

Digital Lighting Systems, Inc.



PROTOCOL

PP405

Four Dimmer or Switch Packs

4 x 5 A. Inputs / 4 x 5 A. outputs 12VDC and 24 VDC



USER'S MANUAL



GENERAL DESCRIPTION

The **PP405** is a 4-channel **PROTOCOL** compatible dimmer pack. It is equivalent to four solid-state relays (SSR's) and a INT04 Logic assembled on a single circuit board. Power is fed to the **PP405-DMX** from **FOUR 5 Amps. DC Voltage Power Supplies** . Each solid state relay is rated for a maximum output current of **5 amperes**. The **PP405** has an open frame U shaped enclosure. The logic signals are optically-isolated from all line voltage elements. An external step-down 120 VAC to 8 - 12 VAC/ 300mA transformer is required to supply power to the Logic of the **PP405**. The **PROTOCOL DATA BUS** control cable is hardwired to the **PP405**. Several Dimmer packs may be daisy-chained together. Each **PP405** may be easily set to a unique address with 2 hexadecimal selectors . Each of the **PP405** outputs may be independently configured to dim or switch from the PSCXX wall stations.

PP405 is available **PP405-12DC** for operation in (8VDC to 15 VDC range) and **PP405-24 DC** for operation in (18VDC to 28 VDC range) to provide full range dimming to **LEDs** and other VDC loads.

SWITCHING ONLY LOCK - (See Page 6 for more information)

A **PP405** maybe locked by a hardware jumper into switching only. . Please see **Page6** for location of this jumper.



PP405

Figure 1 - PP405 Detail

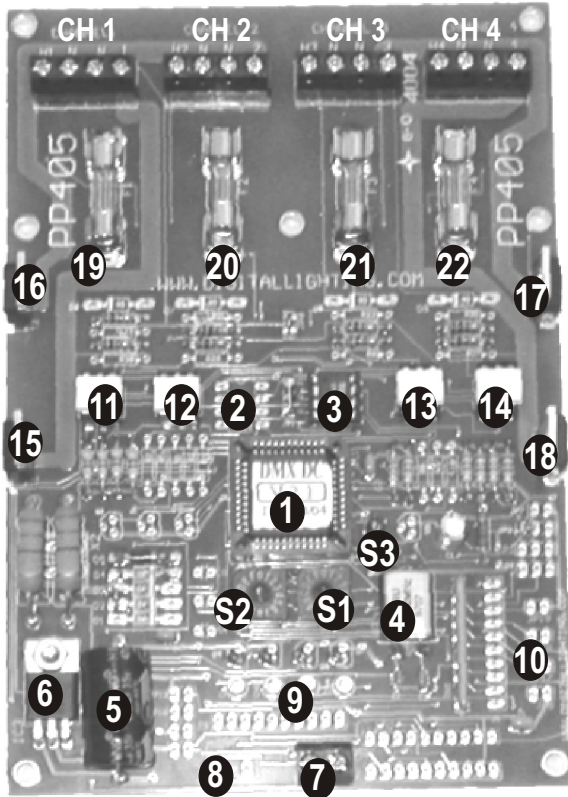


Table 1 - INPUT / OUTPUT Terminals Definition

NAME	DESCRIPTION
CH 1	INPUT / OUTPUT Of Solid-State Relay #1
CH 2	INPUT / OUTPUT Of Solid-State Relay #2
CH 3	INPUT / OUTPUT Of Solid-State Relay #3
CH 4	INPUT / OUTPUT Of Solid-State Relay #4

