

WR90 SPDT/DPDT Failsafe, X Band Waveguide
Electromechanical Relay Switch, 8.2 GHz to
12.4 GHz, 5 kW, CPR-Flat, TTL, 12V



Waveguide Electromechanical Relay Switches Technical

PEWGS6066

Features

- 8.2 to 12.4 GHz SPDT Waveguide Switch
- Optional DPDT Configuration
- WR-90 Waveguide with CPR-Flat Flanges
- Failsafe Actuator and Position Indicator
- Insertion Loss: 0.05 dB typ
- Isolation: 85 dB typ
- Switching Time: <80 msec typ
- +12 Vdc Nominal Voltage
- Input Power Rating up to 5 kW CW max
- Unpressurized Power Rating up to 123 kW Peak
- Manual Override Access
- Fully Weatherized Package
- Quick Connect Circular DC Connector with Mate
- -40°C to +85°C Operating Temperature

Applications

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Research and Development

Description

The PEWGS6066 WR-90 waveguide electromechanical switch operates across a wide frequency range from 8.2 GHz to 12.4 GHz and is configured for single pole double throw (SPDT) operation. A shorting plate on port 3 can be removed for optional double pole double throw (DPDT) operation. This innovative design features a failsafe actuator and patented motor drive with arc suppression. The motor drive housing supports a viewable position indicator window and a cover that can be removed for manual override access. Impressive typical performance includes 0.05 dB insertion loss, 85 dB Isolation and 1.16:1 VSWR. The design operates across a temperature range of -40°C to +85°C, requires +12Vdc nominal bias voltage, and has an input power rating of up to 5 kW CW maximum, and an unpressurized peak power rating of 123 kW. Operating life of 250K cycles minimum. The waveguide ports have CPR-Flat Flanges. The rugged package design is fully weatherized for up to 100% humidity exposure and supports a quick connect circular 6 pin MIL-SPEC DC bias connector with mate included.

Electrical Specifications

Switch Type	SPDT/DPDT
Actuator Type	Failsafe
Actuator Options	TTL Logic, Window Indicator, Manual Override
TTL Control	on: 2.4 to 5.5 Volts
	off: 0 to 0.8 Volts
	5 mA at 5.5 Volts
	5 mA at 0.8 Volts
TTL Control Current	

Description	Minimum	Typical	Maximum	Units
Frequency Range	8.2		12.4	GHz
Impedance		50		Ohms
Operating Voltage	10.8	12	13.2	Volts
Actuating Current @ 12 Volts		248	300	mA
VSWR		1.06:1	1.1:1	
Insertion Loss		0.05	0.07	dB
Isolation	80	85		dB
Switching Time		<80		ms

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, CPR-Flat, TTL, 12V PEWGS6066](#)

WR90 SPDT/DPDT Failsafe, X Band Waveguide
Electromechanical Relay Switch, 8.2 GHz to
12.4 GHz, 5 kW, CPR-Flat, TTL, 12V



Waveguide Electromechanical Relay Switches Technical

PEWGS6066

Input Power (CW)	5	kWatts
Input Power (Peak/Unpressurized)	123	kWatts

Electrical Specification Notes:

Active logic switch command duration must be maintained to keep switch in energized position.

Maximum switching rate not to exceed 30 per minute

Mechanical Specifications

Size

Length	2.25 in [57.15 mm]
Width/Diameter	2.41 in [61.21 mm]
Height	4.5 in [114.3 mm]
Weight	1.3 lbs [589.67 g]

Operating Life

250,000 Cycles

Operating Pressure

30 psig

Configuration

Waveguide Size

WR-90

Flange Type

CPR Flat

Body Material and Plating

Aluminum, Black

Body Plating Specification

MIL-DTL-5541

Environmental Specifications

Temperature

Operating Range

-40 to +85 deg C

Storage Range

-55 to +100 deg C

Humidity

0 to 100% Fully Weatherized IAW IP67

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, CPR-Flat, TTL, 12V PEWGS6066](#)

WR90 SPDT/DPDT Failsafe, X Band Waveguide
Electromechanical Relay Switch, 8.2 GHz to
12.4 GHz, 5 kW, CPR-Flat, TTL, 12V

