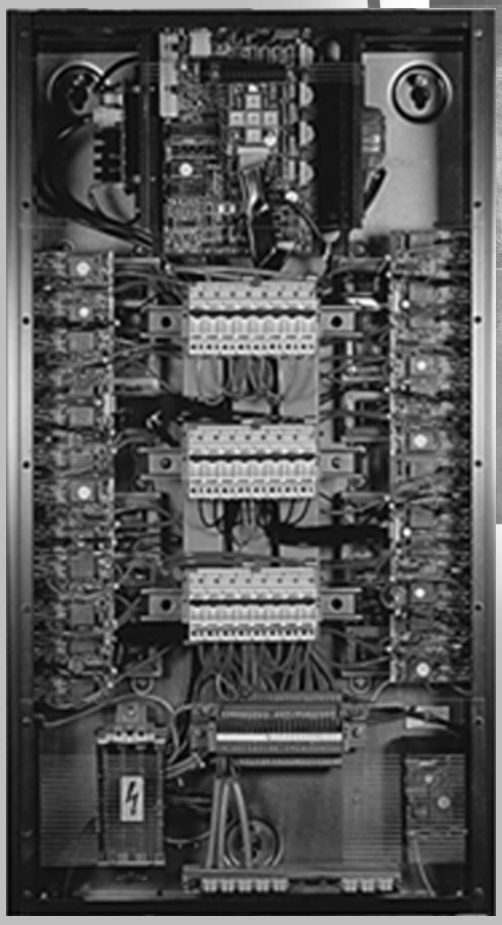
EURORACK 60 DIMSWITCH

Installation
Manual



ADB
Lighting Technologies

Summary

Delivery - Unpacking

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

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 DIMSWITCH is a professional fully digital dimmer built in accordance with European safety standards EN 60950 and EN 60439-1.

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 DIMSWITCH, it is the user's responsibility to use the EURORACK DIMSWITCH for its intended purpose and to check the equipment connected to it.

The EURORACK DIMSWITCH 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

Description

Front Panel

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 3 kW
- 12 x 5 kW

Dimensions	(mm)	1022 x 555 x 132
Net weight	(kg)	43

Main Features

- 5-key keypad, 12 character LED display and user friendly menus for easy access to all dimmer functions
- local controls for creation and storage of 20 (19+1) lighting cues
- individual selection of dimmer address (patch), law, smoothing and multiplication factor
- fade smoothing (4000-step resolution)
- 10 dimmer laws selectable per dimmer, linear rms voltage, linear to 120 V, fluorescent lighting, linear with 5% preheat level, square law, TV 1, TV 2, BBC, Square Law, DimSwitch and three user laws
- professional grade filtering (200 µs), for efficient attenuation of lamp filament noise
- protection circuitry against accidental 400 V wiring
- local status reporting: 400 V - overtemperature - fan failure - processor check - presence of DMX signal - DMX and analogue control levels
- hard-fired thyristors for control of tungsten halogen lamps, resistive and inductive loads, transformer-fed low voltage lamps, fluorescent lighting with suitable ballasts
- heavy duty contactors for non-dimmable and special loads (HMI,…)
- local test of a dimmer (steady, flash or chaser)
- automatic self-test capability
- high quality, low noise fans for effective cooling with automatic fan-stop
- overtemperature protection through gradual dimmer fade out
- The new DimSwitch feature offers the possibility to use every channel independantly, either as a dimmer or as a Static Relay.

The benefits of the Dimswitch technology :

- Each dimmer circuit shall be capable to be set as a "dimmer" for generic lighting or to be set as a "Solid State Relay".
- Solid State Relay mode allows to connect any other load such as HMI balast, or DMX instrument such as LED fixtures, Fluorescent lights, moving heads .
- No minimum load required

DimSwitch function allows to save in the electrical wiring and to have only ONE identified electrical distribution network for all Dimmed and Switched circuits.

Architectural Applications

The analogue input option allows remote control by means of

- analogue control desk (0/+10V), or
- 3-position selector switch (up - down - steady), one switch can control one or several dimmers, or
- remote storage, playback and dimming of the 20 memories; direct access, one switch per memory

EURORACK 60 DIMSWITCH

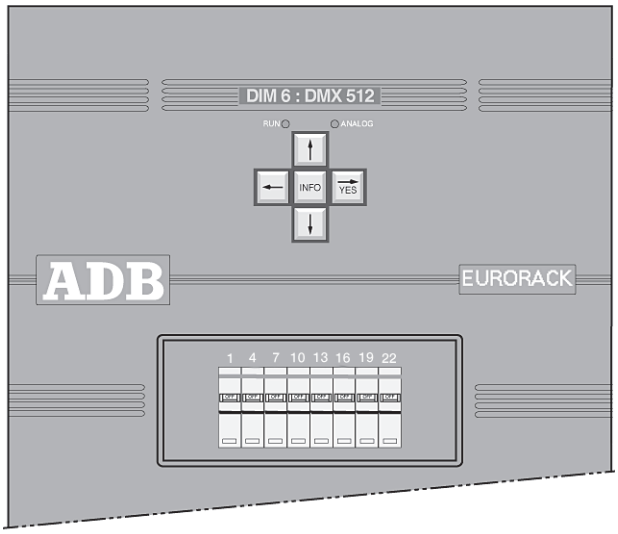
Options

• Supply protection per group of 30 kW (12 x 3 kW or 6 x 5 kW) compulsory for IT/TT supply. Required quantity: 6 for 60 kW RCD - 30 mA (3P+N)	RCD30/ERACK
• RCD+MCB/1P+N-30mA - 6kA per dimmer	
- for 24 x 3 kW dimmers	RCD+MCB/243
- for 12 x 5 kW dimmers	RCD+MCB/125
• Main isolator switch 4P - 100 A	INP.SWITCH/ERACK

Accessories

• Stand-off brackets for 10 cm trunking space behind the rack (kit)	ARC/ERACK
• Analogue input interface for architectural applications	KIT/ANA/24
• Dual DMX input retrofit kit (CPU board with data cables)	KIT/2DMX/ERACK
• Cable entry panel with 27 universal entry seals and a steel PG31 cable gland + additional cable support rails	PANN.PG/ERACK
• Star/Delta power supply upon request	

EURORACK 60 DIMSWITCH



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. 87 A per phase. Phase voltage 200 - 264 V.
- The supply cable must have four current-carrying power conductors twisted under the same sleeve. The neutral connector shall have the same or a larger size as the phase conductor.
- Please refer to local regulations and requirements.

Power Rating

The dimmers are suitable for continuous operation up to 60 kW total load at 35° C room temperature (air intake).

Protections

- Individual protection by MCB.
- Protection avaibility against accidental 400 V wiring errors connections
- Power supply on terminal strip (25 mm^2)
- Power output on terminal strip
- Cable entry through the bottom side of the rack
- Control signals on terminals
- Switchable DMX line termination

Local Controls without Lighting Console

- Flashing of one dimmer for easy luminaire identification in a rig
- Chaser
- Setting of a dimmer level
- Creation, recording from DMX and editing of 20 lighting cues

Communications

- DMX512/1990 digital input
- 0/+10 V or 0/370 µA analogue inputs (option)
- Please contact us for other multiplexed protocols

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 60 DIMSWITCH 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 60 DIMSWITCH.

Characteristics

Your EURORACK DIMSWITCH 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 3 kW; 12 x 5 kW max 60 kW per EURORACK DIMSWITCH 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; 230 V between phase and Neutral) Reduced-size N conductor is not allowed
Supply voltage range	: 198 V to 264 V (230 V ± 14 %)
Accidental 400V supply	: internal protection circuitry will disable the dimmers
Rated supply current	: star 3-phase 3NPE supply: 87 A per phase at 230 V
Dimmer protection	: MCB
Residual Current Device (OPTION)	: RCB per group of 12 x 3 kW or 6 x 5 kW; 30 mA
Control inputs	: • DMX512/1990 (USITT digital multiplex standard) • optional analogue 0/+10V 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 • individual setting (patch)
Dimmer laws (selectable per dimmer)	: • linear rms voltage, linear to 120 V, fluorescent lighting, linear with 5% preheat level, square law, TV, DimSwitch and 3 user laws • multiplication factor per dimmer
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
Power semiconductors	:	antiparallel thyristors
Efficiency at rated load	:	better than 98 %
Dissipation per dimmer at rated load	:	below 100 W (3 kW) and 150 W (5 kW)
DC component in output voltage	:	below 1 V in rated load range
Minimum load	:	no minimum load
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. Specific non-dimmable loads such as High-Intensity Discharge Lamp ballasts, and electronic equipment shall be powered by channel in Static Relay mode (DimSwitch).
Colour code for supply cable	:	- Brown : phases L1 - Black : phases L2 - Grey : phases L3 - Blue : Neutral - Yellow/green : Earth
Safety standards	:	• EN60439-1 • EN60950

