



$5/330 = 0.015$   
 $\Delta t = 10^{\circ}\text{C}/6\text{KW}$   
 $T_{\text{tot}} = T_{\text{amb}} + \Delta t$  ( $T_{\text{amb}} = \text{max. Ambient Temp.}$ )  
 $T_{\text{tot}} = 35^{\circ}\text{C} + 21.5 = 56.5^{\circ}\text{C}$   
 $483 - 440 = 43\text{mm}$   
 $43/2 = 21.5 \rightarrow 21,5\text{mm}$

**Quadrant** - 6 x 2.4kW Dimmer Pack

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**Model: D610**

**Instructions Manual**

## 2.4KW DIMMER PACKS.



***Thank you for purchasing model D610 from Quadrant, our new compact Six Channel Digital Dimmer Pack.***

***Although it comes from a most powerful family this model has been projected to work on the most demanding situations, since small to bigger Theatres and live-shows. Easy installation options give to this unit other applications like Hotels and show rooms.***

**Using DMX 512 protocol, (XLR - 5 Pins), their main specifications are:**

- All parameters programmed using a comprehensive keyboard (only 3 keys).
- 6 Dimming curves, including one disable curve (Curve 0),
- One scene (or individual pre-heat).
- Liquid Crystal Display with:
  - Mains frequency measurement during power on.
  - Mains configuration detection during power on.
  - DMX fault (Flashing-Display).
  - First DMX Channel selected.
  - Selected Curve(s).
  - Percentage level per Channel (00% to FF=100%).

- 6 M.C.B. on the front panel protect each channel from overloads.
- One 80mm Fan (thermally controlled by precision electronic sensor).
- Thermal protection (auto shut-off operation if temperature reaches dangerous limits). Protection unit will reset as soon as temperature decreases to normal values.

Fig.1 shows how D610 control panel looks like, when in normal display, and after receiving DMX data for channels 27 to 32. “C027” (right side, upper corner), shows that selected DMX channel is 27, and “CRV1” (right side, lower corner), shows that all channels has dimming curve 1 pre-set. If one or more channels have different pre-set curves, an “\*” should be displayed.

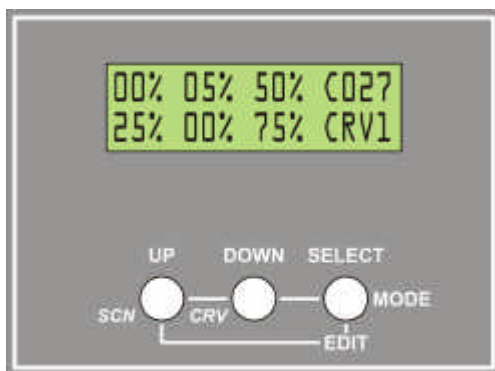


Fig.1

## INSTALLATION.

Those units should be installed on dry and well ventilated places. A special attention should taken by installer when he is going to make electrical connections.

### Mind following points:

- Mains supply should have three phases and should be protected by a 4 Pole 25 Amp. (or other adequate value) R.C.D. (ÄI = 30mA), except “One Phase Version” that should use 2 Pole 63 Amp. RCD. In case of electrical rule discrepancies **mind local electrical regulations.**

## TechnicalSpecs

**Input Protocol:** DMX512

**IN / OUT Connector:** XLR-5

**Memory:** Memorises last DMX command, till unit receives new data. All Pre-sets (DMX Channel, Scene and Curve) will stay memorised even after Power down.

**Protections:** Overload protection per Channel (M.C.B.).  
Ventilation with Electronic thermal control.  
Over-heat electronic thermal protection.

### Curves (per channel):

- Curve 0- Disables channel / unit output.
- Curve 1- Linear.
- Curve 2- Halogen 1.
- Curve 3- Halogen 2.
- Curve 4- Florescent Lamp (needs a proper ballast).
- Curve 5- ON / OFF.

**Power per channel (@240V):**

**D610:** 2,4KW

**Connection type:** hard-wire

**Dimensions:** 483 x 88 x 308 mm (333mm with cable glands).

**Weight:** 9,3 Kg (11

**Power Supply:** 3 Phases + Neutral+ Earth (3 Phase version).  
1 Phase + Neutral + Earth (1 Phase version)

**Working conditions:** Ambient temperature - 10°C to 35°C.  
Relative Humidity: 80% max. (without condensation).

**IMPORTANT:** when dimmer channels have a DMX value (in %) lower than the pre-set value, although the display shows us DMX value (with a “p”), the output will follow the pre-set. As soon as the DMX value is higher than pre-set value, channel begins to be controlled by DMX and “p” disappears.

**In conclusion: whenever a “p” is present after DMX value (in %) of any channel, it means the channel is not being controlled by DMX data. The output depends on internal pre-set value.**


If you have a scene programmed, and then you want to work normally, controlling your dimmer **ONLY** with your Light Desk, you just need to touch for a while on three keys at same time (Mode). The display will blink and preset levels will be cleared and will remain like that till power down. If you switch on the dimmer again, you’ll verify all presets have been memorised and you’ll have no need to reprogram new presets.

