

LUMISYS

BUILT FOR INTEGRATION

Installation Guide



IMMIX Master Station
Part# LD200MS

ATTENTION

This section serves as a notice of the immediate or potential dangers involved when working with the equipment described throughout this manual. Any person involved in installation, maintenance, or service of the equipment should first carefully examine the equipment and read the instructions contained in this manual to ensure that personal and/or equipment injury is avoided.

The following safety messages are used throughout this manual to alert of immediate or potential danger to life or property:



Hint Indicates a tip or trick to help you.



Note Indicates an important note.



DANGER! Indicates an immediately hazardous situation which, if not avoided, will result in death or serious injury.



WARNING! Indicates a potentially hazardous situation which, if not avoided, can result in death or serious injury.



CAUTION: Indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

CAUTION: Used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, can result in personal or property damage. Failure to comply with proper handling of the Lumisys products may void your warranty



In addition, this symbol may appear in the margin of specific portions of text as a safety reminder. Applicable instruction steps will be listed beneath the symbol.

Disclaimer

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designated to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Instructions contained in this user's guide should be performed only by qualified persons in accordance with local and national codes. Lumisys® Lighting and its affiliates assume no responsibility for any consequences related to the improper use of this manual.

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Overview

The IMMIX System consists of a IMMIX Master Station, optional power boosters and remote stations. The IMMIX Master Station allows presets to be set and stored in memory, fade times to be modified, and buttons and/or memory to be locked. Remote stations are needed for more sophisticated functions such as activating Presets 7 thru 18, auto-sequencing presets, combining areas, and selectively locking remote stations.

Parts List - Factory Assembled

Select Panel Type:

FACTORY ASSEMBLED	
Part #	Description
LD200MS	Lumisys iMMIX Master Station

Ordering Example of Factory Assembled IMMIX LD200MS

Part #	Quantity
LD200MS	1



Introduction

The IMMIX Master Station (Part Number LD200MS) is designed to be a self-contained preset lighting control system, i.e. no external dimming rack is necessary. The IMMIX Master Station is a microprocessor based unit that can control up to 2000 Watts (16.7A) of lighting load.

Specifications

Model Numbers: LD200MS

Electrical Ratings: 120VAC, 60HZ

Maximum Lighting Load Per Channel: 800 Watts (6.7 Amps)

Maximum Total Lighting Load: 2000 Watts (16.7 Amps), total combined load of all channels cannot exceed 2000 W

Compatible Load Types: Incandescent;
use optional Power Booster for:
Magnetic,
Electronic Low Voltage,
Fluorescent or for 277 Volt loads

Maximum Number of Channels per Station: 6

(for more channels, multiple stations may be daisy chained together, see Figure 3 and Figure 4 for low voltage wiring)

Allowable Fade Times: 0 - 59 seconds and 1 - 60 minutes

Maximum Number of Optional Remote Stations per Master Station: 3

Maximum Allowable Ambient Temperature: 40 C (104 F)

Approvals: "UL Listed to U.S. and Canadian safety standards"

Installation

Always check all applicable N.E.C. and local electrical codes before beginning installation. The IMMIX Master Station mounts in a 4 gang, 3 1/2" deep back box. All line voltage wiring is terminated to screw terminal blocks located on the rear of the unit. All low voltage control wiring between master stations or optional remote stations is Class2. The IMMIX Master Station must be grounded to an N.E.C. earth ground by connecting to the chassis ground pigtail provided.

The IMMIX Master Station can be fed by either a single 15 - 20 Amp circuit breaker or a two-pole 15 - 20 Amp circuit breaker wired as a "multi-wire branch circuit" as defined in the N.E.C.*. The IMMIX Master Station also requires a Neutral to power the station control electronics.

<u>Lighting Load</u>	<u>Circuit Breaker Needed</u>
12 Amps or less	(1) 15 Amp
12 - 16 Amps	(1) 20 Amp
up to 16.7 Amps	(1) Two-pole 15 -20 Amp

**Both circuit breakers in a multi-wire branch circuit must be on the same phase.

Installation Steps

Load Wiring



This equipment uses AC line voltages which could cause injury. Only individuals experienced with electrical and electronic equipment should remove panels or attempt to service this system. Tampering with the system could cause electrical shock.

The following installation should only be performed by a trained electrical technician:

1. Test each load circuit for shorted or open wiring by turning the circuit on with a standard light switch, before attaching wire to the station.
2. Fix any faulty wiring before installing the station.



3. To prevent electrical shock or equipment damage always disconnect power before installing or servicing this station.

4. Wire the station as shown in Figure 1 for a single circuit feed and as shown in Figure 2 for a multi-circuit branch feed.
5. For multi-stations follow the high voltage wiring shown in Figure 1 or Figure 2 for each station. Then follow the wiring in Figure 3 or Figure 4 (depending on the number of stations) for the system low voltage wiring.
6. The minimum high voltage wiring size is 14 gauge for up to 15 amps. 12 gauge wire must be used for 15 amps to 20 amps.
7. Recheck all connections that were made.
8. Screw the station into the back box.
9. Gently flex the front panel overlay and position it over the station buttons and displays.
10. Release the flex and allow the overlay tabs to enter the slots on the front panel bezel.

