# RELAY, ELECTROMAGNETIC, NON-LATCHING, 28VDC, 15A, 2PDT

# ESCC Detail Specification No. 3601/007


| | |
|---|---|
| Issue 6 | June 2021 |


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## DOCUMENTATION CHANGE NOTICE

(Refer to https://escies.org for ESCC DCR content)

| DCR No. | CHANGE DESCRIPTION |
|---|---|
| 1424 | Specification updated to incorporate changes per DCR. |

**TABLE OF CONTENTS**

# 1 GENERAL

## 1.1 SCOPE

This specification details the ratings, physical and electrical characteristics, and test and inspection data for the component type variants and/or the range of components specified below. It supplements the requirements of, and shall be read in conjunction with, the ESCC Generic Specification listed under Applicable Documents.

## 1.2 APPLICABLE DOCUMENTS

The following documents form part of this specification and shall be read in conjunction with it:

(a) ESCC Generic Specification No. 3601.

## 1.3 TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESCC Basic Specification No. 21300 shall apply.

## 1.4 THE ESCC COMPONENT NUMBER AND COMPONENT TYPE VARIANTS

### 1.4.1 The ESCC Component Number

The ESCC Component Number shall be constituted as follows:

Example: 36010070328V

- Detail Specification Reference: 3601007
- Component Type Variant Number: 03 (as required)
- Characteristic code: Rated Coil Voltage (28Vdc): 28V (as required)

#### *1.4.1.1 Characteristics and/or Ratings Codes*

Characteristics and/or ratings to be codified as part of the ESCC Component Number shall be as follows:

(a) Rated Coil Voltage expressed by means of the following codes:

| Rated Coil Voltage (Vdc) | Code |
|---|---|
| 28 | 28V |
| 12 | 12V |

1.4.2 Component Type Variants and Range of Components

The component type variants and range of components applicable to this specification are as follows:

| Variant Number | Case and Terminal Description (Note 1) | Rated Coil Voltage (Vdc) | Weight max (g) |
|---|---|---|---|
| 03 | Raised Vertical Flange Mount<br>Solder Pin Terminals with Polarizing Pin | 28, 12 | 41 |
| 04 | Raised Vertical Flange Mount<br>Solder Hook Terminals | 28, 12 | 41 |
| 05 | Horizontal Flange Mount<br>Solder Pin Terminals with Polarizing Pin | 28, 12 | 41 |
| 06 | Horizontal Flange Mount<br>Solder Hook Terminals | 28, 12 | 41 |

**NOTES:**

1. See Para. 1.6.

1.5 MAXIMUM RATINGS

The maximum ratings shall not be exceeded at any time during use or storage.

Maximum ratings shall only be exceeded during testing to the extent specified in this specification and when stipulated in Test Methods and Procedures of the ESCC Generic Specification.

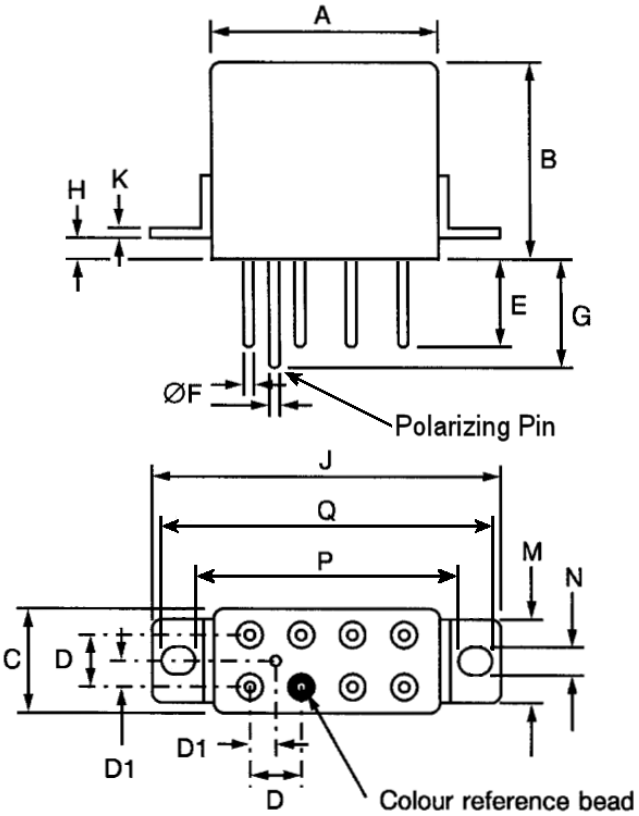
| Characteristics | Symbols | Maximum Ratings | Units | Remarks |
|---|---|---|---|---|
| Coil Voltage Range | $V_{CR}$ | <br>26.5 to 32<br>11 to 14.8 | Vdc | <br>Rated Coil Voltage: 28Vdc<br>Rated Coil Voltage: 12Vdc |
| Rated Resistive Load Contact Current | $I_{CR}$ | 15 | A | 28Vdc resistive<br>Note 1 |
| Rated Inductive Load Contact Current | $I_{CL}$ | 8 | A | 28Vdc inductive<br>Note 1 |
| Overload Current | $I_{OVERLOAD}$ | 40 | A | 28Vdc resistive |
| Operating Temperature Range | $T_{op}$ | -65 to +125 | °C | $T_{amb}$ |
| Storage Temperature Range | $T_{stg}$ | -65 to +125 | °C | $T_{amb}$ |
| Soldering Temperature | $T_{sol}$ | +260 | °C | Note 2 |

