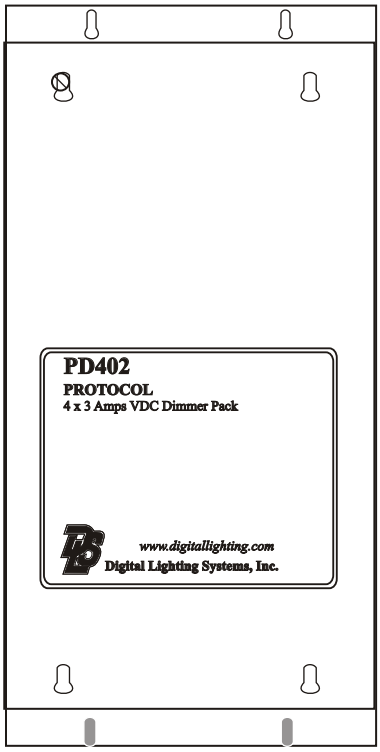
Digital Lighting Systems, Inc.

PROTOCOL

PD402

Four Dimmer or Switch Packs
4 x 2.5 A. outputs
10VDC to 28 VDC operation



USER'S MANUAL

PD402-UM
04/08

GENERAL DESCRIPTION

The **PD402** 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 **PD402** from One **12 Amp. Feed** . Each solid state relay is rated for a maximum output current of 5 **amperes, 12 Amps total.** The **MD402 Dimming Module** 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 **PD402.** The **PROTOCOL** Network BUS control cable connect via **RJ45** to the **PD402.** Several Dimmer packs may be daisy-chained together. Each **PD402** may be easily set to a unique address with 2 hexadecimal selectors Each of the **PD402** outputs may be independently configured to dim or switch from the **PSCXX** wall stations.

PD402 is available for **10-28 VDC** operation to provide full range dimming to **LEDs** and other VDC loads.

SWITCHING LOCK - (See Page 6 for more information)

An **PD402** maybe locked by a hardware jumper into switching only. . Please see ***Page 6*** for location of this jumper.