Figure 1
Rear view of Master Station
with single circuit feed

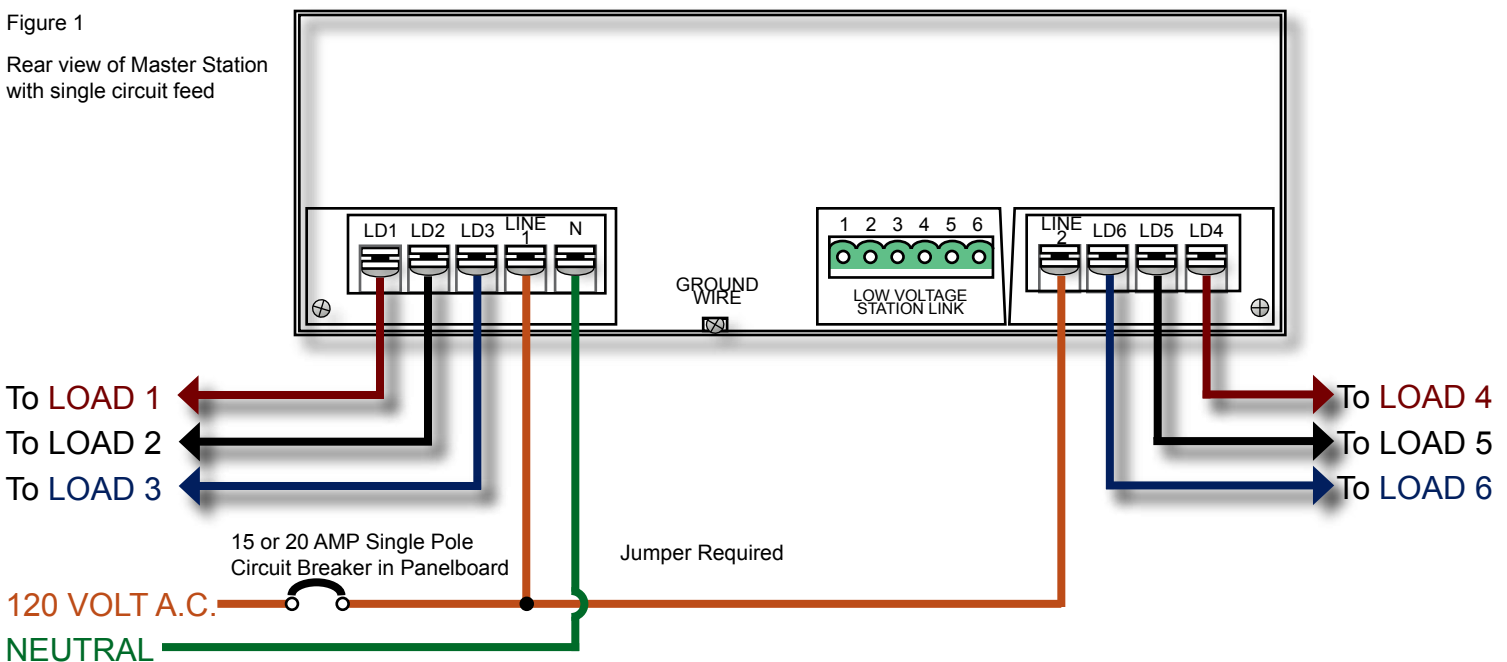
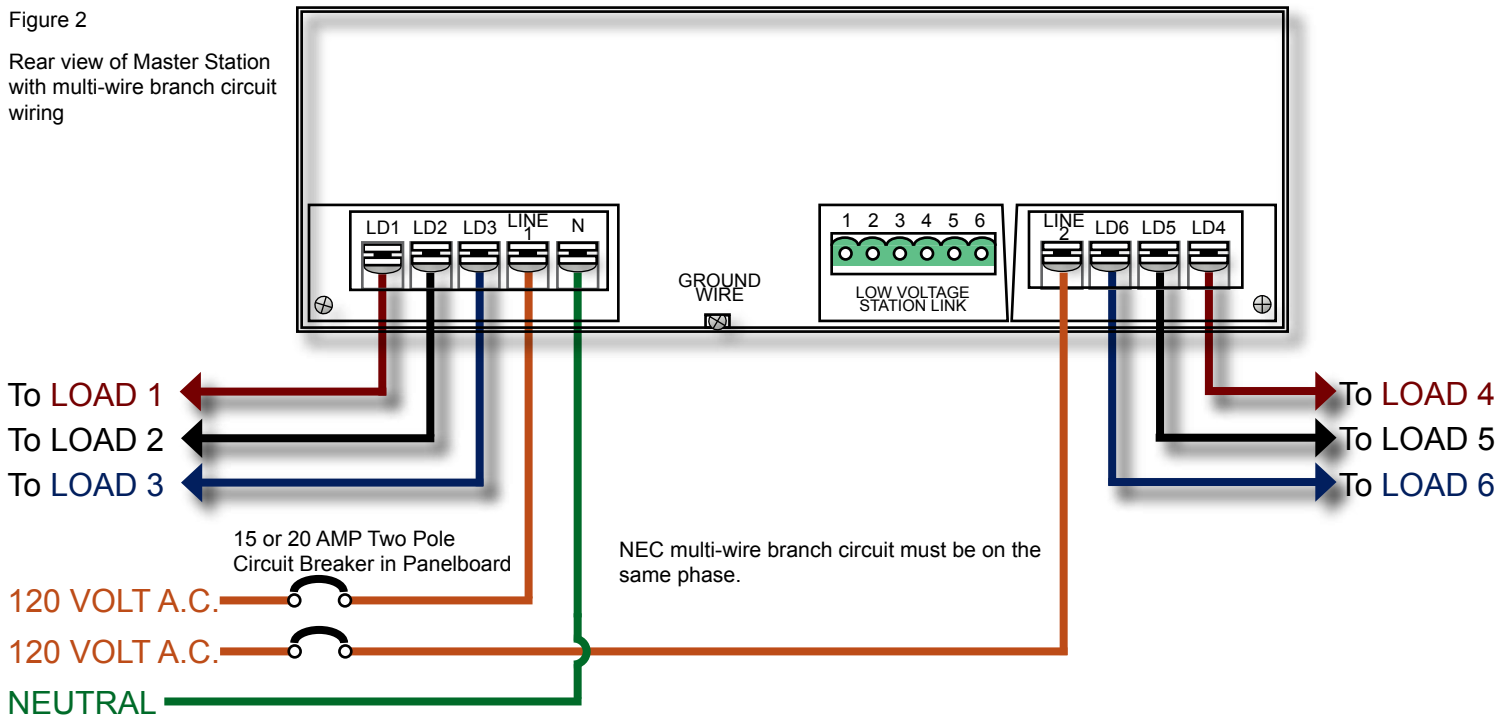


