EURORACK 50+

Installation
Manual

ADB
Lighting Technologies

Summary

Note: the "Programming Digital Dimmers and NETBUS" manual is also available and contains the user menus and functions.

Delivery - Unpacking

Upon delivery of your equipment, open the packaging carefully and examine the EURORACK 50+.

If you observe any damage, contact the shipping company immediately, and have your complaint duly recorded. You may rest assured that your equipment left the factory in perfect condition.

Check whether what you have received is in conformity with the delivery notice, and whether the notice is in conformity with your order.

In the event of any error, contact your shipper immediately to clarify the situation and receive full satisfaction.

If you find nothing wrong, replace the material in the packing and store it in a warm place, away from dust and humidity, while awaiting final installation.
Never leave the material on the worksite under any circumstance.

Generalities - Safety

The EURORACK 50+ is a professional fully digital dimmer built in accordance with European safety standards EN 60950 and EN 60204.

It is a Class I equipment designed and manufactured to EN 60950 and requires imperatively a safety earth connection in compliance with local regulations.

To prevent any risk of electric shock, do not remove any cover or part of the enclosure. Access to internal parts is not required for normal operation.
Refer servicing to skilled and trained service personnel exclusively.
Disconnect from the power supply prior to opening for inspection or service.

WARNING ! LETHAL VOLTAGES ARE PRESENT INSIDE

WARNING! EVERY USER SHOULD READ THE CHAPTER "WARNING MESSAGES".

Connection to an inappropriate power source may irreversibly damage the EURORACK 50+, it is the user's responsibility to use the EURORACK 50+ for its intended purpose and to check the equipment connected to it.

The EURORACK 50+ is a piece of professional equipment developed with the simplicity of use in mind. However, to obtain full benefits of the safety measures, the equipment shall be installed and serviced by skilled and trained personnel exclusively.

Important Notice for Power Cables

Power supply cables and connectors are an important part of your equipment and contribute to its safety.

- always use an isolator or main circuit-breaker, or main fuses to interrupt the link; never pull on the cable
- do not damage the cable nor the connectors in any way, check them at each installation or at regular intervals in a permanent installation
- do not tie together power supply cables and signal cables

Very compact, all-digital intelligent dimmers, for professional stage, studio and architectural lighting, whenever performance, space and cost are the prime considerations.

Available in 2 main configurations:
- 24 x 2.3 kW
- 24 x 2.3 kW with hard patch

Supplied with:
- instruction manual

Dimensions	(mm)	1022 x 555 x 132
Net weight	(kg)	34

Main Features

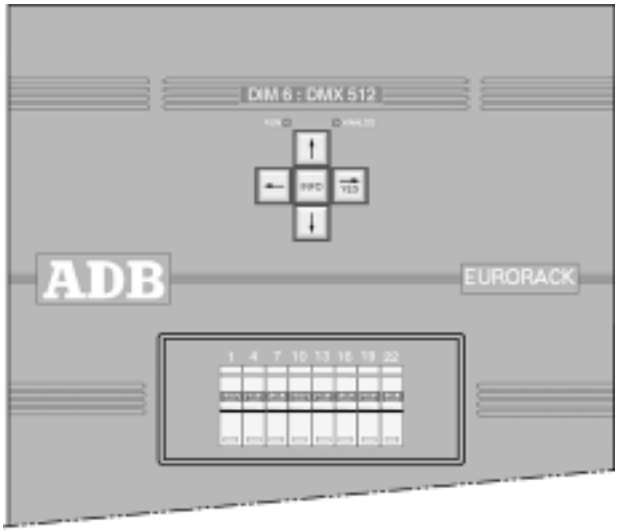
- 5-key keypad, 12-character LED display and user- friendly scrolling menu for easy access to all dimmer functions.
- Individual selection of dimmer address (patch), law, smoothing and multiplication factor.
- 10 user-selectable dimmer laws: linear rms voltage (Lin), linear rms to 120 V (120 V), fluorescent (Fluo), linear rms voltage with preheating (Preh), square law (Sqr), TV laws (BBC, TV1, TV2), non-dim with hysteresis (onOff), userprogrammable custom law (Cust).
- Voltage reduction factor for extended lamp life or variable load cable length compensation.
- 4000-step fade resolution, for noticeably smoother fades.
- Global or individual programming of dimmer law, patching, voltage reduction factor and smoothing.
- Memories set by recording DMX levels or via the menu.
- Creation and storage of 20 lighting cues (19 + Priority) each with fade and wait times, for back-up cues, architectural lighting, or stand-alone operation.
- After loss of DMX data: maintain last levels, or wait and fade to one of the internal cues, or wait and fade to black.
- All programmed data saved for unlimited time.
- Local test of a dimmer (steady, flash or chaser).
- Local status reporting: 400 V - overtemperature – fan failure - processor check - presence of DMX signal - DMX and analogue control levels.
- Low noise fans for effective cooling, with automatic fanstop.

Architectural Applications

The analogue input option allows remote control by means of
- analogue control desk (0/+10V), or
- 20 memories; direct access, one switch per memory

Options and Accessories

• Analogue input 0/+10V retrofit kit with 24 inputs	KIT / INPUT / ANA /24
• Stand-off brackets for 10 cm trunking space behind the rack	ARC/ERACK
• Protection MCB/ 1P+N instead of 1P protection - for 24 dimmers	PROT/1P+N/24
• Protection fuses HPC (1P+N) instead 1P - for 24 dimmers	PROT/FUSE/1P+N/24
• RCD - 30 mA (1P+N) supply protection per group of 4 dimmers compulsory for IT/TT supply. Required quantity: 6	RCD10/ER50
• RCD - 30 mA (1P+N) supply protection per group of 8 dimmers compulsory for IT/TT supply Required quantity: 3	RCD20/ER50



Presentation

Compact rack enclosure made of a very rigid assembly of steel plates, anodised aluminium extrusions and a smart looking front control panel.

Front Panel LED Indicators

- Presence of DMX signal
- Microprocessor running
- Error messages in clear (for ex. temperature warning,fan failure, …)

Power Supply

- Three phase star 3NPE 400 V, 50/60 Hz (TN-S) with max phase current 80A. Voltage range 198 – 264 V

Power Rating

The dimmers are suitable for continuous operation up to 50 kW total load at 35°C room temperature (air intake).

Protections

- Individual protection by MCB 1P breaking capacity 6kA
- Protection against accidental 400 V wiring errors

Connections

- Power supply on terminal strip (35 mm^2)
- Power output on terminal strip
- Cable entry through the bottom side of the rack

Local Controls without Lighting Console

- Flashing of one dimmer for easy luminaire identification in a rig
- Chaser
- Setting of a dimmer level

Communications

- DMX512/1990 digital input
- 0/+10 V or 0/370 - µA analogue inputs (option)

Cooling

- Convection cooling via the lateral aluminium extrusions (heat sinks) and forced air cooling through two 12 V brushless DC fans with automatic ON-OFF switching
- Overtemperature protection (gradual fade-out)

Installation

EURORACK 50+ is primarily intended for wall mounting.
Being significantly smaller and lighter than comparable systems, it can be installed on relatively light structures in a minimum of space.
Installation work is very simple and limited to connecting DMX, power supply and power output cables to professional grade terminal strips provided inside the enclosure.
Support hardware is available for installations where cables have to be run behind the EURORACK 50+.

- Single-phase operation capability (1P protections).

Characteristics

Your EURORACK 50+ is a piece of professional equipment, and should always be used in accordance with applicable safety regulations.

