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ELECTRONICS

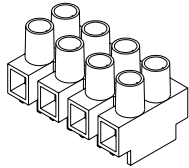
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Jameco Part Number 1969438

# Beau® Eurostyle™ PCB Terminal Blocks

## Eurostyle Two-Screw Terminal Strips



### Features and Benefits

- Modular design allows larger blocks to be easily cut into smaller circuit sizes
- Contacts and screws are recessed in the housing to help prevent short circuits
- Wire protectors prevent stranded wire damage during connection

| Circuits | Series     | Pitch        | Current | Voltage | Wire Range (AWG) | Description                         | Lead-free |
|----------|------------|--------------|---------|---------|------------------|-------------------------------------|-----------|
| 2-12     | 39100-08XX | 8.00 (.315)  | 20.0A   | 300V    | 12-22            | Standard profile,<br>with standoffs | Yes       |
|          | 39100-10XX | 10.00 (.394) | 30.0A   |         | 10-18            |                                     |           |
|          | 39100-12XX | 12.00 (.472) | 40.0A   | 600V    | 8-20             |                                     |           |
|          | 39100-15XX | 15.00 (.591) | 63.0A   |         | 6-14             |                                     |           |

All Two-Screw Terminal Strips available without standoffs (low profile)  
Jumpers available in 2 or 3 circuit lengths

## Fixed, One Piece or Pluggable, Two Piece

**The ESE line of Eurostyle® PCB terminal blocks from Molex provides an extensive range of options to meet your terminal block needs**

ESE from Molex is a line of Eurostyle PCB terminal blocks that simplifies the task of fulfilling your design requirements by offering a wide variety of terminal blocks to choose from. This line includes pitch sizes from 3.50mm (.138") to 5.08mm (.200") and all are rated at 300V, from 8.0A to 15.0A. Choose from fixed, single-piece blocks or from pluggable, two-piece blocks.

All of the ESE terminal blocks are offered in both black and green, and can be ordered with two optional styles of imprinting to aid in wiring, testing or repair in the field. For added durability and connectivity, any of the ESE pluggable terminal blocks are available with gold-plated contacts.

All ESE Eurostyle PCB terminal blocks from Molex conform to international standards, are RoHS compliant, UL recognized and CSA certified. You can count on the reliability of terminal blocks from Molex.

### Features

- Rated 300V, 8.0A to 15.0A
- Pitch sizes 3.50mm (.138") to 5.08mm (.200")
- Rising cage clamp termination provides a reliable connection without strand damage or intermittance
- Standard or reverse imprinting available (1, 2, 3 or 3, 2, 1)
- Black or green housing standard
- All ESE terminal blocks rated UL 94V-0
- RoHS and ELV compliant
- UL recognized and CSA approved

| Circuits    | ESE Series Range | Type      | Pitch       | Current      | Lead-free |
|-------------|------------------|-----------|-------------|--------------|-----------|
| 2-20        | 39500 to 39509   | Pluggable | 3.50 (.138) | 8.0A         | Yes       |
|             | 39510 to 39519   |           | 3.81 (.150) |              |           |
| 2-24, 4-48* | 39520 to 39529   |           | 5.00 (.197) | 15.0A        |           |
|             | 39530 to 39539   |           | 5.08 (.200) |              |           |
| 2-24        | 39543 and 39593  | Fixed     | 5.00 (.197) | 10.0A, 15.0A |           |
|             | 39544 and 39594  |           | 5.08 (.200) | 15.0A        |           |

\*4-48 circuit sizes are for dual-level PCB headers, available in 5.08 and 5.00mm (.200 and .197").