Figure 2
Rear view of Master Station
with multi-wire branch circuit
wiring



Control Link Wiring

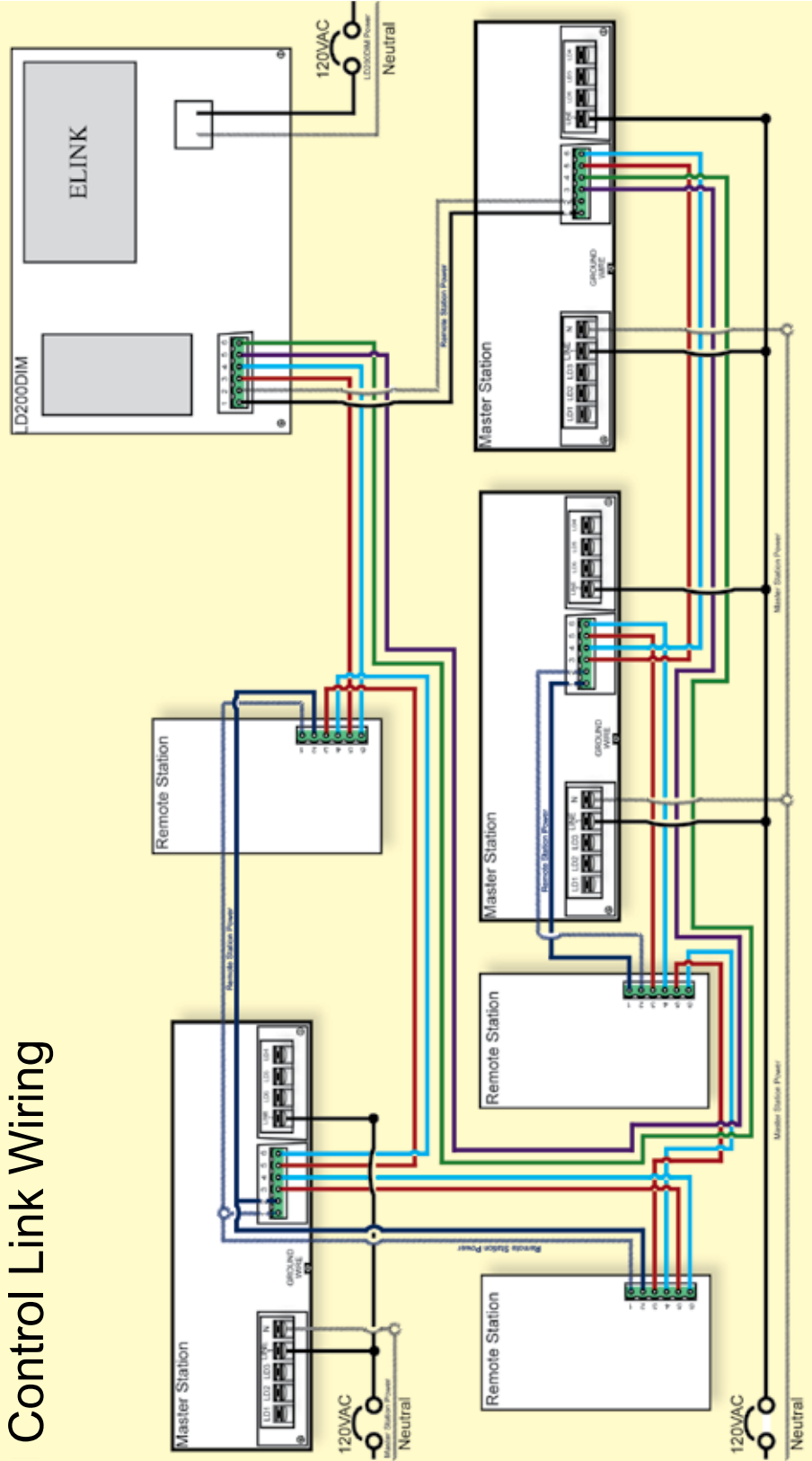
Control Link connections from LD200 DIM to master and remote stations are done with 4 conductors. Units are daisy chained, alternating termination points 3, 4 “in” and 5, 6 “out” with 2 conductors. The two other conductors form a network return. In addition, two more conductors form the low voltage power wiring to connection points 1 and 2 on each station and the DIM integration module. The entire control link and low voltage power can be run in a single, 6-conductor cable. It appears as a linear end to end wire but is, in essence, a loop containing all the stations as shown in Figure 3.