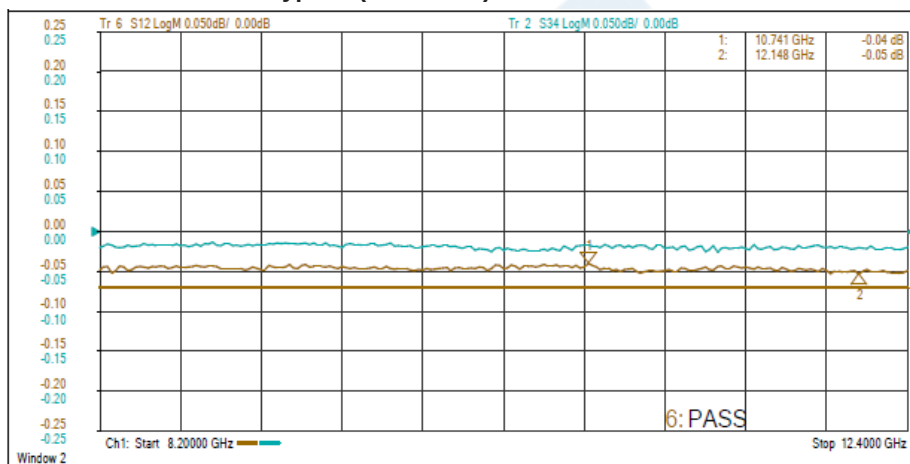


Waveguide Electromechanical Relay Switches Technical

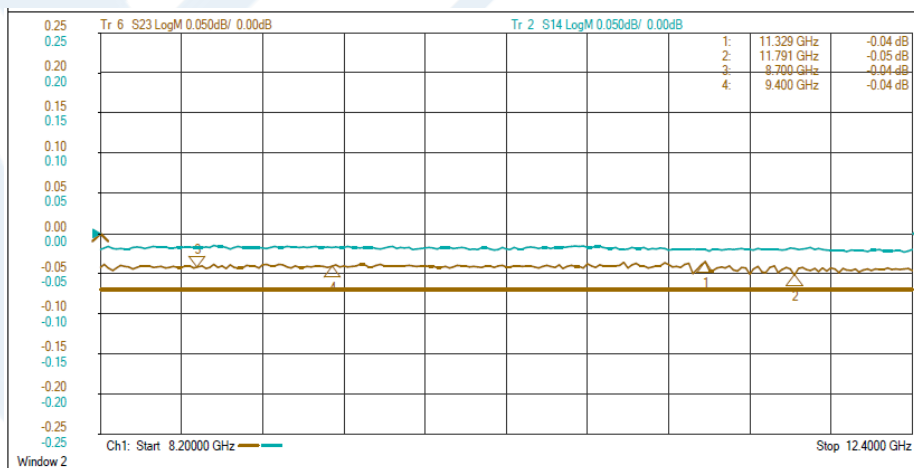
PEWGS6066

Typical Performance Data

Typical (Position 1) Insertion Loss



Typical (Position 2) Insertion Loss



Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, CPR-Flat, TTL, 12V PEWGS6066](#)

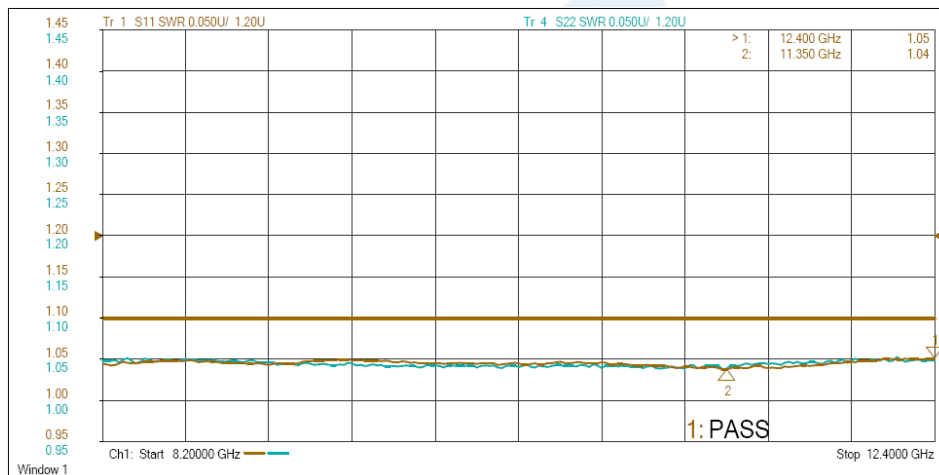
WR90 SPDT/DPDT Failsafe, X Band Waveguide
Electromechanical Relay Switch, 8.2 GHz to
12.4 GHz, 5 kW, CPR-Flat, TTL, 12V