Electrical characteristics

Control electronics : fully digital, microprocessor controlled

Ratings : dimmers rated for continuous duty : 24 x 2.3 kW
max 50 kW per EURORACK 50+ at 35°C

Operating temperature range : + 5°C to 35°C, 25°C suggested; relative humidity max. 95%, non-condensing; altitude < 1000 m

Supply system : 3NPE 400 V 50 Hz and 60 Hz (TN-S system, Neutral directly connected to Earth; 230V between phase and Neutral). Reduced-size N conductor is not allowed. Single-phase operation is possible (single-pole protected).

Supply voltage range : 198 V to 264 V (230 V +/- 14 %)

Accidental 400 V supply : internal protection circuitry will disable the dimmers

Rated supply current :
- Star 3-phase 3NPE supply: 87 A per phase at 230 V
- single-phase supply: 261 A at 230 V

Dimmer protection : MCB 1P 6kA

Residual Current Device :
- RCD per group of 4 x 2.3 kW (OPTION) 30 mA
- RCD per group of 8 x 2.3 kW 30 mA

Control inputs :
- DMX512/1990 (USITT digital multiplex standard)
- optional analogue 0/+10 V or 0/+370 µA (internal conversion)
- simultaneous DMX and analogue inputs: Highest Takes Precedence

DMX control signal failure : the last valid DMX message will be kept indefinitely

DMX address : setting of the DMX-address of the first dimmer by means of Menu

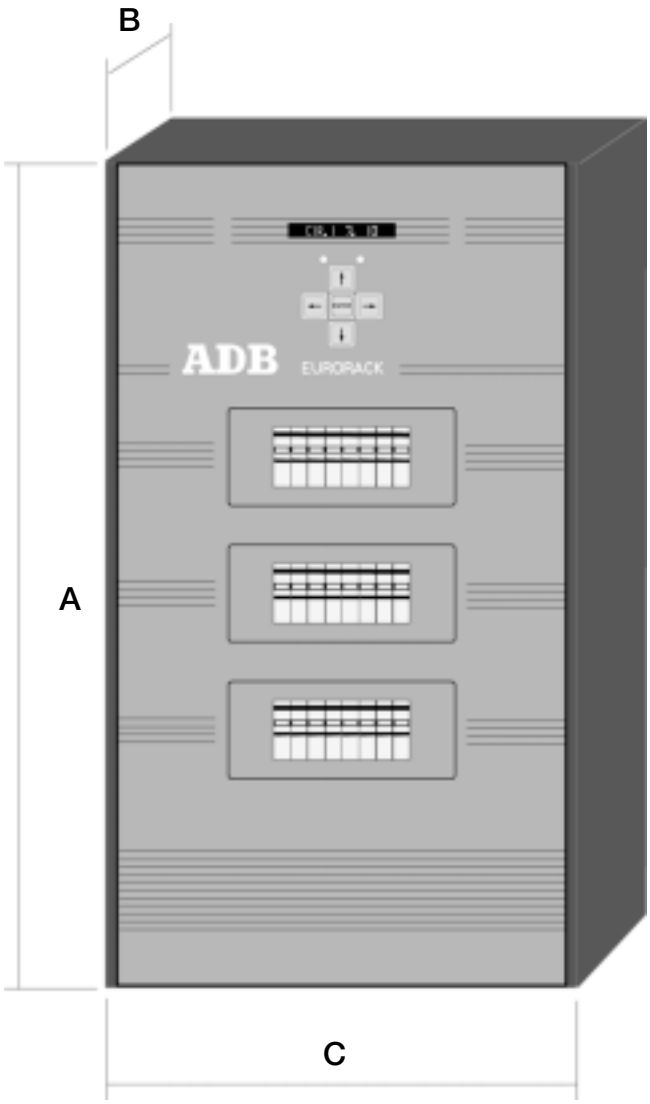
Dimmer laws (selectable per dimmer) :
- 10 user-selectable dimmer laws: linear r.m.s. voltage, linear r.m.s. to 120 V, TV laws (BBC, TV1, TV2), non-dim with hysteresis, fluorescent, linear r.m.s. voltage with preheating, square law, user-programmable custom law.

Front panel indicators :
- presence of DMX512 control signal
- microprocessor operational
- fault messages (display)

Dimmer test functions :
- automatic chaser at 70%
- one dimmer at any level
- lighting cue without a desk
- self-test (internal)

Response time :
- DMX: better than 35 ms (typical)
- analogue: better than 40 ms (typical)
- dimmer precision : 4000 dimmer levels

Efficiency at rated load	: better than 98 %
Dissipation per dimmer	: below 60 W (3kW) and 100 W (5 kW) at rated load
DC component	: below 1 V in rated load range in output voltage
Minimum load	: 45 W for a 2.3 kW; typical : 25 W
Types of load	: suitable for resistive and inductive loads, such as tungsten lamps, low voltage halogen lamps with a suitable transformer, fluorescent lamps with suitable ballast.
Fault current rating	: MCB 6kA ; fuses 1P+N 100kA (optional)
Colour code for supply cable	: - Brown and/or black : phases L1, L2, L3 - Blue : Neutral - Yellow/green : Earth
Safety standards	: • EN60204 • EN60950



Mechanical characteristics

Dimensions : 1020 x 135 x 555 mm

Net Weight : 34 kg

Packing : 1150 x 265 x 685 mm

Gross Weight : 39 kg

Product Description

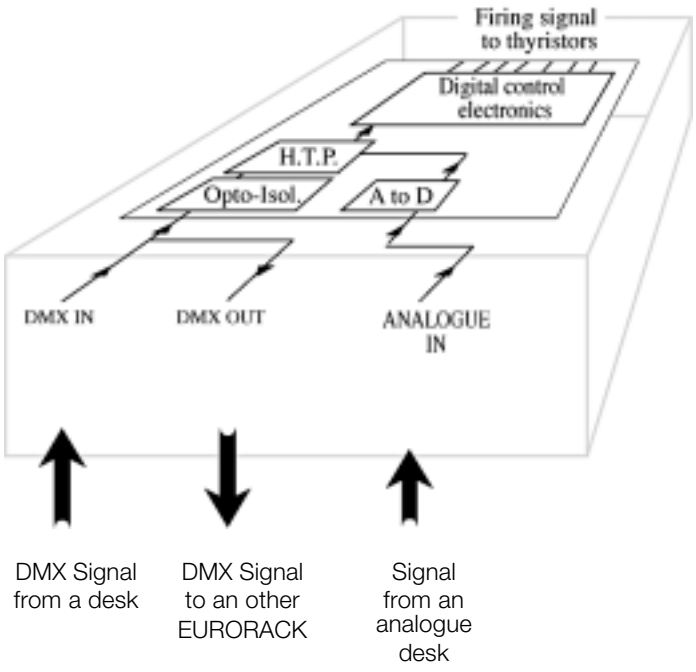
Digital dimmers

The EURORACK 50+ is a member of a family of fully digital dimmerpacks, using advanced microprocessor control and an Application Specific Integrated Circuit (= custom chip) designed by ADB.
Digital control offers stable, accurate and repeated performance over time, without the periodical recalibration required by dimmers with analogue circuitry.
The very straightforward menu-driven set-up provides maximum flexibility for a wide range of applications.
In a EURORACK 50+ equipped with the Analogue Input option, the analogue control signals are converted to a digital signal by the DAC (Digital to Analogue Converter), and are further processed as digital data.