The Class 2 control link and low voltage power from the remote stations to the master station requires Belden #9730 or equivalent (3 shielded, 18 AWG pairs) if less than 100 feet end to end. If greater than 100 feet, use Belden #9729 (2 shielded pairs) plus 2 #14 AWG wires for low voltage power.

120 Volt Power

120 volt power to LD200 DIM and master stations is run separately from the control link / low voltage cable and not in the same conduit. (12 -14 AWG wire)

Figure 3 - Control Link Wiring



Control Link Wiring

System Overview

The IMMIX System consists of a IMMIX Master Station, optional power boosters and remote stations. The IMMIX Master Station allows presets to be set and stored in memory, fade times to be modified, and buttons and/or memory to be locked. Remote stations are needed for more sophisticated functions such as activating Presets 7 thru 18, auto-sequencing presets, combining areas, and selectively locking remote stations.

This manual uses some common lighting terms that need to be understood.

Presets

A IMMIX Master Station will store up to 18 presets (lighting “looks”) for future recall. Each “look” stores user programmed levels for all of the lights connected to the station.

Channels

Each preset has either 4 or 6 channels (per master station). A channel is one or more lights which are to be controlled together as a group. All the lights on a channel must be wired together and connected to the channel output terminals on the master station. For example, if Channel 5 is wired to the chandelier in your dining area, every time Channel 5 is changed the chandelier’s lighting intensity will change.

Fade

A fade is the gradual changing of light intensity from its present level to a new level.

Fade Time

Each preset has a programmable fade time. A fade time is the time it takes the lights to fade to the new level after a preset is activated. A fade time of 2 seconds up to 60 minutes can be set for each preset.