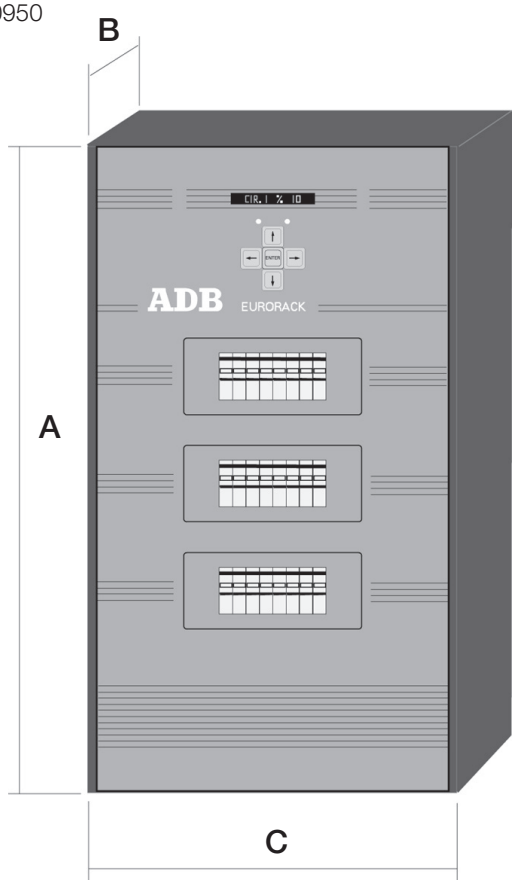
Mechanical characteristics

Dimensions : 1020 x 135 x 555 mm

Net Weight : 43 kg

Packing : 1150 x 265 x 685 mm

Gross Weight : 48 kg



Product Description

Digital dimmers

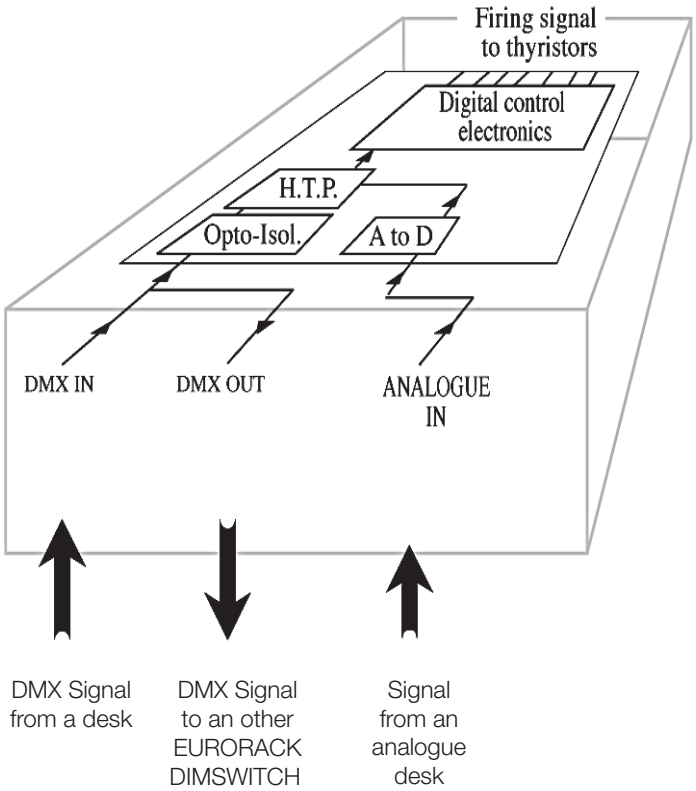
EURORACK DIMSWITCH is a member of a family of fully digital dimmerpacks, using advanced microprocessor control and an Application Specific Integrated Circuit (= custom chip) designed by ADB.
Digital control offers stable, accurate and repeated performance over time, without the periodical recalibration 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 DIMSWITCH 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 DIMSWITCH is suitable for continuous duty with a total load of 60 kW and 35°C ambient temperature.
Each individual dimmer is suitable for continuous duty at 3 kW and 5 kW respectively.
When totalling up the load to a dimmer, one should include the losses in the cabling and, if applicable, the losses in the transformer.
The factory-fitted fuses have carefully been selected for optimum protection of the semiconductors and the cabling, for maximum safety and reliability.
Do not use types other than supplied for the EURORACK DIMSWITCH.

Loads

The use of oversized antiparallel thyristors (rather than triacs) and an appropriate gate firing technique makes your EURORACK DIMSWITCH suitable for a wide range of resistive and inductive loads, including tungsten lamps, low-voltage lamps with a suitable transformer, fluorescent lamps with a suitable ballast.

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 DIMSWITCH 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".

The upper front panel covers :
- the digital microprocessor electronics
- the fans
- the internal fuses

The central front panel covers the power electronics (thyristors)

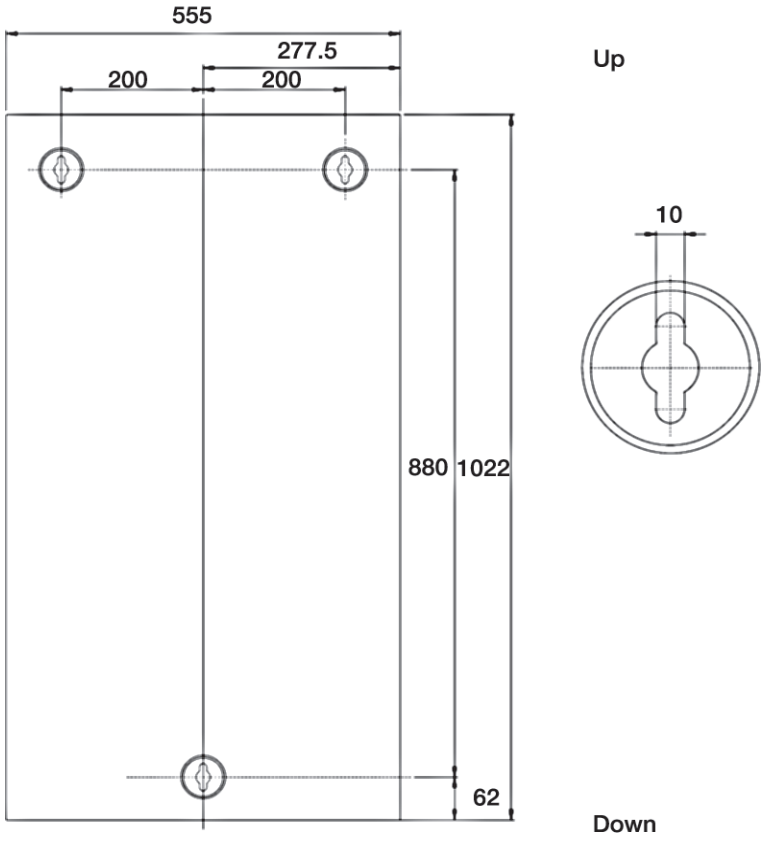
The lower front panel covers the contractor's area with :
- the supply terminals
- the load terminals
- the control terminals

Wall-mounting

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

Distance between adjacent EURORACKs DIMSWITCH

A distance of min. 50 mm (2") should be kept between adjacent EURORACKs DIMSWITCH.
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 DIMSWITCH is suitable for a three-phase 3NPE 400V 50Hz and 60Hz, 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.

Protection on the supply side

EURORACK DIMSWITCH and its supply cable must be adequately protected against overload and short-circuit 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 50 mm^2.
The colour code is blue for Neutral and yellow/green for PE.

Access to the terminals

- always disconnect the power supply before you remove the cover
- the lower front panel must be removed to gain access to the supply terminals.
- 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 DIMSWITCH:
- 87 A per phase for three-phase star operation (3 x 400 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.