The analogue and the DMX levels are merged for every dimmer, on a “highest takes precedence” (HTP) basis.

Example :

- dimmer
  - DMX control desk at 70 %
  - analogue control desk at 50 %
  - dimmer output level will be 70 %
- dimmer
  - DMX control desk at 20 %
  - analogue control desk at 80 %
  - dimmer output level will be 80 %



Ratings

Your EURORACK 50+ is suitable for continuous duty with a total load of 50 kW and 35°C ambient temperature.
Each individual dimmer is suitable for continuous duty at 2.3 kW.
When totalling up the load to a dimmer, one should include the losses in the cabling and, if applicable, the losses in the transformer.

Loads

The following precautions improve the reliability and performance of dimmer systems in general:

- every low-voltage transformer must be protected by its own primary fuse
- use preferably more than one lamp on the secondary of a low-voltage transformer
- power-factor correction capacitors, such as supplied with some fluorescent lamp fixtures, should not be connected to a dimmer; they must be connected to the mains

Cooling

Your EURORACK 50+ is equipped with a forced ventilation system, with two long-life, low-noise, high performance fans. This allows continous use at full rated load. Air intake apertures are on the front, and the exhaust apertures are on the top. Do never obstruct these apertures !
The operation of the fans is controlled by microprocessor.
The automatic thermal protection scheme is detailled in “Miscellaneous - Gradual Shutdown”.

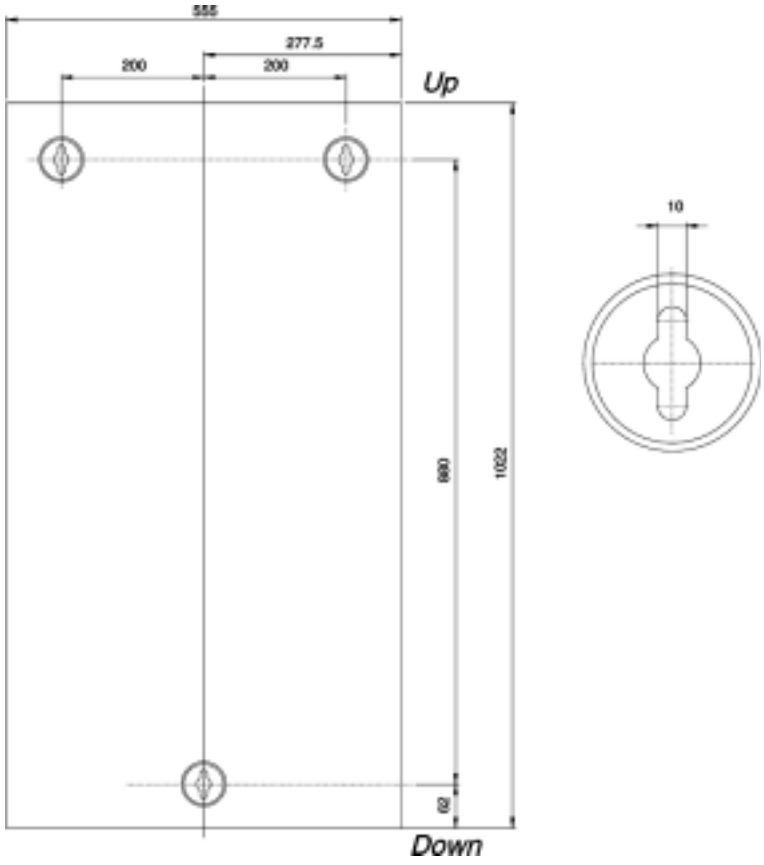
EURORACK 50+

Wall-mounting

EURORACK 50+ will be mounted against a wall, with cable entry at the bottom.
A wall-mounting kit is available if the EURORACK 50+ is to be mounted away from the wall, thereby creating trunking space behind the EURORACK 50+.

Distance between adjacent EURORACKs 50+

A distance of min. 50 mm (2") should be kept between adjacent EURORACKs 50+.
This will allow sufficient airflow along the side panels (= heatsinks).



Supply connections

Type of mains supply network

Before you connect electrical equipment, you must verify that it is adapted to the mains system at your venue.
If in doubt consult the electrician or the utility company.
The standard EURORACK 50+ is suitable for a three-phase 3NPE 400 V 50 Hz and 60 Hz, TN-S system (three phase wires + Neutral wire + Earth wire; Neutral directly connected to Earth).
The rated voltage between phase and Neutral is 230 V.
The operating voltage range is 230 V +/- 14% (198 V to 264 V).
The dimmer protections are single-pole, in the Live wire, as required for a three-phase TN-S supply.
1P + N and 2 P dimmer protection available on request.

Under some conditions, the EURORACK 50+ can be operated on a single-phase supply.

Protection on the supply side

EURORACK 50+ and its supply cable must be adequately protected against overload and shortcircuit by the installation; verify the current edition of the applicable wiring regulations.
Please also refer to “Supply Cable”, and to “Electrical Characteristics”.

Supply terminals

All connections should be performed by a qualified electrician.
The supply terminals are suitable for cables up to 35 mm^2.
The colour code is blue for Neutral and yellow/green for PE.

Access to the terminals

- the lower front panel must be removed to gain access to the supply terminals.
- always disconnect the power supply before you remove the cover
- please refer to the sketch for the position of the four screws which secure the cover.

Supply cable

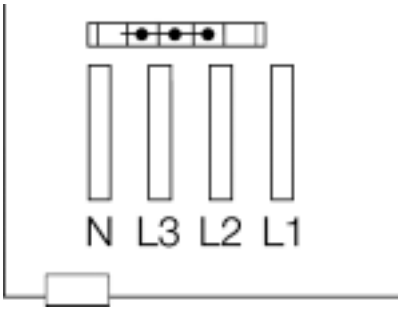
The size of the Neutral wire must at least be equal to the size of the phases; reduced-size Neutral wires are DANGEROUS and are NOT allowed.

All supply cables and extension cables should have all conductors under the same sleeve, in order to reduce unwanted interferences to audio and video equipment.

The supply cable should be sized for the rating of the EURORACK 50+:
- 80 A per phase for three-phase star operation (3 x 400 V + N)
- 240 A for single-phase operation (230 V + N)

Cables for lower current ratings are not allowed unless the protection devices in the installation (supply fuses or supply circuit-breaker) are selected accordingly.

Operation on a Star system (3 x 400 V + N + Earth)



Single-phase conversion kit

The EURORACK 50+ can under some circumstances (see Warning below) be used on a single-phase supply. L1, L2 and L3 are linked for single-phase operation.

WARNING
The EURORACK 50+ (TN version) will operate on a single-phase supply, but the user must verify whether singlepole protections are allowed by the applicable wiring regulations.
The EURORACK 50+ will operate reliably up to its full rated load (50 kW) at 35°C. The actually available power may be limited by the power supply (cable size, supply fuse rating, supply mcb rating).

