*think*logical®

PDU12

High Reliability, Rack-Space Saving
Power Distribution Unit
with Twelve +5VDC Outputs

PRODUCT MANUAL

Value Your Content

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Trust Our Proven Ingenuity

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Subject: Power Distribution Unit-12 (PDU12) Product Manual
Release: Initial Release, May, 2014

MADE IN USA

Table of Contents

PREFACE

About Thinklogical

Thinklogical is the leading manufacturer and provider of fiber optic KVM, video, audio, and peripheral extension and switching solutions used in video-rich, big-data computing environments.

Thinklogical offers the only fiber optic KVM matrix switches and routers in the world that are accredited to The Common Criteria, EAL4 and TEMPEST.

Governments, entertainment, scientific and industrial customers worldwide rely on Thinklogical's products and solutions for security, high performance, continuous operation and ease of integration. Thinklogical products are designed and manufactured in the USA and are certified to the ISO 9001-2008 standard.
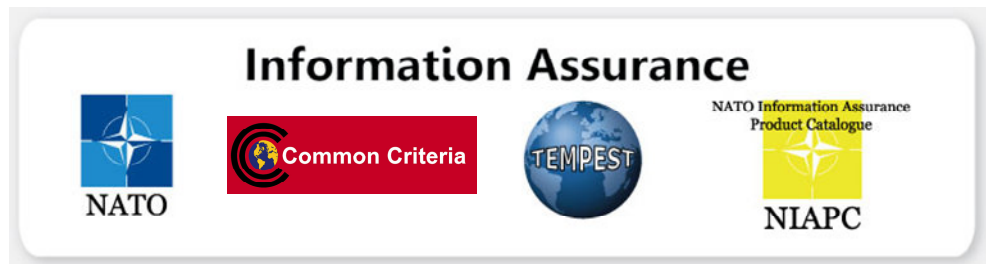
Thinklogical is headquartered in Milford, Connecticut and is privately held by Riverside Partners, LLC, Boston, MA (http://www.riversidepartners.com). For more information about Thinklogical products and services, please visit www.thinklogical.com.

Follow Thinklogical on LinkedIn at http://www.linkedin.com/company/thinklogical and on Facebook at http://www.facebook.com/ThinklogicalUSA

Note and Warning Symbols

Throughout this manual you will notice certain symbols that bring your attention to important information. These are **Notes** and **Warnings**. Examples are shown below.

⚠️ **Note: Important Notes appear in blue text preceded by a yellow exclamation point symbol, as shown here.**

A **note** is meant to call the reader's attention to **helpful** information at a point in the text that is relevant to the subject being discussed.

🛑 **Warning! All Warnings appear in red text, followed by blue text, and preceded by a red stop sign, as shown here.**

A **warning** is meant to call the reader's attention to **critical** information at a point in the text that is relevant to the subject being discussed.

> ## BEFORE STARTING ANY PROCEDURE, IT IS RECOMMENDED THAT YOU READ THE INSTRUCTIONS THOROUGHLY!

1.0. Introduction
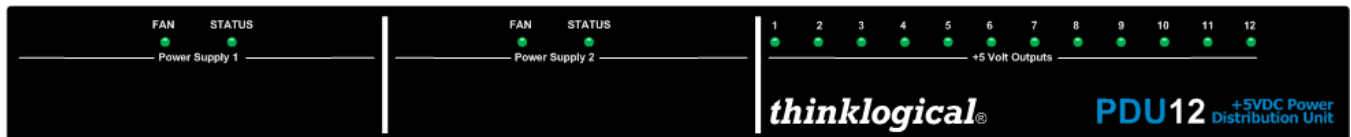
PDU-12 Power Distribution Unit (Part Number PDU-000012)

H: 1.72" (43.69 mm) x **D:** 10.52" (267.08mm) x **W:** 17.49" (444.29 mm)

1.1. Product Overview

The PDU-12 is a one rack-unit device that provides twelve +5 volt outputs via the rear panel. Each unit contains two redundant, hot swappable AC-DC power supplies that are capable of load sharing. These supplies plug into the rear of the chassis and have removable AC line cords.