Negative side switches, Common Positive

Table 2 - Absolute Maximum Electrical Ratings

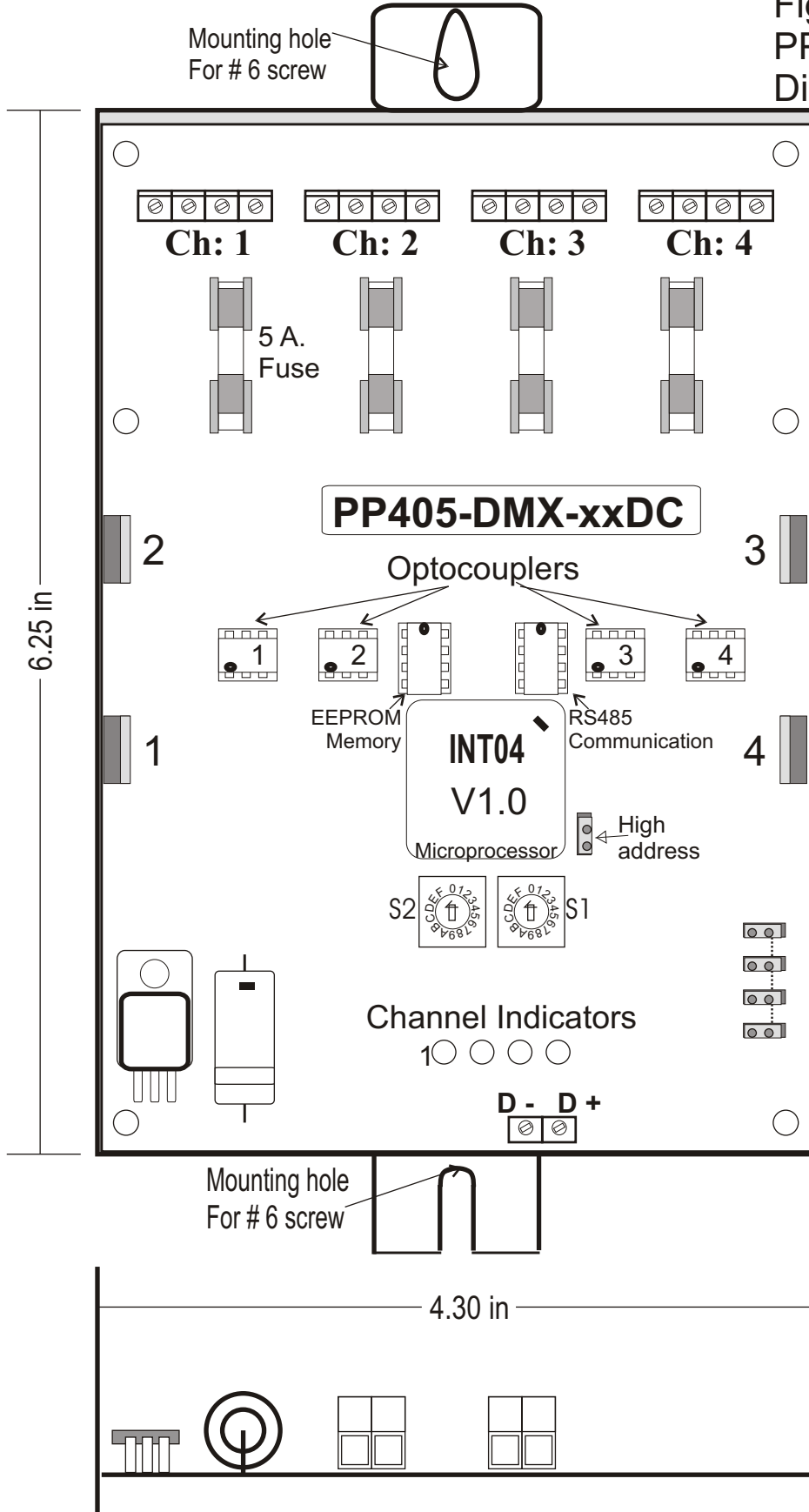
Electrical Characteristic	Terminal	Maximum
Relay Load Current	1 to 4	5 Amps.
Input Current	1 to 4	5 Amps.
Input Voltage	8 to 12 VDC	PP405-12DC
Or	20 to 26 VDC	PP405-24DC