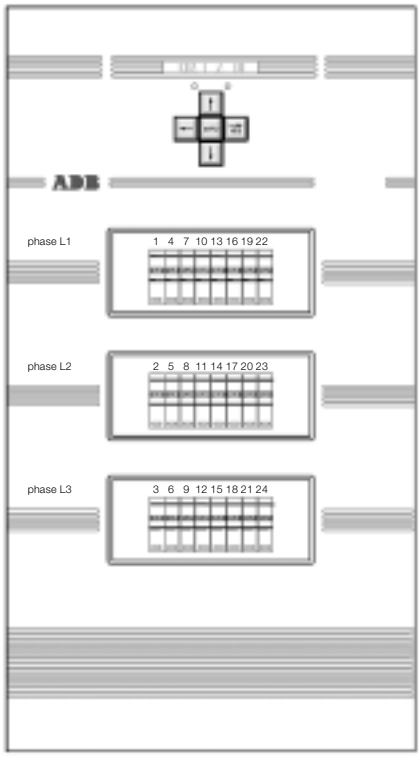
Output Connections

The outgoing cables to the luminaires are connected to the terminal strip in the contractor's panel.
Phase, neutral and PE terminals are supplied for each dimmer.
All load terminals are clipped on a symmetrical 35 mm ("top-hat") DIN rail.

The terminals are suitable for wire sizes (stranded or rigid) : up to 4 $mm^{2.}$

Numbering

The pre-printed numbering on the terminals refers to the pre-printed numbering of the dimmer fuses on the front panel.
Both indicate the number of the dimmer.



Control Connections

Two lighting control desks can simultaneously control your EURORACK 50+: one DMX512 and one Analogue. The actual dimmer output will be the highest of the two levels (Highest Takes Precedence, HTP), as described in the example on page 5.

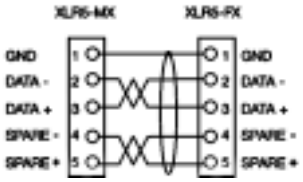
DMX512/1990

DMX512 (USITT) is internationally the most widely accepted communication standard for lighting control equipment. The standard is issued by the USITT (U. S. Institute of Theatre Technology); the suffix 1990 indicates the latest issue.
The DMX512 signal is a Digital MultipleXed control signal, suitable for the digital transmission of the levels of up to 512 dimmers.
Electrically it uses the RS-485 (EIA-485) standard, which states: wire pairs + screen; maximum 32 receivers on a line; cable length without reamplification max. 300 m; no splitting or Y-junctions. Transmission rate is high (250 kbit/s). Dimmer levels are sent in bytes of 8 bits (256 possible levels).

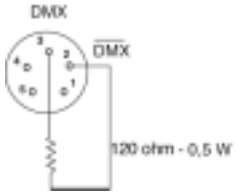
DMX512 network

The EURORACK 50+ is fitted with DMX XLR5 connectors :
1 = screen
2 = DMX data -
3 = DMX data +
4 = spare -
5 = spare +
However for a better EMC immunity ADB suggest
1 = logic ground (0V)
2 = DMX data -
3 = DMX data +
4 = spare -
5 = spare +
6 = screen to XLR chassis ground

Standard DMX interconnection and extension cable



Cable
Length: max. 250 m
Size: 2 x 2 x 0.34 mm^2,shielded



The terminating resistor must be placed on the output connector of the last unit on the DMX line.

Termination of the DMX line

The DMX OUT of the last dimmer unit on the daisy-chain must receive a termination resistor. The last unit on the daisy-chain must be equipped with a termination plug. This termination plug is an XLR5 plug with small resistors of 120 Ω 0,33 W soldered between pins 2 and 3.

The DMX512 network

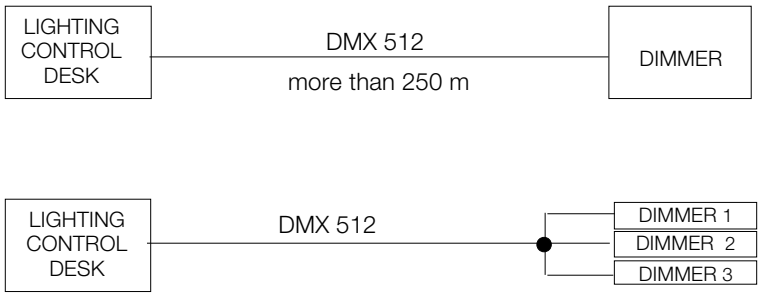
The DMX512 network starts from the lighting control desk. A first cable runs from the DMX OUT of the control desk to the DMX IN of the nearest dimmer unit. The daisy-chain continues by means of a second cable, connecting DMX OUT to DMX IN of the next dimmer unit. This daisy-chain is continued through all the dimmer in the system. In EURORACK 50+ the DMX IN and DMX OUT are wired in parallel, so continuity of the daisy-chain is always provided. The continuity and quality of the DMX signal will not be affected when the EURORACK 50+ is switched off, or when a failure occurs.

Opto-isolation

The DMX512 input of your EURORACK 50+ is equipped with optocoupler isolation. This provides galvanic isolation between the DMX network and the microprocessor electronics in the EURORACK 50+. This is an important safety feature: should for example the DMX512 network come in contact with 230 V mains voltage, then the internal electronics of the EURORACK 50+ will remain isolated from those dangerous voltages. Such accident could occur for example when cables are severely damaged or crushed, or when an isolation fault occurs in a control desk which has no optoisolation in its output.

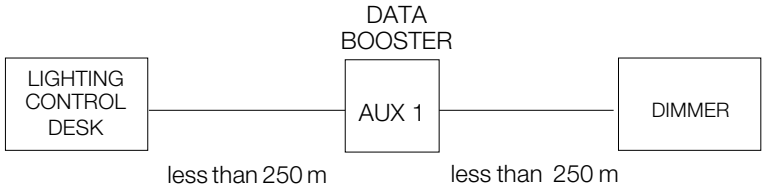
DMX Network - Application Examples

NO

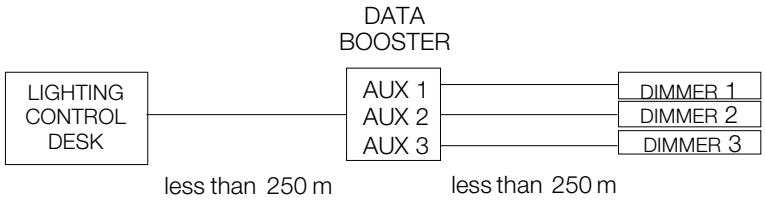


YES

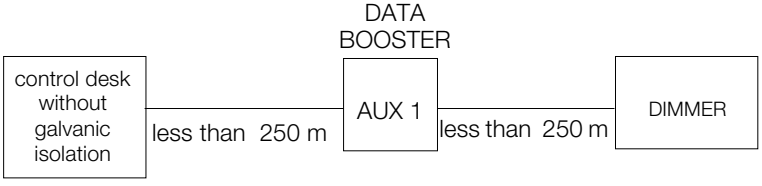
1 - When total length of DATA line exceeds the recommended length :
- DMX512 Standard : 300 m
- ADB recommendation : 250 m