The rear panel features twelve DC Locking Power Jacks with a .100" diameter center pin. Each +5 volt output is capable of sourcing +5 volts ±.25volts at a maximum of 4 amps.

PDU-12 Power Distribution Unit, rear panel

The PDU-12 can provide +5 volt power to, but not limited to, the following Thinklogical products:

- **VelocityDVI Extension System-3, -3R, -3A/V+, -3R AV+**
- **VelocityDVI Extension System-6, -6A/V**
- **Camera Fiber-Link Series**
- **USB 2.0 Fiber Optic Extender**
- **SDI Xtreme 3G, 3G+**
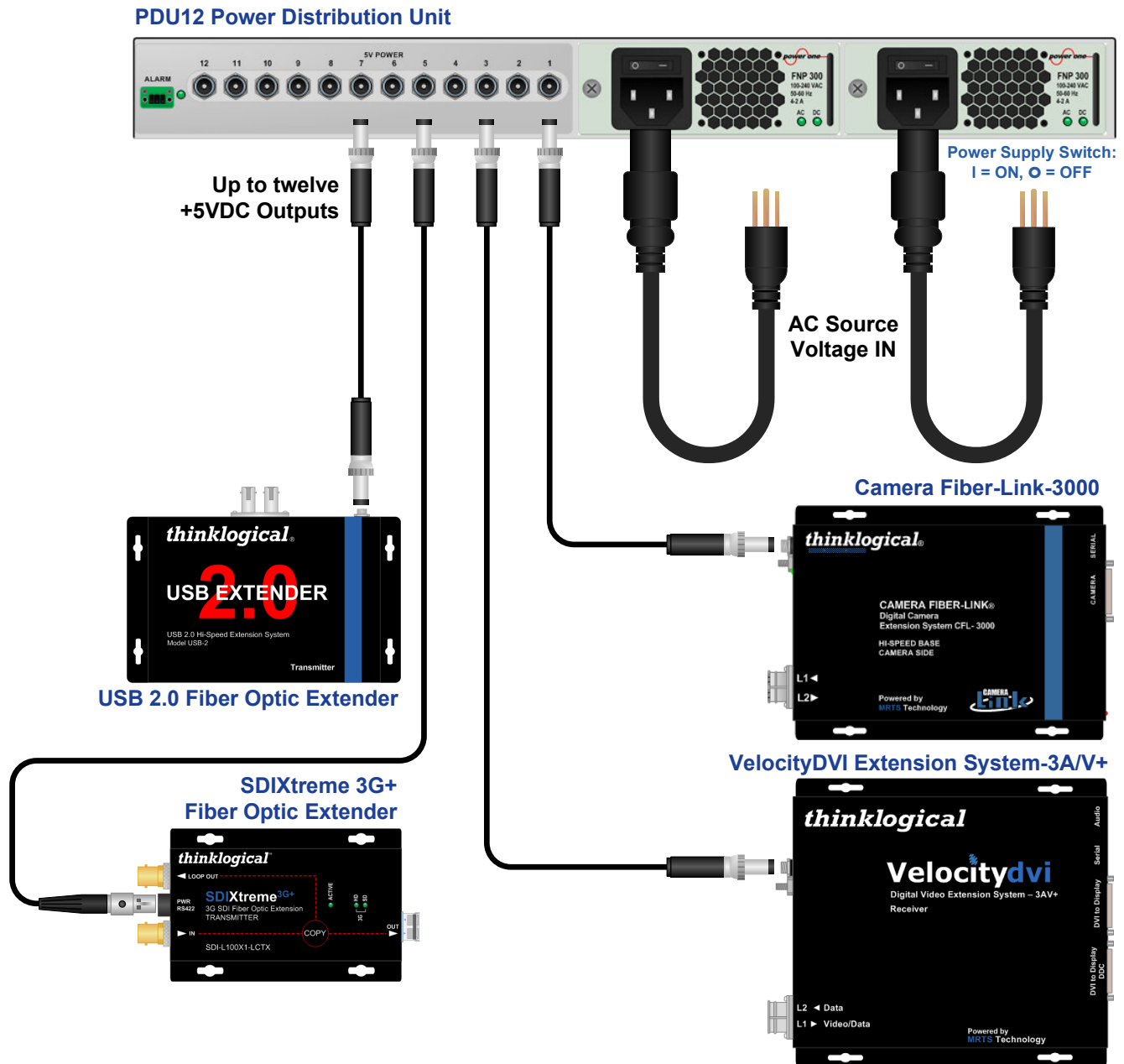
Typical PDU-12 +5VDC power application