Table 3 - PP405 Circuit Legend

1	Microprocessor.
2	EEPROM Memory
3	Communications Chip.
4	Quartz Crystal.
5	Power Supply Capacitor.
6	Voltage Regulator.
7	PROTOCOL DATA connector.
8	Not used
9	Output LED Monitors.
10	Not used
11,12,13,14	Optical Couplers # 1,2,3,4
15,16,17,18	MOSFET # 1,2,3,4
19,20,21,22	Fuse 5mm ,5 AMPS fast blow



Figure 3 -
PP405-DMX
Dimensional Diagram



Mechanical Installation
The **PP405** modules are designed to be mounted in NEMA enclosures. Mounting Holes : 7" O.C. (by others).



PP405 Control Logic Wiring Methods

Figure 4 PP405 Dimmer Network Ports Connections.

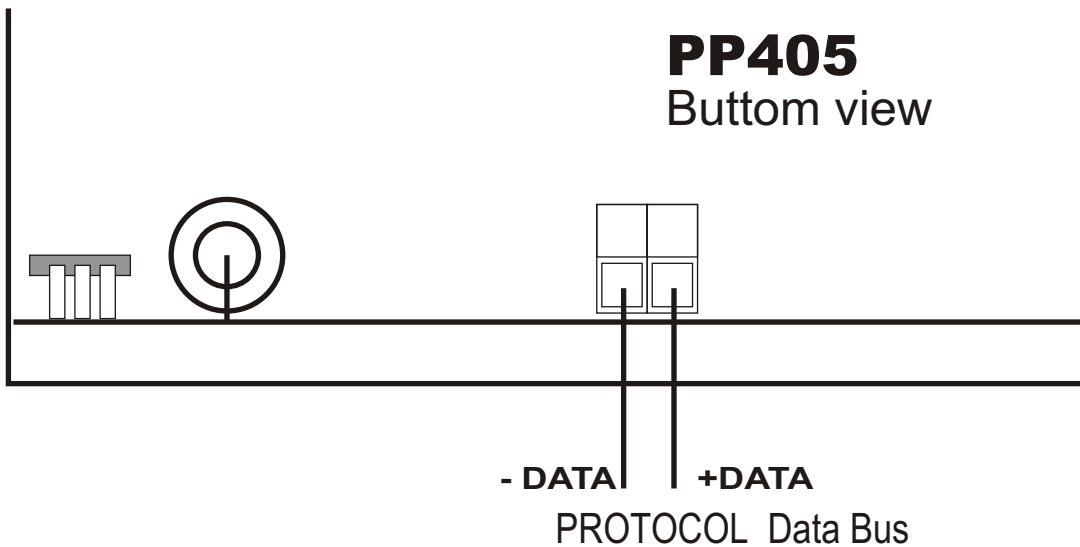
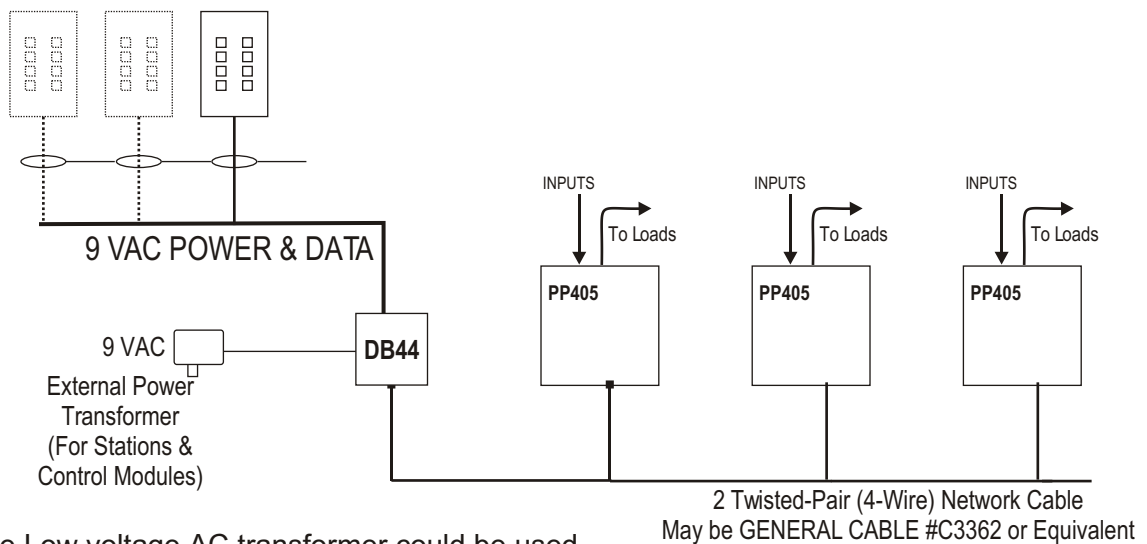