**NOTES:**

1. Relays should not be used in change-over mode where the potential difference between stationary contacts is greater than 10V and the switched current is greater than 100mA.
2. Duration 10 seconds maximum at a distance not less than 3mm from the device body. The same terminal shall not be resoldered until 3 minutes have elapsed.

1.6 PHYSICAL DIMENSIONS AND TERMINAL IDENTIFICATION

1.6.1 Raised Vertical Flange Mount and Solder Pin Terminals with Polarizing Pin (Variant 03)

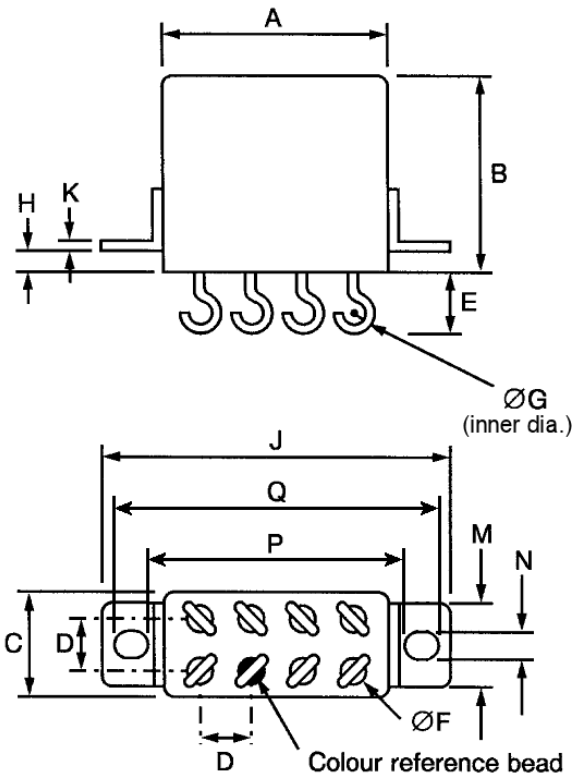



| Symbols | Dimensions (mm) | |
|---|---|---|
| | Min | Max |
| A | - | 26 |
| B | - | 25.7 |
| C | - | 13.3 |
| D | 4.88 | 5.28 |
| D1 | 2.44 | 2.64 |
| E | 6.7 | 7.1 |
| ØF | 1.55 | 1.62 |
| G | 7.4 | 8 |
| H | 3.8 | 4.2 |
| J | - | 43.6 |
| K | 0.9 | 1.1 |
| M | - | 12.3 |
| N | 3.7 | 3.9 |
| P | 31.15 | 32.15 |
| Q | 40 | 41 |

**NOTES:**

1. Terminal identification is specified by reference to the colour reference bead and the position of the polarizing pin. See Para. 1.7.

