Digital Lighting Systems
www.digitallighting.com

PD804
PROTOCOL

8 x 500Watts dimmer pack
SPECIFICATIONS

Page 1

Top View

8.30" (211 mm)

1/2" and 3/4" Conduit Knockouts

4.12" (105 mm)

1.9" (48 mm)

2.15" (55 mm) 2" (51 mm) 2" (51 mm) 2.15" (55 mm)

5" (127 mm)

PD804 (LDM) Load Driver Module

H1 1 2 3 4 N N N N N N N N 5 6 7 8 H2

T4 T3 T2 T1 T8 T7 T6 T5

11.07" (281 mm) 11.75" (298 mm)

LED 1 2 3 4 5 6 7 8

9 VAC Transformer

W1 W2 INT04#1 INT04#2 10 1 10 1

J3 J1 J2

5" (127 mm)

Bottom View

1.580" (40 mm) 1.380" (35 mm)

Low Voltage Ports

J3 Data & Power   J1 Data Only

2.560" (65 mm)

INT04#1   INT04#2

ADDRESS SELECTORS

S2 S1   S2 S1

LED OUTPUT MONITORS
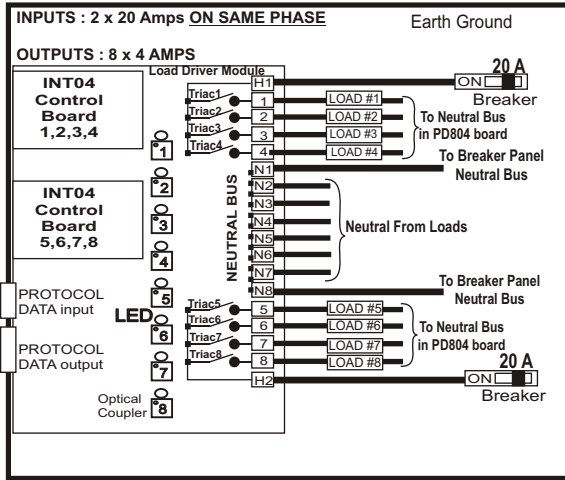
1 2 3 4   1 2 3 4

PD804 Front Cover

General Description

The **PD804** dimmer pack contains **8** solid-state dimmers. Each dimmer is rated for a maximum load of **480 Watts at 120 VAC**. Power is fed to the **PD804** from **two 20 Amp. breakers on the same power phase**. The dimmers are triggered by 2 separate firing boards (**INT04's**). The **INT04** is a microprocessor based control board with a nonvolatile memory chip, a communications chip, and a regulated DC power supply. The **INT04** also contains, address selectors, LED output monitors and other support circuitry. The microprocessor is driven by powerful distributed intelligence software which handles all control and communications functions. The memory chip holds all of the **PD804**'s pertinent information and settings which include low and high trim levels for each of the outputs. The **PD804 does not rely on any shared data source** and **functions independently** of any other system component and without a central system controller. The **PD804** communicates with Protocol system stations and controllers over a **single twisted-pair of wires** and **can be connected anywhere on the system network bus**. This adds convenience and versatility by allowing **PD804** dimmers to be installed close to their loads and/or service panels.
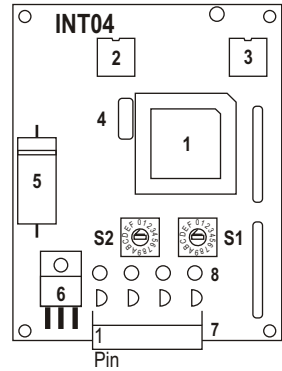
General Features

- Distributed Intelligence.
- Modular and Compact Design.
- Twisted-pair Balanced Line Communications.
- Daisy Chain, T-tap, or Star Data Configurations.
- Software Configurable.
- Automatic 50/60 Hz Detection.
- Dimming Disable Jumper.
- Powerful Built-in Diagnostics.