2.0. System Features

2.1. General System Features

- 1 RU 19" rack mountable unit (19.03" [483.46 mm] wide with mounting brackets)
- Sturdy housing allows desktop stacking of units. (Allow min. 2" between stacks.)
- Two redundant, hot-swappable, load sharing power supply modules with internal cooling fans*
- Each output can source +5VDC +/-.25VDC at a maximum of 4 amps
- Dry contact alarm for system monitoring
- Front panel LEDs for fan/power status reporting
- Twelve 6' DC locking power connector cables included
- Optional DC cable with one Mini XLR connector for the SDIXtreme ^{3G} is also available
- Fully compliant with US, Canadian and European Regulatory Agency requirements

Although the unit can run with only one power supply during system de-bug or reconfiguration, it is recommended that both supplies be used for continuous operation.

2.2. Supplied Cords and Cables

AC line cords are also available in Euro (PWR-000005) and UK (PWR-000013) configurations as specified by the customer. For SDIXtreme applications, please order CBLA000051 +5VDC cable.

Domestic DC Power Cord, 6 Feet (PWR-000006-R) Qty. 2

+5VDC cable, 6 feet (CBLA000050) Qty. 12

+5VDC   +5VDC

+5VDC cable, 6 feet (CBLA000051) Optional

+5VDC   Mini XLR, +5VDC
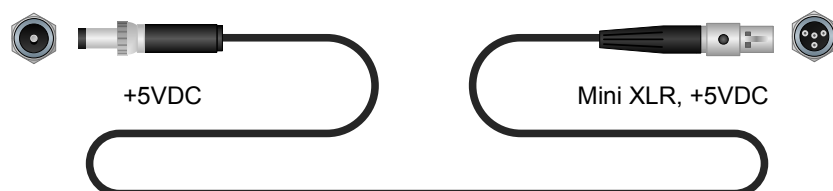
2.3. Dry Contact Alarm

The dry contact alarm is located on the unit's rear panel. The relay is energized when there is an alarm condition, such as over temperature or power regulation.

ALARM

Normally Closed   Common   Normally Open
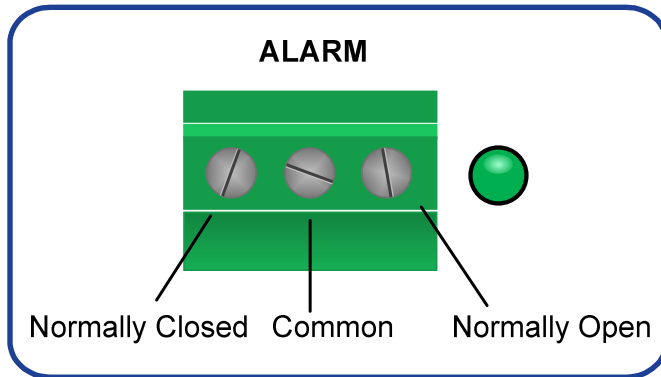
1 Bi-colored LED Reports:
- Power Supply 1 Fan status
- Power Supply 1 Power status
- Power Supply 2 Fan status
- Power Supply 2 Power status
- +5 volt output 1-12 Power status

  Green=OK   Red=Fail

The dry contact alarm is a Form C contact with the following ratings:

Nominal switching capacity: 1A, 30V DC
Max. switching power: 30W DC

*Dry Contact Alarm
(Rear Panel)*

![thinklogical®]