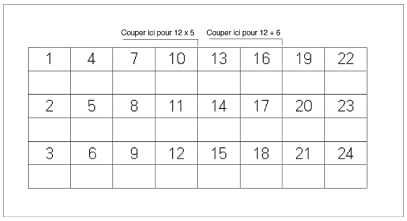
Output Connections

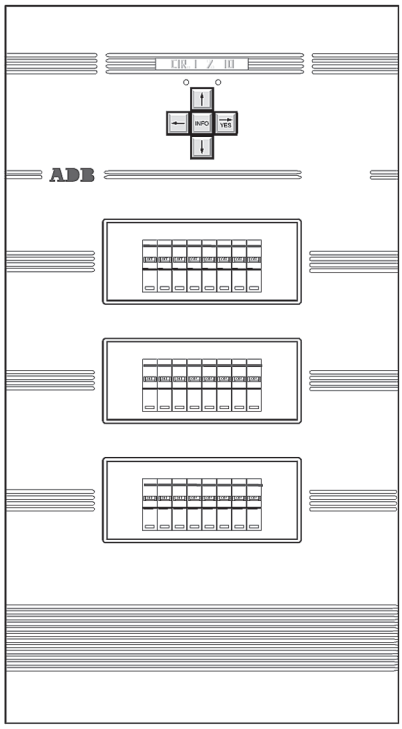
The outgoing cables to the luminaires are connected to the terminal strip in the contractor's panel.
Phase, neutral and PE terminals are supplied for each dimmer.
All load terminals are clipped on a symmetrical 35 mm ("top-hat") DIN rail.

The terminals are suitable for wire sizes (stranded or rigid) :

- for 3 kW dimmers: up to 4 mm^2
- for 5 kW dimmers: up to 6 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.





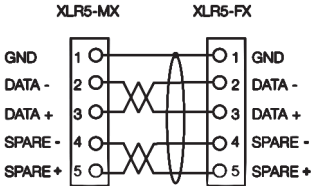
Control Connections

Two lighting control desks can simultaneously control your EURORACK DIMSWITCH: 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.

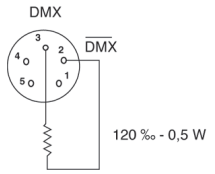
DMX512/1990

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).

Standard DMX interconnection and extension cable



Cable
Length: recommended max. 300 m
Size: 2 x 2 x 0.34 mm², shielded and twisted-pair cable.



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

DMX512 network

The EURORACK DIMSWITCH is fitted with a small PCB 1357, with two terminal strips (IN and OUT) for a daisy-chain DMX512 network (see example 1). IN and OUT are wired through internally. The terminal numbering is identical to the numbering of XLR5 connectors for DMX :

1 = screen
2 = DMX data -
3 = DMX data +
4 = spare -
5 = spare +

Termination of the DMX line

The DMX OUT of the last dimmer unit on the daisy-chain must receive a termination resistor.

- If the last unit on the daisy-chain is a EURORACK, then EURORACK DIMSWITCH can provide termination: set W on PCB 1357 to ON, for the last EURORACK DIMSWITCH on the DMX line.
- If the last unit on the daisy-chain is a portable dimmer, e.g. MEMOPACK, then it 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 and between pin 4 and 5 (for the comm. network). A diagram is shown at the end of this manual.

The DMX512 network

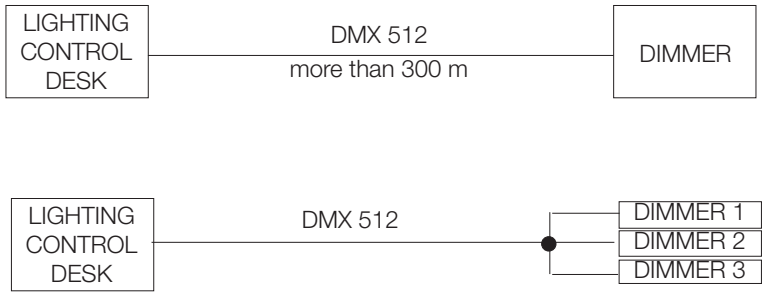
The DMX512 network starts from the lighting control desk. A first cable runs from the DMX OUT of the control desk to the DMX IN of the nearest dimmer unit. The daisy-chain continues by means of a second cable, connecting DMX OUT to DMX IN of the next dimmer unit. This daisy-chain is continued through all the dimmer in the system. In EURORACK DIMSWITCH 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 DIMSWITCH is switched off, or when a failure occurs.

Opto-isolation

The DMX512 input of your EURORACK DIMSWITCH is equipped with optocoupler isolation. This provides galvanic isolation between the DMX network and the microprocessor electronics in the EURORACK DIMSWITCH. 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 DIMSWITCH 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 opto-isolation in its output.

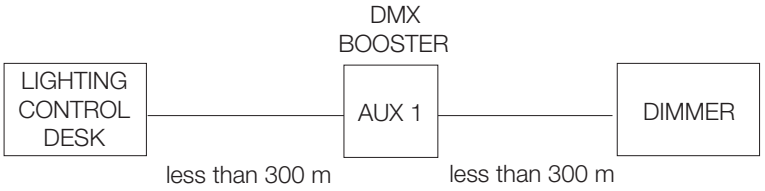
DMX Network - Application Examples

NO

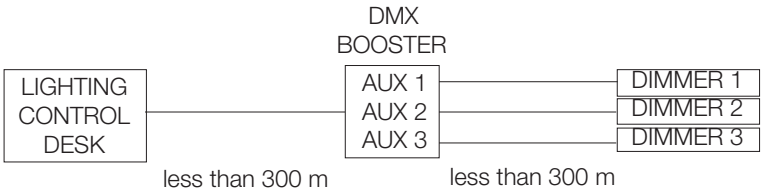


YES

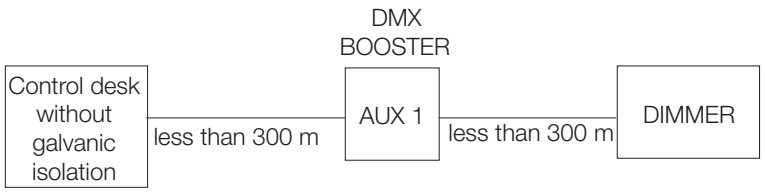
1 - When total length of DATA line exceeds the recommended length :
- DMX 512 Standard : 300 m



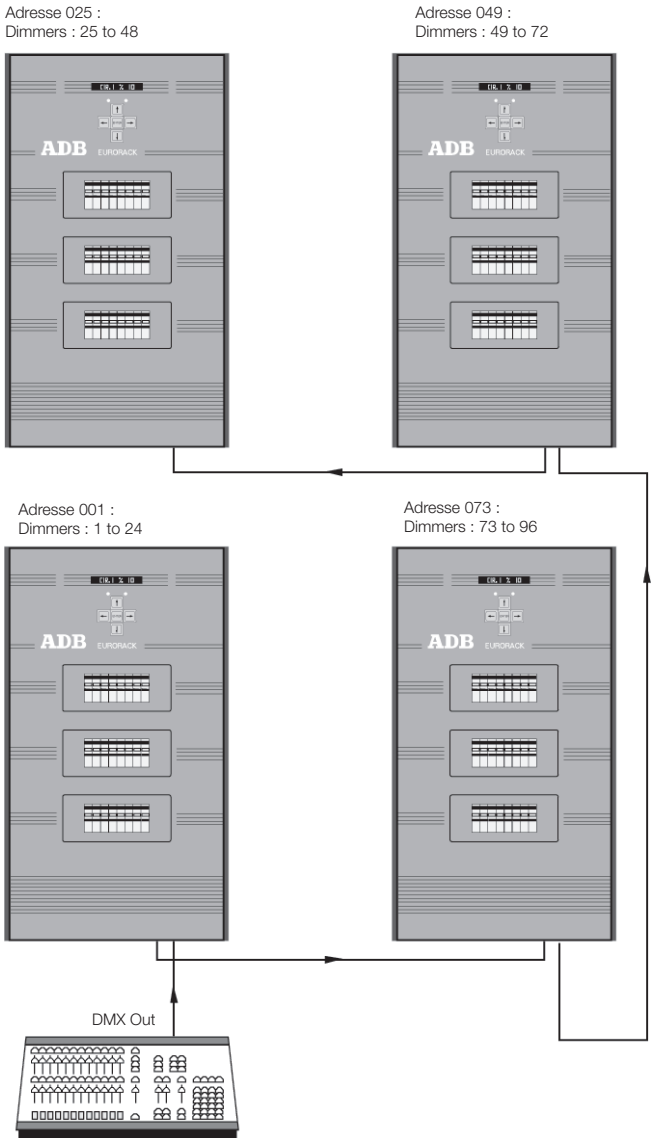
2 - When DATA line is split in a Y - junction