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PD402 Detail

Figure 1 - PD402 Detail

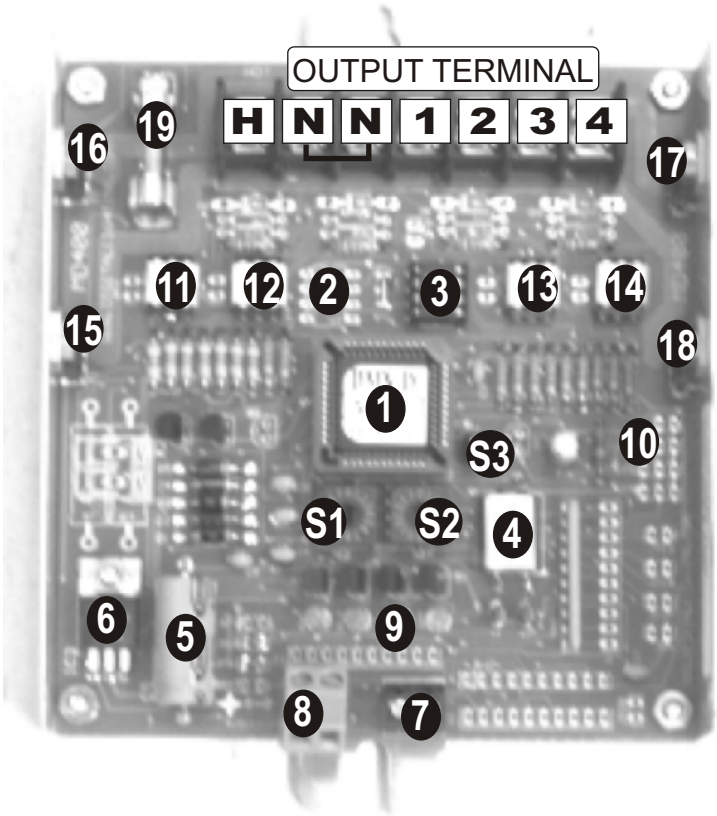


Table 1 - OUTPUT Terminals Definition

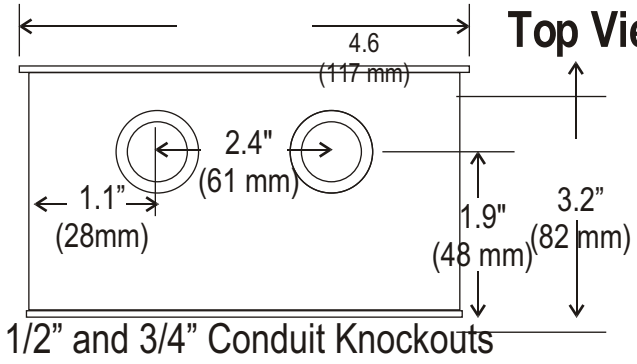
NAME	DESCRIPTION
1	Output Of Solid-State Relay #1
2	Output Of Solid-State Relay #2
3	Output Of Solid-State Relay #3
4	Output Of Solid-State Relay #4
H	Hot Line Feed For Relays 1 , 2 , 3 & 4.
N	Neutral Bus Connections.

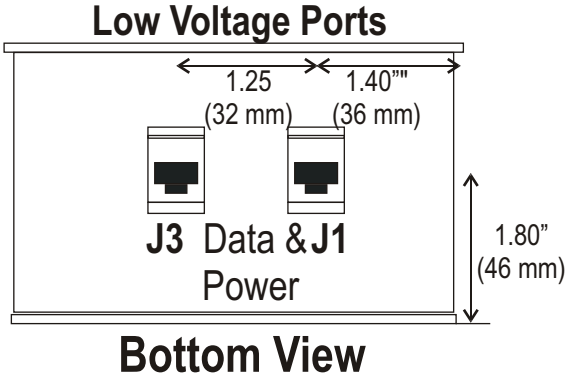
Table 2 - Absolute Maximum Electrical Ratings

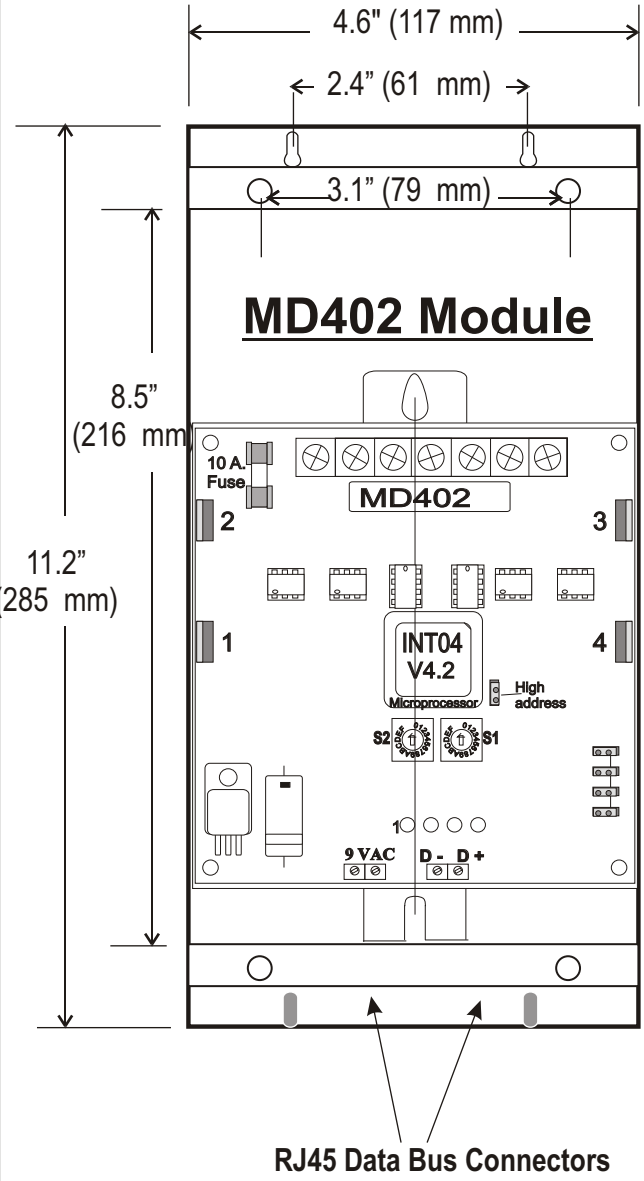
Electrical Characteristic	**Maximum**	
Output Load Current	1 to 4	2.5 Amps.
Input Current	H	10 Amps.
Input Voltage	H	120 VAC PD402-120
Input Voltage	H	220 VAC PD402-220
Input Voltage	H	24 VAC PD402-24
Input Voltage	H	12 VAC PD402-12
Input Voltage	H	24 VDC PD402-24DC
Input Voltage	H	12 VDC PD402-12DC