2 - When DATA line is split in a Y - junction



3 - Galvanic isolation for DATA line protection



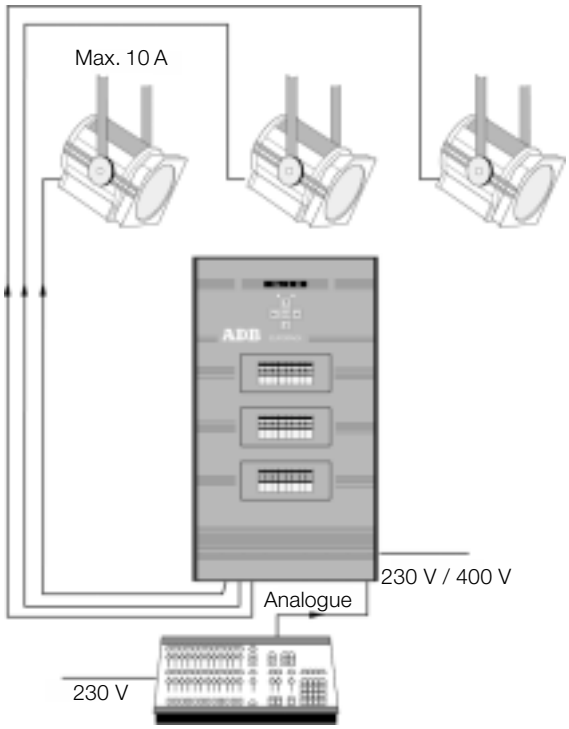
ADB Lighting Technologies

Example 1: four EURORACKs 50+ (24 dimmers) controlled by a lighting control desk

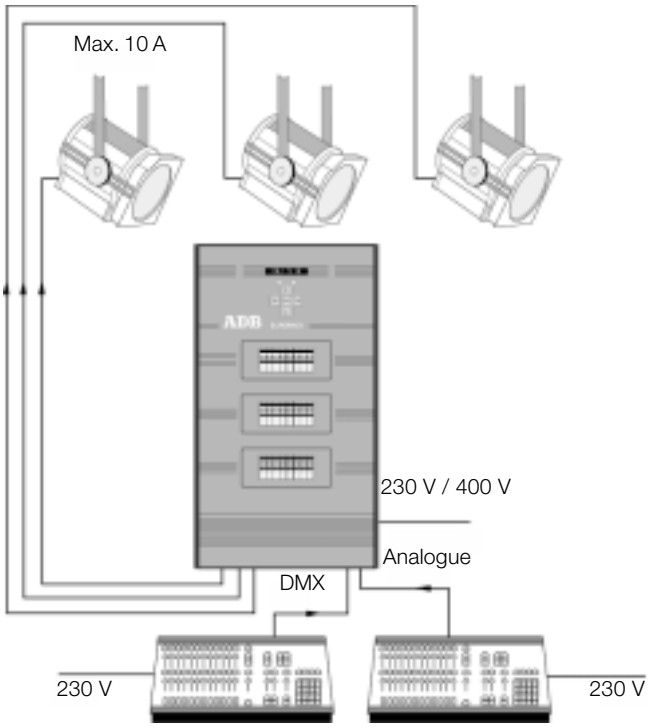
How to lay-out the DMX512 cables

- the EURORACKs 50+ can be daisy-chained in any order (see example 1)
- the last unit on the DMX line must be equipped with a Termination Plug or resistor
- the overall length of the DMX cables (sum of the length of the individual cables) is very important.
  We recommend that it should not exceed 250 m. Longer cable runs are likely to reduce the quality of the DMX signal, which may result in unpredictable results. For cable runs exceeding 250 m an active amplifier is required, such as ADB's DATA BOOSTER. A 250 m cable run can be connected to each active output of the DATA BOOSTER.
- Y-splitting is not allowed. If the DMX network must fan out in different directions, then an active splitter is required, such as ADB's DATA BOOSTER
- the DMX512 standard states that max. 32 receiver units may be connected to one transmitter. So up to 32 EURORACKs 50+ can be connected to a lighting control desk, or to an active output of a DATA BOOSTER/SPLITTER
- do not run DMX512 cables (or Analogue control cables) together with power cables
- for further information, please refer to the data sheet of the DATA BOOSTER, or the "Recommended Practice for DMX512" published by the Professional Light and Sound Association (PLASA) available from your supplier.

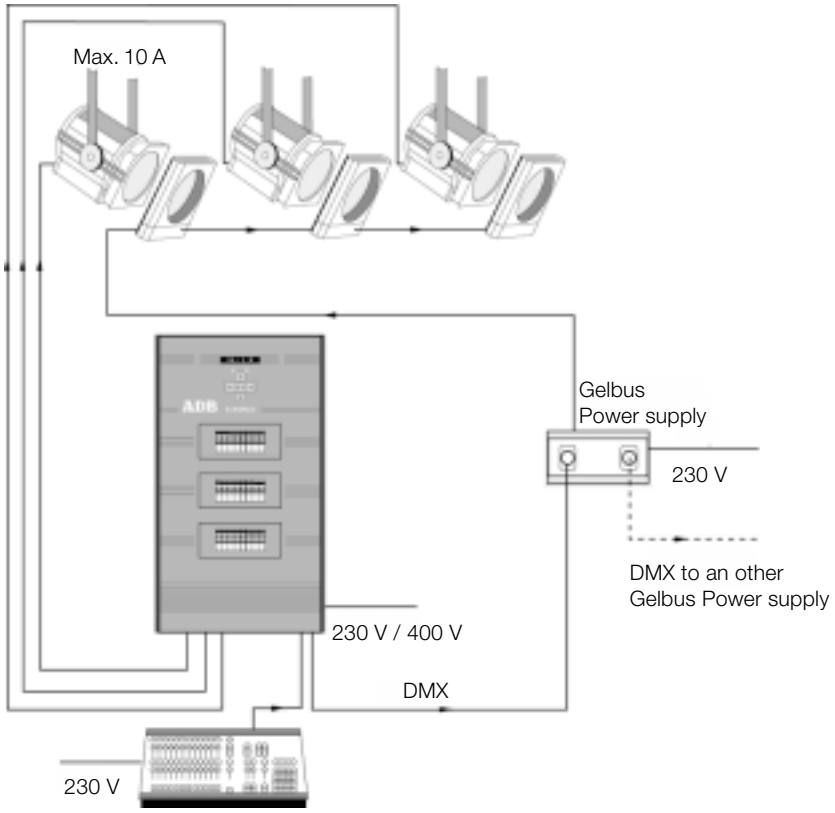
Example 2 : one EURORACK 50+, with Analogue Input Option, controlled by an analogue output desk



Example 3 : one EURORACK 50+, with Analogue Input Option, controlled simultaneously by an analogue output desk and a multiplexed desk (Highest Takes Precedence)



Example 4 : one EURORACK 50+ controlled by a DMX desk, which also controls DMX colour scrollers (GELBUS)



Analogue inputs

Your EURORACK 50+ can be equipped with Analogue Inputs, in which case it can be controlled by analogue control signals, 0/+10V or 0/+370 µA (filtered).
If the Analogue Inputs were factory-installed, they were set for 0/+10V operation; you can easily perform the conversion to 0/+370 µA yourself. See below for the detailed procedure.

The Analogue Inputs connector is a DB25-S receptacle, in the contractor's compartment.

The following table shows the pin allocation for all the connectors, including P3 and P4 on the Analogue Inputs board.