# PRODUCT SPECIFICATION

## PRODUCT SPECIFICATION FOR ESE EUROSTYLE TERMINAL BLOCKS 395XX PLUGS AND PCB HEADERS

### 1.0 SCOPE

This Product Specification covers the following centerline (pitch) ESE Terminal Block Connector Series with Tin or Gold plating.

|                                    |                                    |
|------------------------------------|------------------------------------|
| <u>3.50</u> mm ( <u>.138</u> inch) | <u>5.00</u> mm ( <u>.197</u> inch) |
| <u>3.81</u> mm ( <u>.150</u> inch) | <u>5.08</u> mm ( <u>.200</u> inch) |

### 2.0 PRODUCT DESCRIPTION

#### 2.1 ESE PCB EUROSTYLE TERMINAL BLOCKS

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

##### A. ALL OF THESE ITEMS ARE DESCRIBED ON THE INDIVIDUAL SALES DRAWINGS

##### I. ALL DIMENSIONS HAVE BEEN VERIFIED

##### B. MATERIALS USED

##### I. HOUSINGS – BLACK OR GREEN

##### 1. STANDARD PLUGS AND HEADERS

##### A. NYLON 6/6, UL94V-0

##### 2. SURFACE MOUNT COMPATIBLE PLUGS AND HEADERS

##### A. NYLON 4/6, UL94V-0

##### C. CONTACT PLATING

##### I. TIN - 3 $\mu$ m (118 $\mu$ in) MIN. MATTE TIN OVER 2 $\mu$ m (79 $\mu$ in) MIN. NICKEL.

##### II. GOLD – 0.76 $\mu$ m (30 $\mu$ in) MIN. SELECT GOLD IN CONTACT AREA, 3 $\mu$ m (118 $\mu$ in) MIN. MATTE TIN IN WIRE ENTRY AREA FOR PLUGS, SOLDER AREA FOR HEADERS. 2 $\mu$ m (79 $\mu$ in) MIN. NICKEL UNDERPLATE OVERALL.

#### 2.3 SAFETY AGENCY APPROVALS

##### A. UL FILE #E48521 – RECOGNIZED

### 3.0 RATINGS

#### 3.1 VOLTAGE RATING

300 Volts AC

#### 3.2 CURRENT RATING BY PITCH

3.50 mm (.138 inch) - 8.0 AMPS

3.81 mm (.150 inch) - 8.0 AMPS

5.00 mm (.197 inch), FIXED - 15 AMPS

5.08 mm (.200 inch), FIXED - 15 AMPS

5.00 mm (.197 inch), PLUG AND HEADER - 18 AMPS

5.08 mm (.200 inch), PLUG AND HEADER - 18 AMPS

#### 3.3 TEMPERATURE

Operating: STANDARD PLUGS AND HEADERS - 40°C to + 115°C

SURFACE MOUNT PLUGS AND HEADERS - 40°C to + 140°C

|                     |                                             |                                                                        |                  |
|---------------------|---------------------------------------------|------------------------------------------------------------------------|------------------|
| REVISION:           | ECR/ECN INFORMATION:                        | TITLE:                                                                 | SHEET No.        |
| <b>B</b>            | EC No: ETC2008-0070<br>DATE: 2007 / 09 / 11 | <b>PRODUCT SPECIFICATION<br/>FOR<br/>ESE EUROSTYLE TERMINAL BLOCKS</b> | <b>1 of 2</b>    |
| DOCUMENT NUMBER:    | CREATED / REVISED BY:                       | CHECKED BY:                                                            | APPROVED BY:     |
| <b>PS-39500-001</b> | <b>C YORK</b>                               | <b>J MACNEIL</b>                                                       | <b>J MACNEIL</b> |



