

24vdc Loop Operation Manual

POWER SUPPLY



CRYSTAL

INTRODUCTION

The 24VDC Loop Power Supply (24VDCPS) is a portable, battery-powered, loop power supply and is ideal for sites where power is unavailable. The low noise regulated output is suitable for use with smart transmitters. Power is automatically turned off when load is removed, preserving battery life. Outputs feature short circuit protection. Three LEDs indicate power, low battery, and fault status. A protective boot and two AA batteries are included.

QUICKSTART/OPERATION DIAGRAM



Auto-Off & Power Hold Function

When the loop is connected, press the On key to enable the output voltage. The 24VDCPS does not have an Off switch. When testing is complete, simply disconnect the loop and the unit will turn off automatically. If the loop is re-connected within approximately 30 seconds, the unit will power on automatically.

BATTERIES

The 24VDCPS uses 2 AA batteries. Recommended batteries are Lithium (non-rechargeable), Alkaline, or NiMH (rechargeable). To avoid damage by over-discharging, rechargeable batteries should be removed when the Low Battery LED (▲) illuminates. Non-Rechargeable batteries may continue to be used until the Red Fault LED (●) illuminates, at which time the output voltage will have fallen below 24V. Lithium batteries are recommended for best performance in cold weather operations.

Typical Battery Life (Conditions: 12 mA loop current, 23° C)

Battery Chemistry	Type	Examples	Typical Battery Life (hours)	Low Battery Indication (▲)
Lithium	Non-Rechargeable	Energizer Ultimate	14.5 (10 hrs at -20° C)	2 minutes remaining at 24 V output 5 minutes until output drops below 18 V
Alkaline	Non-Rechargeable	Rayovac Max Plus 815 Duracell MN1500 Energizer E91, EN91	6	30 minutes remaining at 24 V output 40 minutes until output drops below 18 V
NiMH	Rechargeable	Energizer Recharge	9	Remove batteries immediately
NiMH (Low Self Discharge)	Rechargeable	Sanyo Eneloop	7.5	Remove batteries immediately

CAUTION: Do not use AA sized, 3.6V Li-Ion batteries in the 24VDCPS. Doing so will damage the device.

Battery Replacement

Remove the protective boot and slide the battery cover off. Replace the batteries, taking care to note the correct polarity. For best results, always replace batteries in pairs. Do not mix fresh and old batteries or batteries of different types.

CAUTION: To avoid damage by over-discharging, rechargeable batteries should be removed immediately when the Low Battery LED (▲) illuminates.

ELECTRICAL SPECIFICATIONS

Output Voltage	24 VDC +/- 2%
Output Voltage Ripple	< 14 mV rms
Load Regulation	2%
Rated Output Current	25 mA
Short Circuit Protection	Continuous
Connections	4mm banana jacks
Operating Temperature	-20°C to 50°C (-4°F to 122°F)
Storage Temperature	-40°C to 75°C (-40°F to 167°F)
Operating Humidity	95% Relative, non-condensing
Power Supply	2 x AA batteries (alkaline 1.5 V included)

MECHANICAL SPECIFICATIONS

Overall Dimensions	4.8" x 3.1" x 1.2"
Weight	200 g (0.44 lbs) including alkaline batteries

CERTIFICATIONS

The 24VDCPS has been tested and certified to comply with a variety of international standards.



We declare that the 24VDCPS is in accordance with the Electromagnetic Compatibility Directive per our declaration.

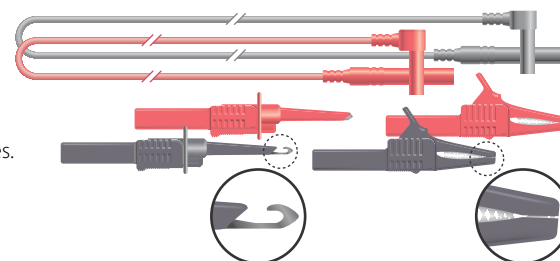
ORDERING INFORMATION

P/N 24VDCPS KIT ... 24 VDC Power Supply plus the P/N 1351 Test Lead Set

P/N 24VDCPS 24 VDC Power Supply

P/N 1351 Test Lead Kit

Two 4 mm shrouded banana plug, straight to right angle, 122 cm (48 inch) leads with alligator clip and spring loaded hook tip probes.



EMC EC DECLARATION OF CONFORMITY

EC Declaration of Conformity



I/We **Crystal Engineering Corporation**

of 708 Fiero Lane, Suite 9
San Luis Obispo, CA, 93401
USA

declare that **24VDC Loop Power Supply Series**

In accordance with the following directives

2004/108/EC **The Electromagnetic Compatibility Directive per:**
EN 55011:2007
EN 61326:2006

has been designed and manufactured to the following specifications

EN 55011:2007	Radiated Emissions	Class B	Pass
EN 61000-4-2:2009	Electrostatic Discharge	Criteria A	Pass
EN 61000-4-3:2006	RF Radiated Immunity		Pass

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all essential requirements of the Directives

David K. Porter, P.E.
(NAME OF AUTHORIZED PERSON)

Director of Engineering
(TITLE OF AUTHORIZED PERSON)


(SIGNATURE OF THE AUTHORIZED PERSON)

24 January 2012
(DATE OF ISSUE)

CONTACT US

Phone(805) 595-5477
Toll-Free(800) 444-1850
Fax(805) 595-5466
Emailservice@crystalengineering.net
Webcrystalengineering.net

If calling, have ready the model number, serial number, date of purchase, and reason for return. You will receive instructions for returning the device to us.
Send your comments to: sales@crystalengineering.net

TRADEMARKS

This manual contains the following third-party trademarks, both registered and unregistered. All marks are the property of their respective companies.

Rayovac® and Maximum Plus™Rayovac Corporation

Duracell®Duracell Inc. Corporation

Energizer®, Energizer Recharge®, and Eveready.Eveready Battery Company, Inc.

Sanyo Eneloop™SANYO Component Europe GmbH

“Pressure is Our Business” is a registered trademark of Crystal Engineering Corp.

WARRANTY

Crystal Engineering Corporation warrants the 24VDCPS to be free from defects in material and workmanship under normal use and service for one (1) year from date of purchase to the original purchaser. It does not apply to batteries or when the product has been misused, altered or damaged by accident or abnormal conditions of operation.

Crystal Engineering will, at our option, repair or replace the defective device free of charge and the device will be returned, transportation prepaid. However, if we determine the failure was caused by misuse, alteration, accident or abnormal condition of operation, you will be billed for the repair.

CRYSTAL ENGINEERING CORPORATION MAKES NO WARRANTY OTHER THAN THE LIMITED WARRANTY STATED ABOVE. ALL WARRANTIES, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, ARE LIMITED TO A PERIOD OF ONE (1) YEAR FROM THE DATE OF PURCHASE. CRYSTAL ENGINEERING SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER IN CONTRACT, TORT OR OTHERWISE.

Note: (USA only) Some states do not allow limitations of implied warranties or the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state to state.

CRYSTAL

© 2012 Crystal Engineering Corporation
708 Fiero Lane, Suite 9, San Luis Obispo, California 93401-8701