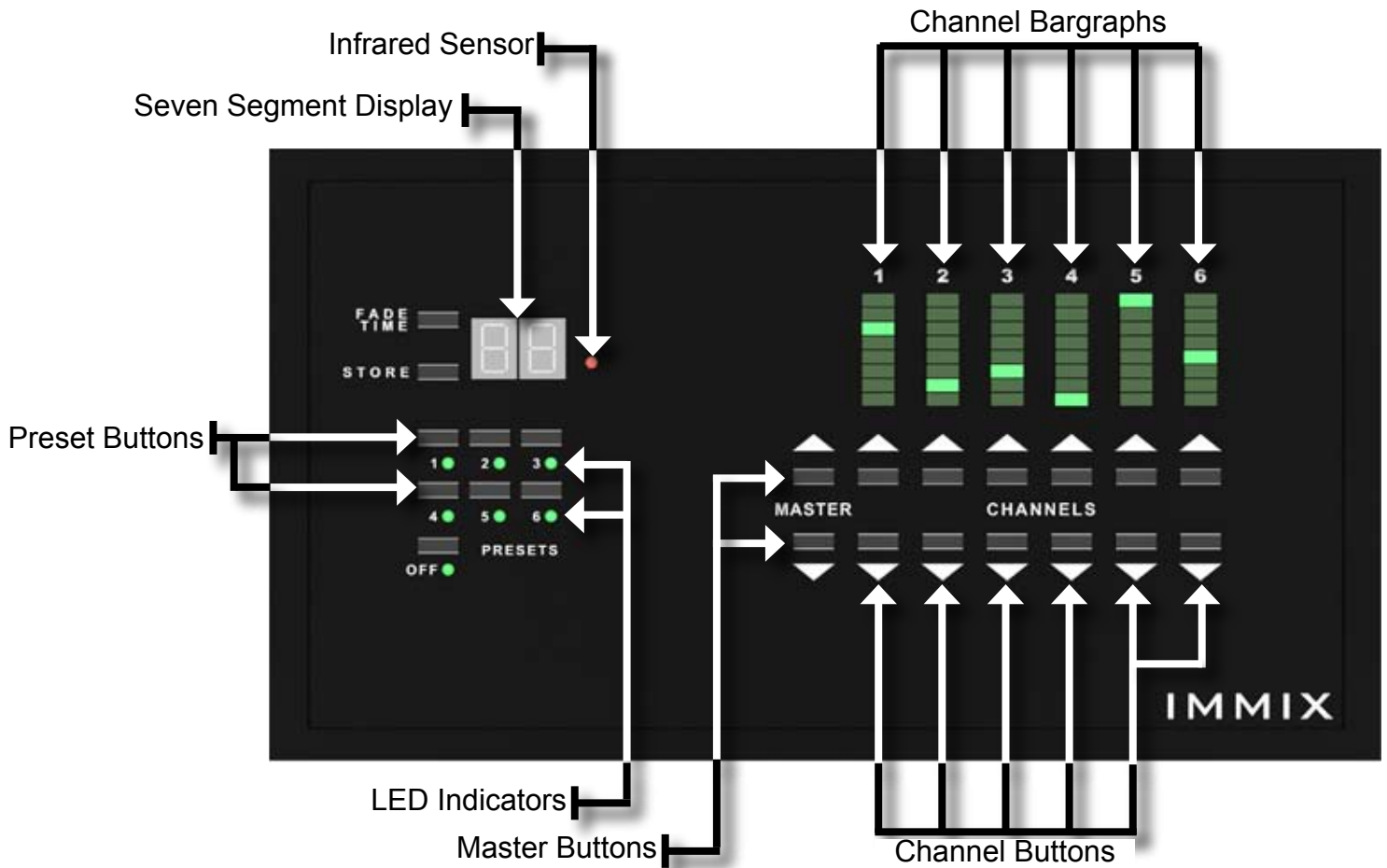
Non-Dim

Each channel can be set as either a dimmer or a non-dim. A non-dim channel has only two lighting levels: OFF (0%) and FULL (100%). Non-dim channels do not fade like a channel set as a dimmer. Channels configured as nondims will turn on or off abruptly during the fade. A channel must be set to non-dim if it is connected to a standard fluorescent ballast, fan motor, or a receptacle. Also a channel should be set as a non-dim if it is desired to only have a lighting fixture turn off and on. Non-dim channels turn on or off when the fade is about 50% complete

Area

Each station has a user programmable area number from 1 to 8. All stations with the same area number will share the same information. The stations must have their channels connected to different light fixtures. When a button is pressed on station 1 the same button press will be transmitted to station 2. When optional remote stations are present, they must be given the same area number as the Master Station that they are controlling.

Interface Overview



7 Segment Displays

Show fade time remaining, error conditions and also show configuration information.

Channel Bargraphs

Show the present lighting level for each channel and also show configuration information.

LED's

Show which Preset (1 thru 6) is active. The LED's will not light for Presets 7 thru 18, which will only be indicated at the remote preset station.

Infrared Sensor

Receives infrared control signal to activate Presets 1 thru 6, OFF, MASTER UP & DOWN from the IMMIX hand held infrared controller.

BUTTONS

Presets

Activate the numbered preset (1 thru 6).

Off

Fades all the lights to the “Lowest Level Settings” (see page 9) over a preassigned fade time of 10 seconds. The Off Preset levels or its fade time cannot be modified, when active.

Fade Time

Starts “Change Fade Time Mode”, where the fade time can be assigned for each preset.

Store

Saves the data to memory. In Preset Mode, it saves the channel levels on the lights. In “Change Fade Time Mode”, it saves the new fade time.

Master Up & Down

Change all active channel levels at one time. The channel levels will increase or decrease as long as the appropriate master button is held down.

Channel Up & Down

Individually changes the level of a channel. The channel level will increase or decrease as long as the appropriate channel button is held down.

Configuring the IMMIX Master Station

To enter Configuration Mode:

- 1) press and hold the OFF button,
- 2) then press the Preset 1 button



The first item in configure is “All Lock”.

Select the items that you want to configure from those listed below.

To select another item to configure press the appropriate preset button.

At any point you may exit Configuration Mode by pressing:

- 1) STORE - to save any configuration changes and exit



- 2) OFF - to exit without saving.



ALL LOCK (BUTTON LOCK) (Press OFF + PRESET1)

The display will blink the "All Lock" status as either:




AU (All Unlock Mode) - all of the buttons will function

or



AL (All Lock Mode) - all of the buttons are locked and will not function, except to unlock the station

Press  to toggle the station between locked and unlocked mode.



= locked

= unlocked

AREA NUMBER (PRESS PRESET 1)

The display will blink the current area number (from 1 to 8) for the station as:



thru



Press  to change the area number.



= increase area number

= decrease area number



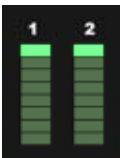
Note In most cases, each station should be set to a unique area number. Two stations should have the same number only if they are always in the same room. With the same area number on both stations, activating a preset on Station 1 will activate the same preset number on Station 2.

CHANNEL FUNCTION - (PRESS PRESET 2)

The display will blink:




Each bargraph will show the function of the channel as either a non-dim or dimmer.



With the top segment lit, the channel acts as a non-dim. There are two possible channel levels full and off.



With the bottom segment lit, the channel acts as a dimmer. (Full range from 0% to 100%)

Press  to toggle a channel from a non-dim to a dimmer.



= non-dim

= dimmer

SETTING LOW LEVEL (PRESS PRESET 3)

The display will blink:



Each channel bargraph will show the “Lowest Level Setting” for that individual channel. The light level in any preset will not go below the “Lowest Level Setting” for that channel. A channel’s Low Level cannot be greater than its High Level. As the low level setting is being adjusted, the lights will change accordingly. The “Lowest Level Setting” can be used for safety or security areas where it is not desirable to have the light level at 0%.

Press  to set the Low Level desired for each channel.