1.6.2 Raised Vertical Flange Mount and Solder Hook Terminals (Variant 04)

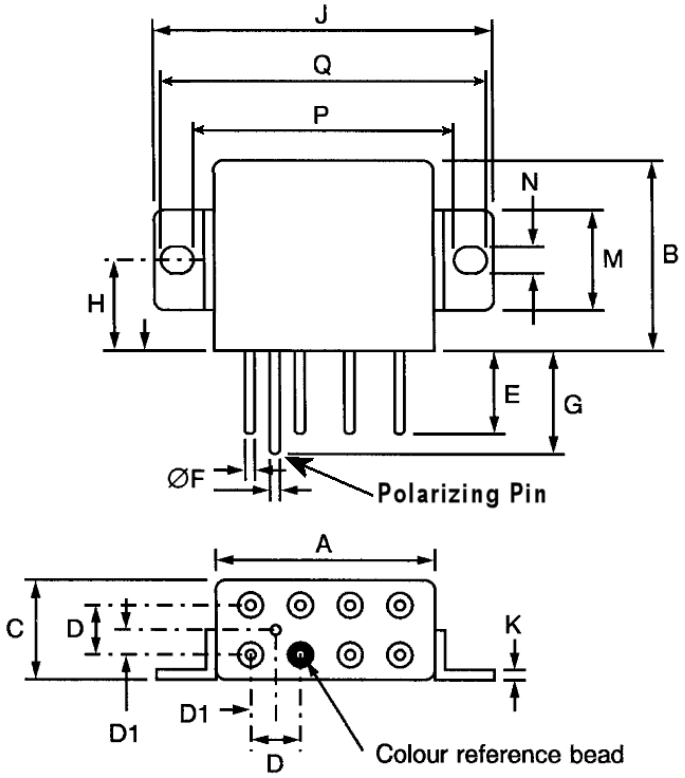



| Symbols | Dimensions (mm) | |
|---|---|---|
| | Min | Max |
| A | - | 26 |
| B | - | 25.7 |
| C | - | 13.3 |
| D | 4.88 | 5.28 |
| E | - | 8 |
| ØF | 1.52 | 1.62 |
| ØG | 1.75 | 2.25 |
| H | 3.8 | 4.2 |
| J | - | 43.6 |
| K | 0.9 | 1.1 |
| M | - | 12.3 |
| N | 3.7 | 3.9 |
| P | 31.15 | 32.15 |
| Q | 40 | 41 |

**NOTES:**

1. Terminal identification is specified by reference to the colour reference bead. See Para. 1.7.

1.6.3 Horizontal Flange Mount and Solder Pin Terminals with Polarizing Pin (Variant 05)

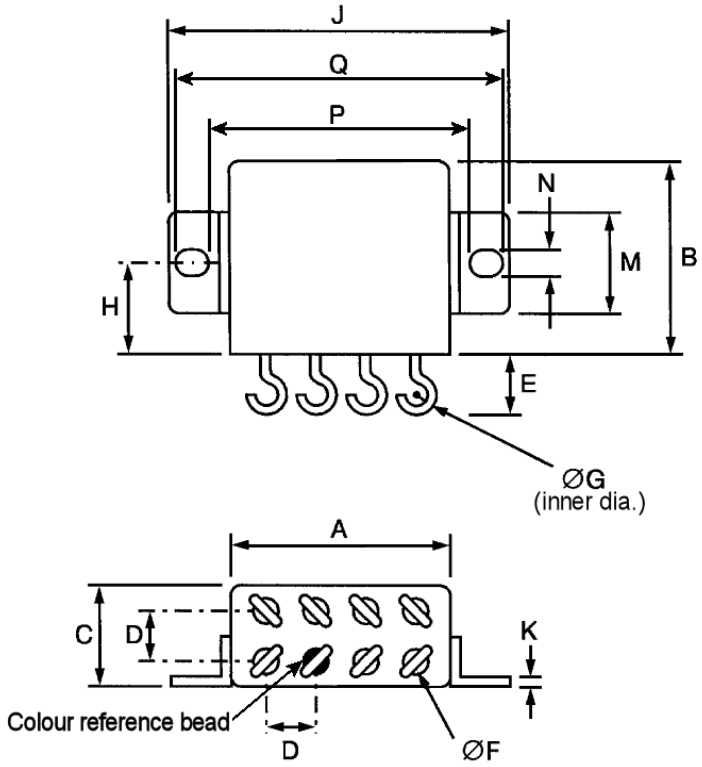



| Symbols | Dimensions (mm) | |
|---|---|---|
| | Min | Max |
| A | - | 26 |
| B | - | 25.7 |
| C | - | 13.3 |
| D | 4.88 | 5.28 |
| D1 | 2.44 | 2.64 |
| E | 6.7 | 7.1 |
| ØF | 1.55 | 1.62 |
| G | 7.4 | 8 |
| H | 12.45 | 12.95 |
| J | - | 43.6 |
| K | 0.9 | 1.1 |
| M | - | 12.3 |
| N | 3.7 | 3.9 |
| P | 31.15 | 32.15 |
| Q | 40 | 41 |

**NOTES:**

1. Terminal identification is specified by reference to the colour reference bead and the position of the polarizing pin. See Para. 1.7.