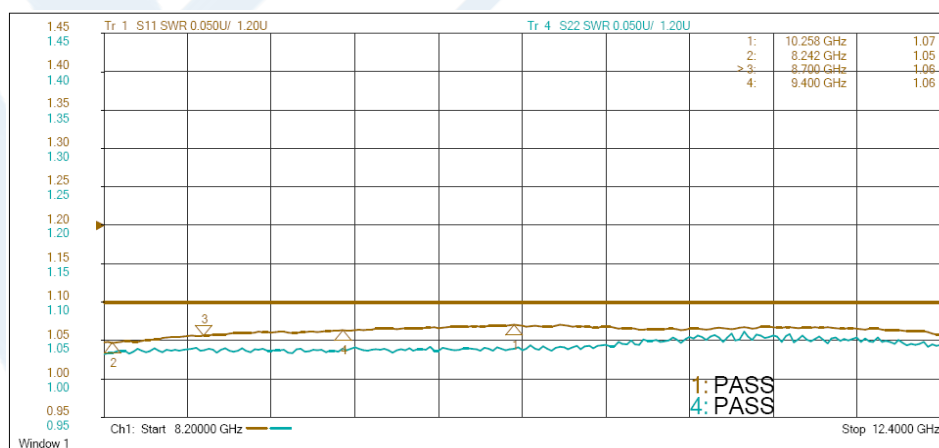
Waveguide Electromechanical Relay Switches Technical

PEWGS6066

**Typical (Position 1)
VSWR**



**Typical (Position 2)
VSWR**



Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, CPR-Flat, TTL, 12V PEWGS6066](#)

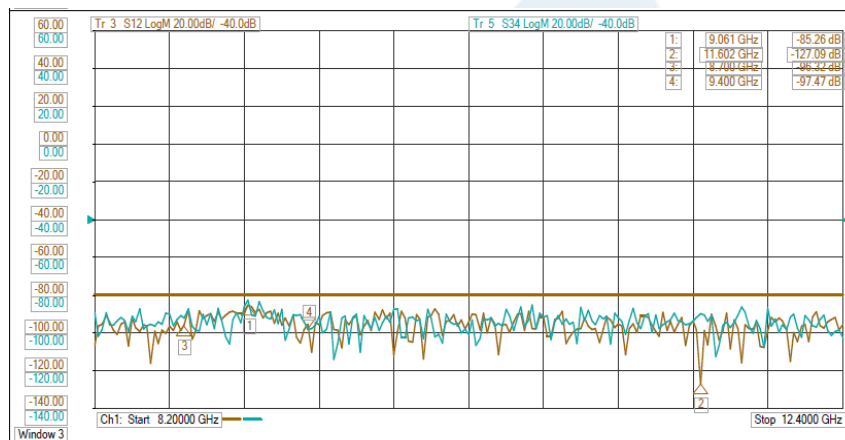
WR90 SPDT/DPDT Failsafe, X Band Waveguide
Electromechanical Relay Switch, 8.2 GHz to
12.4 GHz, 5 kW, CPR-Flat, TTL, 12V