Control & Diagnostics

- Set Load Intensity Level.
- Save/Recall Presets.
- Blink Load.
- Set Load Max. & Min. Trims.
- View Max. & Min. Trim Settings.
- View Current Output Levels.
- View ID and Code Version.
- Default to Factory settings.
- Save Settings in memory.
- Download Configuration File.
- Check Status.

Physical and Electrical Specifications

Enclosure:	16 Gauge Aluminum.
Weight:	4.5 Lbs. (2 Kgs.)
Power Feed:	**2 x 20 Amp. Feeds. Single Phase**
Voltage Feed:	120 VAC, 50/60Hz, Single Phase.
Output Rating:	**8 x 480 Watts at 120 VAC.**
Output Triacs:	Max. Rating 40 A-600 VAC
Connector:	18-position screw terminal block.
Data Network:	RS485 Compliant, Proprietary Protocol.
Data Retention:	10 years, no batteries required.
ESD Protection:	15 KV on data input and output.

Digital Lighting Systems
www.digitallighting.com

PD804
PROTOCOL

8 x 500Watts dimmer pack
SPECIFICATIONS

Page 2

PD804 has 2 INT04 units

INPUTS : 2 x 20 Amps **ON SAME PHASE**   Earth Ground

OUTPUTS : 8 x 4 AMPS

Load Driver Module

INT04 Control Board 1,2,3,4

INT04 Control Board 5,6,7,8

J3 — PROTOCOL DATA input

J1 — PROTOCOL DATA output

LED

Optical Coupler

Triac1 · Triac2 · Triac3 · Triac4

NEUTRAL BUS

Triac5 · Triac6 · Triac7 · Triac8

H1 — 20 A ON Breaker

LOAD #1 · LOAD #2 · LOAD #3 · LOAD #4

To Neutral Bus in PD804 board

To Breaker Panel Neutral Bus

Neutral From Loads

To Breaker Panel Neutral Bus

LOAD #5 · LOAD #6 · LOAD #7 · LOAD #8

To Neutral Bus in PD804 board

H2 — 20 A ON Breaker

INT4 Circuit Legend
1. Microprocessor.
2. Nonvolatile Memory.
3. Communications Chip.
4. Quartz Crystal.
5. Power Supply Capacitor.
6. Voltage Regulator.
7. Signal & Power Connector.
8. Output LED Monitors.
S1-2. Address Selectors.

For Full Load Operation Use:
#12 AWG copper conductor wire for Line & Neutral Feeds.
#14 AWG copper conductors in/out to each load.
Max. Load per circuit : 4 Amperes (480W at 120 VAC). **Functional Block Diagram**
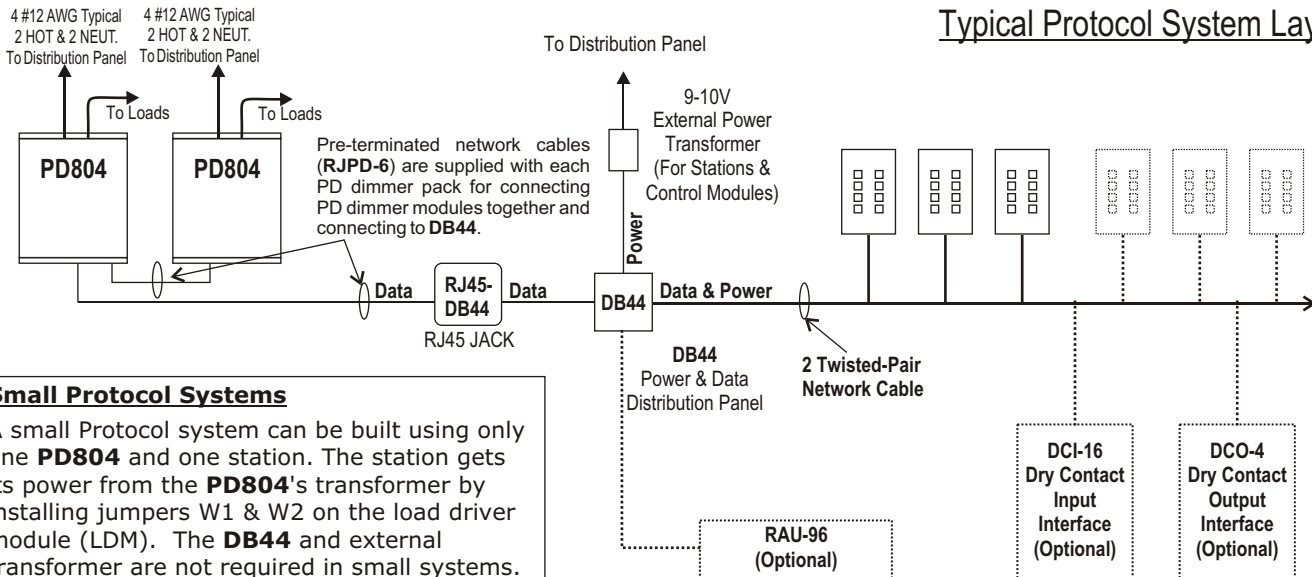
INT04 — S2 · S1 — Pin