1.6.4 Horizontal Flange Mount and Solder Hook Terminals (Variant 06)

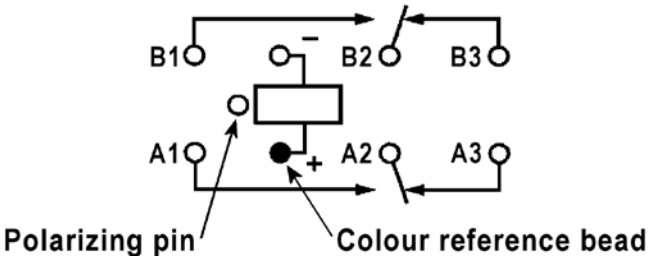



| Symbols | Dimensions (mm) | |
|---|---|---|
| | Min | Max |
| A | - | 26 |
| B | - | 25.7 |
| C | - | 13.3 |
| D | 4.88 | 5.28 |
| E | - | 8 |
| ØF | 1.52 | 1.62 |
| ØG | 1.75 | 2.25 |
| H | 12.45 | 12.95 |
| J | - | 43.6 |
| K | 0.9 | 1.1 |
| M | - | 12.3 |
| N | 3.7 | 3.9 |
| P | 31.15 | 32.15 |
| Q | 40 | 41 |

**NOTES:**

1. Terminal identification is specified by reference to the colour reference bead. See Para. 1.7.

1.7 FUNCTIONAL DIAGRAM




**NOTES:**

1. As viewed from the terminal side with coil de-energised.
2. Individual terminal designations are for reference purposes only.
3. The polarizing pin is connected to the case (Variants 03, 05 only).

1.8 MATERIALS AND FINISHES

1.8.1 Case

Copper nickel, tin-lead alloy plated, hermetically sealed.

1.8.2 Terminals

The lead material and finish shall by type H3, H4 or H19 in accordance with the requirements of ESCC Basic Specification No. 23500.

## 2 REQUIREMENTS

2.1 GENERAL

The complete requirements for procurement of the components specified herein are as stated in this specification and the ESCC Generic Specification. Permitted deviations from the Generic Specification, applicable to this specification only, are listed below.

Permitted deviations from the Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESCC requirement and do not affect the component's reliability, are listed in the appendices attached to this specification.

2.1.1 Deviations from the Generic Specification

None.

2.2 MARKING

The marking shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and as follows.

The information to be marked on the component shall be:

(a) The ESCC qualified components symbol (for ESCC qualified components only).
(b) The ESCC Component Number (see Para. 1.4.1).
(c) Traceability information.

2.3 TERMINAL STRENGTH

The terminals of all Variants are defined as rigid.

The test conditions for Terminal Strength, tested as specified in the ESCC Generic Specification, shall be as follows:

(a) Pull Test :
- Applied Force: 50N

2.4 ELECTRICAL MEASUREMENTS AT ROOM, HIGH AND LOW TEMPERATURES

Electrical measurements shall be performed at room, high and low temperatures.

2.4.1 Room Temperature Electrical Measurements

The measurements shall be performed at $T_{amb}$ = +22 ±3°C.