3 - Galvanic isolation for DATA line protection



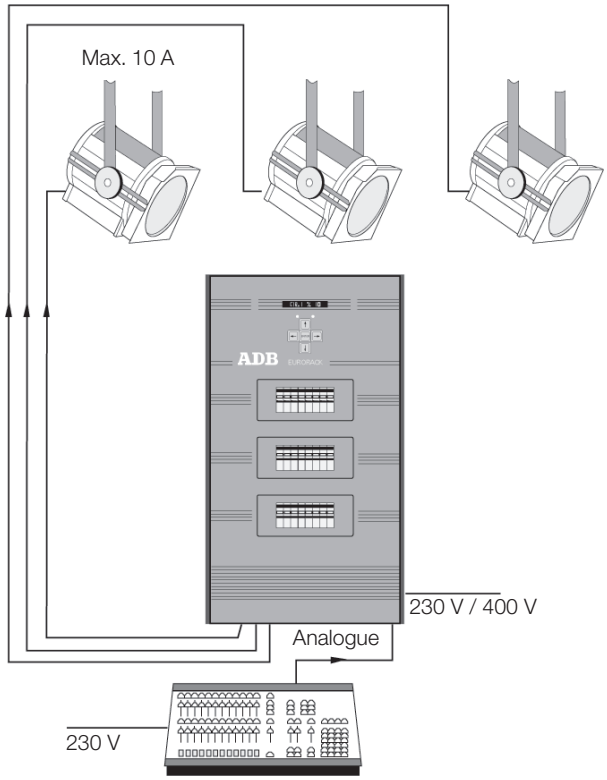
Example 1: four EURORACKs DIMSWITCH and twisted-pair cable. (24 dimmers) controlled by a lighting control desk



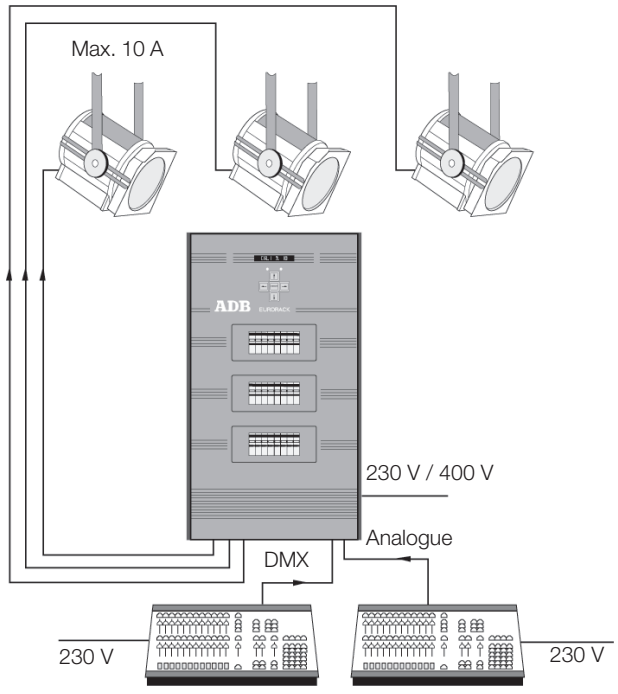
How to lay-out the DMX512 cables

- the EURORACKs DIMSWITCH 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 300 m. Longer cable runs are likely to reduce the quality of the DMX signal, which may result in unpredictable results. For cable runs exceeding 300 m an active amplifier is required. A 300 m cable run can be connected to each active output of the DMX BOOSTER.
- Y-splitting is not allowed. If the DMX network must fan out in different directions, then an active splitter is required.
- the DMX512 standard states that max. 32 receiver units may be connected to one transmitter. So up to 32 EURORACKs DIMSWITCH can be connected to a lighting control desk, or to an active output of a DMX 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 your DMX BOOSTER, or the "Recommended Practice for DMX512" published by the Professional Light and Sound Association (PLASA) available from your supplier.

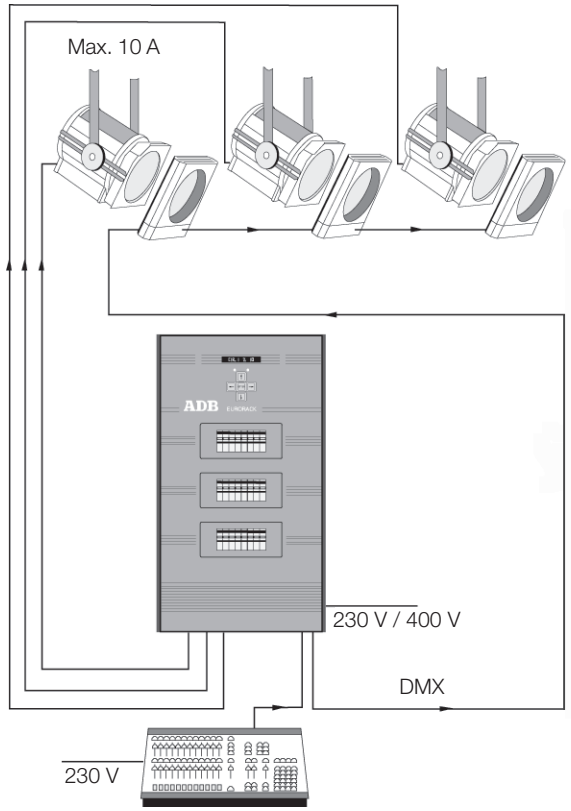
Example 2 : one EURORACK DIMSWITCH, with Analogue Input Option, controlled by an analogue output desk



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



Example 4 : one EURORACK DIMSWITCH controlled by a DMX desk, which also controls DMX colour scrollers



Analogue inputs

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

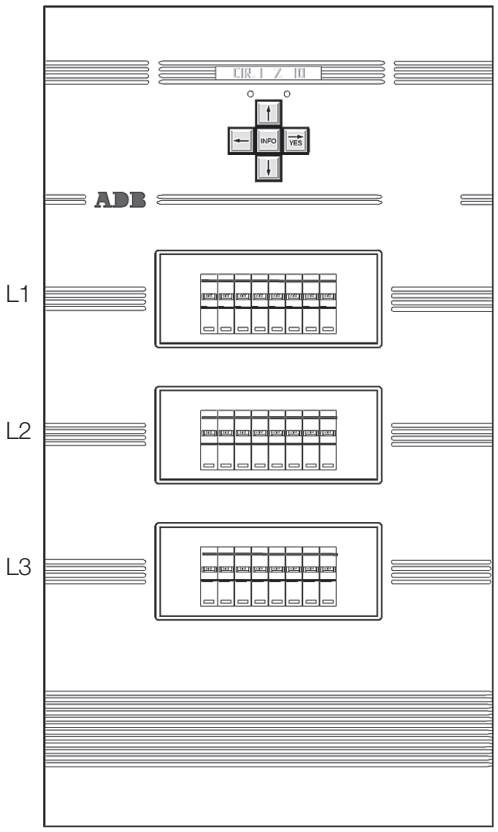
- disconnect the EURORACK DIMSWITCH from the mains
- remove the top cover, see the sketch in the Supply Connections Chapter
- touch the aluminium heatsink to discharge electrostatic build-up
- identify on the small Analogue Inputs board (PCB 1336) connector P3, labelled 0->10V
- remove the 25-wire flat (ribbon) cable from that connector
- connect the 25-wire flat (ribbon) cable to connectorP4, labelled 0->370µA
- 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