3.0. PDU-12 Technical Specifications

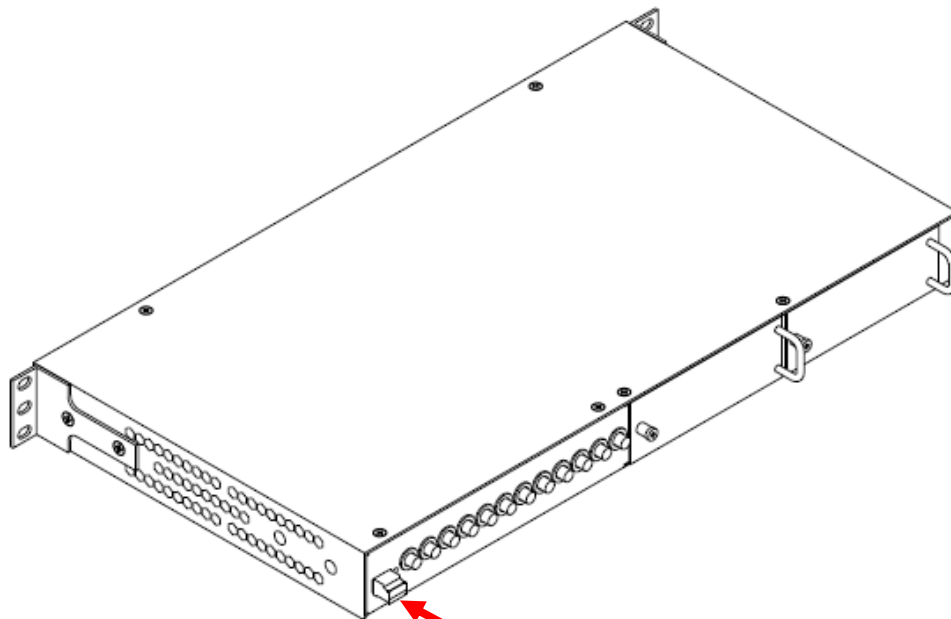| PDU-12 DC Power Distribution Unit	
2 AC/DC Power Supply Voltage	**100 – 240 VAC at a frequency of 50 - 60Hz.**
Source Voltage	**+5 volts ±.25volts at a maximum of 4 amps.**
Dimensions	**Height: 1.72" (43.69 mm)** **Depth: 10.52" (267.08 mm)** **Width: 17.49" (444.29 mm)** **Width (with mounting brackets): 19.03" (483.46 mm)** **(Tolerance: ± .039"; 1 mm)**
Rear Panel Connectors	**12 DC Locking Power Jacks (with .100 inch diameter center pin)** **Dry Contact Alarm**
Dry Contact Alarm	**1 Green/Red LED Reports:** **Power Supply 1 Fan status** **Power Supply 1 Power status** **Power Supply 2 Fan status** **Power Supply 2 Power status** **+5 VDC output 1-12 Power status**
Front Panel LEDs	**1 green/red LED for Power Supply 1 fan status** **1 green/red LED for Power Supply 1 power status** **1 green/red LED for Power Supply 2 fan status** **1 green/red LED for Power Supply 2 power status** **12 green LEDs to indicate the status of each of the +5 VDC outputs.**
Electrical Cables	**PWR-000006-R AC 3-wire line cord, 6FT (2)** **CBLA000050 DC power cable w/ locking connectors, 6FT (12)** **CBLA000051 DC power cable w/ one mini XLR connector, one locking connector, 6 FT (optional; supplied as required)**
Operating Temp and Humidity	**0° to 50℃ (32° to 122 ℉), 5% to 95% RH, non-conde nsing**
Weight **Shipping Weight**	**7.5 lb (3.4 kg)** **15 lb (6.8 kg)**
Compliance	**Approvals for US, Canada, and European Union**
Warranty	**12 months from date of purchase. Extended warranties available.**

4.0.   Regulatory & Safety Compliance

4.1. Safety Requirements

Symbols found on the product

Markings and labels on the product follow industry-standard conventions. Regulatory markings found on the products comply with domestic and many international requirements.

Regulatory Compliance

Thinklogical's® products are designed and made in the U.S.A. PDU Series products have been tested by a certified testing laboratory and found to be compliant with the following standards (both domestic USA and many international locations):

North America

Safety
ANSI/UL60950-1: 1st Edition (2003)
CAN/CSA C22.2 No. 60950-1-03

Electromagnetic Interference
FCC CFR47, Part 15, Class A
Industry Canada ICES-003 Issue 2, Revision 1

Australia & New Zealand

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

European Union

Declaration of Conformity

Manufacturer's Name & Address: **Thinklogical, LLC**®
                                                              100 Washington Street
                                                              Milford, Connecticut 06460 USA

These products comply with the requirements of the Low Voltage Directive 72/23/EEC and the EMC Directive 89/336/EEC.

