **Control?**
 - press **YES**
 - press + or - until **Control: Local**
 - press **YES**
 - the display shows **RET. to Local** for 3 seconds
- Local control is now restored, **RUN** will blink Flash Pause Flash Pause...

The remote pushbuttons are named

Record - Fade to DMX - Play next cue - Cue 0 - Cue 1 - Cue 2 - ... - Cue 19

Please refer to the wiring diagrams for the exact connections.

Special 4 : how to record a cue created with DMX?

- you must be in Control:by Sp.3.; the RUN LED blinks Flash Flash Flash Pause
- press **Fade to DMX**
- set the dimmer levels with your DMX control desk
- press **Record** and keep it depressed
- press **Cue 2**
- the display will show **Rec. Mem.2: wait** for one second, to confirm that the cue is recorded
- release **Record** and **Cue 2**

To check the recorded cue

- set the Master fader of the DMX control desk to 0%
- press **Cue 2**

Special 4 : how to play-back a cue?

Example: to play-back cue #2

- press **cue #2**
- the display shows **Fading -> Mem#2** followed by **Playing Mem #2**

Note: if the selected Cue does not exist, the display will show a warning message **No Mem...**

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Troubleshooting Tools

View DMX

This function is included in Menu 2. The DMX LED indicator will inform you of the presence of a signal on the DMX512 input.

If a dimmer channel does not appear to give the output level you expect, then you should first verify which control level is actually received by the dimmer.

If these levels are not what you expect, then you should check the control desk: master fader, top limit, dimmer law in the desk,...; and check the address of each dimmer channel (INFO key). Note that dimmers set to DMX address 0 will never respond to DMX.

If the DMX level is correct, but the dimmer output level is not, then you should also check the dimmer law set in the dimmer unit, and the Mult. Factors set in the dimmer unit.



To display the DMX levels, select Menu 2

- press + or - until **View DMX ?**
- press **YES**
- if the display shows for example **DMX in 1 : 69 %** then dimmer No. 1 receives a level of 69% from the DMX512 control desk.
- press + or - to review the levels for each dimmer
- press **INFO** to view the DMX address of the dimmer
- press <--- to return to the main Menu.

Note : In the absence of a signal on the DMX line,
View DMX ? will display **DMX ABSENT!** (also shown by the DMX LED).

DMX error messages

The following error messages inform you of problems with the DMX signal:

- **DMX Err: Frm** frame error, very often due to a DMX cable problem
- **DMX Err: Strt** the start code is not zero (proprietary messages)
- **DMX Err: Ovfl** overflow, more than 512 level bytes (doesn't meet DMX standard)

View Analogue

This function is included in Menu 2. If your dimmer unit is fitted with the Analogue Input (and the Analogue Input is not set to Muted), then you can display the analogue control levels.

If these analogue levels are not what you expect, then you should first check the control desk: master fader, top limit, dimmer law in the desk,...

If the analogue control level is correct, but the dimmer output level is not, then you should also check the dimmer law set in the dimmer unit, and the Mult. Factors set in the dimmer unit..

To display the Analogue levels, select Menu 2

- press + or - until **View Analog ?**
- press **YES**
- the display will show for 2 seconds the current setting of the analogue inputs
- if the display shows for example **An. in 1 : 56 %** then dimmer No. 1 receives a level of 56% from the analogue control desk.
- press + or - to review the levels for the dimmers
- press <--- to return to the main Menu.

To verify the current setting of Analogue Input Mode

View Analogue includes a temporary message showing the type of operation set for the analogue inputs: **Muted / Absent** indicates that the analogue inputs option has not been installed or has been disabled; **Special...** indicates that the analogue inputs have been set for control by push-buttons. See Maintenance Functions - Analogue Input Mode.

Warning : "ClearCONFIG" disables the analogue inputs, i.e. sets them to Muted/Absent.

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Warning Messages (important !)

Under special circumstances the display will show flashing warning messages. All actions inside the dimmer unit should only be performed by qualified personnel.

400 Volt !!!

This flashing message warns you that an excessive voltage is applied to at least one of the phases. The dimmer has shut itself down, no dimmer will operate.

Actions to take

- **immediately disconnect the dimmer from the mains**
Note: if this action is taken quickly (typically less than one minute), the dimmer will reset itself automatically and will be ready to function immediately after proper mains supply is restored
- verify that the Neutral conductor is properly connected
- verify the supply voltage between each of the Phases and the Neutral. It should be in the operational range of 198 V to 264 V (220 V - 10% to 240 V + 10%)

Two typical examples of cabling errors in three-phase systems are

- Error N°1: inversion between the Neutral and a line/phase.
Example: when L3 and N are inverted, the voltage L3-to-Neutral will be normal 230 V, and the other two phase-to-neutral voltages will be 400 V
 - Error N°2: the Neutral is disconnected. The voltage L-to-Neutral can reach 400 V.
- Such situations and errors are dangerous ! Always refer to a qualified electrician.

Over Temper.

The dimmer is fitted with thermal sensing and protection circuitry. The flashing **Over Temp** message indicates that the internal temperature is rising and that **the dimmer is gradually reducing the level of all its dimmers.**

Please check

- the room temperature (35°C max.)
- the fan(s)
- the air inlet and exhaust grilles
- the side panels, which also act as heatsinks

Please refer to the Maintenance chapter, section "Over-temperature, gradual shutdown".

Run LED, the Display, and DMX LED are unlit

The microprocessor is not operational. This situation can be caused by an unacceptable (too low or too high) supply voltage on phase L1.

Immediately disconnect the dimmer from the mains. Please refer to the 400 V Warning message above.

EURORACK 60: Check internal fuse F2 (phase L1) on the Synchro board PCB 1355.x.

MEMOPACK, MEMORACK : Check internal fuse F2 (phase L1) on the CPU board PCB 1410.x.

Please refer to the Troubleshooting chapter, Power section.

Fan Failure

The **Fan Failure** message warns you of problems with fan(s). Forced ventilation is essential for continuous and reliable operation of your dimmer at high loads. To extend the service life of the fan, and to reduce acoustic fan noise, the dimmer microprocessor will control and monitor the operation of the fan(s). Fan speed control: the fan will for example stop when the dimmer is cool, and only one dimmer is operational, and at a low dimmer level. This is clearly visible during the "Scan Loads" test chaser mode.

No Phase L...

Missing phases: No (or low) voltage on phase L... Please refer to the Troubleshooting charts at the end of the Manual. Verify the mains supply. If the mains supply is OK, disconnect the dimmer from the mains and check internal fuses F1 (phase L3) and F3 (phase L2).

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House Patch

The **House Patch** is a customer-defined DMX patch which is permanently memorised in the dimmer unit, and which can easily be recalled with the **Edit Patch** menu in Menu 1. The editing of the House Patch is included in Menu 3.

Application example - permanent installation

you set the House Patch to the DMX addresses of the usual patch. When temporary changes to the patch are required, for example for a visiting touring show, you enter the temporary addresses by means of the DMX Patch function in Edit Patch?. Later, the Restore House Patch in the Edit Patch? function will restore the usual DMX addresses in a single operation.

Application example - mobile dimmers

if you own two touring racks with 36 dimmers, the House Patch could be set for DMX addresses 1 through 36 and 37 to 72 respectively.

Can I accidentally erase the House Patch?

No. Once the House Patch has been set, it can only be modified by users of the Service Menu, Menu Level 3. House Patch is modified by means of its editing menu **House Patch?** or by the **ClearCONFIG** function. The House Patch is not erased by the standard **Clear** functions in Menu Level 1 (Clear Patch, Clear All).

After a ClearCONFIG, the House Patch is: Dimmer No. 1 @ DMX address 1, Dimmer No. 2 @ DMX address 2,..., i.e. equivalent to Start DMX @ 1.

Example : as House Patch you wish to set dimmer No. 1 to DMX = 100 and dimmer No. 3 to DMX = 120.

- select Menu 3, as indicated above
- press + or - until **House Patch ?**
- press **YES**
- the display shows **Dim 1 : DMX ...** and 1 blinks
- press **YES**
- the display shows **Dim 1 : DMX ...** and ... blinks
- press + or - until **Dim 1 : DMX 100**
- press **YES**
- press + or - until **Dim 3 : DMX ...**
- press **YES**
- press + or - until **Dim 3 : DMX 120**
- press **YES**
- press ← to return to the main Menu

You now have defined the House Patch.

To actually use this House Patch, select Restore House Patch in Edit Patch?

DMX address zero

If the DMX address of a dimmer is set to 0, then that dimmer will not respond to DMX. It will still respond to other inputs such as Analogue input, Memory Play, remote control using Special 1 and Special 3 / Special 4, and the Advanced Dimmer Network.

Default display

The display shows information about the active patch. See Default display - patch and network information earlier in this manual.

If the House Patch addresses are continuous, i.e. equivalent to **StartDMX @ ...**, then the default display will show **StartDMX @ ...**



Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3



Advanced Dimmer Network (ADN) (*)

Possibilities of ADN, the Advanced Dimmer Network

Remote Programmability is a standard function of a comprehensive family of digital dimmers which includes the wall-mount dimmers EURORACK 60, the portable dimmers MEMOPACK 15XT and MEMOPACK 30, and the 19" rack-mount dimmers MEMORACK 15 and MEMORACK 30. The digital serial communication is half-duplex bi-directional and uses the second data pair in the standard DMX512 cable.