Table 3 - PD402 Circuit Legend

1	Microprocessor.
2	EEPROM Memory
3	Communications Chip.
4	Quartz Crystal.
5	Power Supply Capacitor.
6	Voltage Regulator.
7	DATA connector.
8	Logic power connector
9	Output LED Monitors.
10	Jumper for switches only
11,12,13,14	Optical Couplers # 1,2,3,4
15,16,17,18	Triacs or Mosfets # 1,2,3,4
19	Fuse 5mm 10 AMPS







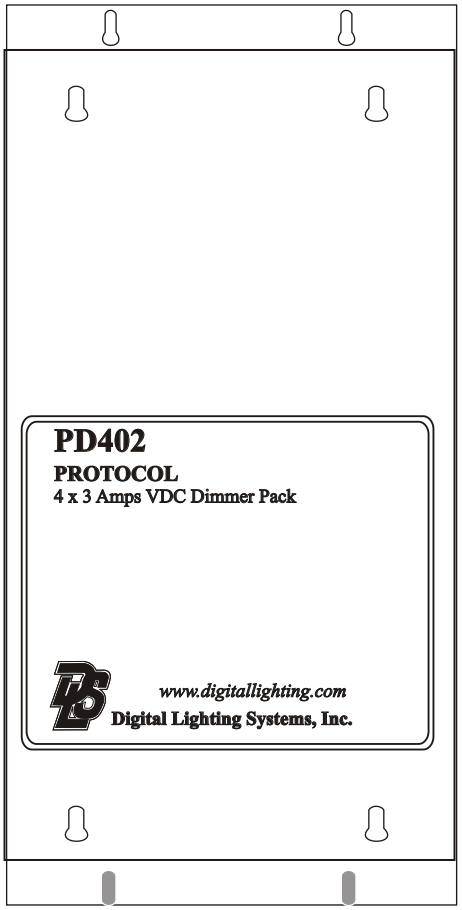
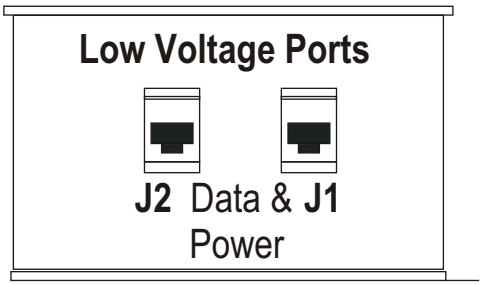


Figure 3 - PD402 Dimensional Diagram

PD402 Low Voltage Wiring Methods

Note:
PROTOCOL DIMMER PACKS PD402-24DC
Operating on VDC require DATA and POWER 9 VAC from the Network Bus. (2 pairs)



Pin	(J2)	(J1)
1	N.C.	N.C.
2	N.C.	N.C.
3	N.C.	N.C.
4	N.C.	N.C.
5	N.C.	N.C.
6	N.C.	N.C.
7	**- DATA**	**- DATA**
8	**+DATA**	**+DATA**