= raise level
= lower level

HIGH LEVEL SETTING (PRESS PRESET 4)

The display will blink:



Each channel bargraph will show the “Highest Level Setting” for that individual channel. The light level in any preset will not go above the “Highest Level Setting” for that channel. A channel’s High Level cannot be less than its Low Level. As the high level setting is being adjusted, the lights will change accordingly. The “Highest Level Setting” can be used for areas where it is not desirable to have the light level ever go to full intensity.

Press  to set the Low Level desired for each channel.



= raise level
= lower level

OPERATING THE STATION

The station has to be in All Unlock Mode in order to operate. The station is locked when a button is pressed and the following error message is displayed:



To unlock the station see the heading “Configuring the IMMIX Master Station”, for further information on All Lock Mode.

ACTIVATING A PRESET

Press 1 thru 6 or Off to activate the desired preset.



The LED under the preset button that was pressed will light to indicate that the preset is now active. The Fade Time associated with the preset will be shown on the display. If the decimal point on the right side of the display is lit, the Fade Time is counting down in minutes. If the decimal point is not lit, it is counting down in seconds.



←10 minute fade time



←10 second fade time

If the starting fade time is in minutes, it will count down in minutes until 59 seconds remain. At 59 seconds, the decimal point will turn off and the fade time will count down in seconds until time expires. When the fade is complete, the display will be blank and the lights will be at their final levels.

TEMPORARILY MODIFYING AN ACTIVE FADE

1) To speed up an active fade, repress the selected preset's button. Each press of that Preset Button will cut the fade time in half. For example, a fade time of one minute will be cut in half to thirty seconds with the second press of the selected preset's button, to fifteen seconds with the third press, and so on until the fade is complete (the display will be blank). This is a good way to speed up the fade without changing the value stored in memory.

2) To immediately end an active fade press:



or




The lights will jump to their final levels

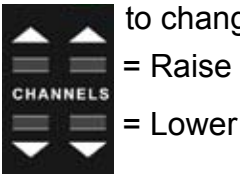
Ending a fade by using a Master or Channel Button alters the active preset by approximately 1%. Anytime the active preset is different from the preset stored in memory the display will show:



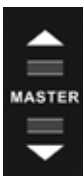
MODIFYING AN ACTIVE PRESET

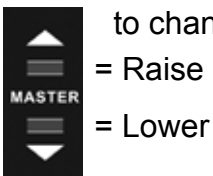
Once the fade has ended, temporary changes can be made to the light levels. These changes affect only the current light levels and will not affect any of the settings in memory.

Press  to change the value of individual channels.



The bargraph for each channel will track the changing light level.

Press  to change the value of all active channels at one time.



The bargraph for each channel will track the changing light level.



Since the active preset has been modified and is different from the preset stored in memory the display will show: (left)

STORING A MODIFIED PRESET

In order to save any changes, the memory has to be in the unlocked mode. If the memory is locked and changes are attempted, the following message will be shown on the display:



To unlock the memory see section "Configuring the IMMIX Master Station", for further information on Partial Lock Mode. The memory has to be unlocked before any changes are made to the preset.




 to save the modified preset to memory. This will overwrite the previous values in the preset.




Note The Store Button may also be pressed at any time during an active fade. Whatever level the lights are presently at during the fade will be stored in memory..

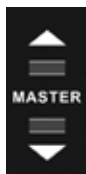
MODIFYING A FADE TIME


Activate the desired preset. The current fade time will be shown on the display. Remember, the fade time is in minutes if the decimal point is lit and in seconds if it is off. The fade time will start to count down as the lights are fading. "Change Fade Time Mode" may be entered at any time during the fade or after the fade has completed.

Press  and the display will blink the fade time value that is stored in memory (10 minutes is shown).



Press  to increase or decrease the fade time as needed, until the desired fade time is reached. A fade time of 2 seconds up to 60 minutes may be set. Use the Master Up Button to raise the fade time and the Master Down Button to lower the fade time.



Press  to save the new fade time to memory. The old value will be overwritten and the display will be blank.

Press  again to exit "Change Fade Time Mode" without saving a new fade time.