Any dimmer on the network can become temporary Master of any other dimmer on the network.

In addition, a portable NETBUS Remote Dimmer Controller can be inserted in the DMX network. NETBUS can become temporary Master of any dimmer on the network. In addition NETBUS can send instructions to all dimmer units such as Play Memory or Fade Memory.

Alternatively, a PC can be inserted in the network (via a NETPORT XT converter), thereby adding graphical representation of the dimmer system, memory management, and editing of parameters. The PC software can download dimmer parameters from the dimmers. The dimmer parameters can be edited off-line, and the new parameter settings can be uploaded to the dimmers.

How to lay-out and test an ADN network

Please refer to the detailed examples in the user manual for the Dimmer Manager software.

Application : decentralised dimming with centralised dimmer management

If dimmers are installed in different locations all over the venue, you can now access the menus of all dimmer units from a convenient location.

Your interface can be any dimmer on the ADN network, or a handy and portable NETBUS Remote Dimmer Controller, or a PC running the Dimmer Manager software.

Dimmers can be installed in less accessible places such as lighting trusses, close to the luminaire. Failures requiring access to the dimmer often involve accessing the nearby luminaire anyway; example: dimmer fuse replacement or mcb reset after a lamp failure.

Dedicated menus in the NETBUS and the PC provide an overview of dimmer unit status and warning messages, such as Fan failure, Temperature Warning, 400 V (supply wiring error).

How to take control of an other dimmer unit

Example: focusing a light with the **Test a dim** function in a remote dimmer

Go to the unit which will be the temporary Master:

- press **INFO** for 5 seconds
- the display shows **Ctrl Local** and **Local** blinks
- press **+ or -** until **Master** and **Master** blinks
- press **YES**
- the display shows **Master Of 1** and **1** blinks
- press **+ or -** until **Master Of ...** where ... is the target unit
- the display shows **Connecting...**
- followed by **NetwAddr ...**
- press **+**
- the display shows **from slave**
- followed by **Menu Level?**

The message **from slave** inbetween menu items indicates that you are browsing through the menus of the Slave unit.

- press **+ or -** until **Test a dim?**

Then proceed as usual.

(*) not available on EURORACK 50+

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

The Master will automatically stop being a Master, i.e. revert to Local, when the Master's keypad has not been used for more than a minute. From then on any unit can become Master. The function you have accessed in the Slave unit will remain active, so that you can e.g. finish the focusing. The display of the Slave will show the active function, e.g. Test.

After focusing, go to any dimmer unit to end the **Test a dim.**

- press **INFO** for 5 seconds
- the display shows **Ctrl Local** and **Local** blinks
- press **+ or -** until **Master** and **Master** blinks
- press **YES**
- the display shows **Master Of 1** and **1** blinks
- press **+ or -** until **Master Of ...** where ... is the unit still running Test a dim
- the display shows followed by **Connecting...**
- press **+** followed by **NetwAddr ...**
- the display shows followed by **from slave**
- press **<--** twice to end the Test **Test 4:50%** the current menu of the Slave

You can wait one minute for the Master to stop being a master automatically, or you can manually set the Master to Local again:

- press **INFO** for 5 seconds
- the display shows **MasterOf ...** and **Master** blinks
- press **+ or -** until **Ctrl Local**
- press **YES**

Note: **Test a dim** can be interrupted without the network, using the dimmer's own keypad.

Go to the dimmer unit which is running **Test a dim.**

- the display shows **Test 4:50%**
- press **<--** twice

A dimmer is temporary Master. How can I quickly identify the unit it is master of?

- press **INFO**
- the display shows **MasterOf...** for 5 seconds

Functions unavailable through Advanced Dimmer Network

As a precautionary measure, a few parameters cannot be modified through the ADN network. They need to be set on the dimmer unit itself.

For example: Network Address, Analogue Input Mode, ClearCONFIG, Mains frequency.

Data boosters / splitters for the Advanced Dimmer Network

The ADN network uses two-way (half-duplex bidirectional) communication. The electrical signal meets the DMX512 standard, and the well-known rules of DMX are also applicable for ADN: max. cable length, no passive T-splitting, max. 32 receivers, termination resistor.

For units with XLR connectors, we use the second data pair in the DMX cable (pins 4 and 5).



Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3



Maintenance Functions

Firmware version

The firmware version is displayed at power-up, and internally on the label of the EPROM. Example: for firmware version 2.04, the display will show V204 init... at power-up.

Maintenance menu - Menu 3

WARNING : The Maintenance menu, Menu 3, is intended for maintenance engineers only. A warning message **Service Only** is shown.

Its functions are not required for day-to-day use of the dimmer unit.

Functions of Menu 3 :

- all functions of Menu 2, and
- editing the House Patch
- selecting the action If DMX fails
- use of Analogue Inputs (muted / 0 + 10V / Special 1 / Special 3 / Special 4)
- ClearCONFIG, a comprehensive and drastic reset to default parameters
- selection of the digital smoothing
- selection of the Network Address (required for ADN and remote programming)
- selection of the dimmer quantity and the mains
- automatic self-test routines

Never leave a dimmer unattended while in Menu 3 !

Analogue Input Mode

Analogue input mode : enable / disable / specials

This function is included in the Maintenance Menu, Menu 3.

- if your dimmer is equipped with the Analogue Input, then this should be set to "Enable 0/10V" (for control by an analogue control desk) or to one of the "Special settings" (for remote control by means of push-buttons)
- if your dimmer is not equipped with the Analogue Input board, then it must be set to Muted/ Absent.

The installation procedure of the Analogue Input Kit is described in a separate paragraph.

WARNING: the Analogue Inputs are automatically disabled by the **ClearCONFIG** function (see next page).

To Enable the Analogue Inputs:

- select Menu 3, as described above
- press + or - until **An. in Mode ?**
- press **YES**
- press + or - until **Enabled 0 --> 10V**
- press **YES**
- the display returns to the main Menu **An. in Mode ?**

To Disable the Analogue Inputs:

- select Menu 3, as described above
- press + or - until **An. in Mode ?**
- press **YES**
- press + or - until **Muted / Absent**
- press **YES**
- the display returns to the main Menu **An. in Mode ?**

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

If DMX fails

This function is included in Menu 3.

It defines the action taken when the DMX signal fails. You can choose between:

- wait x seconds and then fade to a black-out in 5 s
- wait x seconds and then fade to a memory (cue) in 5 s
- keep the last DMX message indefinitely

The factory default setting is "Keep last DMX indefinitely".

The wait time can be set between 30 s and 4 hours.

How to set to "wait one minute and then fade to black"

- select Menu 3, as indicated above
- press **+** or - until **If DMX fails ?**
- press **YES**
- the display shows **:Fade -> black and black** blinks
- press **YES**
- the display shows **:after ... s and ...** blinks
- press **+** or - until **:after 1 min**
- press **YES**
- the display returns to the main menu

How to set to "wait one minute and then fade to Cue # ..."

- select Menu 3, as indicated above
- press **+** or - until **If DMX fails ?**
- press **YES**
- the display shows **:Fade -> black and black** blinks
- press **+** or - until **:Fade -> cue #... and ...** blinks
- press **YES**
- press **+** or - until **:Fade -> cue #...** to select the correct cue
- press **YES**
- the display shows **:after ... s and ...** blinks
- press **+** or - until **:after 1 min**
- press **YES**
- the display returns to the main menu

How to set to "Keep last DMX message indefinitely"

- select Menu 3, as indicated above
- press **+** or - until **If DMX fails ?**
- press **YES**
- the display shows **:Fade -> black and black** blinks
- press **+** or - until **Keep Last DMX**
- press **YES**
- the display returns to the main menu

Safety note

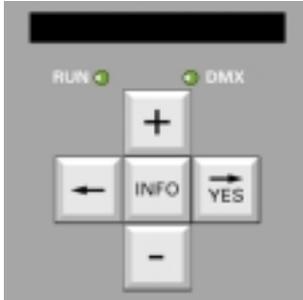
In dimmer installations which are powered up but left unattended, it not recommended NOT to use the setting "Keep last DMX indefinitely" NOR a wait time much longer than 30 s.

If the control desk is switched off, i.e. no genuine DMX signal is present, and the dimmers are powered, then it is possible that an interference signal received by the DMX network accidentally fades up one or several dimmers; any dimmer or group of dimmers can thus accidentally be set to any level. These dimmers may control luminaires which represent a fire hazard, e.g. placed near draperies or scenery. The use of a termination resistor increases the immunity against interference. However the susceptibility to interference signals cannot be completely avoided, because the DMX512-1990 standard (USITT) provides no means for the dimmers to check the validity of the DMX signal. The DMX 512 standard does define a start code for dimmers (start code value 'zero'). ADB dimmers check the value of the start code, and messages with non-zero or corrupted start code will be rejected by the dimmer's software.



Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3



Smoothing

Smoothing is useful when slow level changes - i.e. long crossfades - are applied to loads with fast response, such as small-wattage bulbs and fluorescent lights.

The standard DMX512 signal is 8-bit and defines 256 possible lighting control levels between Off (0) and Full (255). However all ADB dimmers are fitted with digital control electronics using approximately 4000 possible lighting control levels (12-bit), resulting in visibly smoother changes. The Smoothing function will mathematically calculate intermediate values inbetween the levels received on the input. The original DMX increments of 1/256th will thus be smoothed out to much smaller increments of 1/4096th.