| Characteristics | Symbols | Test Method and Conditions | Rated Coil Voltage (Vdc) | Limits | | Units |
|---|---|---|---|---|---|---|
| | | | | Min | Max | |
| Pick-up Voltage | $U_C$ | ESCC No. 3601 | 28<br>12 | -<br>- | 13.5<br>6.5 | V |
| Drop-out Voltage | $U_D$ | ESCC No. 3601 | 28<br>12 | 2.3<br>0.75 | 5.5<br>3.3 | V |
| Operate Time | $t_E$ | ESCC No. 3601 | All | - | 15 | ms |
| Release Time | $t_D$ | ESCC No. 3601 | All | - | 15 | ms |
| Bounce Time | $t_B$ | ESCC No. 3601 | All | - | 1 | ms |
| Insulation Resistance | $R_I$ | ESCC No. 3601<br>$V_{TEST}$ = 500Vdc | All | 100 | - | MΩ |
| Voltage Proof (Test Voltage) | VP | ESCC No. 3601<br>Maximum Leakage Current $I_{LVP}$ = 1mA | All | 1250 | - | Vrms |
| | | | | 1000 (Note 1) | - | |
| Voltage Proof Leakage Current | $I_{LVP}$ | ESCC No. 3601<br>Note 2 | All | - | 1 | mA |
| Contact Voltage Drop | $V_D$ | ESCC No. 3601<br>100mA ≤ $I_{TEST}$ ≤ 15A | All | - | 0.01 x $I_{TEST}$ | V |
| Coil Resistance | $R_B$ | ESCC No. 3601 | 28<br>12 | 290<br>52 | 350<br>64 | Ω |

**NOTES:**

1. Between coil and case.
2. Measured during Voltage Proof test.

2.4.2 High and Low Temperatures Electrical Measurements

| Characteristics | Symbols | Test Method and Conditions | Rated Coil Voltage (Vdc) | Limits | | Units |
|---|---|---|---|---|---|---|
| | | | | Min | Max | |
| Pick-up Voltage | $U_C$ | ESCC No. 3601<br>$T_{amb}$ = +125(+0 -5)°C and -65 (+5 -0)°C | <br>28<br>12 | <br>-<br>- | <br>19.8<br>9.9 | V |
| Drop-out Voltage | $U_D$ | ESCC No. 3601<br>$T_{amb}$ = +125(+0 -5)°C and -65 (+5 -0)°C | <br>28<br>12 | <br>1.5<br>0.5 | <br>7<br>4.5 | V |
| Operate Time | $t_E$ | ESCC No. 3601<br>$T_{amb}$ = +125(+0 -5)°C and -65 (+5 -0)°C | All | - | 15 | ms |
| Release Time | $t_D$ | ESCC No. 3601<br>$T_{amb}$ = +125 (+0 -5)°C and -65 (+5 -0)°C | All | - | 15 | ms |
| Bounce Time | $t_B$ | ESCC No. 3601<br>$T_{amb}$ = +125 (+0 -5)°C and -65 (+5 -0)°C | All | - | 1 | ms |
| Insulation Resistance | $R_I$ | ESCC No. 3601<br>$T_{amb}$ = +125 (+0 -5)°C<br>$V_{TEST}$ = 500Vdc | All | 50 | - | MΩ |
| Contact Voltage Drop | $V_D$ | ESCC No. 3601<br>$T_{amb}$ = +125 (+0 -5)°C and -65 (+5 -0)°C<br>100mA ≤ $I_{TEST}$ ≤ 15A | All | - | 0.01 x $I_{TEST}$ | V |

2.5 PARAMETER DRIFT VALUES

Parameter Drift Values shall be measured as specified in the ESCC Generic Specification.

Unless otherwise specified, the measurements shall be performed at $T_{amb}$ = +22 ±3°C.

The test methods and test conditions shall be as per the corresponding test defined in Para. 2.4.1 Room Temperature Electrical Measurements.

The corresponding absolute limit values for each characteristic shall not be exceeded.

| Characteristics | Symbols | Limits | | | Units |
|---|---|---|---|---|---|
| | | Drift Value Δ | Absolute | | |
| | | | Min | Max | |
| Pick-up Voltage | $U_C$ | Note 1 | Note 2 | Note 2 | V |
| Drop-out Voltage | $U_D$ | Note 1 | Note 2 | Note 2 | V |

**NOTES:**

1. Drift Value (Δ) limits are not specified. Drift Values shall be recorded for information purposes only.
2. The limit specified in Para. 2.4.1 shall apply.

2.6 INTERMEDIATE AND END-POINT ELECTRICAL MEASUREMENTS

Unless otherwise specified, the measurements shall be performed at $T_{amb}$ = +22 ±3°C.