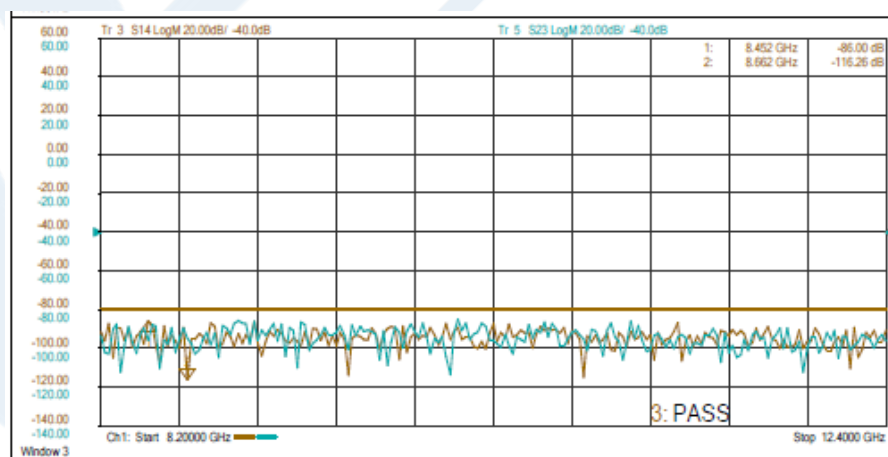
Waveguide Electromechanical Relay Switches Technical

PEWGS6066

**Typical (Position 1)
Isolation**



**Typical (Position 2)
Isolation**



Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, CPR-Flat, TTL, 12V PEWGS6066](#)

WR90 SPDT/DPDT Failsafe, X Band Waveguide
Electromechanical Relay Switch, 8.2 GHz to
12.4 GHz, 5 kW, CPR-Flat, TTL, 12V



Waveguide Electromechanical Relay Switches Technical

PEWGS6066

WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, CPR-Flat, TTL, 12V from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, CPR-Flat, TTL, 12V PEWGS6066](https://www.pasternack.com/wr-90-waveguide-electromechanical-relay-spdt-dpdt-failsafe-switch-12.4-ghz-pewgs6066-p.aspx)

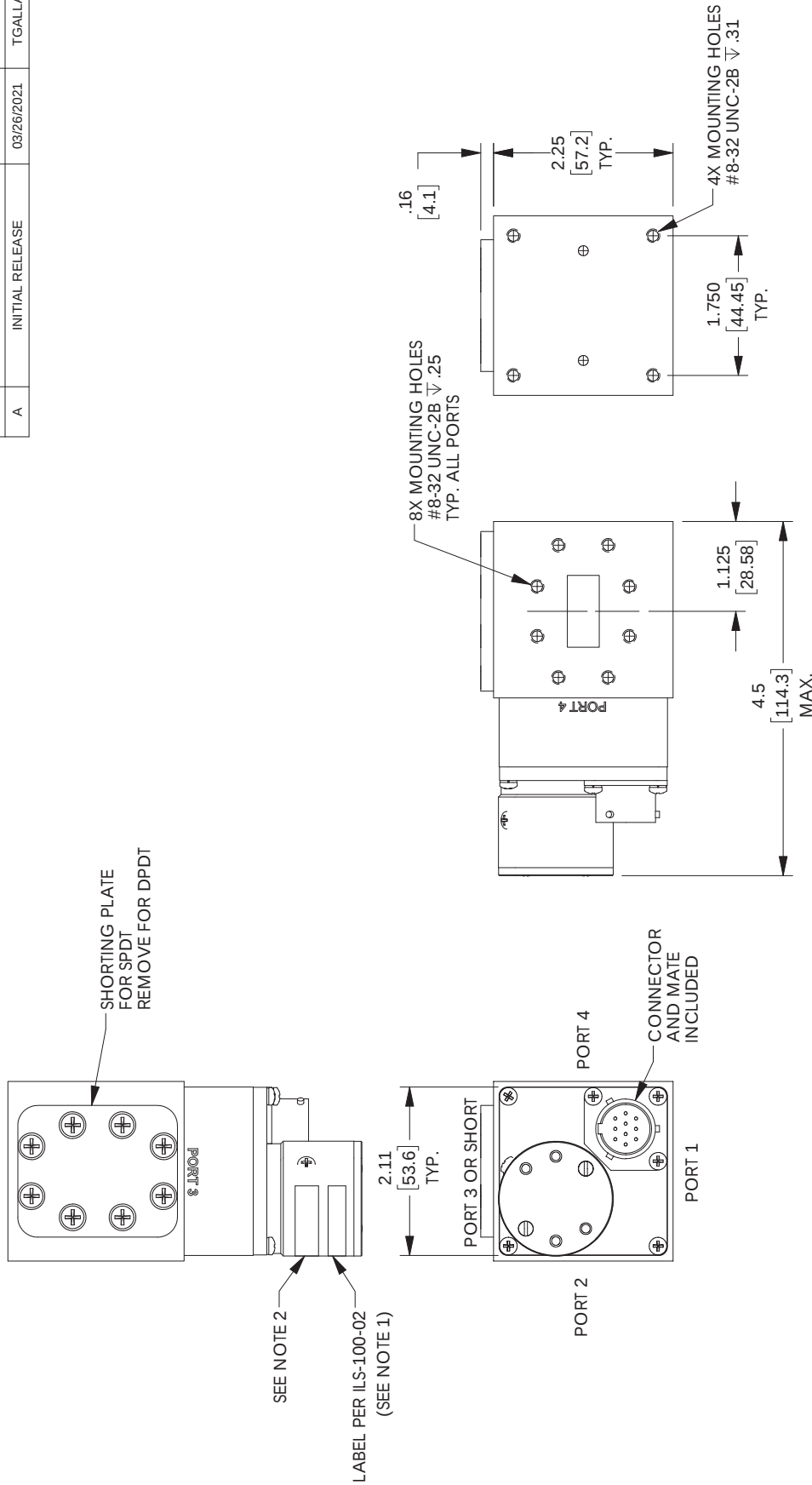
URL: <https://www.pasternack.com/wr-90-waveguide-electromechanical-relay-spdt-dpdt-failsafe-switch-12.4-ghz-pewgs6066-p.aspx>