The Smoothing level can be set for individual dimmers, or for all dimmers in one operation.

To change the smoothing grade, for all dimmers

This function is included in the Maintenance Menu, Menu 3.

The factory- and default setting for the digital smoothing is Medium.

High is suitable for extra long crossfades.

- select Menu 3, as described above
- press + or - until **Smoothing ?**
- press **YES**
- press + or - until **Smoo. All : Med**
- press **YES** twice
- the display returns to the main menu **Smoothing ?**



To clear and reset all the settings: ClearCONFIG

This function is included in the Maintenance Menu, Menu 3.

This function should be used with care as it will reset all the parameters to a standard default value.

- Start Address 1 (continuous numbering)
- Law all dimmers Linear
- Test level 50%
- Flash level 50%
- Memories are all erased; fade times 5 s
- Network Address - - - (not responding to ADN Network)
- Analogue Input Muted / Absent
- House Patch continuous numbering, starting at 1
- If DMX fails Keep last DMX indefinitely
- Frequency 50 Hz
- Custom law output values as for Linear Law
- Reference Loads are all cleared
- Dimmer type 24x3kW for ER60; 12x3kW for MR30 and MP30; 6x3kW for MP15XT and MR15

A ClearCONFIG must immediately be followed by proper selection of dimmer unit type and dimmer quantity. Select Dimmer Type when prompted. If the unit is a 5 kW or a 10/12 kW, then also select the proper setting by means of Dimmer Qty.? in Menu Level 3.

An incorrect setting will result in unwanted dimmer behaviour and errors in the reporting through the Advanced Dimmer Network.

The dimmer types are

- EURORACK 60 wallmount unit 24 x 3 kW, 12 x 5 kW and others
- MEMORACK 30 19" rack-mount unit 12 x 3 kW, 6 x 5 kW and 3 x 12 kW
- MEMORACK 15 19" rack-mount unit 6 x 3 kW and 3 x 5 kW
- MEMOPACK 30 portable unit 12 x 3 kW and 6 x 5 kW
- MEMOPACK 15XT portable unit 6 x 3 kW and 3 x 5 kW

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK & NETBUS CK 60, EURODIM 3

Architectural Control

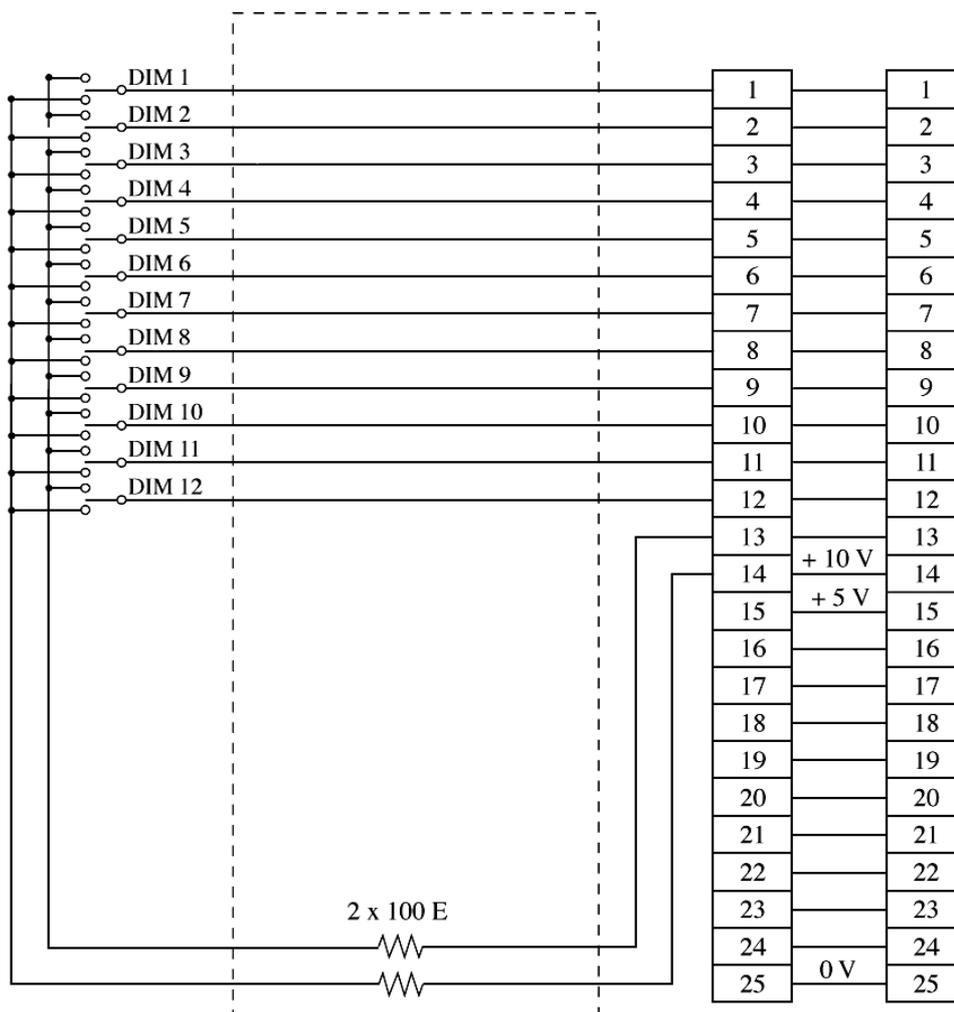
Wiring diagram for Special 3 and for Special 4: see pages 64 and 65

Special 1 - diagram for 12 dimmers

Pushbutton Panel - Basic Version

Function: fade a dimmer up and down (Special 1)

12 buttons ↑ + up
C&K 7015 ↓ - down



Jumper setting on Analogue Input Board - PCB1136

- W1 between 1 and 2 (supplies + 10 V)
- W2 between 1 and 2 (supplies + 5 V)

Menu setting (Level 3)

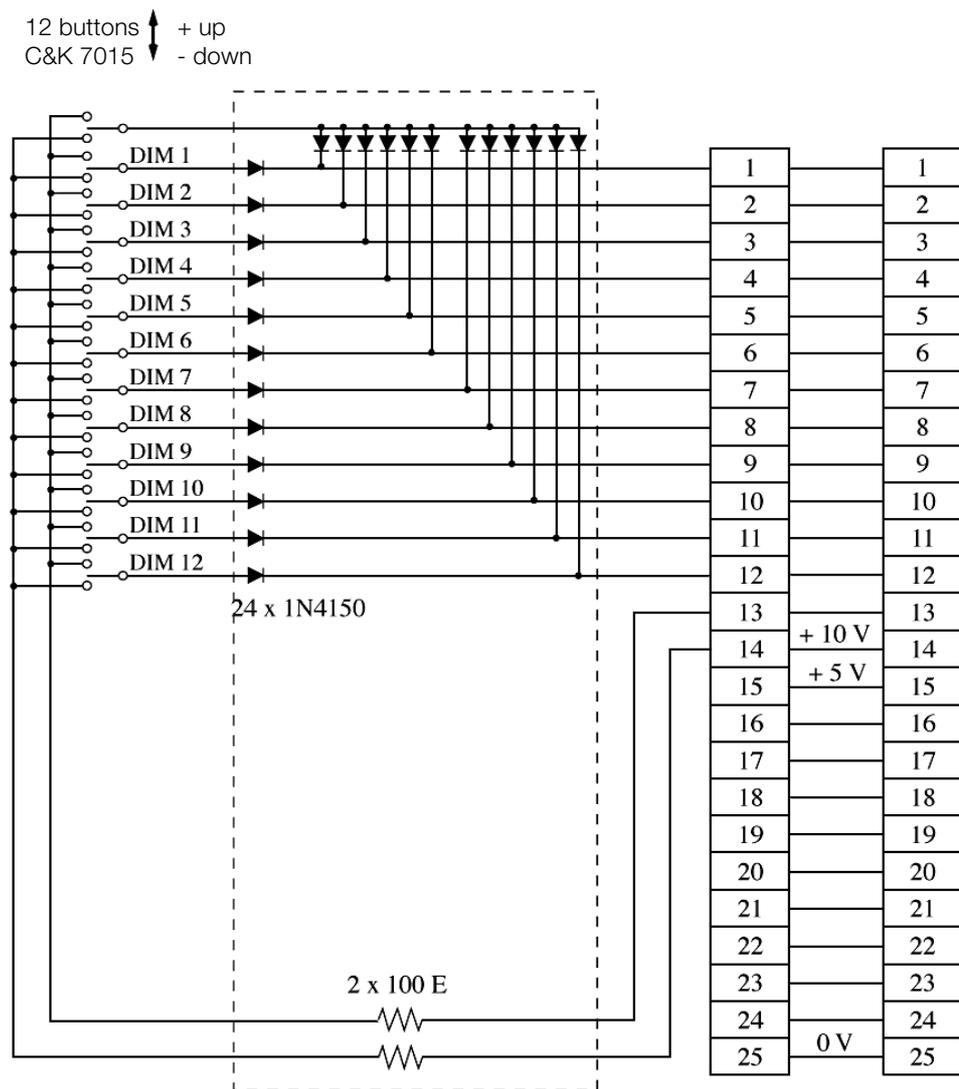
- Analogue Input Mode: Special 1

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, NETBUS

Diagram for 12 dimmers

Pushbutton Panel - with Master (Special 1)