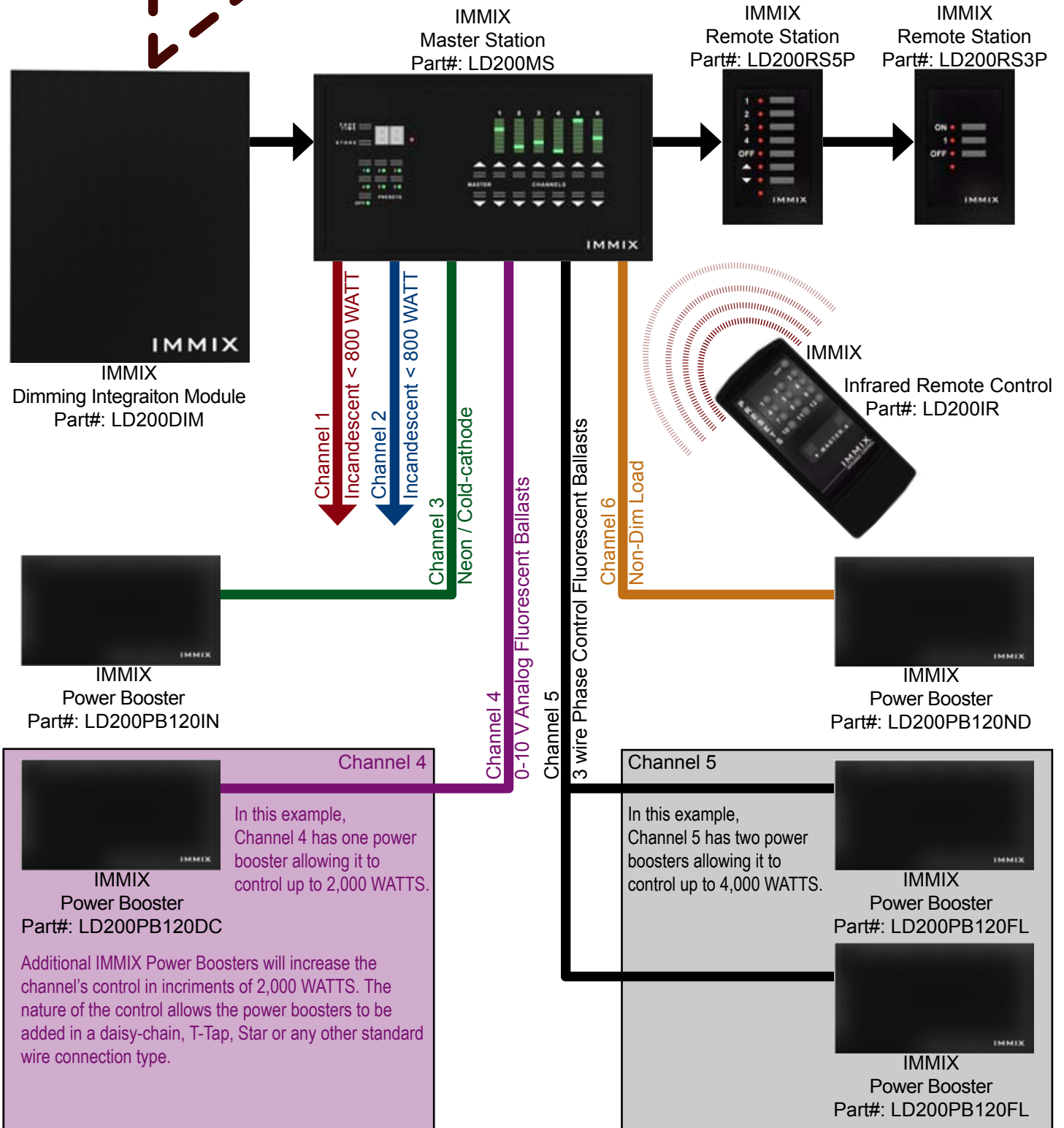
USING THE IMMIX PORTABLE INFRARED CONTROLLER (PART NUMBER: LD200IR)

The station is compatible with an optional handheld infrared controller, provided by Lumisys. The controller will allow you to activate Presets 1 thru 6, OFF and MASTER UP & DOWN from approximately 50 feet. To use the controller point it at the station and press the appropriate button.



Wiring Applications

Building Control Network



Terms and Conditions of Sale

AGREEMENT OF SALE: Acceptance by Lumisys, (hereinafter "Seller") of any order, placed for the goods described on the Acknowledgment, Invoice or Sales Contract hereof shall be subject to Seller's Standard Terms and Conditions of Sale and is conditioned upon the Buyer's acceptance of these Standard Terms and Conditions of sale as stated on this Sales Contract.

TERMS OF CONTRACT: Any terms or conditions of the Buyer's order which are inconsistent with these Standard Terms and Conditions shall not be binding on the Seller and shall not be considered applicable to the sale or shipment of goods covered by this Acknowledgment, Invoice, or Sales Contract. **PRICES:** Prices are subject to change to the extent permissible under applicable federal law. Sales contracts which call for delivery in the future will be billed at prices in effect at the time of shipment. Shipping weights shown are approximate and subject to change without notice. Seller shall notify buyer of any significant changes in weight.

SHIPMENT AND PAYMENTS: All prices are F.O.B. Seller's plant in Kennesaw, Georgia. No freight is allowed on any shipments. Shipments and deliveries hereunder shall at all times be subject to the approval of Seller's Credit Department. Seller may, at any time, require payment in advance or satisfactory security or guarantee that invoices will be promptly paid when due. If Buyer fails to comply with any terms of payment, Seller, in addition to its rights and remedies but not in limitation thereof, reserves the right to withhold further deliveries or terminate this Agreement, and any unpaid amount thereon shall become due immediately. Terms of payment shall be as set forth on the face hereof. Unless approved by Seller, all overseas shipments shall require prepayment by wire transfer or an irrevocable letter of credit from Buyer.

FORCE MAJEURE: Delays or defaults in delivery by Seller of the goods covered by this Sales Contract shall be excused as Force Majeure so far as the same is caused by fire, strikes, accident, war, natural disasters, acts of God, terrorism, explosions, death, vandalism, armed robbery, theft, breakage of machinery, governmental regulation, or any other events which were unavoidable or caused by events which are beyond the reasonable control of Seller. In no event shall Seller be liable for any consequential, special, or contingent damages on account of any default or delay in delivery from any Force Majeure event. If any Force Majeure event occurs which may affect Buyer's goods, Seller shall give prompt oral and written notice of its Force Majeure declaration to Buyer within 7 days or as soon as is practicable.

