

CERTIFICATE OF COMPLIANCE

Certificate Number 20130501-E105728
Report Reference E105728-20130430
Issue Date 2013-MAY-01

Issued to: RELPOL S A
UL 11 LISTOPADA 37
68-200 ZARY POLAND

**This is to certify that
representative samples of** COMPONENT - SWITCHES, INDUSTRIAL CONTROL
See Addendum Page

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: Industrial Control Equipment, UL 508;
CAN/CSA C22.2 No. 14-2013

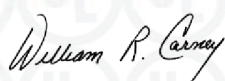
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William R. Carney, Director, North American Certification Programs

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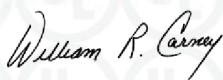


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This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements.

Relay, Series R2N, R3N, R4N, followed by 20, 21, 23, followed by 12, 13 or 14, followed by 2 followed by 3, followed by 1 or 5, followed by 006, 012, 024, 048, 060, 110, 115, 120, 220, 230 or 240 followed by blank, WT, WTL, WTD, WTLD, WTV or WTLV. For use with Relay Sockets Models G4 and SU4.



William R. Carney, Director, North American Certification Programs
UL LLC

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File E105728
Project 12CA57600

April 30, 2013

REPORT

on

COMPONENT - SWITCHES, INDUSTRIAL CONTROL

Relpol S A
Zary, Poland

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DESCRIPTION

PRODUCT COVERED:

USR, CNR - Component - Industrial Control Switches, Relay, Series R2N, R3N, R4N, followed by 20, 21, 23, followed by 12, 13 or 14, followed by 2 followed by 3, followed by 1 or 5, followed by 006, 012, 024, 048, 060, 110, 115, 120, 220, 230 or 240 followed by blank, WT, WTL, WTD, WTLD, WTV or WTLV. For use with Relay Sockets Models G4 and SU4.

GENERAL:

R4N Relays are open type electromechanical magnetically operated relays, provided with double pole, double throw and 4-pole, double throw contacts. They may be provided with relay sockets Type SU4 and G4.

R2N relays are two pole normally open/normally closed (two changeover) contacts. R3N relays are provided with three pole, changeover contacts. Contacts ratings are per pole opposite polarity. These devices may be provided with relay sockets, Type G4/2.

An optional diode may be located across the control coil.

ELECTRICAL RATINGS:

Relay

Coil Voltages: 6 to 240 V ac, 50-60 Hz, 6 to 220 V dc.

Contact Rating:

R4N: 6 A, 240 V ac Resistive
6 A, 30 V dc

R3N: 10 A, 250 V ac Resistive
R2N: 12 A, 250 V ac Resistive

Sockets

G4, SU4: 6 A, 250 V ac
G4/2: 12 A, 250 V ac

These relays are provided with plug-in terminals and are suitable for used in a 55°C ambient.

TECHNICAL CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

CNR - Indicates Investigated to Canadian National Standard(s)
C22.2 No. 14-10, with revisions thru August 2011.

Note: CNR = Canadian National Standards - Recognized.

USR = Indicates Investigated for Recognition to the Standard for Industrial Control Equipment, UL 508, 17th Edition, dated January 28, 1999, including revisions through March 15, 2013.

Use - For use only in (or with) complete equipment, where the acceptability of the combination is determined by Underwriters Laboratories Inc.

This component has been judged on the basis of the required spacings in the Standard for Industrial Control Equipment, UL 508, which would cover the component itself if submitted for unrestricted Listing.

CONDITIONS OF ACCEPTABILITY:

When used in the end product equipment, the following are among the considerations to be made.

1. The spacings from the exposed live-metal parts to the enclosure wall shall be in accordance with the requirements for the overall equipment.

2. The terminals are not suitable for field wiring.

3. These devices have not been evaluated for making or breaking under load by connection to or disconnection from the relay sockets.

CONSTRUCTION DETAILS:

General - The details of construction are covered in the following photographs and accompanying descriptive pages and illustrations.

Corrosion Protection - All parts are of corrosion resistant materials or painted or plated as corrosion protection.

Tolerances - Dimensions are nominal unless specified otherwise.

Spacings -

Between any uninsulated live parts and an uninsulated live part of opposite polarity, uninsulated grounded part other than the enclosure or exposed metal parts.	Through air or oil	1/16 in
	Over surface	1/8 in

Markings - Recognized Company's name or Recognized trade symbol, model number are provided on the device. Electrical ratings are optional.