Jumper setting on Analogue Input Board - PCB1136

- W1 between 1 and 2 (supplies + 10 V)
- W2 between 1 and 2 (supplies + 5 V)

Menu setting (Level 3)

- Analogue Input Mode: Special 1

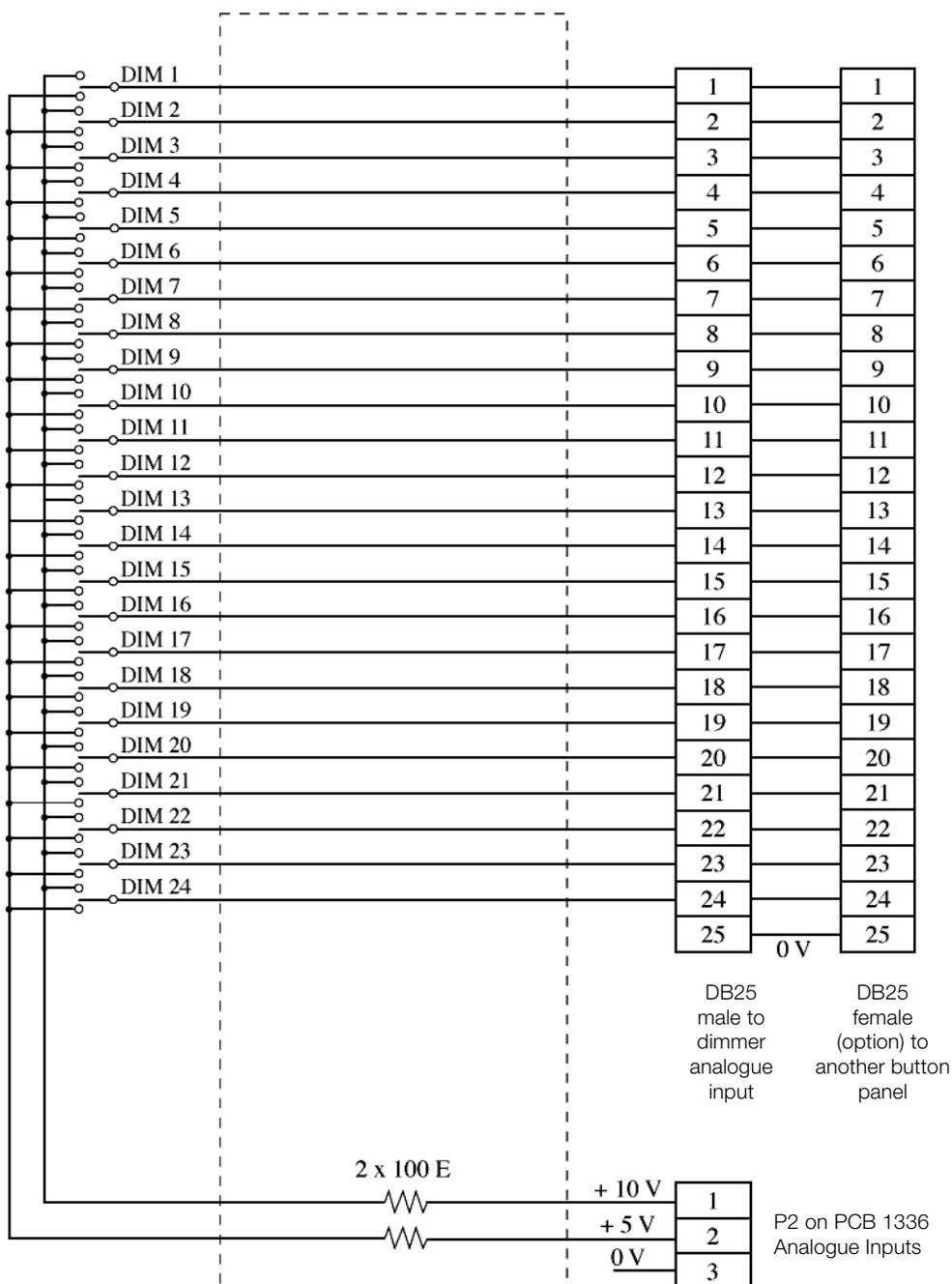
Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

Diagram for 24 dimmers

Pushbutton Panel - with Master (Special 1)

12 buttons \updownarrow + up
C&K 7015 \updownarrow - down



For EURORACK with 18 or 24 dimmers, the + 5 V and + 10 V required for the pushbuttons is supplied from connector P2 on the "Analogue Input Board".

For EURORACK with 18 or 24 dimmers, the jumper W1 and W2 on "Analogue Input Board - PCB1136" should be set as follows :

- W1 between 2 and 3 (or removed)
- W2 between 2 and 3 (or removed)

Menu setting

- Analogue Input Mode: Special 1

Note :

This setting is identical to the factory-setting for operation with an analogue control desk. The analogue input ribbon cable should be set in the socket P3 "0 / + 10 V".

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

Diagram for 24 dimmers

Pushbutton Panel - with "All Switch"

Function: fading a dimmer up and down (Special 1)

For EURORACK with 18 or 24 dimmers, the + 5 V and + 10 V required for the pushbuttons is supplied from connector P2 on the "Analogue Input Board".

For EURORACK with 18 or 24 dimmers, the jumper W1 and W2 on "Analogue Input Board - PCB1136" should be set as follows :

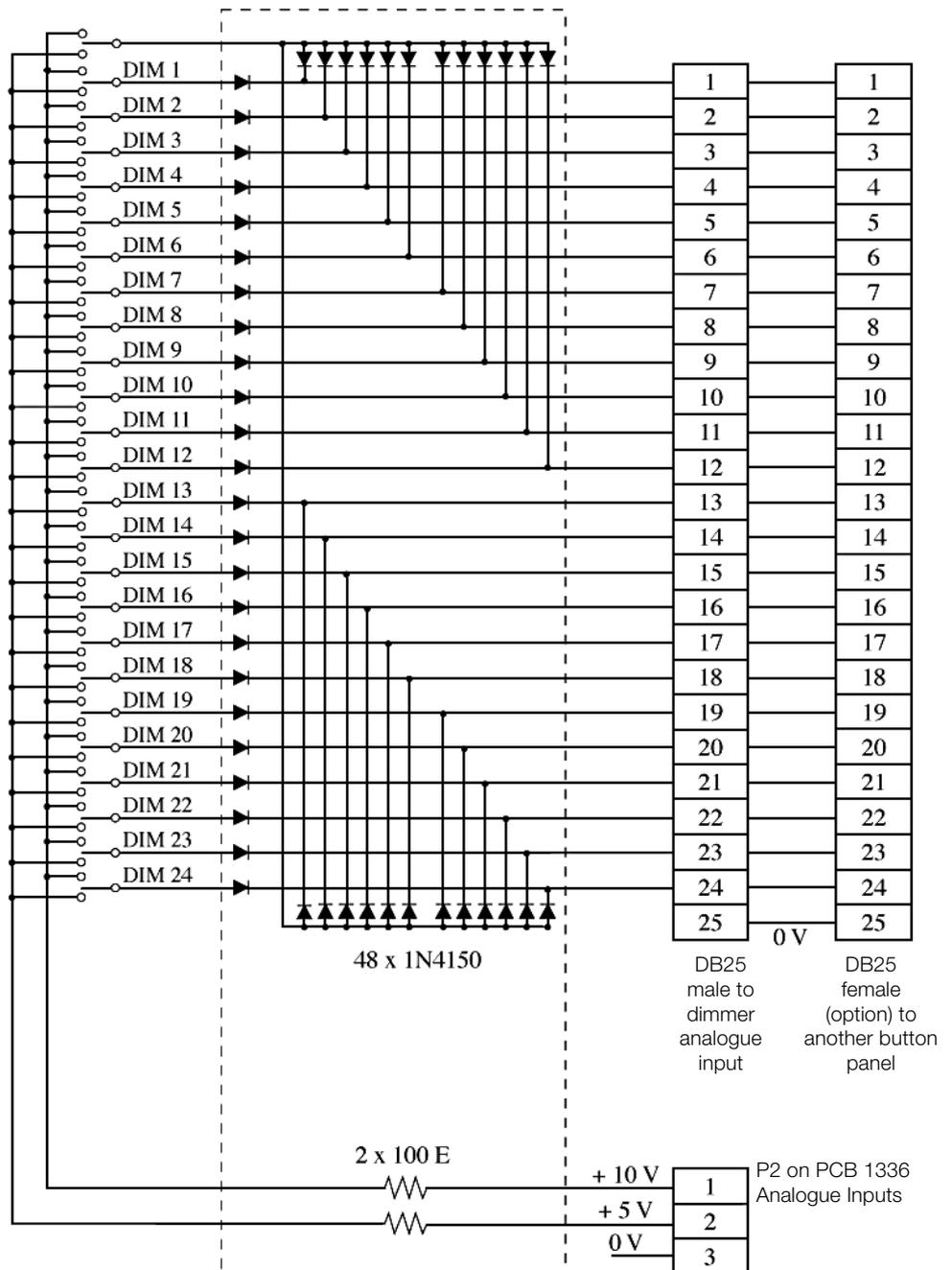
- W1 between 2 and 3 (or removed)
- W2 between 2 and 3 (or removed)

Note :

This setting is identical to the factory-setting for operation with an analogue control desk.