## WARRANTY and SERVICE.

All distributors are in conditions to give technical service. Any assistance should be made by authorised personal only.

One year Warranty for all Quadrant equipment should be given. Purchase date will initiate warranty period (consider invoice date).

Warranty will terminate if equipment has been open by not authorised person or misuse.

Quadrant equipment complies CE specifications 

**IMPORTANT:** In order to develop all equipment in production, **Leid** reserves the right to change any part or specifications of this equipment or this manual with no previous notice.

- Never overload cables and electrical sectors. Respect following information:

**D610:** 3x240V @ 20Amp. (3 Phase at 20 Amps per phase)

- Installer should be very careful with electrical connections (crimp, ring and screw terminals). Screws should be verified at least once per year. Bad contacts will generate overheat with consequent degradation of insulation materials of cables and connectors. This overheat can produce **FIRE!** Electrical regulations identifies the type of cables (section and insulation specifications) you should use on different installations... Follow those regulations.

- **Neutral should have a cable with a conductor area 130% larger than phase conductors,** (In small installations, same conductor areas for Neutral and Phases are acceptable) Missing Neutral produces equipment malfunction and, in special situations some components could be destroyed.

Choose a dry and ventilated place ( $T_{amb.} < 35^{\circ}C$ ). The installer should remember this equipment produces heat. This heat should be removed from the room or place where it has been installed.

- **Very Important: For safety reasons *never* work with this equipment on wet conditions!**

Each channel is protected by one M.C.B. If any M.C.B. breaks **that means there are an output problem.** Never try to substitute a magnetic circuit breaker by new one with larger value. Any action of any kind inside the equipment by non authorised person will terminate warranty.

- DMX should be transmitted through a DMX or STP data cable (impedance around 100 to 120 Ohms). Microphone cables should be avoided.

**Important:** if the installer uses data cable with more than one twisted pair, only one twisted pair should be identified and used. The others should be connected to ground (or other uses). Remember, the cable manufacturer only guaranties the impedance for a twisted pair (not between adjacent pairs).

- XLR5 should follow the pin-out mentioned above:
  - Pin 1 = Ground - GND**
  - Pin 2 = Data -**
  - Pin 3 = Data +**
- Last equipment on a DMX line, should have a male XLR5 with a 120 Ohms resistor between pin 2 and 3. This resistor will terminate the DMX data line. If one doesn't follow this rule, problems with data transmission should happen generating a strange malfunction, specially if cables are bigger than 20m (approximate value).
- If you have a complex DMX installation (such as equipment on a truss and on the floor) you should separate each sector (or branch) from others using a DMX splitter (better if the splitter is opto-coupled to prevent ground loops, type **S6P** from **Quadrant**).
  - NEVER FORGET to terminate each branch with a terminator.
  - Two screws on each side allows the installer to fix the equipment against the wall or truss, by means of two metal peaces supplied upon request.

## SET-UP.

After installation, one can prepare the dimmer Set-up operation. Let's enter the *edit mode*:

- First touch both **UP** and **SELECT** keys. After some seconds, digit "hundreds" from "DMX channel" will begin to blink: **C001**.
- If we want to select DMX channel 27 (following fig.1 example), this digit should be "0". In that case we should follow to "tens" digit, touching **SELECT** key once. "Tens" digit will blink: **C001**. Touching two times **UP** key, number **2** will appear. Now we'll need to define "units" digit. Touch again **SELECT** key and "units" digit will blink: **C021**. We need to touch **UP** key six times (or **DOWN** key four times) and we'll have units selected on number **7**. We have set up the dimmer at channel **27**.

**IMPORTANT:** Dimmers D610 do not accept to be programmed if selected channels does not exist on the DMX data string (Ex.: if we are working with a 256 channels light desk, the dimmers will not accept a set-up at channel 252 cause in that case the 6<sup>th</sup> channel should be 257 and that channel doesn't exist – remember it is a 256 channels light desk).

- While in **edit mode** a new touch on **SELECT** key will put us on **Scene menu**: Use **UP** and **DOWN** keys to pre-set output level (channel by channel). Use **SELECT** key to select channel. After that, one scene or individual pre-heat should be programmed.

One touch more on **SELECT** key and the display shows us **Curve menu**. **Quadrant** Dimmers have 5 curves:

**CRV0:** Channel disabled.

**CRV1:** Dimmer reacts as analogue dimmers.

**CRV2:** Linear Curve (Type 1) for halogen lamps.

**CRV3:** Linear Curve (Type 2) for halogen lamps.

**CRV4:** Dimming Curve for florescent lamps (needs special ballast).

**CRV5:** RELAY – up to 49%, channel is OFF; more than 50% channel is full (100%).

Use **UP** and **DOWN** keys to select Curve. Use **SELECT** key to change channel.

- After selecting channel curves, one more touch on **SELECT** key and we are back to **Main menu** and ready to work.
- On **Main menu** a number will be displayed after **CRV** if all channel has same pre-set curve. If, at least one channel has a different curve you will see **CRV\***.
- **All pre-set parameters will be memorised even after power down.**
- Touch UP Key and Preset level will be displayed.
- Touch DOWN Key and Preset Curve will be displayed.