Warning Markings - See Section General for details.

NOMENCLATURE:

The significance of the alphanumeric marking system is explained as follows:

NOMENCLATURE BREAKDOWN:

R4N	20	14	2	3	5	220	WTLD
I	II	III	IV	V	VI	VII	VIII

I - Type: R4N

II - - Contact Material

20 - AgNi
21 - AgNi/gold plating 0.2 μ m
23 - AgNi10/gold plating 5.0 μ m

III - - Number and type of Contacts
12 - 2-pole C/O contacts for R2N
13 - 3-pole C/O contacts for R3N
14 - 4-pole C/O contacts for R4N

IV - - Version(Cover Protection)
2 - in cover

V - - Connection Mode
3 - For plug-in

VI - - Exciting Medium (Coil)
1 - DC voltage
5 - AC voltage, 50/60 Hz

NOMENCLATURE: (Cont'd)

VII - Value of Exciting Medium (Coil Voltage)

AC 50/60 Hz	DC
006 - 6 V	006 - 6 V
012 - 12 V	012 - 12 V
024 - 24 V	024 - 24 V
048 - 48 V	048 - 48 V
060 - 60 V	060 - 60 V
110 - 110 V	110 - 110 V
115 - 115 V	220 - 220 V
120 - 120 V	
220 - 220 V	
230 - 230 V	
240 - 240 V	

VIII - Additional equipment

None - No additional equipment (standard version)

WT - Mechanical indicator + latching lever

WTL - Mechanical indicator + latching lever + LED indicator

WTD - Mechanical indicator + latching lever + arc suppression

WTLD - Mechanical indicator + latching lever + LED indicator + arc
suppression diode

WTV - Mechanical indicator + latching lever + LED indicator + varistor

WTLV - Mechanical indicator + latching lever + LED indicator + varistor

Note: WTD, WTLD - only for DC coils; WTV, WTLV - only for AC coils

RELAY, SERIES R4N

FIG. 1 ()

General - Fig. 1 shows the overall and inside view of R4N relay.

1. Housing - R/C (QMFZ2), Makrolon 2605, manufactured by Bayer Material Science AG (E41613), overall dimensions approximately 31.9 mm by 27.1 mm by 20.7 mm, min. 1 mm thick. See Fig. 3.

Alternate - R/C (QMFZ2), Lexan 241R, manufactured by Sabic Innovative Plastics BV (E45329), rated V-2, 115°C.

Alternate - R/C (QMFZ2), Lexan 141R, manufactured by Sabic Innovative Plastics BV (E45329), rated HB, 115°C.

2. Coil Bobbin - R/C (QMFZ2) Valox 420SEO, manufactured by Sabic Innovative Plastic (E45329). Overall dimensions see Fig 4. Provided with an integral cross over lead insulation channel (slot). Also provided with tunnels for holding the coil termination wires (approximately 0.6 mm diameter) connecting to the coil terminals, coil copper wires and upper indicator board.

Alternate - R/C (QMFZ2) Valox 771, manufactured by Sabic Innovative Plastics BV, rated V-0, 120°C.

Alternate - R/C (QMFZ2) Manufactured by Kingfa Sci & Tech Co., Model PBT-RG301, rated V-0, 130°C.

3. Base - R/C (QMFZ2) manufactured by Eurostar Engineering Plastics (E340012), Type Starflam RF-1009 Z270 EM, minimum thickness 0.8 mm, rated V-0, 150°C (HWI=0, HAI=0).

Alternate - R/C (QMFZ2) Valox 771, manufactured by Sabic Innovative Plastics BV, rated V-0, 120°C.

4. Insulating Barrier - (Separating circuits) - R/C (QMFZ2) Valox 420SEO, manufactured by Sabic Innovative Plastic (E45329). Overall dimensions approx 15.2 mm by 9.5 mm by 8 mm by 0.8 mm thick.

Alternate - R/C (QMFZ2) Valox 771, manufactured by Sabic Innovative Plastics BV, rated V-0, 120°C.

Alternate - R/C (QMFZ2) Manufactured by Kingfa Sci & Tech Co., model PBT-RG301, rated V-0, 130°C.