Standards with Which Our Products Comply

Safety
CENELEC EN 60950-1, 1st Edition (2001)

Electromagnetic Emissions
EN55022: 1994 (IEC/CSPIR22: 1993)
EN61000-3-2/A14: 2000
EN61000-3-3: 1994

Electromagnetic Immunity

EN55024: 1998 Information Technology Equipment-Immunity Characteristics
EN61000-4-2: 1995 Electro-Static Discharge Test
EN61000-4-3: 1996 Radiated Immunity Field Test
EN61000-4-4: 1995 Electrical Fast Transient Test
EN61000-4-5: 1995 Power Supply Surge Test
EN61000-4-6: 1996 Conducted Immunity Test
EN61000-4-8: 1993 Magnetic Field Test
EN61000-4-11: 1994 Voltage Dips & Interrupts Test

4.2. Supplementary Information

The following statements may be appropriate for certain geographical regions and might not apply to your location.

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigencies du Règlement sur le matériel brouilleur du Canada.

Warning! This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take corrective measures.

Note: 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 designed 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 in which case the user may be required to take adequate corrective measures at their own expense.

Note: This Class A digital apparatus complies with Canadian ICES-003 and has been verified as being compliant within the Class A limits of the FCC Radio Frequency Device Rules (FCC Title 47, Part 15, Subpart B CLASS A), measured to CISPR 22: 1993 limits and methods of measurement of Radio Disturbance Characteristics of Information Technology Equipment.

Note: The user may notice degraded audio performance in the presence of electro-magnetic fields.

Product Serial Number

Q-Series products have a unique serial number, which includes a date-code, printed on an adhesive label that is affixed to the unit. The format for the date-code is 2 digits for the week, 2 digits for the year, plus two to four digits for a unique unit number. For example, **0814125** indicates the unit was built on the **8**th week of 20**14**, and is unit number **125**.

Connection to the Product

Connections and installation hardware for our products use industry-standard devices and methods. All wiring connections to the customer equipment are designed to minimize proprietary or customized connectors and cabling. Power connections are made with regionally appropriate power cords and approved methods.

5.0. How to Contact Us

5.1. Customer Support

Thinklogical® is an engineering company and you will receive the information you require directly from our most knowledgeable engineers.

We believe that the first line of support comes from the design engineers that developed each particular product.

Therefore, your questions or issues will be handled promptly by our in-house engineers who are most familiar with your products.

Thank you for choosing Thinklogical® products for your application.

We appreciate your business and are dedicated to helping you successfully use our products.

thinklogical® is always here to help you.

To contact us, please use the following telephone numbers and internet-based methods:

Website

Check out our website for current product offerings, support information and general information about all of the products we offer.

Our internet website offers product information on all current systems, including technical specification sheets and installation guides (for viewing online or for download), product diagrams showing physical connections and other information you might need.

Internet: **www.thinklogical.com**

⚠️ **Note: Most online documents are stored as Adobe Acrobat "PDF" files. If you do not have the Adobe Acrobat reader needed to view PDF files, visit www.adobe.com for a download.**

Email

Thinklogical® is staffed **Monday through Friday from 8:30am to 5:00pm**, Eastern Time Zone. We will try to respond to your email inquiries promptly, use the following email addresses for your different needs:

info@thinklogical.com – Information on Thinklogical® and our products.

sales@thinklogical.com – Sales Department - orders, questions or issues.

support@thinklogical.com – Product support, technical issues or questions, product repairs and request for Return Authorization.

Telephone

Product & Customer Support:	**1-203-647-8700**
US Commercial & Canada Sales:	**1-203-647-8769**
US Federal Government Sales:	**1-203-647-8716**
Toll Free in the Continental US:	**1-800-291-3211**
International Sales (Europe, Middle East, Africa)**:**	**1-203-647-8704**
International Sales (Asia Pacific, Central & Latin America)**:**	**1-203-647-8734**
Fax:	**1-203-783-9949**

Please contact our expert sales staff in Milford, CT. We are here Monday through Friday from 8:30am to 5:00pm, Eastern Time Zone. We'll provide a representative's direct dial phone number when you call.