Using standard CAT5 cable :

Brown Pair : - DATA White with Brown stripes
+DATA Brown with White Stripes

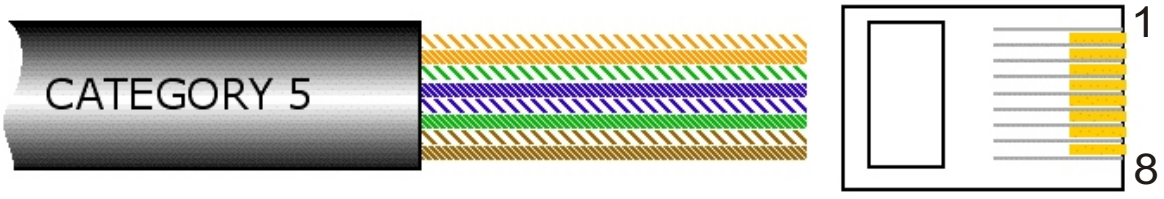


Figure 6
Typical System Powered By
An External Transformer

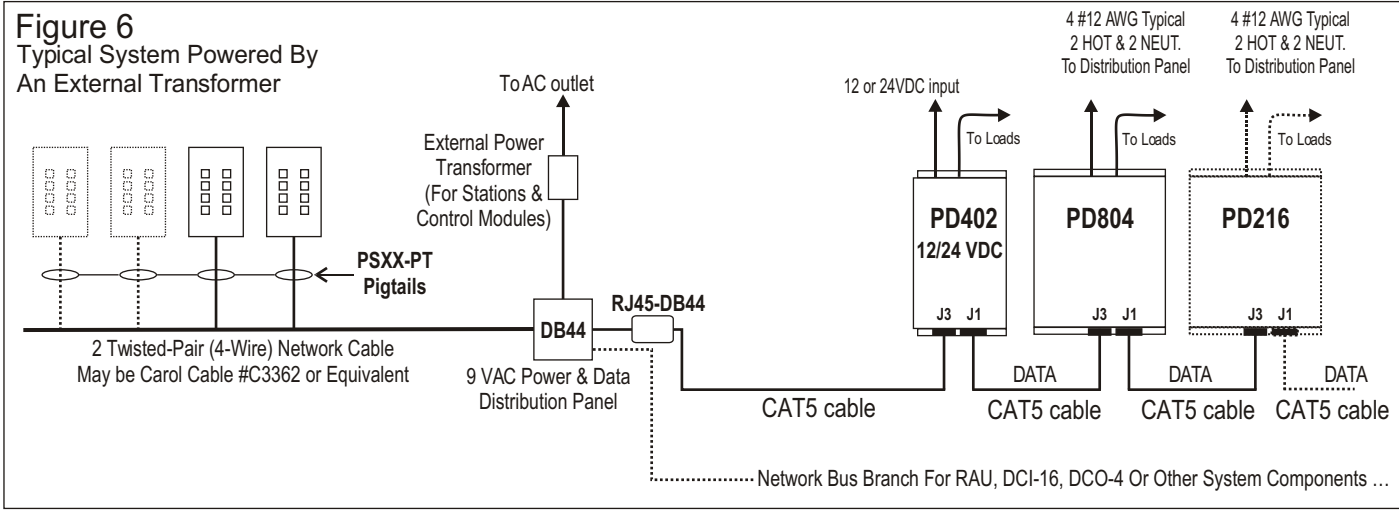
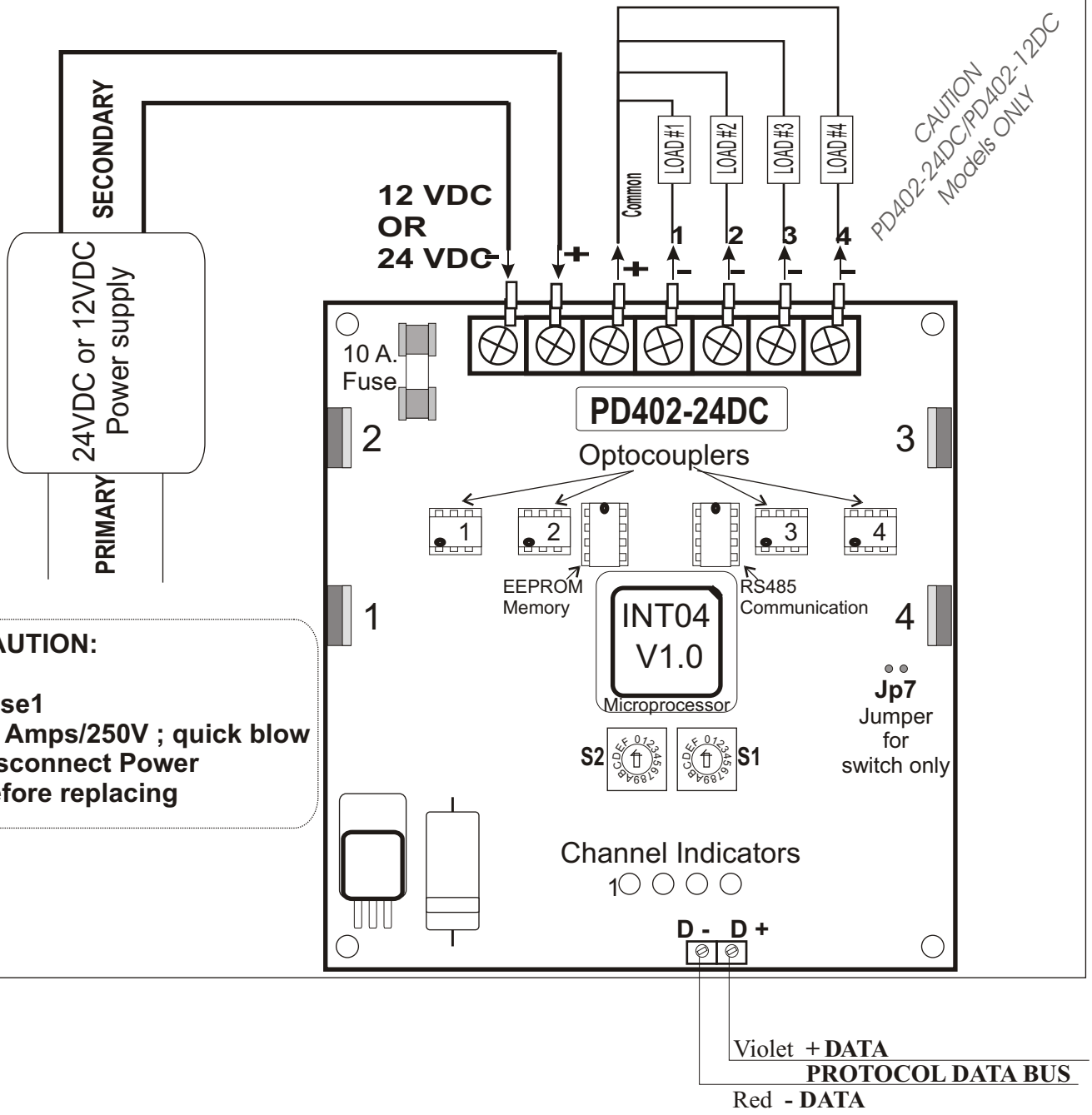


Figure 9 - PD402-24VDC/PD402-12VDC GENERAL WIRING INSTRUCTIONS:

Wiring Notes

- **DO NOT EXCEED** 120W @ 24 VDC or 60 W @ 12 VDC (5 Amps.) per dimmer or **10 Amps total per 4 dimmers**
- 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.
- **PD402** dimmer Modules may be fed by one 15 A (maximum) branch circuits and may have up to four separately dimmed loads.
- **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.**
- All line voltage wires must have copper conductors of adequate Gauge with 90 C wire insulation.
- POWER EACH LOAD DIRECTLY BEFORE CONNECTING IT TO THE **PD402**TO ENSURE PROPER WIRING.