Unless otherwise specified the test methods and test conditions shall be as per the corresponding test defined in Para. 2.4.1 Room Temperature Electrical Measurements.

| Test Reference per ESCC No. 3601 | Characteristics | Symbols | Limits | | Units |
|---|---|---|---|---|---|
| | | | Min | Max | |
| Thermal Shock | During 5th Cycle | | | | |
| | Pick-up Voltage | $U_C$ | Note 2 | | V |
| | Drop-out Voltage | $U_D$ | Note 2 | | V |
| | Operate Time | $t_E$ | Note 2 | | ms |
| | Release Time | $t_D$ | Note 2 | | ms |
| | Final Measurements | | | | |
| | Voltage Proof | VP | Note 3 | | Vrms |
| | Voltage Proof Leakage Current | $I_{LVP}$ | Note 3 | | mA |
| Low Level Sine Vibration | Final Measurements | | | | |
| | Pick-up Voltage | $U_C$ | Note 3 | | V |
| | Pick-up Voltage Drift | $\Delta U_C/U_C$ | Note 1 | | % |
| | Drop-out Voltage | $U_D$ | Note 3 | | V |
| | Drop-out Voltage Drift | $\Delta U_D/U_D$ | Note 1 | | % |

| Test Reference per ESCC No. 3601 | Characteristics | Symbols | Limits | | Units |
|---|---|---|---|---|---|
| | | | Min | Max | |
| High Level Sine Vibration | Final Measurements | | | | |
| | Pick-up Voltage | $U_C$ | Note 3 | | V |
| | Pick-up Voltage Drift | $\Delta U_C/U_C$ | Note 1 | | % |
| | Drop-out Voltage | $U_D$ | Note 3 | | V |
| | Drop-out Voltage Drift | $\Delta U_D/U_D$ | Note 1 | | % |
| Low Level Mechanical Shock | Final Measurements | | | | |
| | Contact Voltage Drop | $V_D$ | Note 3 | | V |
| | Pick-up Voltage | $U_C$ | Note 3 | | V |
| | Pick-up Voltage Drift | $\Delta U_C/U_C$ | Note 1 | | % |
| | Drop-out Voltage | $U_D$ | Note 3 | | V |
| | Drop-out Voltage Drift | $\Delta U_D/U_D$ | Note 1 | | % |
| | Voltage Proof | VP | Note 3 | | Vrms |
| | Voltage Proof Leakage Current | $I_{LVP}$ | Note 3 | | mA |
| High Level Mechanical Shock | Final Measurements | | | | |
| | Contact Voltage Drop | $V_D$ | Note 3 | | V |
| | Pick-up Voltage | $U_C$ | Note 3 | | V |
| | Pick-up Voltage Drift | $\Delta U_C/U_C$ | Note 1 | | % |
| | Drop-out Voltage | $U_D$ | Note 3 | | V |
| | Drop-out Voltage Drift | $\Delta U_D/U_D$ | Note 1 | | % |
| | Voltage Proof | VP | Note 3 | | Vrms |
| | Voltage Proof Leakage Current | $I_{LVP}$ | Note 3 | | mA |
| Resistance to Soldering Heat | Final Measurements | | | | |
| | Insulation Resistance | $R_I$ | Note 3 | | MΩ |
| | Contact Voltage Drop | $V_D$ | Note 3 | | V |
| | Pick-up Voltage | $U_C$ | Note 3 | | V |
| | Drop-out Voltage | $U_D$ | Note 3 | | V |
| | Coil Resistance | $R_B$ | Note 3 | | Ω |