		DB-25 S	internal (P3, P4)
control dimmer	1	pin 1	pin 1
control dimmer	2	pin 2	pin 3
control dimmer	3	pin 3	pin 5
control dimmer	4	pin 4	pin 7
control dimmer	5	pin 5	pin 9
control dimmer	6	pin 6	pin 11
control dimmer	7	pin 7	pin 13
control dimmer	8	pin 8	pin 15
control dimmer	9	pin 9	pin 17
control dimmer	10	pin 10	pin 19
control dimmer	11	pin 11	pin 21
control dimmer	12	pin 12	pin 23
control dimmer	13	pin 13	pin 25
control dimmer	14	pin 14	pin 2
control dimmer	15	pin 15	pin 4
control dimmer	16	pin 16	pin 6
control dimmer	17	pin 17	pin 8
control dimmer	18	pin 18	pin 10
control dimmer	19	pin 19	pin 12
control dimmer	20	pin 20	pin 14
control dimmer	21	pin 21	pin 16
control dimmer	22	pin 22	pin 18
control dimmer	23	pin 23	pin 20
control dimmer	24	pin 24	pin 22
0 V		pin 25	pin 24 and 26

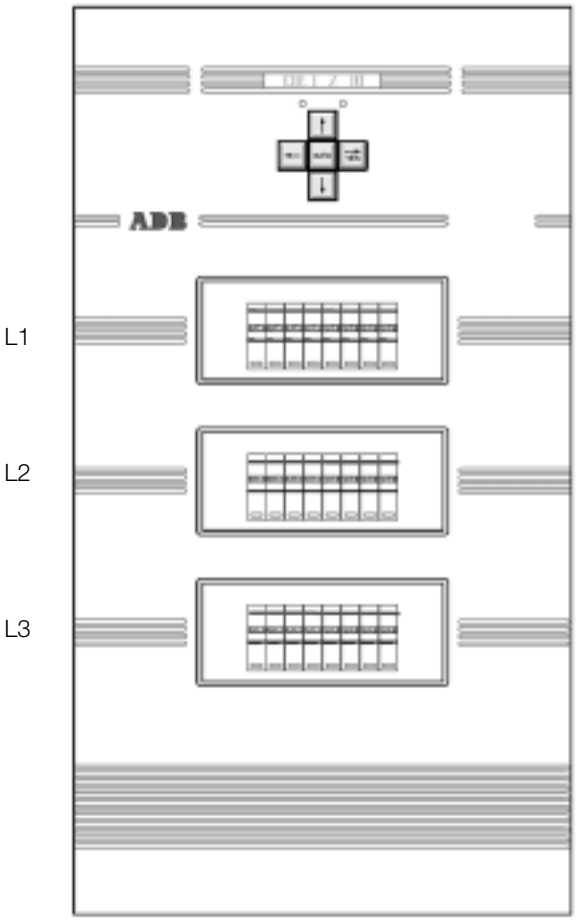
Internal setting for Analogue Inputs

- setting for 0/+10 V operation: the ribbon cable with the front-panel DB-25-S Analogue receptacle is plugged into P3 on the Analoge Input board PCB 1336
- setting for 0/+370 µA operation: the ribbon cable with the front-panel DB-25-S Analogue receptacle is plugged into P4 on the Analoge Input board PCB 1336
- W1 on PCB 1336: jumper removed, or placed between pin 2 and pin 3
- W2 on PCB 1336: jumper removed, or placed between pin 2 and pin 3

Analogue Inputs : selection 0/+10 V or 0/370 µA

Your EURORACK 50+ was factory-set for 0/+10V analogue control signals.
To convert it to 0/+ 370 µA, please refer to qualified personnel:

- disconnect the EURORACK 50+ from the mains
- remove the top cover, see the sketch in the Supply Connections Chapter
- touch the aluminium heatsink to discharge electrostatic build-up
- identify on the small Analogue Inputs board (PCB 1336) connector P3, labelled 0->10 V
- remove the 25-wire flat (ribbon) cable from that connector
- connect the 25-wire flat (ribbon) cable to connector P4, labelled 0->370_A
- secure the connector
- close the cover



Front-panel Controls

Phase Distribution

The dimmers are supplied from alternating phases :

- dimmer 1 is supplied from phase L1
- dimmer 2 is supplied from phase L2
- dimmer 3 is supplied from phase L3
- dimmer 4 is supplied from phase L1
- dimmer 5 is supplied from phase L2
- dimmer 6 is supplied from phase L3
- etc…
- the microprocessor electronics are supplied from phase L1

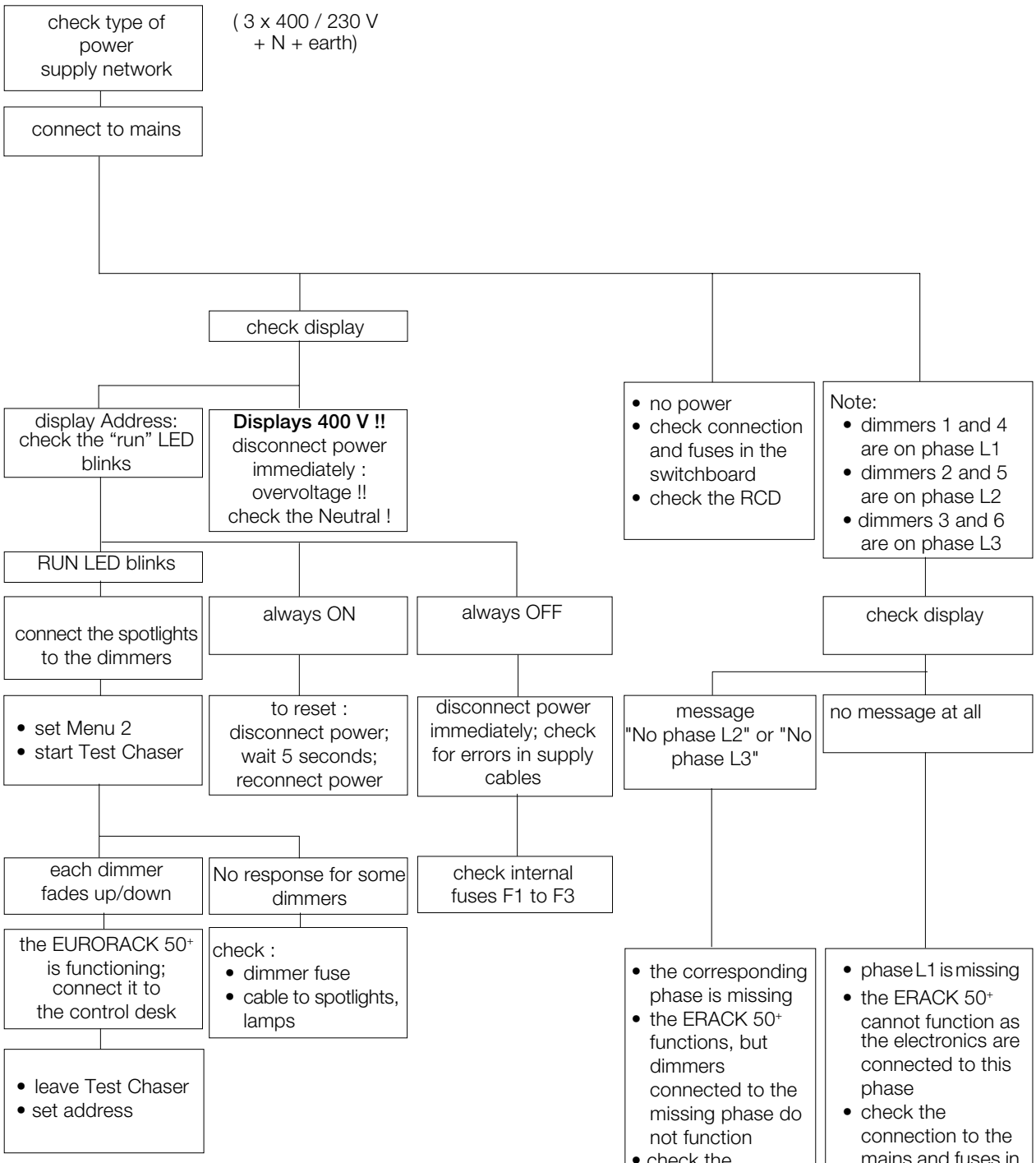
Status Indicators

Run : the microprocessor is operational if this LED flashes approx. once per second.