The analogue input ribbon cable should be set in the socket P3 "0 / + 10 V".

12 buttons ↑ + up
C&K 7015 ↓ - down



Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

Network Address (*)

This function is included in Menu 3.

The Network Address has no relation with the DMX addresses (patch). The Network Address is only required for users of the Remote Programming and Remote Reporting via the Advanced Dimmer Network. If you do not use these facilities, you should set the Network Address to ---, the default value.

Each dimmer unit and each NETBUS Remote Dimmer Controller has a Network Address.

No two units should have the same Network Address.

The value of Network Addresses is currently limited to 1 - 99.

Example: to set the Network Address to 50.

- select Menu 3, as described above
- press + or - until **Netw. Addr. ?**
- press **YES**
- the display shows **...?** the current Network Address
- press + or - until **50**
- press **YES**
- press <- to return to the main menu

The Network Address will be shown on the default display (unless it is set to ---).

See Default display - Patch and Network information.

ADB Tests

This function is included in the Maintenance Menu, Menu 3. This menu is reserved for maintenance and factory production tests. Please note that some of the ADB tests will clear and reset ALL parameters. A ClearCONFIG is required after the use of ADB Tests.

View Peak

This function is included in Menu 3. This menu is reserved for troubleshooting assistance.

Push-button control with NETBUS

The earlier chapter "Push-button control without Netbus" explained how to trigger memory play and similar events by means of push-buttons connected to an optional analogue input card in every dimmer unit.

The same control functions can be achieved with a NETBUS Remote Dimmer Controller.

NETBUS can send orders to all connected dimmer units over the Advanced Dimmer Network (ADN). All dimmers units will thus respond in synchronism to actions on the keys on the NETBUS and its passive extension panels.

Installation with one NETBUS (and no PC)

Set the NETBUS to Broadcast Special 3 or Broadcast Special 4.

Installation with two NETBUS (and no PC)

Set one NETBUS to Broadcast Special 3 or Broadcast Special 4.

Set the other NETBUS to Report Keys

For further details please refer to the NETBUS User and Installation Manual.

NETBUS combined with Analogue Inputs in the dimmer units.

Memory Control by NETBUS can be combined with Analogue Inputs in the classic 0/10 V mode.

The actual output of the dimmers is the Highest-Takes-Precedence combination of Analogue and DMX/Memories.

(*) not available on EURORACK 50+

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

Spare Parts List (edit)

Fuse-holders, dimmer fuses and circuit breakers

Fuse-holder with built-in slot for spare fuse (HRC, 10 x 38 mm)

Circuit-breaker 1P (green lever) for 3 kW

Circuit-breaker 1P+N for 3 kW

Circuit-breaker 1P (green lever) for 5 kW

Circuit-breaker 1P+N for 5 kW

Fuses have to be ordered in multiples of 10 pcs.:

Fuse for 3 kW (HRC, 10 x 38 mm)

Fuse for 5 kW (HRC, 10 x 38 mm)

Thyristor boards for MEMOPACK, MEMORACK, EURORACK 60 (except MP 30)

Thyristor board and aluminium base for 6 x 3 kW - PCB xxxx

Thyristor board and aluminium base for 3 x 5 kW - PCB xxxx

Thyristor board and aluminium base for 3 x 12 kW - PCB xxxx

Thyristor boards for MEMOPACK 30

Thyristor board and heatsink for 6 x 3 kW - PCB xxxx

Thyristor board and heatsink for 3 x 5 kw - PCB xxxx

Processor boards and synchro board

CPU board for MEMOPACK, MEMORACK - PCB xxxx

CPU board for EURORACK 60 - PCB xxxx

Synchro board for EURORACK 60 - PCB xxxx

Fans

For MEMOPACK 15XT, MEMORACK 15, MEMORACK 30

For MEMORACK 30

For other parts, such as earlier versions of the circuit boards, please contact the local ADB representative or the factory.

Please provide the following data from the identification label:

- the product's name and power rating
- the full ADB Product Code (format 1Dx xxx xxx xxx)
- the serial number

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

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NETBUS firmware version: v 2.04.

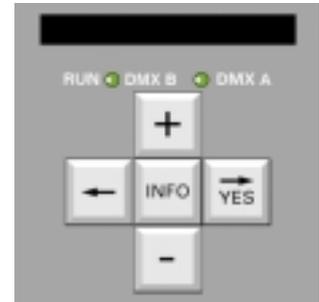
NETBUS

Introduction (*)

Your NETBUS is a remote dimmer controller for the large family of digital dimmers including the wall-mount EURORACK 60, the rack-mount MEMORACK 30 and MEMORACK 15, and the portable MEMOPACK 30 and MEMOPACK 15XT.

The Advanced Dimmer Network establishes two-way communication between dimmers, NETBUS and PC. ADN uses the second data pair in the DMX cable.

NETBUS is fitted with a pair of XLR5 connectors, and can be inserted anywhere on the DMX+ADN network. With its compact size it is a flexible and user-friendly tool for dimmer control.



Overview of menu functions

Welcome to...

This message is shown at power-up and displays the version of the firmware.

Learn System ?

Learn System automatically creates a reference list of the units present on the ADN network.

Scan System ?

Scan System continuously scans the 'learned' dimmer units and reports back their status.

Monitor Bus ?

Monitor Bus is a troubleshooting tool displaying information about the data travelling on the ADN network.

Master of...?

Master of... takes control of a remote dimmer unit. You can edit and clear its DMX patch, set dimmer laws,... without physically going to the dimmer unit.

Broadcast Special 3 ?

Broadcast Special 3 activates the push-button switches on the NETBUS, for system-wide control of the memories stored in the dimmers. The display shows information about cues being played, and updated status or fault messages.

Broadcast Special 4 ?

Broadcast Special 4 activates the pushbutton switches on the NETBUS, for system-wide control of the memories stored in the dimmers. The display shows information about cues being played, cue fade level, and updated status or fault messages.

Report Keyboard ?

Report Keyboard allows memory control from a second NETBUS on the network.

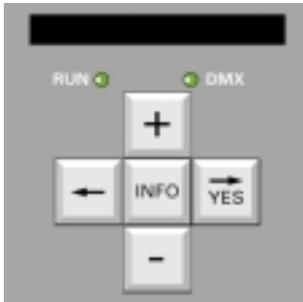
Memories ?

The Memories menu of NETBUS provides system-wide editing of the fade time and wait times, and erasing cues, in a single operation.

Network Address ?

Dimmer units and NETBUSes are identified by a Network Address number. This address is completely independent of the DMX addresses of the dimmers.

(*) not available on EURORACK 50+



List of NETBUS Menu Items

- Scan System?
- Learn System ?
- Monitor Bus?
- Master of...?
- Broadcast - Special 3?
- Broadcast - Special 4?
- Report Keyboard?
- Memories?
 - Edit memory?
 - Edit Fade time in all units
 - Edit Wait time in all units
 - Erase a memory?
- Network Address?

NETBUS

NETBUS Menu

Operation of a NETBUS dimmer controller is very straightforward, by means of the five control keys, the alphanumerical display, and a simple but powerful Menu.

Principle of operation

The principle is similar to the menus of the EURORACK / MEMORACK family. By pressing the + or - keys, you can display the list of subjects or 'Menu items'.

When you reach the item of interest, you depress the **YES** key.

To leave the selected mode: see paragraph about that function.

The front panel

The front panel of the NETBUS dimmer controller combines the five control keys and the alphanumerical display already familiar from the EURORACK and MEMORACK family of digital dimmers, with 23 pushbuttons for system-wide memory control.

The pushbuttons can be set

- for direct access to the 20 (19+1) cues; this is called Special 3
- for direct access to 17 cues, plus fade cue up, fade cue down, start cue chaser; this is called Special 4

The system can be extended with an additional NETBUS. Each NETBUS can be extended with additional passive pushbutton stations.

Learn System

The Learn System function automatically creates a reference list of the units present on the network. This allows for an 'Dimmer unit is Absent' error message, and optimises the response time by limiting the status reporting to the units in the reference list.

To learn a dimmer system.

- press + or - until **Learn System?**
- press **YES**
- the display tracks the progress and shows **Found: ... /...**
the first number is the qty. of units found
the second number shows the addresses scanned
- if the display then shows **# 5 (-), Er = 0**
then five units were detected, and this is less than the earlier quantity
- if the display then shows **# 5 (+), Er = 0**
then five units were detected, which is more than the earlier quantity

Note: NETBUS firmware v. 2.04 scans and detects Network Addresses in the range 1 to 99.

Scan System - status messages

The Scan System function scans the 'learned' dimmer units.

The display first shows the quantity of units it will consult, preceded by a # symbol.

Then it shows each unit's Network Address and that unit's status.

Status messages are described in detail in the next paragraph.

To Scan a dimmer system.

- press + or - until **Scan System?**
- press **YES**
- the display shows **(ref. # ...)**
where ... indicates the quantity of dimmer units it will consult
followed by status messages such as **4 : OK** about dimmer unit No. 4





Status messages

The following status and error messages are reported by NETBUS.