Figure 5 - Typical Installation



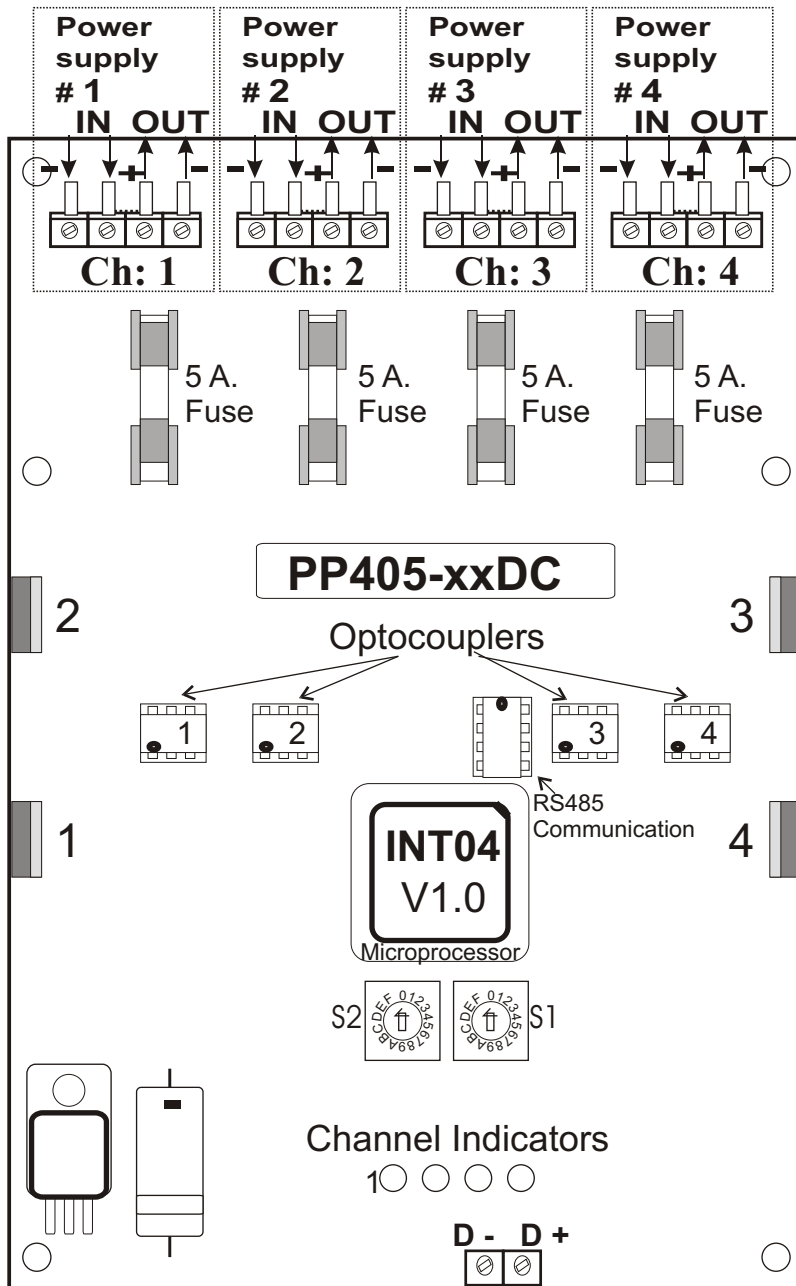
The same Low voltage AC transformer could be used for the logic supply of all PP405 as long as it has the Amps rating required (200MA/ PP405)