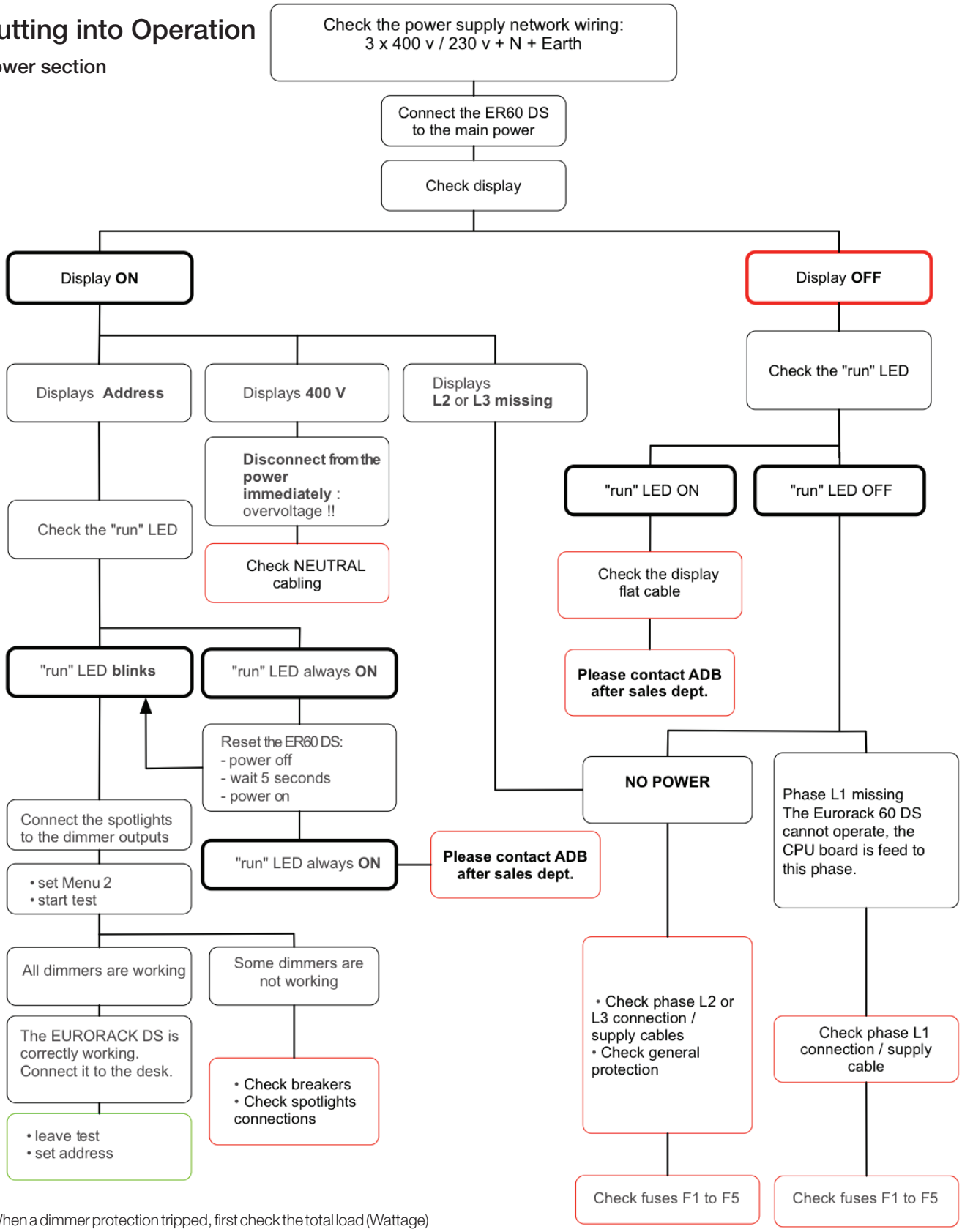
Run : the microprocessor is operational if this LED flashes approx. once per second.
Other blinking modes refer to special functions, memory control, remote programming.

Examples: Flash Flash Flash Pause: remote memory control "Special 3".
Flash Flash Flash Flash Pause: remote memory control "Special 4".

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

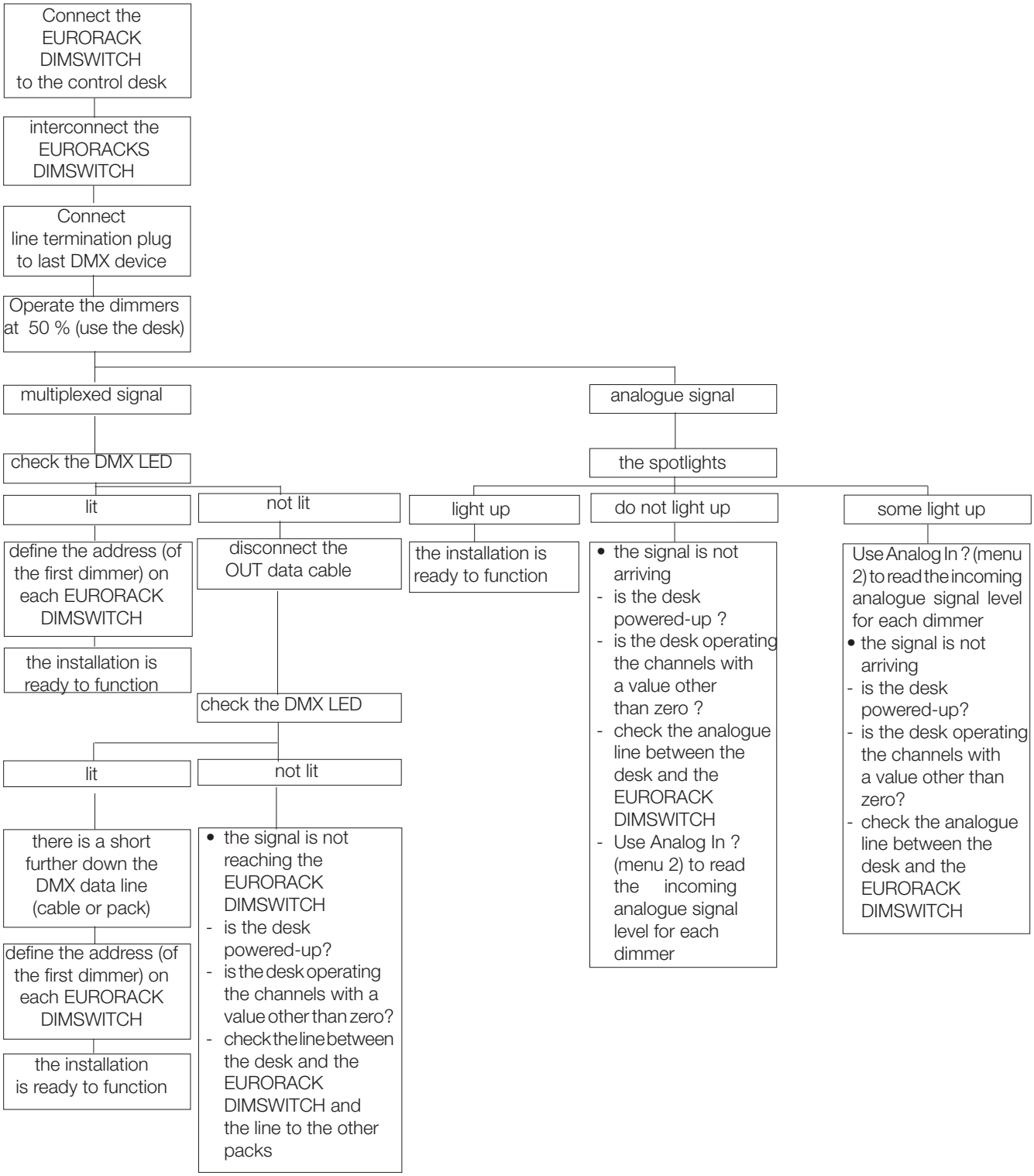
Power section



* 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

Operating section



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 DIMSWITCH will disable the EURORACK DIMSWITCH.
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 DIMSWITCH from the mains**
- remove the upper front panel, see sketch in "Product Description" chapter
- check the five fuses (5 x 20 mm) F1 through F5 - see sketch "Synchro board PVB 1355" - replace blown fuses by suitable type only
- close the EURORACK DIMSWITCH
- verify the power source; possible cabling errors include inversion between phase and Neutral, or disconnected Neutral
- restore power to the EURORACK DIMSWITCH 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 DIMSWITCH 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 DIMSWITCH
- or by entering the "Individual Dimmer Test" mode and setting a "0 %" level

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 DIMSWITCH.
Use the supply isolator, the RCD or the MCB; never use the supply plug!

Over-temperature - gradual shutdown

Your EURORACK DIMSWITCH is equipped with a temperature monitoring system. Should the internal temperature rise, then the display will show a flashing message (Over Temp.).

Your EURORACK DIMSWITCH 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 the EURORACK DIMSWITCH is not loaded over 60 kW.

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

If the internal temperature remains too high for several minutes, then a TEMP message will flash and the EURORACK DIMSWITCH 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

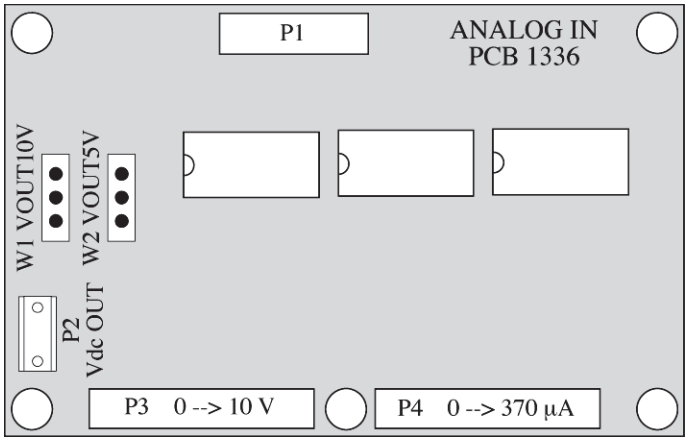
If the dimmer fuse indicators are lit, but the front panel LED's nor the display light up, then you should check the fuses for the control electronics. These fuses are independent of the dimmer protections on the front panel. They can easily be reached (qualified personnel only !) :

- disconnect the EURORACK DIMSWITCH from the mains
- remove the upper front panel, see sketch in "Product Description"
- check the five fuses (5 x 20 mm) F1 to F5 - see sketch "Synchro board PCB 1355"
- 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 List.

