



## **Quadrant** – *Digital Dimmer Pack*

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**Models:** *LTB62 /d*  
*LTB63 /d*  
*LTB35 /d*  
(*d: model with R.C.D.*)

**Instructions Manual**

## 2KW to 5KW DIMMER PACKS.



**Quadrant LTB62, LTB63 and LTB35 are Six and Three Channel Digital Dimmer Packs, projected to work on the most demanding situations: Theatres and live-shows.**

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

- All parameters programmed using a comprehensive keyboard (only 3 keys).
- 5 Dimming curves, including one disable curve (Curve 0),
- General 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 (representing a 6 channel unit: LTB62 or LTB63 – LTB35 should have a similar display but information will regard only to 3 channels) shows how control panel looks like, when in normal display, and after receiving DMX data for channels 27 to 32. “C027” (right side, upper corner), indicates that selected DMX channel is 27, and “CRV1” (right side, lower corner), indicates the unit has dimming curve 1 pre-set.

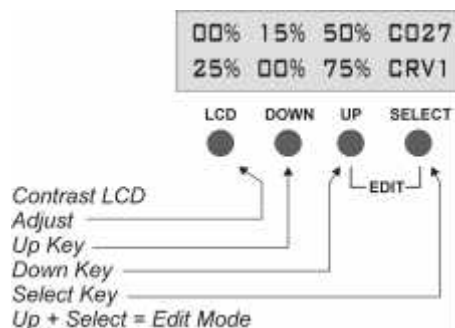


Fig.1

## INSTALLATION.

Those units should be installed on dry and well ventilated places. A special attention should be 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 40Amp. (or other adequate value) R.C.D. (ÄI = 30mA), except for “d” versions. In case of electrical rule discrepancies **mind local electrical regulations.**

## Technical Specs

**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.

“d” Versions: see note bellow.

**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):**

**LTB62:** 2,4KW

**LTB63:** 3,6KW

**LTB35:** 5,7KW

**Dimensions:** 483 x 132 x 420 mm (Version without handles).

**Weight:** 13,5 Kg

**Power Supply:** 3 Phases + Neutral.

**Working conditions:** Ambient temperature - 10°C to 35°C.

Relative Humidity: 80% max. (without condensation).

**-“d Version”:** LTB series has a “d” version, supplied with a built-in RCD. This version can be supplied also with a built in **Neutral error connection system protection.**

**IMPORTANT:** when dimmer channels have a DMX value (in %) lower than the pre-heat value, although the display shows us DMX value (with a “p”), the output will follow the pre-heat level. As soon as the DMX value is higher than pre-heat 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 the pre-heat value.**

## 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.

▪ Power cable should be protected by a 4 pole 40Amp. M.C.B. In case of electrical rule discrepancies **mind local electrical regulations**.

▪ Never overload cables and electrical sectors. Respect following table:

**LTB62:** 3x230V @ 20Amp. (3 Phase at 20 Amps per phase)

**LTB63:** 3x230V @ 32Amp. (3 Phase at 32 Amps per phase)

**LTB35:** 3x230V @ 25Amp. (3 Phase at 25 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. Remember, the cable manufacturer only guarantees 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.

## 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 LTB62, LTB63 and LTB35, 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 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 general Dimming Curve.

- A new touch on **SELECT** key will put us on **General Pre-Heat menu**: Use **UP** and **DOWN** keys to pre-set Pre-Heat output level.
- After **General Pre-Heat** has been defined, one more touch on **SELECT** key and we are back to **Main menu** and ready to work.

All pre-set parameters will be memorised even after power down.