- **OK**
Communication has been established, no error has been reported.
- **Absent**
Through its Learn System function, NETBUS knows which units are connected to the ADN network. Absent indicates that the unit is not responding. The data cable is interrupted, or the unit is switched off.
- **Modbus Error**
The ADN network has an active master (PC, NETBUS or dimmer unit), and a second unit attempts to become master.
- **Temp**
The dimmer is equipped with thermal protection circuitry. The flashing **Over Temp** message indicates that the internal temperature is rising and that the dimmer is gradually reducing the level of all dimmers.
Please check
 - room temperature (35°C max.)
 - fan(s)
 - air inlet and exhaust grilles
 - side panels, which also act as heatsinks
 Please refer to the Maintenance chapter, section "Over-temperature, gradual shutdown".
- **Fan !**
The **Fan Failure** message warns you of problems with fan(s). Forced ventilation is essential for continuous and reliable operation of your dimmer at high loads. To extend the service life of the fan, and to reduce acoustic fan noise, the dimmer microprocessor will monitor and control the operation of the fans.
- **400 V !**
This warns you that an excessive voltage is applied to at least one of the phases. The dimmer has shut itself down, no dimmer will operate.
Actions to take
 - **immediately disconnect the dimmer from the mains**
Note: if this action is taken quickly (typically less than one minute), the dimmer will reset itself automatically and will be ready to function immediately after the proper mains supply is restored
 - verify that the Neutral conductor is properly connected
 - verify the supply voltage between each of the Phases and Neutral. It should be in the range 198 V to 264 V (220 V - 10% to 240 V + 10%)

Two typical examples of cabling errors in three-phase systems are

 - Error n°1: inversion between neutral and a phase. Example: when L3 and N are inverted, L3-to-neutral will be normal ± 230 V, and the other two L-to-N voltages will be ± 400 V
 - Error n°2: the neutral is disconnected

Such situations and errors are dangerous ! Always refer to a qualified electrician.
- **NoL...**
Missing phases: No (or low) voltage on phase L.... Verify the mains supply.

Status messages (continued)

- **DMX Err...**
Three 'DMX error' messages help you with troubleshooting DMX problems.
 - **DMX Err: Frm** indicates a framing error, stop byte is 0.
This is often caused by one broken wire in the DMX data pair, or the use of unsuitable cable such as audio cable
 - **DMX Err: Strt** indicates a proprietary message with a non-zero start code.
Messages with non-zero start codes are discarded by ADB dimmers.
 - **DMX Err: Ovfl** indicates buffer overflow, caused by a DMX signal with more than 512 level bytes. The DMX source does not meet the DMX512 standard.

ADB dimmers are designed to operate with or without a DMX control signal. For dimmers used in stand-alone mode, the DMX signal can be absent for longer periods - or even permanently. **DMX absent** is hence not listed as a fault.

Presence of a DMX signal in a unit, as well as the actual DMX values per dimmer, can be remotely checked with **View DMX?** in **Master Of...**



Status and fault hierarchy

In the event of multiple errors in the same unit, the most important error will be shown.

How can I view status messages

There are two ways to stay informed by NETBUS: the first is to select Scan System. The display will continuously show the status messages. The second way is part of the "Broadcast Special 3" and "Broadcast Special 4" modes. When NETBUS is set to one of these modes, the status messages are automatically shown inbetween the information about the cues.

Master of

Master Of... allows you to take control of a dimmer unit e.g. to edit and clear its DMX patch, set dimmer laws, edit cues,... While you program from a remote location, the display of the slave unit tracks and shows the changes.

Please refer to the first part of this manual for full details of the standard dimmer menus.

To make NETBUS temporary master of dimmer unit No. 5

- press **+ or -** until **Master...?**
- press **YES**
- the display shows **Master Of 1** and **1** blinks
- press **+ or -** until **Master Of 5** and **5** blinks
- press **YES**
- the display briefly shows **Connecting...**
- the display then shows **From slave**
alternating with the remote dimmer's menu
- if the display shows a flashing message **Wait! Slv. 5** then unit 5 is not responding.
NETBUS tries for 1 minute and then reverts to **Master...?**

To quit **Master Of...** and restore access to the various NETBUS Menu items:

- press **INFO** for 5 seconds until **Ret. to Local**
- wait, or press **YES**

Normal access to the various Menu items is now restored.

Notes

The **Master Of...** selection menu will automatically skip the NETBUS's own Network Address. As a safety precaution, the following menu items cannot be accessed through the ADN network:

- ClearCONFIG
- Network Address
- Analogue Input Mode
- Dimmer quantity
- Mains frequency





How to quit a function which was started remotely

For the dimmer unit, functions started from the NETBUS are equivalent to functions started from its own keyboard and menus.

Example: Test a dimmer can be started locally, or through the ADN network. It will stay active until quit through the network (NETBUS, other dimmer) or by the menu and keys on the dimmer unit itself.

You can thus fade up a dimmer for focusing, and it can remain on while you set parameters in other dimmer units. After focusing, quit with MasterOf on the NETBUS or any dimmer unit, or with the menu and keys on the target dimmer unit itself.

Broadcast Special 3

Broadcast Special 3 activates the pushbutton switches to control the memories stored in the dimmers. The pushbuttons have the following functions:

Direct access to the 20 cues:

- fade to Priority Cue #0
- fade to Cue #1
- etc.
- fade to Cue #19

And also

- fade to next cue
- stop Playing Memories
- RECORD (to be combined with one of the Cue buttons)

To quit Special 3 and restore access to the various Menu Items:

- press **INFO** for 5 seconds until **Ret. to Local**
- wait, or press **YES**

Normal access to the various Menu items is now restored. The pushbutton keyboard is no longer active.



Broadcast Special 4

With 'Special 4', the remote push-buttons have the following functions:

Direct access to 17 cues:

- fade to Priority Cue #0
- fade to Cue #1
- etc.
- fade to Cue #17

And also

- fade the current Cue down
- fade the current Cue up
- start Memory Chaser at first existing cue
- fade to next cue
- stop Playing Memories
- RECORD (to be combined with one of the Cue buttons)

So 'Special 4' removes direct access to three memories and adds the two 'fade the cue' and the Chaser Start functions. All 20 memories are still there; Cue #17 through #19 are still accessible through 'Next Cue' and through 'Memory Chaser'.

To quit Special 4 and restore access to the various Menu Items:

- press **INFO** for 5 seconds until **Ret. to Local**
- wait, or press **YES**

NETBUS



MEMOPACK 15 XT



MEMOPACK 30



MEMORACK 15



MEMORACK 30



Report Keyboard

Report Keyboard allows memory control from one or several additional NETBUSes. The additional NETBUSes are set to 'Report Keyboard'. See Examples of Configurations below.

To quit Reporting Keyboard and restore access to the various Menu Items:

- press **INFO** for 5 seconds until **Ret. to Local**
- wait, or press **YES**

Normal access to the various Menu items of NETBUS is now restored. The pushbutton keyboard is no longer active.



Memories

The Memories menu of NETBUS will in one operation change a parameter for all units on the network.

Available functions are

- edit the fade time of one cue in all units
- edit the wait time of one cue in all units
- erase a cue in all units

To quit **Memories?** and restore access to the various Menu Items:

- press **<--** until **Memories?**

Normal access to the various Menu items is now restored.



Network Address

Network Address defines the NETBUS's own network address. No two units (dimmer, NETBUS) on the same ADN network can have the same Network Address.

Non-volatile memory

All parameters are stored in the EPROM of the NETBUS for an infinite time. No battery needs to be maintained.

Setting up a system with dimmers and NETBUS

Step 1: set the Network Address for every dimmer unit. This function is found in Menu Level 3.

Step 2: verify that all dimmer units are connected to ADN, and are powered up.

Step 3: on NETBUS: perform a Learn System

Step 4: on NETBUS: perform a Scan System

Scan System will report the number of units found, and their status. Verify that all your dimmer units show up in the list, and that their status is OK.

NETBUS

Examples of configurations

Example No. 1: one NETBUS

The NETBUS can be inserted anywhere on the network, and it will communicate with all the dimmer units on the network.

For Memory Management, NETBUS is set to Broadcast Sp. 3 or Broadcast Sp. 4.

The Network Address must be set for each unit (dimmer, NETBUS) on the network, and no two units on the same network can have the same Network Address.

Example No. 2: two NETBUSes

The NETBUS can be inserted anywhere on the network, and it will communicate with all the dimmer units on the network.

For Memory Management, one NETBUS is the master. The master NETBUS is set to Broadcast Sp. 3 or Broadcast Sp. 4. The other NETBUS (or NETBUSes) are set to Report Keyboard.

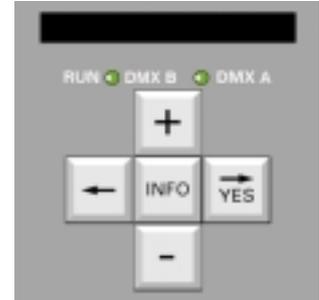
The Network Address must be set for each unit (dimmer, NETBUS) on the network, and no two units on the same network can have the same Network Address.

Example No. 3: Dimmer Manager PC and one or several NETBUS (Under development)

The PC can be inserted anywhere on the network, and it will communicate with all the units (dimmer, NETBUS) on the network.

For Memory Management, the PC is the master. The NETBUS (or NETBUSes) are set to Report Keyboard. When the PC is not available, one NETBUS can be the master (see previous example).