| Test Reference per ESCC No. 3601 | Characteristics | Symbols | Limits | | Units |
|---|---|---|---|---|---|
| | | | Min | Max | |
| Inductive Life | <u>During Monitoring</u> | | | | |
| | Contact Voltage Drop | $V_D$ | - | 2.8 | V |
| | <u>Final Measurements</u> | | | | |
| | Contact Voltage Drop | $V_D$ | - | 0.015 x $I_{TEST}$ | V |
| | Insulation Resistance | $R_I$ | 50 | - | MΩ |
| | Voltage Proof | VP | 1000 | - | Vrms |
| | Voltage Proof Leakage Current | $I_{LVP}$ | Note 3 | | mA |
| | Pick-up Voltage | $U_C$ | Note 3 | | V |
| | Pick-up Voltage Drift | $\Delta U_C/U_C$ | Note 1 | | % |
| | Drop-out Voltage | $U_D$ | Note 3 | | V |
| | Drop-out Voltage Drift | $\Delta U_D/U_D$ | Note 1 | | % |
| | Operate Time | $t_E$ | Note 3 | | ms |
| | Release Time | $t_D$ | Note 3 | | ms |
| | Bounce Time | $t_B$ | Note 3 | | ms |
| | Coil Resistance | $R_B$ | Note 3 | | Ω |
| Resistive Life | <u>During Monitoring</u> | | | | |
| | Contact Voltage Drop | $V_D$ | - | 2.8 | V |
| | <u>Final Measurements</u> | | | | |
| | Contact Voltage Drop | $V_D$ | - | 0.015 x $I_{TEST}$ | V |
| | Insulation Resistance | $R_I$ | 50 | - | MΩ |
| | Voltage Proof | VP | 1000 | - | Vrms |
| | Voltage Proof Leakage Current | $I_{LVP}$ | Note 3 | | mA |
| | Pick-up Voltage | $U_C$ | Note 3 | | V |
| | Pick-up Voltage Drift | $\Delta U_C/U_C$ | Note 1 | | % |
| | Drop-out Voltage | $U_D$ | Note 3 | | V |
| | Drop-out Voltage Drift | $\Delta U_D/U_D$ | Note 1 | | % |
| | Operate Time | $t_E$ | Note 3 | | ms |
| | Release Time | $t_D$ | Note 3 | | ms |
| | Bounce Time | $t_B$ | Note 3 | | ms |
| | Coil Resistance | $R_B$ | Note 3 | | Ω |

| Test Reference per ESCC No. 3601 | Characteristics | Symbols | Limits | | Units |
|---|---|---|---|---|---|
| | | | Min | Max | |
| Coil Life | <u>During Step 1 of each Cycle</u> | | | | |
| | Contact Voltage Drop | $V_D$ | Note 3 | | V |
| | Coil Resistance | $R_B$ | Note 3 | | Ω |
| | <u>During Step 3 of 1st Cycle</u> | | | | |
| | Contact Voltage Drop | $V_D$ | Note 2 | | V |
| | Operate Time | $t_E$ | Note 2 | | ms |
| | Release Time | $t_D$ | Note 2 | | ms |
| | <u>During Steps 4 & 5 of 4th Cycle</u> | | | | |
| | Pick-up Voltage | $U_C$ | Note 2 | | V |
| | Drop-out Voltage | $U_D$ | Note 2 | | V |
| | <u>Final Measurements</u> | | | | |
| | Voltage Proof | VP | Note 3 | | Vrms |
| | Voltage Proof Leakage Current | $I_{LVP}$ | Note 3 | | mA |
| | Insulation Resistance | $R_I$ | Note 3 | | MΩ |
| | Contact Voltage Drop | $V_D$ | Note 3 | | V |
| | Coil Resistance | $R_B$ | Note 3 | | Ω |
| | Operate Time | $t_E$ | Note 3 | | ms |
| | Release Time | $t_D$ | Note 3 | | ms |
| | Bounce Time | $t_B$ | Note 3 | | ms |

| Test Reference per ESCC No. 3601 | Characteristics | Symbols | Limits | | Units |
|---|---|---|---|---|---|
| | | | Min | Max | |
| Intermediate Current | <u>During Monitoring</u> | | | | |
| | Contact Voltage Drop: | $V_D$ | | | mV |
| | Pole 1; Group 1, 2, 3 (15A) | | - | 175 | |
| | Pole 2; Group 1 (0.5A) | | - | 30 | |
| | Pole 2; Group 2 (0.3A) | | - | 18 | |
| | Pole 2; Group 3 (0.1A) | | - | 6 | |
| | <u>Final Measurements</u> | | | | |
| | Insulation Resistance | $R_I$ | 50 | - | MΩ |
| | Voltage Proof | VP | 1000 | - | Vrms |
| | Voltage Proof Leakage Current | $I_{LVP}$ | Note 3 | | mA |
| | Pick-up Voltage | $U_C$ | Note 3 | | V |
| | Pick-up Voltage Drift | $\Delta U_C/U_C$ | Note 1 | | % |
| | Drop-out Voltage | $U_D$ | Note 3 | | V |
| | Drop-out Voltage Drift | $\Delta U_D/U_D$ | Note 1 | | % |
| | Operate Time | $t_E$ | Note 3 | | ms |
| | Release Time | $t_D$ | Note 3 | | ms |
| | Bounce Time | $t_B$ | Note 3 | | ms |
| | Coil Resistance | $R_B$ | Note 3 | | Ω |
| | Contact Voltage Drop | $V_D$ | - | 0.015 x $I_{TEST}$ | V |
| Mechanical Life | <u>Final Measurements</u> | | | | |
| | Contact Voltage Drop | $V_D$ | - | 0.015 x $I_{TEST}$ | V |
| | Pick-up Voltage | $U_C$ | Note 3 | | V |
| | Pick-up Voltage Drift | $\Delta U_C/U_C$ | Note 1 | | % |
| | Drop-out Voltage | $U_D$ | Note 3 | | V |
| | Drop-out Voltage Drift | $\Delta U_D/U_D$ | Note 1 | | % |
| | Operate Time | $t_E$ | Note 3 | | ms |
| | Release Time | $t_D$ | Note 3 | | ms |
| | Bounce Time | $t_B$ | Note 3 | | ms |
| | Coil Resistance | $R_B$ | Note 3 | | Ω |