Installation of the Analogue Inputs kit

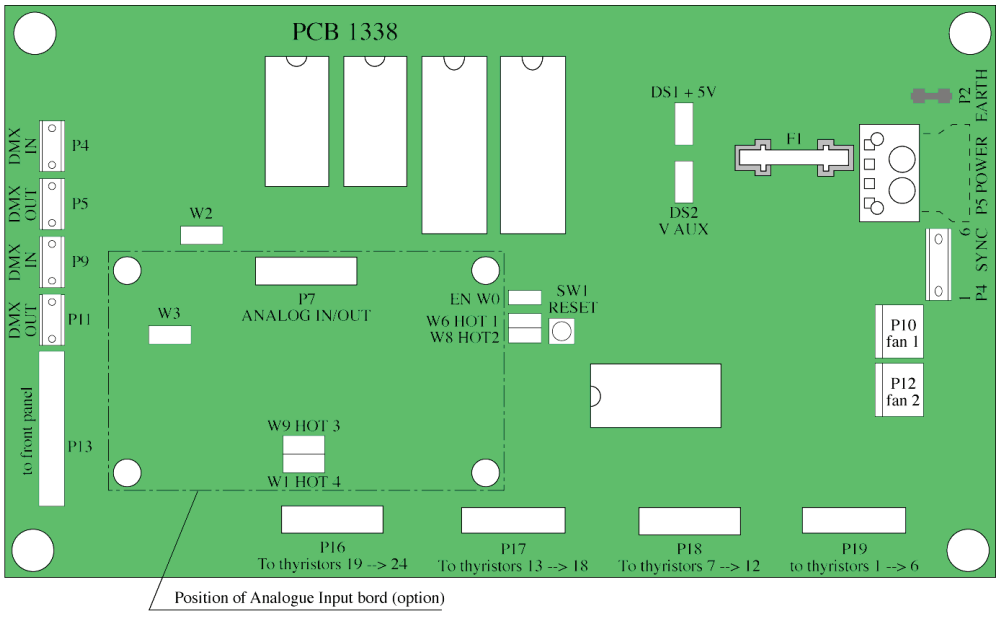
If your EURORACK DIMSWITCH was not factory-equipped with the Analogue Inputs, you can upgrade it by means of a kit.



PCB 1336 Analog Input board (optional)

- disconnect the EURORACK DIMSWITCH 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 1338 (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 µA 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 1338 Microprocessor (CPU) board

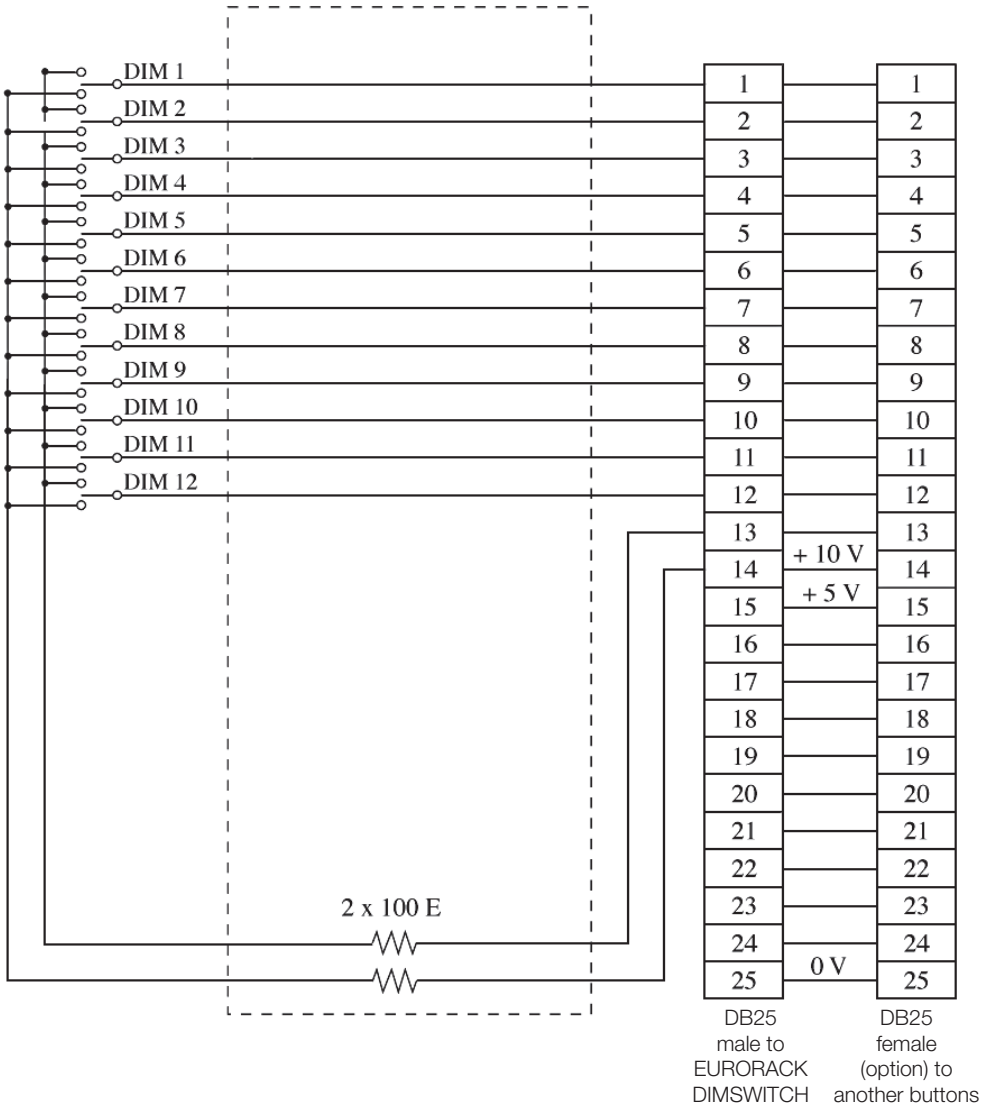


Architectural Control

EURORACK 60 DIMSWITCH - 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

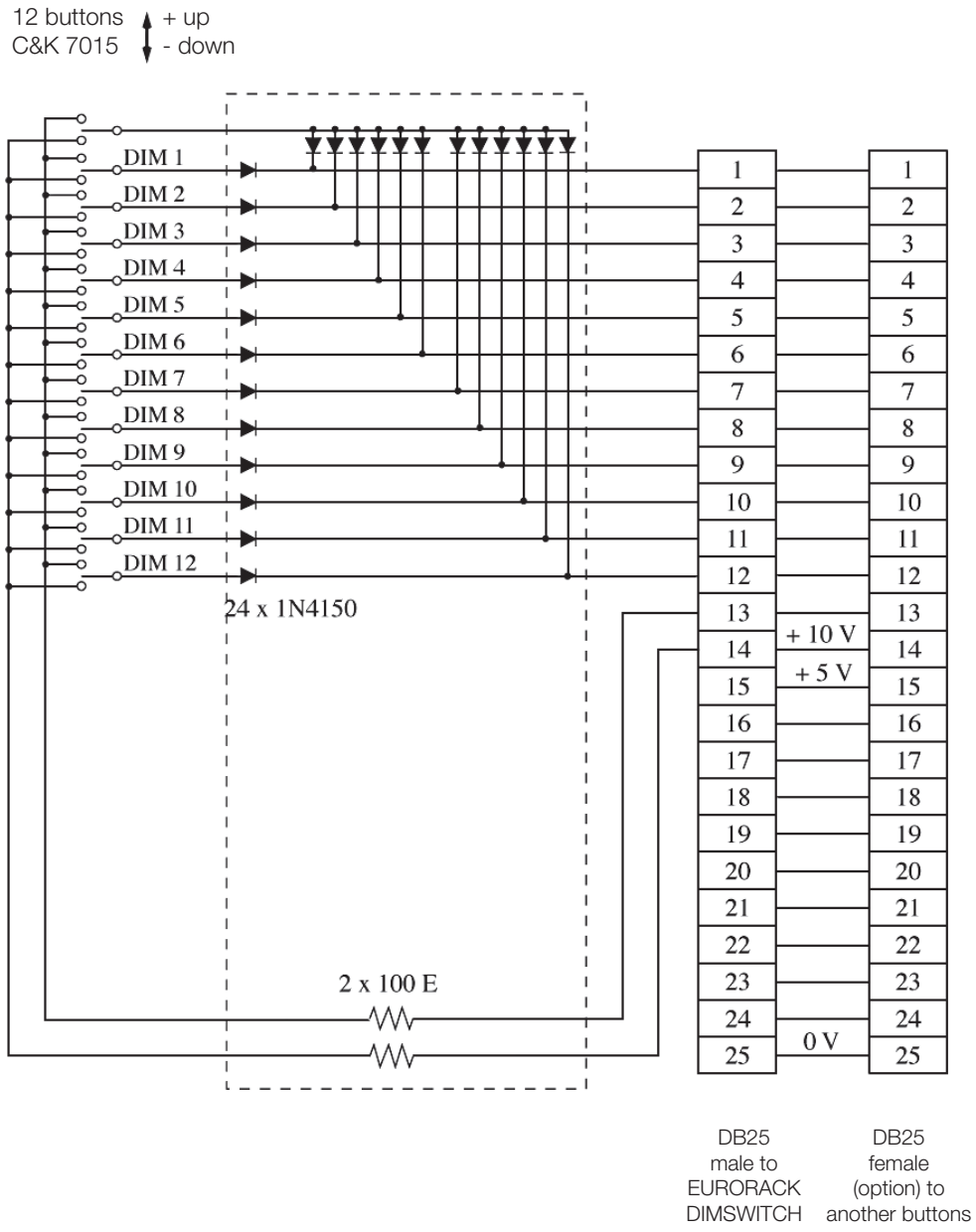
- W1 between 1 and 2 (supplies + 10 V)
- W2 between 1 and 2 (supplies + 5 V)