The information contained in this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part, in order to implement improvements. Pasternack reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. Pasternack does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and Pasternack does not assume any liability arising out of the use of any part or documentation.

PEWGS6066 CAD Drawing

WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, CPR-Flat, TTL, 12V

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	03/26/2021	TGALLA



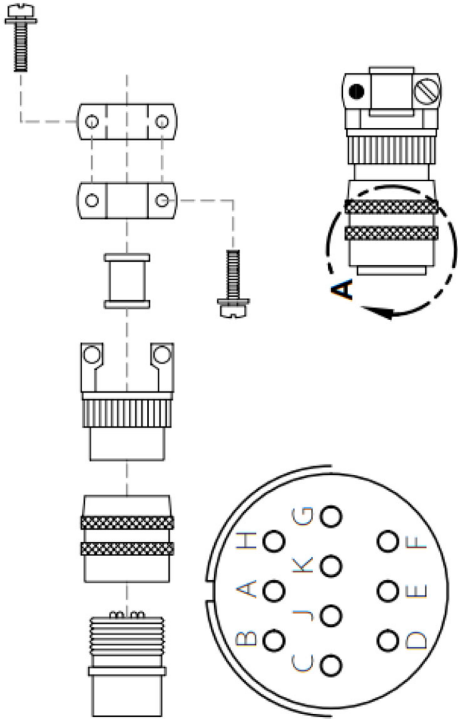
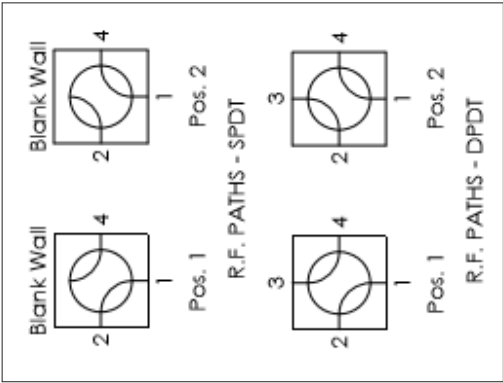
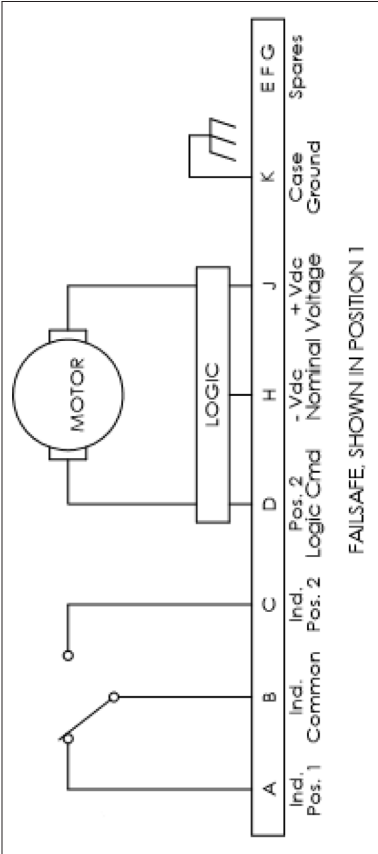
- NOTES:
1. LABEL PER ILS-100-02. FOR INTERNAL REFERENCE ONLY.
 2. SERIAL NUMBER AND DATE CODE ARE COMBINED. EX: 2020040500001

THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.

UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS TOLERANCES: X = +.2 [5.08] FRACTIONS XX = +.02 [.51] +.132 XXX = ±.005 [.13] ANGLES ± 1° CABLE LENGTH (L) TOLERANCES: L ≤ 12 [305] = +1 [25] / -0 12 [305] < L ≤ 60 [1524] = +2 [51] / -0 60 [1524] < L ≤ 120 [3048] = +4 [102] / -0 120 [3048] < L ≤ 300 [7620] = +6 [152] / -0 300 [7620] < L = +9% / -0 ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.		THIRD-ANGLE PROJECTION THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF PASTERNAK CORPORATION ALL RIGHTS RESERVED. SHEET 1 OF 2 SCALE N/A	
PE PASTERNAK an INFINITI brand Pasternack Enterprises, Inc. P.O. Box 16759, Irvine, CA 92623. Phone: 1.949.261.1920 1.866.727.8376 Fax: 1.949.261.7451 Website: www.pasternack.com E-mail: sales@pasternack.com		SIZE A CAGE CODE 53919 DRAWN BY DFRISIELLO ITEM NO. PEWGS6066 REV A	

PEWGS6066 CAD Drawing

WR90 SPDT/DPDT Failsafe, X Band Waveguide Electromechanical
Relay Switch, 8.2 GHz to 12.4 GHz, 5 kW, CPR-Flat, TTL, 12V



UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE IN INCHES DIMENSIONS IN [] ARE MILLIMETERS		THIRD-ANGLE PROJECTION	
TOLERANCES:		THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF PASTERNAK CORPORATION ALL RIGHTS RESERVED.	
X = +.2 [5.08]		SHEET 2 OF 2	
XX = +.02 [.51]		SCALE N/A	
XXX = ±.005 [.13]		REV A	
CABLE LENGTH (L) TOLERANCES:		ITEM NO. PEWGS6066	
L ≤ 12 [305] = +.1 [25] / -0		DRAWN BY DFRISIELLO	
12 [305] < L ≤ 60 [1524] = +.2 [51] / -0		SIZE A	
60 [1524] < L ≤ 120 [3048] = +.4 [102] / -0		CAGE CODE 53919	
120 [3048] < L ≤ 300 [7620] = +.6 [152] / -0		E-MAIL sales@pasternack.com	
300 [7620] < L = +.9% L / -0		WEBSITE www.pasternack.com	
ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.		PASTERNAK an INFINITI® brand	
Pastermack Enterprises, Inc. P. O. Box 16759, Irvine, CA 92623. Phone: 1.949.261.1920 1.866.727.8376 Fax: 1.949.261.7451		PASTERNAK an INFINITI® brand	
Pastermack Enterprises, Inc. P. O. Box 16759, Irvine, CA 92623. Phone: 1.949.261.1920 1.866.727.8376 Fax: 1.949.261.7451		Pastermack Enterprises, Inc. P. O. Box 16759, Irvine, CA 92623. Phone: 1.949.261.1920 1.866.727.8376 Fax: 1.949.261.7451	
Website: www.pasternack.com E-mail: sales@pasternack.com		Website: www.pasternack.com E-mail: sales@pasternack.com	

THESE COMMODITIES, TECHNOLOGY OR SOFTWARE WERE EXPORTED FROM THE UNITED STATES IN ACCORDANCE
WITH THE EXPORT ADMINISTRATION REGULATIONS. DIVERSION CONTRARY TO U.S. LAW PROHIBITED.