DMX : this LED indicates the presence of a multiplexed signal on the DMX input; this can also be used to locate short-circuits in your DMX 512 data cables

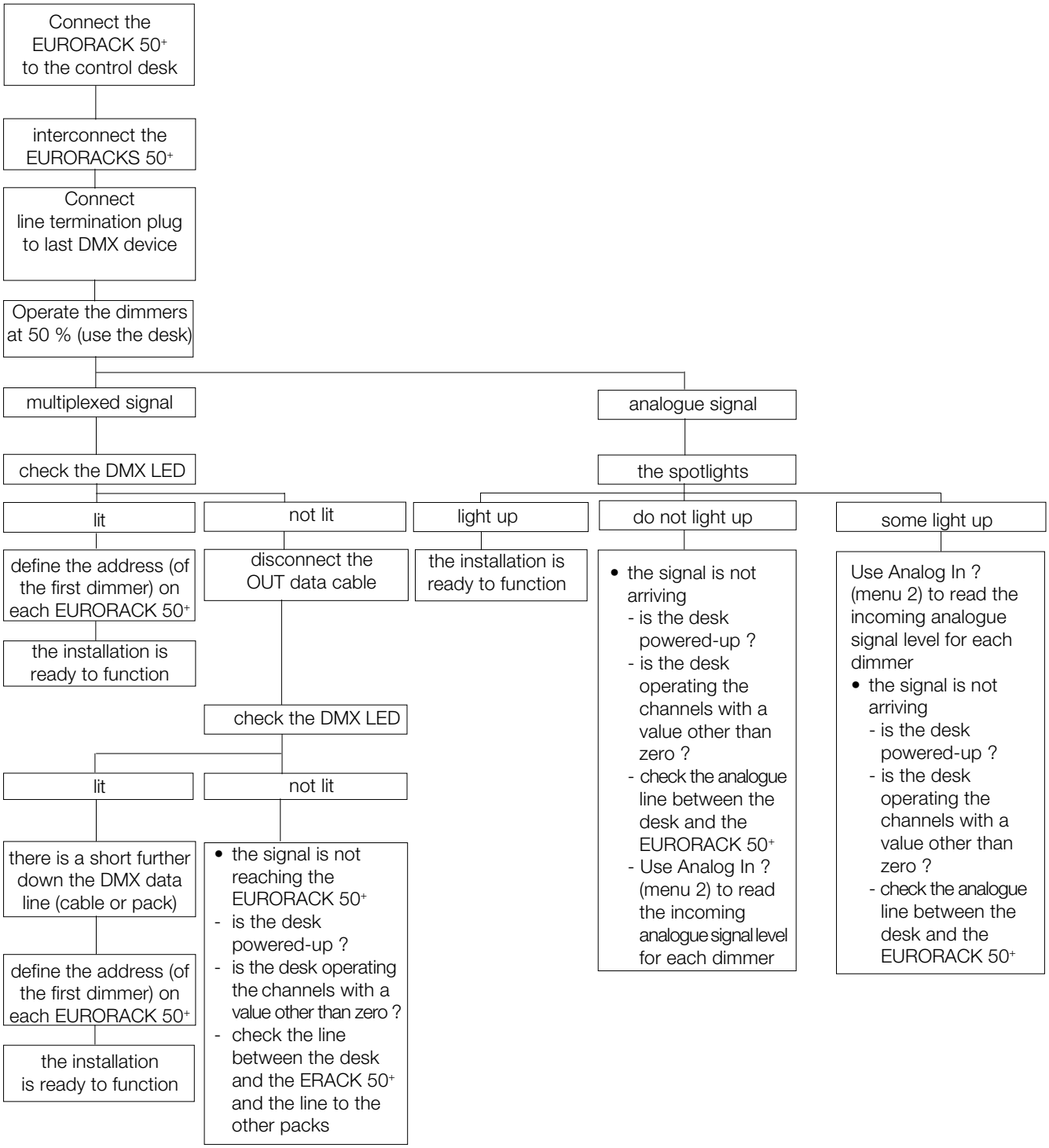
Putting into Operation

Power section



* When a dimmer protection tripped, first check the total load (Wattage) connected to the corresponding dimmer, check the lamps and the cables of the spotlights, check that the ambient temperature is not too high.

Putting into Operation



Miscellaneous

Protection against accidental 400 V

Warning : always check the mains voltage before you connect power to electrical equipment.
If excessive voltages are applied, the internal protection circuitry of your EURORACK 50+ will disable the EURORACK 50+.
If the excessive voltage was applied for a relatively brief period (up to 1 minute), then the dimmer will reset itself automatically. If the excessive voltage was applied for a long time, then the internal fuse(s) will trip.

To restore normal operation:

- **disconnect the EURORACK 50+ from the mains**
- remove the upper front panel, see sketch in “Product Description” chapter
- check the five fuses (5 x 20 mm) F1 through F3 - replace blown fuses by suitable type only
- close the EURORACK 50+
- verify the power source; possible cabling errors include inversion between phase and Neutral, or disconnected Neutral
- restore power to the EURORACK 50+ only when you are confident that the power source is satisfactory

400 V Message

This warns you that an excessive voltage is applied to at least one of the phases.
The EURORACK 50+ has shut itself down, no dimmer will operate.
ACTIONS TO TAKE: see Warning Messages- 400 V

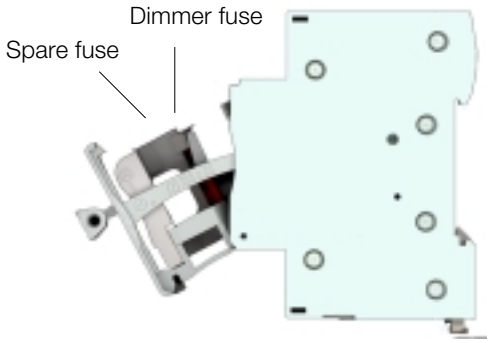
Loss of DMX signal - time-out

Should the DMX control signal disappear, then the microprocessor will keep the last levels indefinitely. Dimmer levels can always be brought back to “Off”

- by restoring the DMX line
- or by disconnecting the power to the EURORACK 50+
- or by entering the “Individual Dimmer Test” mode and setting a “0 %” level

Spare fuses

The fuse-holder features two slots: one for the dimmer fuse, one for a spare fuse.



Microprocessor reset

The “Run” indicator on the front panel flashes at a rate of once per second, if the microprocessor is operational. Should the indicator stop blinking, then you can Reset the microprocessor by disconnecting the power supply to the EURORACK 50+.
Use the supply isolator, the RCD or the MCB; never use the supply plug!

Over-temperature - gradual shutdown

Your EURORACK 50+ is equipped with a temperature monitoring system. Should the internal temperature rise, then the display will show a flashing message (Over Temp.).
Your EURORACK 50+ is rated for continuous duty, so a Over Temp. warning is an indication of faulty operation or use.
Please verify :

- the room temperature (35° C max.)
- that the air intake and exhaust apertures are not obstructed
- that the air intake is not influenced by the warm air exhausted by other equipment
- that the fans are still operational
- that no dimmer is loaded to more than capacity (2.3 kVA)

Reduced dimmer levels or loads will reduce the internal heat dissipation.