Menu setting (Level 3)

- Analogue Inpu Mode: Special 1

EURORACK 60 DIMSWITCH - 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

EURORACK 60 DIMSWITCH - 24 Dimmers

Pushbutton Panel - with Master (Special 1)

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

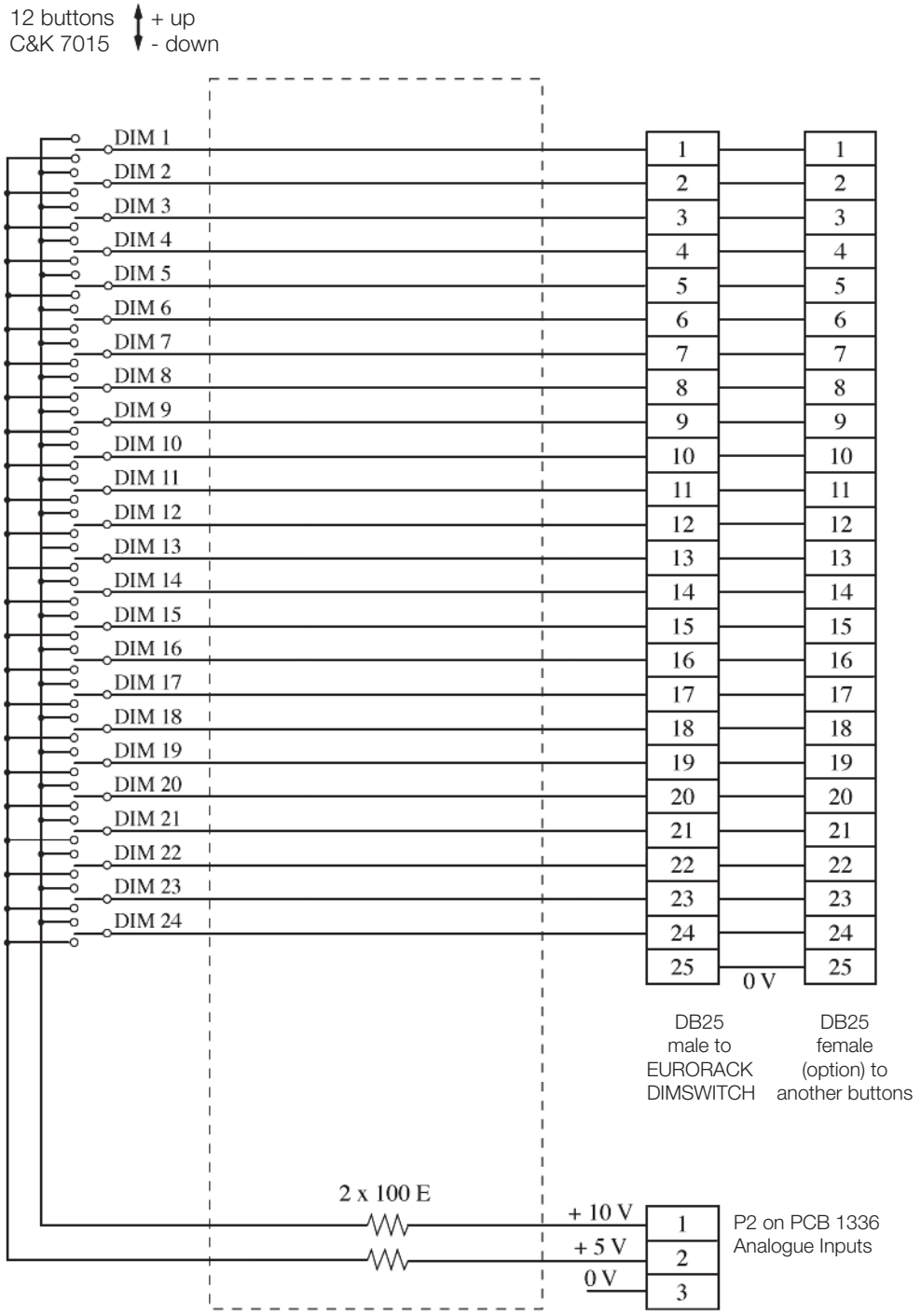
The jumper W& and W2 on "Analogue Input Board - PCB1136" should be set as follows :

- 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".

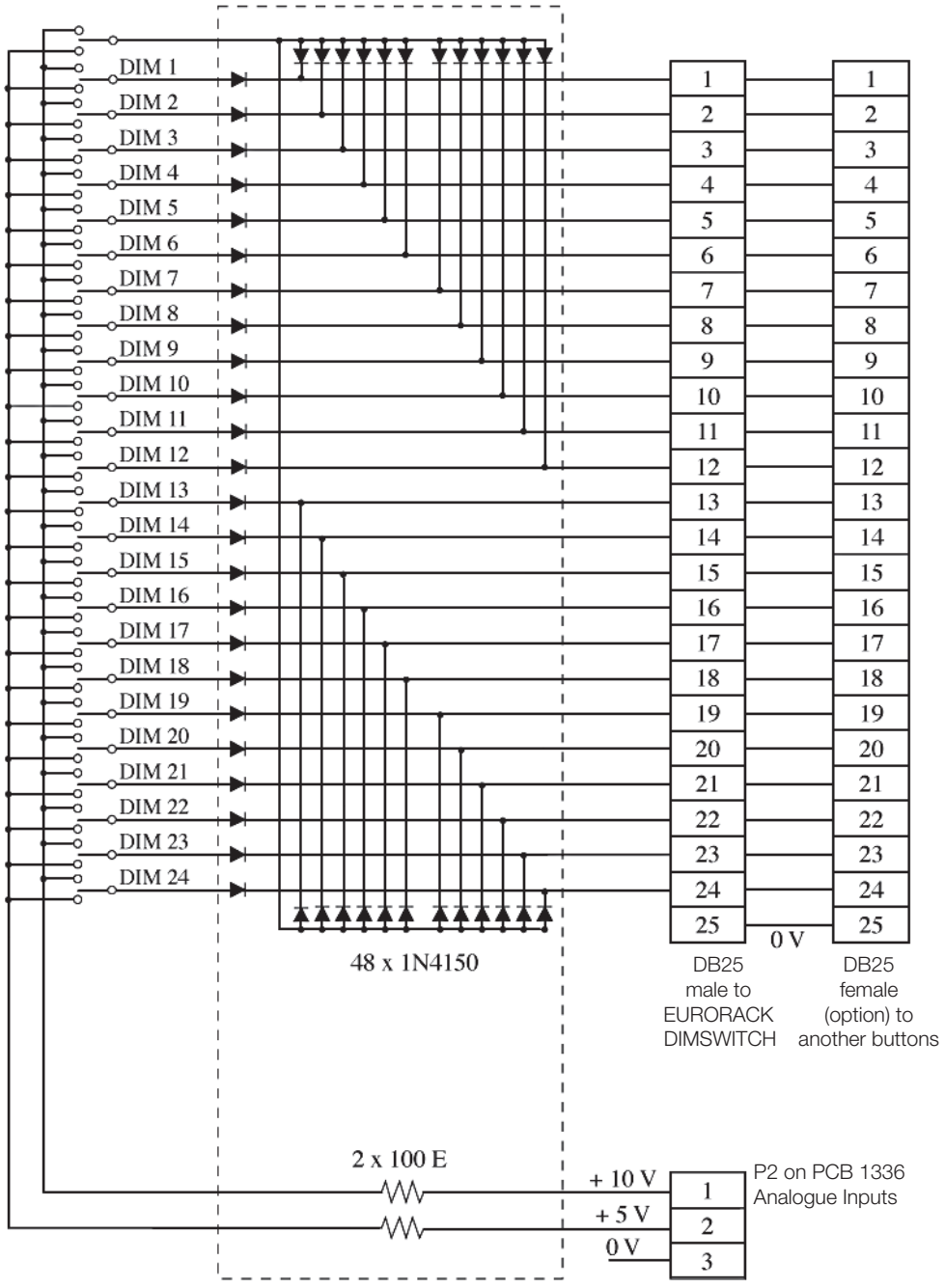


EURORACK 60 DIMSWITCH - 24 Dimmers

Pushbutton Panel - with "All Switch"