Mounting Requirements

Surface mount the dimmer pack in a well ventilated area. Allow 2" of side clearance for servicing. Installation clearance shall meet local and/or NEC code requirements. Enclosures may be attached to the wall or other mounting surface by holes in the heat sink flanges. Refer to the drawing on the front side of this sheet for the proper dimensions. Conduit shall be pulled to the top of the dimmer packs.

Wiring Notes

1. **DO NOT EXCEED 480 W** per each output dimmer.
2. All wiring between the control stations, dimmers, and other system controllers (network bus) is low voltage (NEMA Class 2) and may be run with two twisted pair #18 AWG wire. Control network bus may be Carol Cable #C3362 unless otherwise required. Consult the Protocol Hardware Installation manual, appendix E, for maximum wire length.
3. When system is fed by 120V/208V three phase service, **the 2 breakers must be on the same power phase**. The voltage from any input terminal to neutral must not be greater than 120 VAC. The voltage between H1 and H2 should be Zero.
4. **PD804** may be fed by two 20 A breakers from the Same phase and may have up to eight separately dimmed loads.
5. Please refer to the **PD804** and Protocol system installation manuals for complete wiring information.
6. **CAUTION: DO NOT** attempt to parallel outputs to increase capacity.
7. Installations must be performed by a certified electrician and conform to local and/or NEC code requirements.
8. Power for all control stations of a system must be on the same phase. Bus may be Carol Cable #C3362 or equivalent unless otherwise required. Consult the Protocol Hardware Installation manual, appendix E, for maximum wire length.
9. **RJPD-6' - RJ45** Daisy-Chain Network Cable is supplied with each **PD804** to connect to other **PD Series** units.

Typical Protocol System Layout

4 #12 AWG Typical 2 HOT & 2 NEUT. To Distribution Panel

4 #12 AWG Typical 2 HOT & 2 NEUT. To Distribution Panel

To Distribution Panel

To Loads · To Loads

PD804 · **PD804**

Pre-terminated network cables (**RJPD-6**) are supplied with each PD dimmer pack for connecting PD dimmer modules together and connecting to **DB44**.

9-10V External Power Transformer (For Stations & Control Modules)

Power

Data — **RJ45-DB44** — Data — **DB44** — Data & Power

RJ45 JACK

DB44 Power & Data Distribution Panel

2 Twisted-Pair Network Cable

DCI-16 Dry Contact Input Interface (Optional)

DCO-4 Dry Contact Output Interface (Optional)

RAU-96 (Optional)

Small Protocol Systems

A small Protocol system can be built using only one **PD804** and one station. The station gets its power from the **PD804**'s transformer by installing jumpers W1 & W2 on the load driver module (LDM). The **DB44** and external transformer are not required in small systems. (See the Protocol and the **PD804** installation manuals for more details.)