If the internal temperature remains too high for several minutes, then a **"Over Temp"** message will flash and the EURORACK 50+ will protect itself by a gradual shutdown:

- first all dimmer levels will be slightly reduced
- followed later by further reductions of all dimmer levels
- normal operation is automatically restored when a safe temperature is reached, and after reset

Internal fuses

If the dimmer fuse indicators are lit, but the front panel LED’s nor the display light up, then you should check the fuses for the control electronics. These fuses are independent of the dimmer protections on the front panel. They can easily be reached (qualified personnel only !) :

- disconnect the EURORACK 50+ from the mains
- remove the upper front panel, see sketch in “Product Description”
- check the five fuses (5 x 20 mm) F1 to F3
- replace fuses, if necessary; use suitable fuses only !
- close the cover

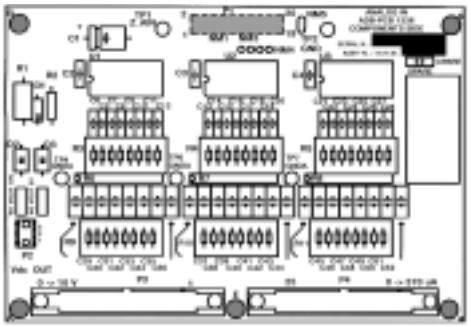
The use of incorrect fuses is dangerous, may cause permanent damage, and will void warranty. Correct fuse references are listed in the Maintenance chapter, Spare Part Lis.

Electronic cards

PCB 1410 Microprocessor (CPU) board
PCB 1336 Analog Input board (optional)

Installation of the Analogue Inputs kit

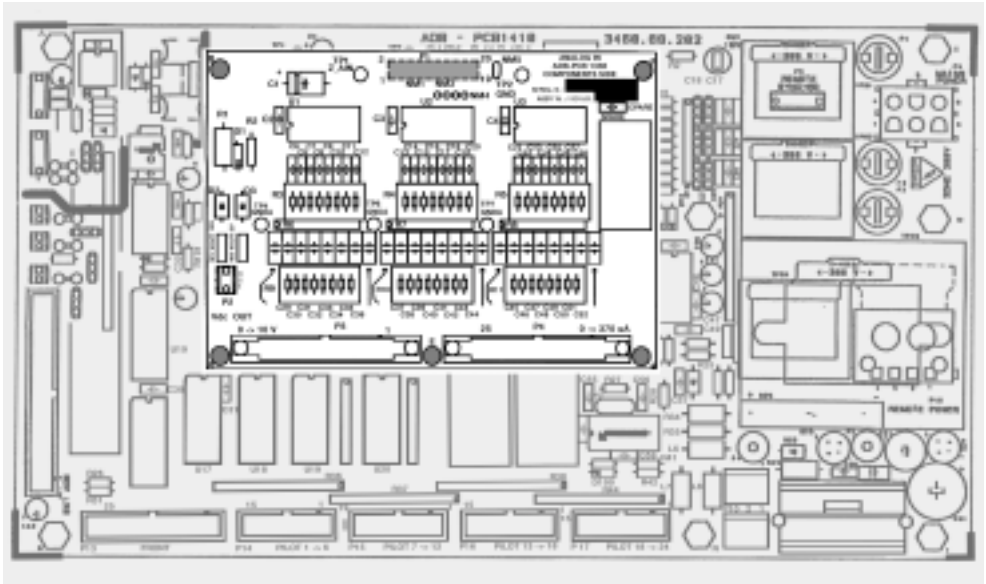
If your EURORACK 50+ was not factory-equipped with the Analogue Inputs, you can upgrade it by means of a kit.



PCB 1336 Analog Input board (optional)

- disconnect the EURORACK 50+ from the mains
- remove the upper front panel (4 screws, see sketch in “Product Description”)
- install board PCB 1336 (127 x 87 mm) + four plastic stand-offs
- P1 on PCB 1336 (Analogue Input board) mates with P3 of PCB 1410 (Microprocessor CPU board)
- for 0/+10 V operation: connect the ribbon cable (25 conductors) with the front panel Analogue receptacle (DB-25-S) to P3 on PCB 1336 (Analoge Input board)
- 0/+370 _A operation: connect the ribbon cable (25 conductors) with the front panel Analogue receptacle (DB-25-S) to P4 on PCB 1336 (Analogue Input board)
- secure the ribbon cable in the central vertical plastic channel
- close the cover
- enable the Analogue Inputs, by means of the Analog In function in Menu 3

PCB 1410 Microprocessor (CPU) board



Maintenance

Fuses

The six or twelve dimmer fuses are placed on the front panel.
The internal fuses are accessible by removing the top cover (see sketch “Supply Terminals”).
Always disconnect the power before you open the dimmer unit or replace a fuse!
Switch power off, for exemple by means of the supply isolator, supply MCB or supply RCD.
Always use fuses of the same type, size, current rating, fusing value (I2t value) and fault current rating as the originals. Contact your supplier for spare parts.

List of Accessories and Spare Parts

Always use original spare parts, do not use substitutes. The original components were selected to achieve the performance and reliability you expect of your equipment.

DMX cables
1145.12.775 DMX512 data cable with XLR 5 connectors (2 m)
1145.12.780 DMX512 data cable with XLR 5 connectors (5 m)
1145.12.785 DMX512 data cable with XLR 5 connectors (10 m)

Connectors, sockets
6117.15.110 XLR 5 M plug, for cable mounting, for DMX512
6117.15.120 XLR 5 F receptacle, for cable mounting, for DMX512
6117.47.012 DB25-P plug, for cable mounting, for Analogue Inputs
6117.47.013 cover for DB25-P plug

Fuses, fuse-holders (must be ordered in multiples of 10 pcs)
6130.45.170 fuse for dimmer 2.3kW (10 x 38 mm, High Rupturing Capacity 100kA, 8A)
6130.07.105 fuse 0,08 A M on CPU board PCB 1410
6130.07.130 fuse 0,1 A T on CPU board PCB 1410
6132.00.093 fuse-holder for MICRORACK 25, 1P+N versions (10 x 38 mm)

Note :
all fuses and fuse-holders must be ordered in multiples of 10 pcs

Boards
Please consult your distributor.
Provide him the full Product Reference (1DP xxx xxx xxx) and the serial number. You’ll find them on the Identification Label between the fans.

Miscellaneous
1112.07.000 Analogue Input kit (PCB 1336.1, ribbon cable,…) (6 inputs)
1112.07.010 Analogue Input kit (PCB 1336.2, ribbon cable,…) (12inputs)
1112.07.100 Analogue Input kit (PCB 1336.2, ribbon cable,…) (24 inputs)
7074.10.140 fan for EURORACK 50+
6351.90.418 triac

Warning

Lethal voltages are used in this equipment. Refer servicing to trained personnel.
Power must be disconnected before a fuse is removed.
Power must be disconnected before the cover is removed.

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Lighting Technologies

EC DECLARATION OF CONFORMITY

(In compliance with : the Low Voltage Directive 73/23 EEC
the EMC Directive 89/336/EEC)

The product, HIGH DENSITY DIGITAL DIMMING SYSTEM EURORACK 50+, has been designed, manufactured and inspected following the good pratices rules and our internal procedures.

It has been type tested and found compliant to the following EU Harmonised Standards and/or specifications :

EN 50081-2 **Compatibilité Electromagnétique :norme générique émission**
EN 50082-2 **Compatibilité Electromagnétique :norme générique immunité**

according the provisions of the Council Directive 89/336/EEC (Electromagnetic compatibility)

It has also been type tested and found compliant to the following EU Harmonised Standards and/or specifications :

EN 60950 **Safety of Information Technology Equipment**

according the provisions of the Council Directive 73/23 Eec (Low Voltage directive)

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