Figure 9 - PP405-DMX-24DC/PP405-DMX-12DC GENERAL WIRING INSTRUCTIONS:

Wiring Notes

- ❑ **DO NOT EXCEED** 120W @ 24 VDC or 60 W @ 12 VDC (5 Amps.) per dimmer output
- ❑ All wiring between the controller and other dimmers (DATA bus) is low voltage (NEMA Class 2) and may be run with One, twisted pair, shielded #22 AWG wire.
- ❑ **PP405-DMX** dimmer Modules may be fed by 4 Class 2 Power supplies
- ❑ **CAUTION: DO NOT** attempt to parallel outputs to increase capacity.
- ❑ **Installation must conform to local and/or NEC code requirements and must be performed by a qualified electrician.**
- ❑ **POWER EACH LOAD DIRECTLY BEFORE CONNECTING IT TO THE PP405 TO ENSURE PROPER WIRING.**

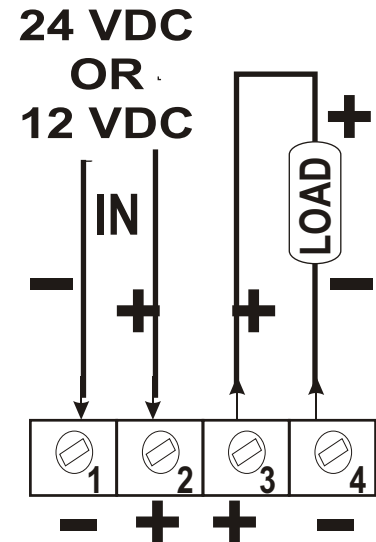


Negative side is dimmed or switched

USE 4 independent power supplies of up to 5 AMPS each.

The NEGATIVE IS SWITCHED

TYPICAL CHANNEL CONNECTION



TERMINAL #
1 = INPUT - (Negative)
2 = INPUT +(Positive)
3 = OUTPUT + (Positive)
4 = OUTPUT - (Negative)

Violet + DATA

PROTOCOL DATA BUS

Red - DATA

Connect to other PROTOCOL devices



Address Setting

Up to 63 individually zoned **PP405** dimmer packs may be installed per system and their **DATABUS** input daisy-chained using standard twisted pair cables. Different addresses ranging from 1 to 63 may be selected for each dimmer. See table on page 10

Non-Dim Output Setting

All of the PP405 outputs may be locked for non-dim (switch only) operation. This prevents inadvertent dimming, or damage, of loads that cannot be dimmed, such as contactors, mechanical relays, motors, non-dim fluorescent, etc... Figure 8 shows the location for installing the non-dim (ND1) jumper.

BEFORE ENERGIZING THE PP405 MAKE SURE:

- Loads are tested before connecting to dimmers.
- PP405 has been properly grounded.
- All line voltage screw terminals are properly tightened to prevent hot spots.
- Low voltage data lines connections are properly insulated.
- Low voltage data lines polarity is observed throughout the system.
- The PP405 is set to the right address.