Address Setting

Up to 63 **PD402** dimmer packs may be installed per system and their DATA BUS 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 PD402 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 PD402 MAKE SURE:

- ☐ Loads are tested before connecting to dimmers.
- ☐ PD402 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 PD402 is set to the right address.

PD402 Installation Check List

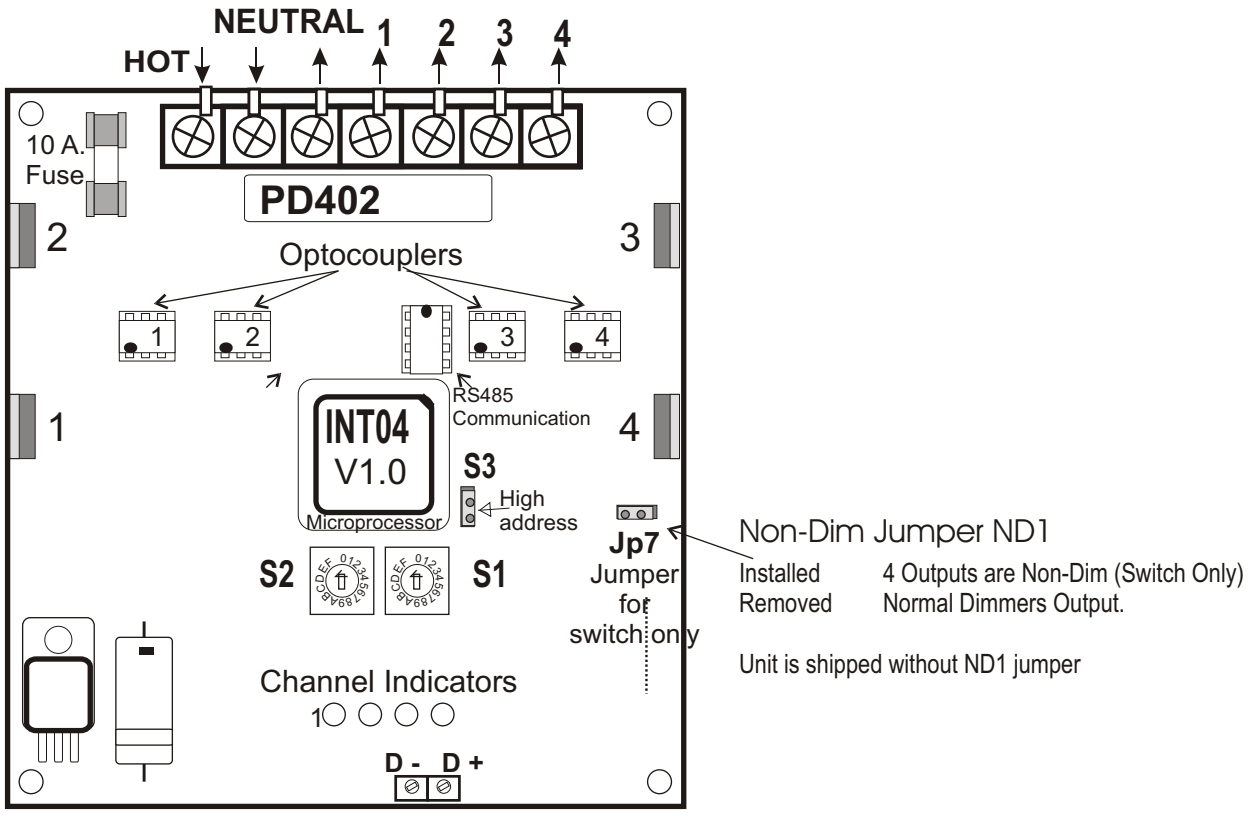


Figure 8 - PD402 Address & Mode Selection.

PD402 Address Selection Information

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

NOTES:
00 Decimal (S2,SI = 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

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 court # 105
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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