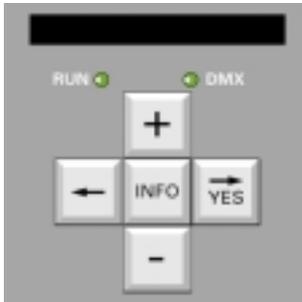
The Network Address must be set for each unit (dimmer, NETBUS) on the network, and no two units on the same network can have the same Network Address.



Interfacing with building management systems, clocks,...

NETBUS can be used as a single interface between a complete dimmer system and Building management systems, programmable controllers, show controllers, photo-electric cells, clocks... Low voltage closing contacts of such automated devices can be connected to the 25-pin connector of NETBUS. NETBUS will then broadcast the orders to all units.

When building management etc. needs to be interfaced with a single dimmer unit, i.e. not involving all the other units on the network, then you can use the classic 'Special 3' and 'Special 4' modes. This requires an Analogue Inputs kit for that single dimmer unit and setting Analogue Inputs Mode to Special 3 or Special 4. That unit can still report its status over the ADN.



Storing cues with NETBUS and a lighting desk

NETBUS will order all units on the network to simultaneously record DMX values into a memory. If no DMX signal is present, this will store a 'black out' cue with all levels at "0 %".

- set NETBUS to Broadcast Sp. 3 or Broadcast Sp. 4
 - set lighting levels for cue No. 1, with the DMX lighting desk
 - depress **Record**, keep depressed and depress **cue key No. 1**
 - set lighting levels for cue No. 2, with the DMX lighting desk
 - depress **Record**, keep depressed and depress **cue key No. 2**
- Similar for all other cues.

To view the cues as they are stored

- fade out the DMX desk: all dimmers Off or Master Fader Off.
 - depress **cue key No. 1** and Cue No. 1 will fade-in
 - depress **cue key No. 2** and Cue No. 2 will fade-in
- Etc. for all other cues.

To re-record a cue

Example: to re-record cue No. 3

- depress **Stop** to end Play Cue
- set new lighting levels for cue No. 3, with the DMX lighting desk.
- depress **Record**, keep depressed and depress **cue key No. 3**

To view the re-recorded cue as it is stored

- fade out the DMX desk: all dimmers Off or Master Fader Off
- depress **cue key No. 3** and Cue No. 3 will fade-in.

NETBUS Troubleshooting

Data In LED indicator

The Data LED indicator shows the activity on the ADN network, i.e. communication between a master and one or several units.

Disabling the Record key of NETBUS

The Record key on the front panel of NETBUS can be disabled by removing the internal jumper on the push-button board in the NETBUS.

Disabling the Record key of remote passive panels

Additional passive push-button panels can be connected to the 25-pin connector of NETBUS. The contact closures in these additional panels are wired in parallel with the NETBUS's own switches. On the additional panels, the remote Record function can be omitted, or can be protected by a keyswitch suitable for low voltage signals.

Selection of a data booster for DMX + ADN

The Advanced Dimmer Network (ADN) and protocol are based on EIA-485, the same electrical standard as DMX512. The restrictions which are well-known for DMX512 (no T-splitting, max. 32 receivers, terminator...) are also applicable to ADN, so active data boosters/splitters may be required in some system configurations. Data boosters/splitters should be suitable for half-duplex bidirectional (2-wire) communication on the second data pair (pins 4 and 5 of the XLR5). Many data boosters/splitters will not handle signals on the second data pair, or may be designed for full-duplex bidirectional (4-wire) communication. If in doubt, please contact an ADB representative.

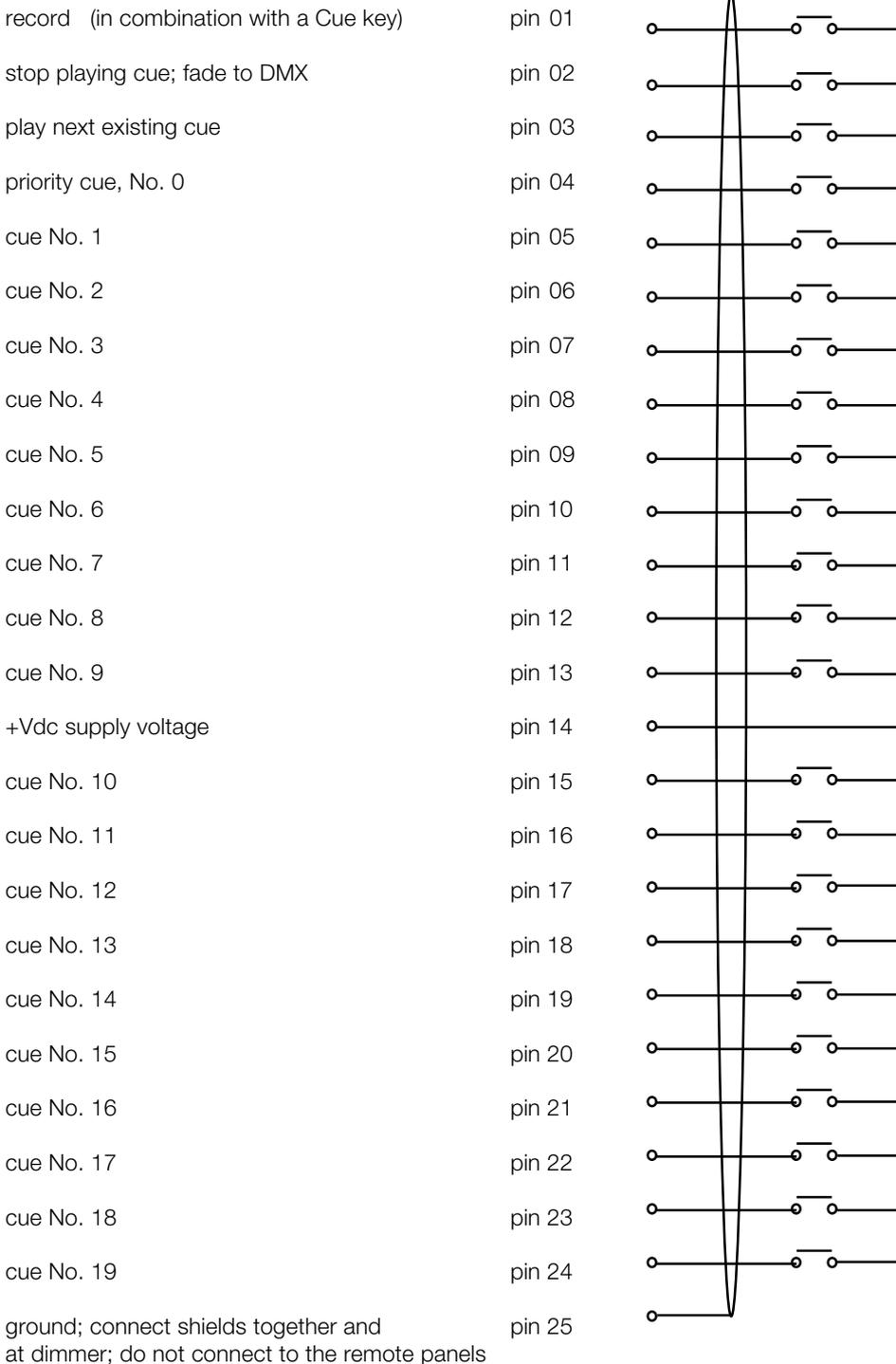
NETBUS

Wiring of external passive pushbuttons for Special 3

For Special 3 and Special 4, jumper W1 of pcb 1336 must be set on pins 1 and 2, to provide a dc voltage on pin 14 of the 25-pin connector. Jumper W2 must be positioned on pins 2 and 3; or must be removed.

How to protect the cues ?

To avoid accidental modification of cues by non-qualified staff, we recommend to connect the 'Record' key only in selected locations such as the control room. As an additional precaution, you can wire a key-switch in series with the Record key.



Wiring of external passive pushbuttons for Special 4

Analogue Input Board pcb 1336 - jumpers

For Special 3 and Special 4, jumper W1 of pcb 1336 must be set on pins 1 and 2, to provide a dc voltage on pin 14 of the 25-pin connector. Jumper W2 must be positioned on pins 2 and 3; or must be removed.

How to protect the cues ?