PP405 Installation Check List

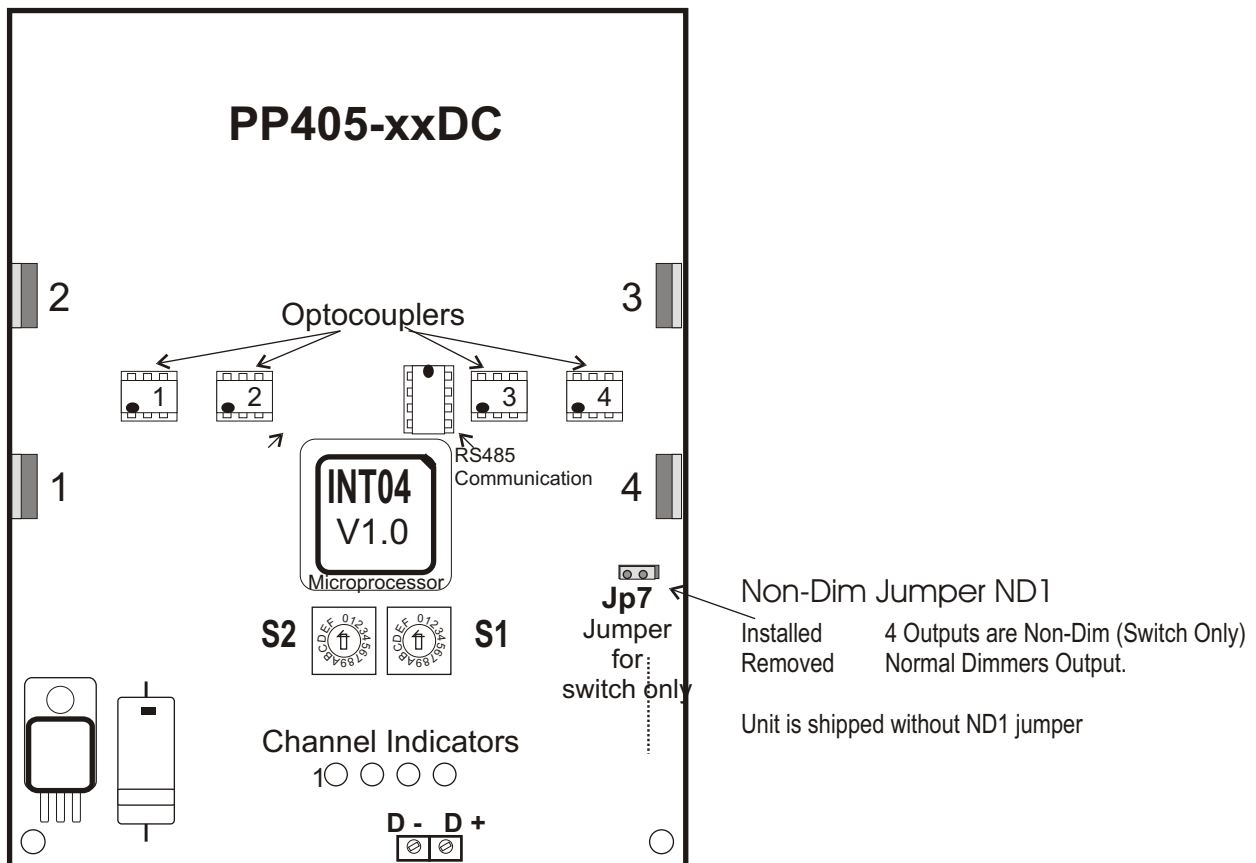


Figure 8 - PP405 Address & Mode Selection.