NON-CANCELLATION: Orders are not subject to suspension, reduction, or cancellation, except on terms that will indemnify Seller against loss. **SPECIFICATIONS:** Seller relies on specifications and other data furnished by the Buyer, architect, contractors, and/or consulting engineer in all phases of the work covered by this Acknowledgment, Invoice or Sales Contract. Seller shall be responsible to check quantities only. Alterations, changes in specifications, approval of samples, and/or changes in delivery shall not be binding upon Seller unless approved by Seller in advance. In the event Buyer asks Seller to perform design or engineering work for any and all phases of the work covered by this Acknowledgment, Invoice or Sales Contract, Seller shall not be responsible for any damages claimed by the Buyer as a result of alleged errors or defects in such design or engineering work except for gross negligence on the part of Seller.

WARRANTY AND LIMITATION OF LIABILITY: Seller warrants that the goods supplied by it have been manufactured in accordance with its standard manufacturing practices, are non-defective and conform to the contract or catalog description for such goods. Except as stated herein, Seller makes no express warranty with respect to goods supplied by it and Seller makes no implied warranties of suitability or fitness for any particular purpose. Unauthorized or unapproved modifications or alterations of such goods without the express written approval of Seller shall void all warranties and indemnities granted herein. To satisfy its indemnity and warranty obligations, Seller will, at its sole option, credit, repair or replace, any goods supplied by it which its examination shall disclose to its satisfaction are defective in workmanship or material, and are returned to it within two years from the date of shipment. Any claim not made within this period shall be conclusively deemed waived by Buyer. Seller shall not be liable for any consequential, special, incidental, punitive or contingent damage or expense arising directly or indirectly from any defect in its goods or from the use of any defective goods or otherwise arising out of this Contract or any purchase order. The remedies set forth herein shall constitute the exclusive remedies available to Buyer for Seller's indemnity and warranties and are in lieu of all other remedies that would otherwise be available to Buyer.

Warranty and technical support on Lumisys products are only available after payment has been received in full.

RETURNS: Material returned for credit is subject to a 10% restocking charge. Freight or other costs incurred in restocking will be added. Returns resulting from errors by the Seller will not be subject to the charge. Returned materials shall be received in condition for resale as new equipment to qualify for credit. Returned materials must be returned to the Seller within 30 days of receipt and shall only be accepted with prior authorization.

SELLER RESERVES THE RIGHT TO SUBSTITUTE MATERIALS USED IN CONSTRUCTION OR EQUIPMENT SOLD PROVIDED SAID SUBSTITUTION DOES NOT MODIFY THE OPERATIONAL CHARACTERISTICS OF THE EQUIPMENT SOLD.

THESE TERMS OF SALE MAY BE MODIFIED WITHOUT NOTICE. THE TERMS OF SALE IN EFFECT AT THE TIME OF SALE SHALL APPLY. THE SELLER AS REFERRED TO IN THE TERMS OF SALE IS Lumisys.

CLAIMS: Claims for shortages of goods or for mistakes or errors in billing must be presented within forty-five (45) days from the date of goods; and must state the packing slip number and container number applicable to the claim. Any claim not so presented shall be conclusively deemed waived.

TAXES: Any federal, state, local or government tax or charge on the sale, shipment, or installation of the goods covered by the Acknowledgment, Invoice or Sales Contract, shall be added to the price and paid by Buyer or, in lieu thereof, the Buyer shall furnish Seller with tax-exemption certificates acceptable to the taxing authority. Buyer agrees to reimburse and save Seller harmless from all such state and local taxes, including interest and penalties thereon, which may at any time be payable to any governmental unit with respect to the sale of any goods covered by this Acknowledgment, Invoice or Sales Contract.

CREDIT BALANCE: Any credit memos granted to Buyer from Seller arising out of returned goods or other circumstances, which are not subsequently requested or applied to the purchase of other goods from Seller within twelve months from the date credit was granted, shall become the property of Seller.

APPLICABLE LAW: All questions arising out of this Acknowledgment, Invoice or Sales Contract, which shall be deemed a Georgia contract, shall be governed by the laws of the State of Georgia. Venue for any disputes arising out of this agreement shall be in Georgia. All disputes arising out of this agreement shall be resolved in the following fashion: the parties shall first engage in good-faith negotiation. If the parties are unable to settle their claims through good-faith negotiation, the parties shall attempt to resolve their dispute through mediation by an agreed upon mediator. Lastly, if mediation fails, the parties shall be subject to binding arbitration by an agreed upon arbitrator who is a member of the American Arbitration Association. The prevailing party in any arbitration or other legal action arising out of this agreement, and/or these terms and conditions of sale, shall be entitled to indemnification of all its attorneys' fees, litigation expenses, and costs from the losing party.

EXCLUSIVE TERMS: This Acknowledgment, Invoice or Sales Contract, which includes these Standard Terms and Conditions, shall constitute the final and binding contract between the parties and shall take precedence over any other terms and conditions from the Buyer. Any changes or deviations from this Acknowledgment, Invoice or Sales Contract must be in writing and mutually agreed to by Buyer and Seller.

LIMITATION FOR SUITS: Any controversy or claim arising out of, or relating to, this Acknowledgment, Invoice or Sales Contract, or the breach thereof, must be commenced within two (2) years after the cause of action accrued.