To avoid accidental modification of cues by non-qualified staff, we recommend to connect the 'Record' key only in selected locations such as the control room. As an additional precaution, you can wire a key-switch in series with the Record key.

record (in combination with a Cue key)

stop playing cue; fade to DMX

play next existing cue

priority cue, No. 0

cue No. 1

cue No. 2

cue No. 3

cue No. 4

cue No. 5

cue No. 6

cue No. 7

cue No. 8

cue No. 9

+Vdc supply voltage

cue No. 10

cue No. 11

cue No. 12

cue No. 13

cue No. 14

cue No. 15

cue No. 16

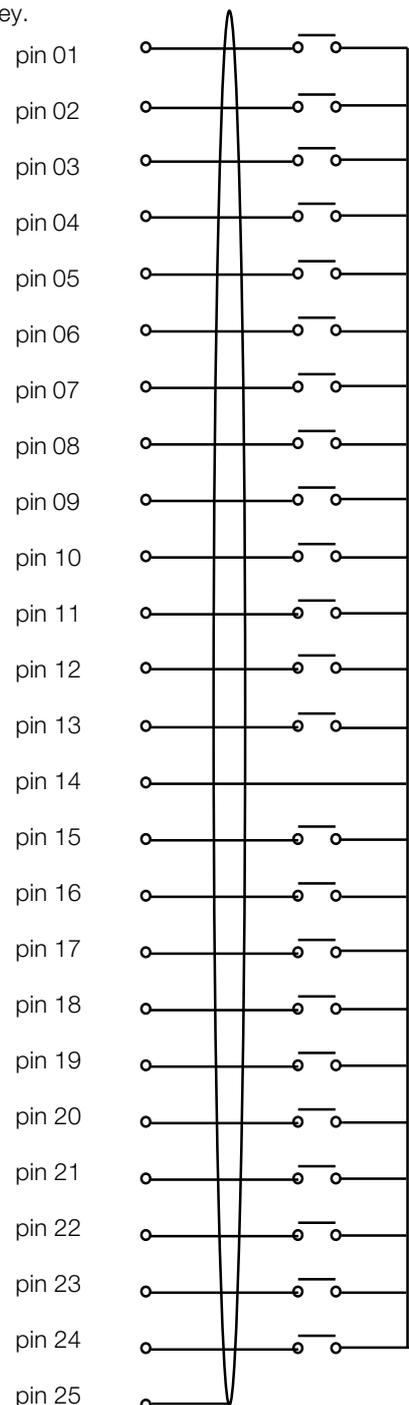
fade the current cue Down

fade the current cue Up

start Memory Chaser at first existing cue

ground; connect shields together and

at dimmer; do not connect to the remote panels



Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

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Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

Product name	Product	DIMMER RATING			CPU board				EPROM (firmware)		THYRISTORS BOARD					DISPLAY BOARD	
		3kW	5kW	12kW	PCB 1410,1 NC 1131,33,015	PCB 1410,5 NC 1131,33,055	PCB 1410,6 NC 1131,33,065	PCB 1410,7 NC 1131,33,075	M60_204 (V2,04)	TERM204 (V2,04)	PCB1431 NC 1130,27,550	PCB1431,1 NC 1131,39,610	PCB1431,2 NC 1131,39,620 (SET FOR 3 DIMMERS)	PCB1404 NC 1130,27,520	PCB1404,1 NC 1130,27,530	PCB1333,2 NC1139,98,020	PCB1333,3 NC 1139,98,030
(dimmer unit)	Part No.																
MEMOPACK 15XT	1DD...2	X			X			X		X							X
MEMOPACK 15XT	1DE...2		X		X			X			X						X
MEMORACK 15	1DD...2	X			X			X		X							X
MEMORACK 15	1DE...2		X		X			X			X						X
MEMORACK 30	1DA...2	X			X			X		X							X
MEMORACK 30	1DA...2		X		X			X			X						X
MEMORACK 30	1DN...1			X	X			X				X					X
MEMOPACK 30	1DJ...2	X			X			X				X					X
MEMOPACK 30	1DK...2		X		X			X				X					X
EURORACK (12x3 824x3)	1DF...2	X						X		X							X
EURORACK (6x5 & 12x5)	1DF...2		X					X			X						X
EURORACK Switched	1DF...2							X			X						X
NETBUS	1AK...0							X									X

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DIMSPAREXLS

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

DIMSPAREXLS

Product name	Product Part No.	DIMMER RATING			OTHER BOARDS				FUSE 5x20				
		3kW	5kW	12kW	PCB 1357,1 1131,21,010 NC DMX & ADN TERMINALS	PCB1459 1131,40,500 NC FILTERING	PCB1355,3 1131,20,030 NC SYNCHRO	PCB1336,3 1131,01,030 NC ANALOGUE INPUTS (24 inputs)	PCB1461 1131,40,600 NC SWITCHES	80mA T NC 6130,07,105	100mA T NC 6130,07,130	160mA T NC 6130,09,130	250mA T NC 6130,12,140
(dimmer unit)													
MEMOPACK 15XT	1DD...2	X								X	X		
MEMOPACK 15XT	1DE...2		X							X	X		
MEMORACK 15	1DD...2	X								X	X		
MEMORACK 15	1DE...2		X							X	X		
MEMORACK 30	1DA...2	X								X	X		
MEMORACK 30	1DA...2		X							X	X		
MEMORACK 30	1DN...1			X						X	X		
MEMOPACK 30	1DJ...2	X								X	X		
MEMOPACK 30	1DK...2		X							X	X		
EURORACK (12x3 & 24x3)	1DF...2	X			X	X	X						X
EURORACK (6x5 & 12x5)	1DF...2		X		X	X	X						X
EURORACK Switched	1DF...2				X	X	X						X
NETBUS	1AK...0							X	X				X

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Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

DIMSPAREXLS

Product name	Product Part No.	DIMMER RATING			FUSE 10x38			CIRCUIT BREAKER				TRANSF.		FAN			
		3kW	5kW	12kW	FUS 12A NC 6130,48,100	FUS 20A NC 6130,54,020	FUSE HOLDER NC 6132,00,095	MCB 1P 16A NC 6150,90,016	MCB 1P 25A NC 6150,90,018	MCB 2P 63A NC 6150,80,450	MCB 1P+N 16A NC 6150,90,046	MCB 1P+N 25A NC 6150,90,048	TFO FARNELL NC 6300,00,165	TFO ARABEL NC 6300,00,315	FAN 12V 118mm NC7074,10,040	FAN 12V 2,3W 60mm NC 7074,10,035	FAN 12V 80mm NC 7074,10,070	FAN 12V 80mm 8412NM NC 7074,10,065
MEMOPACK 15XT	1DD...2	X			X	X	X	X							X		
MEMOPACK 15XT	1DE...2		X		X	X		X			X				X		
MEMORACK 15	1DD...2	X			X	X	X	X									
MEMORACK 15	1DE...2		X		X	X		X			X						
MEMORACK 30	1DA...2	X			X	X	X	X								X	
MEMORACK 30	1DA...2		X		X	X		X							X		
MEMORACK 30	1DN...1			X		X			X								X
MEMOPACK 30	1DJ...2	X			X	X	X	X								X	
MEMOPACK 30	1DK...2		X		X	X		X								X	
EURORACK (12x3 & 24x3)	1DF...2	X			X	X	X	X						X			
EURORACK (6x5 & 12x5)	1DF...2		X		X	X		X						X			
EURORACK Switched	1DF...2				X	X	X	X						X			
NETBUS	1AK...0														X		

Prepared by: BR / ABR - Issue: 23-oct-2000.

Programming Digital Dimmers

MEMOPACK, MEMORACK, EURORACK 50+, EURORACK 60, EURODIM 3

DIMSPARE.XLS

Product name (dimmer unit)	Product Part No.	DIMMER RATING			OUTPUT MULTI-CONNECTOR (AMP)			
		3KW	5KW	12KW	HOUSING 92681-3 F 12 x 15A NC 6117,17,055	HOUSING 1-80672-0 F 9 x 25A NC 6117,17,065	CONTACT PIN F 15A 926869-1 NC 6117,17,095	CONTACT PIN F 25A 925663-1 NC 6117,17,085
MEMOPACK 15XT	1DD...2	X						
MEMOPACK 15XT	1DE...2		X					
MEMORACK 15	1DD...2	X			X		X	
MEMORACK 15	1DE...2		X					X
MEMORACK 30	1DA...2	X			X		X	
MEMORACK 30	1DA...2		X					X
MEMORACK 30	1DN...1			X				
MEMOPACK 30	1DJ...2	X						
MEMOPACK 30	1DK...2		X					
EURORACK (12x3 & 24x3)	1DF...2	X						
EURORACK (6x5 & 12x5)	1DF...2		X					
EURORACK Switched	1DF...2							
NETBUS	1AK...0							

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Additional sources of information

The User Manual for the Dimmer Manager software

The "Dimmer Manager Software" manual can be downloaded from the ADB website. <http://www.adblighting.com> > ADB Products > Dimmers > "Advanced Dimmer Network - ADN, Dimmer Manager" > and select the User Manual.

How to install analogue inputs (retrofit)

The instructions on installing Analogue Inputs can be downloaded from the ADB website. <http://www.adblighting.com> > ADB Products > Dimmers > Digital Dimmers - Analogue Inputs > Short Form Manual.

The ADB Ethernet Network Guide

The "ADB Ethernet Network Guide" can be downloaded from the ADB website. <http://www.adblighting.com> > ADB Products > Interfaces > Ethernet > select the User Manual.

The User Manual for NETPORT (XT)

The User Manual for NETPORT and NETPORT XT is available from the ADB website. <http://www.adblighting.com> > ADB Products > Interfaces > NETPORT(XT) > select the User Manual.

The DMX512/1990 standard

The text of the DMX512/1990 and DMX512-A standards is available from the United States Institute for Theatre Technologies (USITT) <http://www.usitt.org> and from the Professional Light and Sound Association (PLASA) <http://www.plasa.org>.

Ongoing projects about DMX and RDM

<http://www.usitt.org> and <http://www.esta.org/tsp/>

ESTA and its Technical Standards Programme

Learn more about - or participate in - the ongoing standards development efforts:

<http://www.esta.org/tsp/>

Example: the ESTA Control Protocols Working Group covers subjects such as

DMX512-A	the successor to DMX512/1990
RDM	Remote Device Management (EIA-485 serial transmission)
ACN	Advanced Control Network (over Ethernet).

The process of creating a new standard includes one or several Public Reviews. Participate!

ADB - Your Partner for Light

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