PP405 Address Selection Information

00	INVALID ADDRESS	33	set S2,S1 to 2,1
01	set S2,S1 to 0,1	34	set S2,S1 to 2,2
02	set S2,S1 to 0,2	35	set S2,S1 to 2,3
03	set S2,S1 to 0,3	36	set S2,S1 to 2,4
04	set S2,S1 to 0,4	37	set S2,S1 to 2,5
05	set S2,S1 to 0,5	38	set S2,S1 to 2,6
06	set S2,S1 to 0,6	39	set S2,S1 to 2,7
07	set S2,S1 to 0,7	40	set S2,S1 to 2,8
08	set S2,S1 to 0,8	41	set S2,S1 to 2,9
09	set S2,S1 to 0,9	42	set S2,S1 to 2,A
10	set S2,S1 to 0,A	43	set S2,S1 to 2,B
11	set S2,S1 to 0,B	44	set S2,S1 to 2,C
12	set S2,S1 to 0,C	45	set S2,S1 to 2,D
13	set S2,S1 to 0,D	46	set S2,S1 to 2,E
14	set S2,S1 to 0,E	47	set S2,S1 to 2,F
15	set S2,S1 to 0,F	48	set S2,S1 to 3,0
16	set S2,S1 to 1,0	49	set S2,S1 to 3,1
17	set S2,S1 to 1,1	50	set S2,S1 to 3,2
18	set S2,S1 to 1,2	51	set S2,S1 to 3,3
19	set S2,S1 to 1,3	52	set S2,S1 to 3,4
20	set S2,S1 to 1,4	53	set S2,S1 to 3,5
21	set S2,S1 to 1,5	54	set S2,S1 to 3,6
22	set S2,S1 to 1,6	55	set S2,S1 to 3,7
23	set S2,S1 to 1,7	56	set S2,S1 to 3,8
24	set S2,S1 to 1,8	57	set S2,S1 to 3,9
25	set S2,S1 to 1,9	58	set S2,S1 to 3,A
26	set S2,S1 to 1,A	59	set S2,S1 to 3,B
27	set S2,S1 to 1,B	60	set S2,S1 to 3,C
28	set S2,S1 to 1,C	61	set S2,S1 to 3,D
29	set S2,S1 to 1,D	62	set S2,S1 to 3,E
30	set S2,S1 to 1,E	63	set S2,S1 to 3,F
31	set S2,S1 to 1,F		
32	set S2,S1 to 2,0		

NOTES:

00 Decimal (S2,S1 = 0,0) is not allowed on any device.

Max Independent **PP405** Address: 63 Decimal (S2,S1 = 3,F)

Additional units could be slaved to existing addresses by adding 4 to the S2 address Example : S2,S1 = 55 will be slaved to 15

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LIMITED WARRANTY

Digital Lighting Systems, warrants to the purchaser that its products have been carefully manufactured and inspected and are warranted to be free from defects of workmanship and materials when used as intended. Any abuse or misuse contrary to normal operation shall void this warranty.

Digital Lighting Systems' obligation under this warranty shall be limited to replacement or repair of any units as shall within two years of date of invoice from **Digital Lighting Systems**, prove defective; and **Digital Lighting Systems** shall not be liable for any other damages, whether direct or consequential. **The implied warranties of merchantability and fitness for a particular purpose are limited to the duration of the expressed warranty.** Some states do not allow the exclusion of the limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, you may also have other legal rights which vary from state to state.

Defective merchandise may be returned to **Digital Lighting Systems**, prepaid, after prior notification has been given and approval obtained for the return. To obtain prior approval for the return of the defective items, contact your local Digital Lighting Systems distributor, representative, or:

Digital Lighting Systems, Inc.

Attn: Customer Service Department
12302 SW 128th ct,
Miami, FL 33186
(305) 969-8442

Upon request, replacement unit(s) will be shipped as soon as available. Unless immediate shipment of replacement merchandise is requested, **Digital Lighting Systems** will not ship replacement merchandise until defective merchandise is received, inspected, and determined to be defective.

No labor charges in connection with warranty problems will be reimbursed by Digital Lighting Systems without prior written approval from the factory.

Digital Lighting Systems distributors and representatives have no authority to change this warranty without written permission.

Digital Lighting Systems reserves the right to determine the best method of correcting warranty problems.



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