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

12 buttons ↕ + up
C&K 7015 - down



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

The jumper W& and W2 on "Analogue Input Board - PCB1136" should be set as follows :

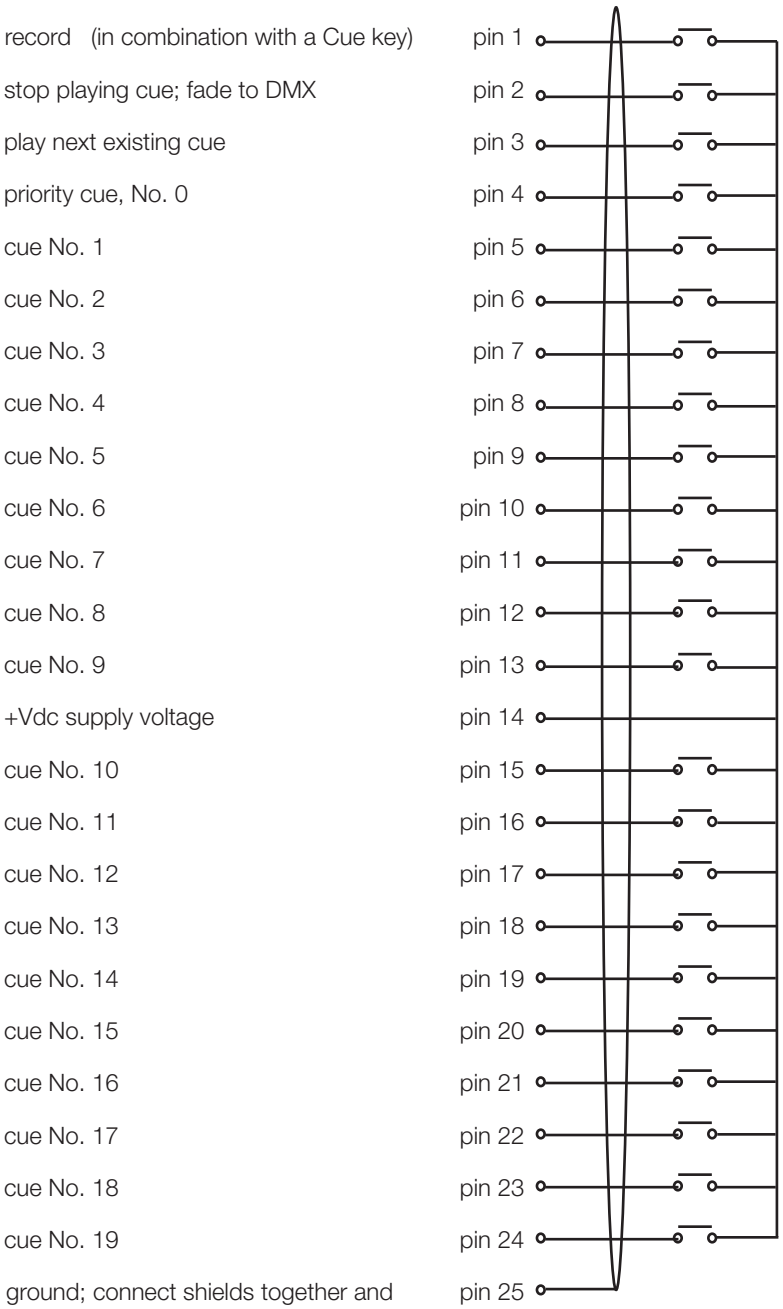
- W1 between 2 and 3 (or removed)
- W2 between 2 and 3 (or removed)

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".

Wiring diagram for Special 3

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.

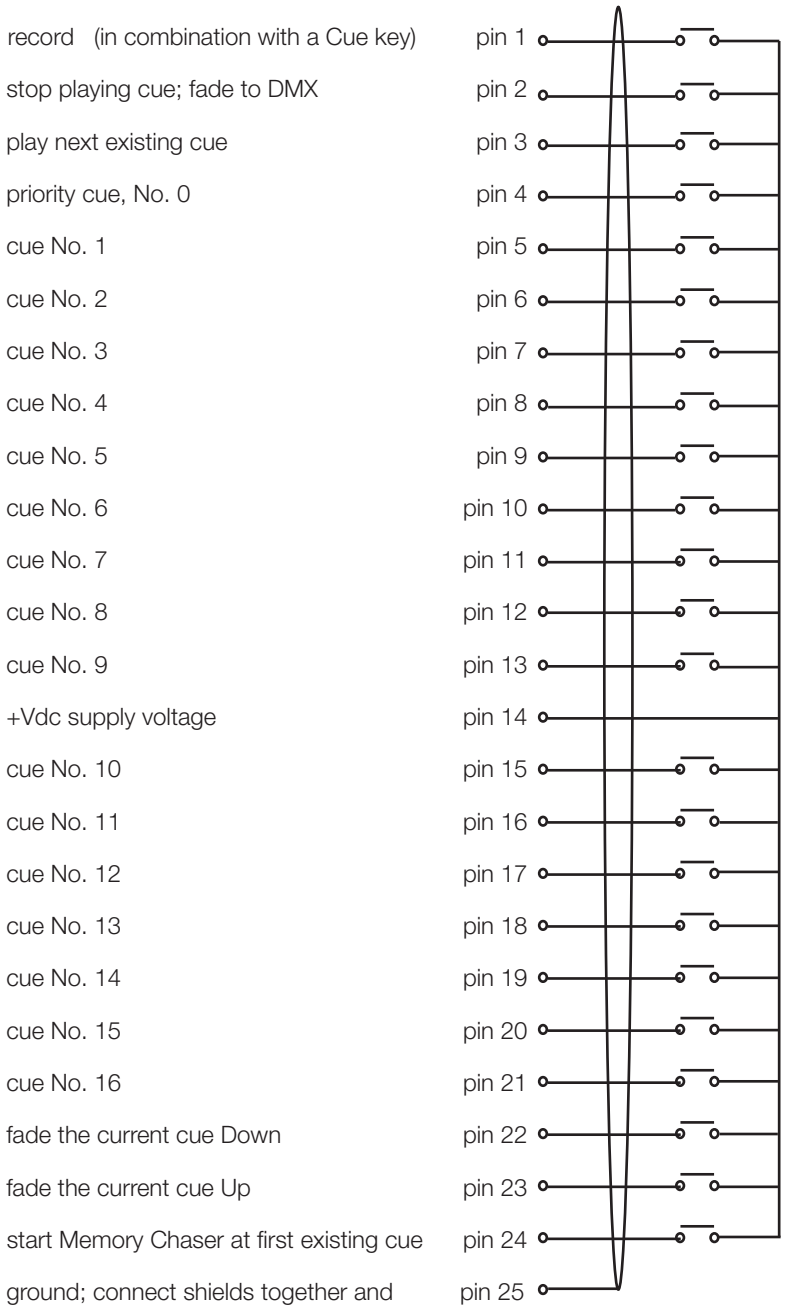
How to protect the cues ?
To avoid accidental modification of cues by non-qualified staff, we recommend to connect the 'Record' key only in selected locations such as the control room. As an additional precaution, you can wire a key-switch in series with the Record key.



Wiring diagram 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.



Maintenance

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 a cover is removed.

Fuses

The dimmer fuses are placed on the front panel.
The internal fuses for the microprocessor electronics are accessible by removing the top cover (see sketch "Supply Terminals").
Always disconnect the power before you open the EURORACK DIMSWITCH or replace a fuse!
Switch power off 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.

EURORACK 60 DIMSWITCH

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EURORACK 60 DIMSWITCH

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