| Test Reference per ESCC No. 3601 | Characteristics | Symbols | Limits | | Units |
|---|---|---|---|---|---|
| | | | Min | Max | |
| Overload | <u>During Monitoring</u> | | | | |
| | Contact Voltage Drop | $V_D$ | - | 2.8 | V |
| | <u>Final Measurements</u> | | | | |
| | Contact Voltage Drop | $V_D$ | - | 0.015 x $I_{TEST}$ | V |
| | Insulation Resistance | $R_I$ | 50 | - | MΩ |
| | Voltage Proof | VP | 1000 | - | Vrms |
| | Voltage Proof Leakage Current | $I_{LVP}$ | Note 3 | | mA |
| | Pick-up Voltage | $U_C$ | Note 3 | | V |
| | Pick-up Voltage Drift | $\Delta U_C/U_C$ | Note 1 | | % |
| | Drop-out Voltage | $U_D$ | Note 3 | | V |
| | Drop-out Voltage Drift | $\Delta U_D/U_D$ | Note 1 | | % |
| | Operate Time | $t_E$ | Note 3 | | ms |
| | Release Time | $t_D$ | Note 3 | | ms |
| | Bounce Time | $t_B$ | Note 3 | | ms |
| | Coil Resistance | $R_B$ | Note 3 | | Ω |

**<u>NOTES:</u>**

1. Parameter Drift shall be calculated referenced to the measurement immediately prior to the test in question. An additional initial measurement may be performed prior to the test in question if considered necessary. Drift limits are not specified. Drift Values shall be recorded for information purposes only.
2. The limits specified in Para. 2.4.2, as applicable to the same test temperature, shall apply.
3. The limits specified in Para. 2.4.1 shall apply.

2.7 <u>RUN-IN CONDITIONS</u>

The test conditions for Run-in, tested as specified in the ESCC Generic Specification, shall be as follows:

(a) Test Temperature: +22 ±3°C.

## APPENDIX A

AGREED DEVIATIONS FOR LEACH INTERNATIONAL EUROPE (F)

| ITEMS AFFECTED | DESCRIPTION OF DEVIATIONS |
|---|---|
| Para. 1.8.2 Materials and Finishes: Terminals | Terminal material shall be Iron-Cobolt. |
| Para. 2.1.1 Deviations from the Generic Specification:<br>Qualification and Periodic Tests - Chart F4 | High Level Sine Vibration: Not Applicable |
| | High Level Mechanical Shock: Not Applicable |
| | Chart F4: Coil Life subgroup test sequence (under Endurance Subgroup 1):<br>Coil Life and the subsequent tests shall only be performed for Qualification. They are not required for Periodic Testing except in the case of any significant change to the design. |

## APPENDIX B

AGREED DEVIATIONS FOR REL STPI (F)

| ITEMS AFFECTED | DESCRIPTION OF DEVIATIONS |
|---|---|
| Para. 2.1.1 Deviations from the Generic Specification:<br>Qualification and Periodic Tests - Chart F4 | Chart F4: Coil Life subgroup test sequence (under Endurance Subgroup 1):<br>Coil Life and the subsequent tests shall only be performed for Qualification. They are not required for Periodic Testing except in the case of any significant change to the design. |