If leaving a voice message, please provide a preferred time to call back so we may reach you at your convenience.

Our switchboard attendant will direct your call during regular business hours. We have an automated attendant answering our main telephone switchboard after regular business hours and holidays. You can leave voice messages for individuals at any time.

Fax

Our company facsimile number is **1-203-783-9949**. Please indicate the nature of the fax on your cover sheet and provide return contact information.

5.2. Product Support

Thinklogical's® support personnel are available **Monday through Friday from 8:30am to 5:00pm**, Eastern Time Zone. If your application requires assistance at some time outside of our normal business hours, please contact us beforehand and we will do our best to make arrangements to help you with your Thinklogical® products.

5.2.1. Warranty

Thinklogical, LLC® warrants this product against defects in materials and workmanship for a period of one year from the date of delivery. Thinklogical, LLC® and its suppliers disclaim any and all other warranties.

⚠️ **Note: Thinklogical, LLC® products carry a one year warranty, with longer term available at time of purchase on most products. Please refer to your product invoice for your products Warranty Terms & Conditions.**

Defect remedy shall be the repair or replacement of the product, provided that the defective product is returned to the authorized dealer within a year from the date of delivery.

If you wish to return your device, contact the Thinklogical, LLC® authorized dealer where you purchased the device, or if you purchased directly, call Thinklogical, LLC® at **1-800-291-3211** (USA).

5.2.2. Return Authorization

If you need to return your Thinklogical® product to us for any reason, please get a

Return Merchandise Authorization Number (RMA#)

from Thinklogical's Product Support Department (1-203-647-8700) before sending the unit in.

In the event you must return a product to Thinklogical® directly, please contact **Customer Support** at **1-800-291-3211** or **1-203-647-8700**. Customer Support will ask you to describe the problem and will issue you a **R**eturn **M**erchandise **A**uthorization number (RMA#). Pack the device in its original box, if possible, and return it with the RMA# printed on the outside of the box.

⚠️ **Note: DO NOT return a product to Thinklogical® without a *Return Material Authorization.***

Our Address

If you have any product issues or questions or need technical assistance with your Thinklogical® system, please call us at **1-800-291-3211 (USA only)** or **1-203-647-8700** and let us help. If you need to write us or return a product, please use the following address: Return address for products with Return Material Authorization: **Thinklogical, LLC®**
Attn: *RMA#*
100 Washington Street
Milford, CT 06460 USA

Appendix: PDU-12 Quick Start Guide

PDU12

+5VDC Power Distribution Unit

QUICK START GUIDE

Complete Steps 1-5 to connect to the PDU12 +5VDC Power Distribution Unit:

STEP 1: Ensure that the Power Switch above each AC receptacle on the redundant power supplies is in the OFF (0) position. Install both AC line cords (PWR-000006-R) and plug them into a standard AC source.*

Although the unit can run with only one power supply during system de-bug or reconfiguration, it is recommended that both supplies be used for continuous operation.

STEP 2: Connect up to twelve +5VDC devices to the 5V outputs with the provided DC cables with locking power connectors (CBLA000050-R, CBLA000051).

STEP 3: To each Transmitter or Receiver (*VelocityDVI-3, -6, Camera Fiber Link, USB 2.0 Extender, SDIXtreme 3G+, etc.*) connect the fiber-optic cables and peripheral device input/output cables as required.

STEP 4: Turn ON (I) both Power Switches on the PDU12 power supplies.

STEP 5: Check the Front Panel status LEDs to verify that all system functions are operating properly.

FRONT PANEL
PDU12 Power Distribution Unit (Part No. PDU-000012)
REAR PANEL

AC Source Voltage IN

Up to twelve +5VDC Outputs

Camera Fiber-Link-3000

VelocityDVI Extension System-3A/V+

Part No. CBLA000050

USB 2.0 Fiber Optic Extender

SDIXtreme 3G+ Fiber Optic Extender

Part No. CBLA000051