Alternate - Same as above, except manufactured by Eurostar Engineering Plastics (E340012), Type Starflam RF-1009 Z270 EM, minimum thickness 0.8 mm, rated V-0, 150°C (HWI=0, HAI=0)

5. Movable Contact Base with Terminals - R/C (QMFZ2) Valox 420SE0, manufactured by Sabic Innovative Plastic (E45329). Overall dimensions approx 17.5 mm by 4.5 mm by 4 mm, 0.5 mm min thickness. Provided with two molded projections approx 2.2 mm high. See Ill. 1 for details.

Alternate - R/C (QMFZ2) Valox 771, manufactured by Sabic Innovative Plastics BV (E45329), rated V-0, 120°C.

Alternate - R/C (QMFZ2) Manufactured by Kingfa Sci & Tech Co., model PBT-RG301, rated V-0, 130°C.
6. Connection Wires - R/C (AVLV2) rated min 300 V, 105°C.
7. Coil Wire: Magnet Copper wire, with insulating coating rated 155 C.
8. Spring - Plated copper alloy.
9. Terminals: Coil and Stationary - Tin plated copper alloy. Overall dimensions: For plug-in socket connection 2.2 mm by 0.5 mm by 13.5 mm; For printed circuit connection pins diameter 0.4 mm. ILL. 2 for details.
10. Terminals: Movable contacts - Tin plated copper alloy. Overall dimensions: For plug-in socket connection 2.2 mm by 0.5 mm by 15.7 mm; For printed circuit connection pins diameter 0.4 mm. See Ill. 3 for details.
11. Plug-In Socket - See Fig. 3.
12. Stationary Contacts - Copper alloy connected to terminal by rivets. See Ill. 4 for details.: Contact material overlay according to nomenclature.
13. Movable Contacts - Copper alloy press fit to movable arm. See Ill. 4 for details. Contact material overlay according to nomenclature.

RELAY, SERIES R2N and R3N

General - R2N and R3N uses the same materials as R4N Relay, except for the following:

1. Base - R/C (QMFZ2/8), Type AMC 2568 manufactured by Synres-Almoco BV (E48036), rated V-0, 105°C.

RELAY SOCKETS TYPE G4/2

FIG. 2 ()

General - This figure shows a complete version of G4/2 sockets for R2N Series Relay.

1. Body: R/C (QMFZ2) Type Noryl SE1, or Type Lexan 3412R, manufactured by G.E. rated V-1, 110°C. Overall dimensions 31 mm by 21.6 mm by 11 mm by 0.8 mm thick.

Alternate - R/C (QMFZ2) designated "Valox" type 420SE0, manufactured by GE Plastics America, rated V-0, 130°C.

Alternate - R/C (QMFZ2) Valox 771, manufactured by Sabic Innovative Plastics BV, rated V-0, 120°C.

Alternate - R/C (QMFZ2) Lupox GP 2306 FC, manufactured by LG Chemical Ltd., rated V-0, 140°C.

Alternate - R/C (QMFZ2) Tarolox 10 H G6 DX0, manufactured by Taro Plastic SPA, rated V-0, 130°

Alternate - R/C (QMFZ2) Manufactured by Kingfa Sci & tech Co., model PBT-RG301, rated V-0, 130°C.

Alternate - R/C (QMFZ2) Lupoy GN2201FM manufactured by LG Chem, rated V-0, 120°C

2. Contact Spring & Terminals: Tin-plated copper alloy. Overall dimensions 16.7 mm by 2.2 by 0.3 mm thick.

RELAY SOCKETS, TYPES G4 AND SU4

FIG. 3 ()

General - Fig. 3 shows the G4 (soldering version) and SU4 (printed circuits version) relay sockets for R4N Series.

1. Body - R/C (QMFZ2) Type Noryl SE1, or Type Lexan 3412R, manufactured by General Electric. Overall dimensions for G4 (plug-in socket) 21.5 mm by 11 mm by 40 mm. 3 mm min thickness.

Alternate - R/C (QMFZ2) designated "Makrolon", Type 9425, manufactured by Bayer rated V-0, 125°C.

Alternate - R/C (QMFZ2) Lupoy GN2201FM manufactured by LG Chem, rated V-0, 120°C

For SU4 (printed circuit connection) 21.4 mm by 29.4 mm by 10.4 mm. 2.8 mm min thickness.

2. Contact Spring and Terminals - Tin plated copper alloy. Overall dimensions: Solder type - 16.7 mm by 2.2 by 0.3 mm thick; Printed circuit type - 13.7 mm by 2.2 mm, 0.3 mm thick.