# PRODUCT SPECIFICATION

## 4.0 PERFORMANCE

### 4.1 ELECTRICAL REQUIREMENTS

| ITEM | DESCRIPTION                     | TEST CONDITION                                                                                                                        | REQUIREMENT                                    |
|------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| 1    | Contact Resistance (Low Level)  | Mate connectors: apply a maximum voltage of <b>0.2 V</b> between wire poles and terminal.                                             | <b>8 milliohms</b><br>MAXIMUM<br>[initial]     |
| 2    | Insulation Resistance           | Unmate & unmount connectors: apply a voltage of <b>500 VDC</b> between adjacent terminals and between terminals to ground.            | <b>500 Megohms</b><br>MINIMUM                  |
| 3    | Dielectric Withstanding Voltage | Unmate connectors: apply a voltage of <b>2500 VAC</b> for <b>1</b> minute between adjacent terminals and between terminals to ground. | No breakdown;<br>current leakage < <b>5 mA</b> |
| 4    | Temperature Rise                | Appropriately mount the connectors: Apply current and measure the temperature rise once it has stabilized.                            | Temperature rise:<br><b>+30°C</b> MAXIMUM      |

### 4.2 MECHANICAL REQUIREMENTS

| ITEM | DESCRIPTION                      | TEST CONDITION                                                                                                                                                                                    | REQUIREMENT                                                                                                  |
|------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 5    | Connector Mate and Unmate Forces | Mate and unmate connector (male to female) and measure the force required.                                                                                                                        | <b>4.9 N (1.10 lbf)</b><br>MAXIMUM insertion force<br>&<br><b>1 N (0.22 lbf)</b><br>MINIMUM withdrawal force |
| 6    | Header Pin Retention             | Measure the force required to dislodge pins from the housing in the direction of plug entry.                                                                                                      | <b>4.4 N (1 lbf)</b><br>MINIMUM                                                                              |
| 7    | Secureness Test                  | 135 Cycles per UL486E, Section 12. 50N force is to be held for 1 minute following the strength test (The terminal is tested with the wire).                                                       | No Deformation or Mechanical Damage Caused                                                                   |
| 8    | Solder Resistance                | Nylon 6/6:<br>Solder Duration: <b>5 ± 0.5</b> seconds;<br>Solder Temperature: <b>260 ± 5°C</b><br>Nylon 4/6:<br>Solder Duration: <b>10 ± 0.5</b> seconds;<br>Solder Temperature: <b>265 ± 5°C</b> | Visual:<br>No Damage to insulator material                                                                   |

## 5.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage.

|                                         |                                                                                   |                                                                                  |                                 |
|-----------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------|
| REVISION:<br><b>B</b>                   | ECR/ECN INFORMATION:<br>EC No: <b>ETC2008-0070</b><br>DATE: <b>2007 / 09 / 11</b> | TITLE:<br><b>PRODUCT SPECIFICATION<br/>FOR<br/>ESE EUROSTYLE TERMINAL BLOCKS</b> | SHEET No.<br><b>2 of 2</b>      |
| DOCUMENT NUMBER:<br><b>PS-39500-001</b> |                                                                                   | CREATED / REVISED BY:<br><b>C YORK</b>                                           | CHECKED BY:<br><b>J MACNEIL</b> |
|                                         |                                                                                   | APPROVED BY:<br><b>J MACNEIL</b>                                                 |                                 |

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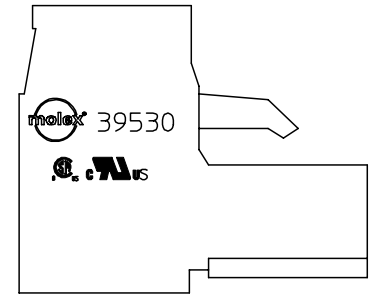
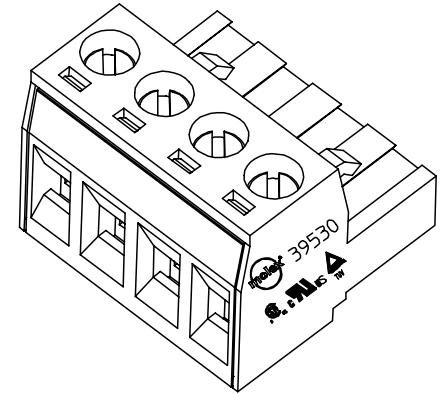
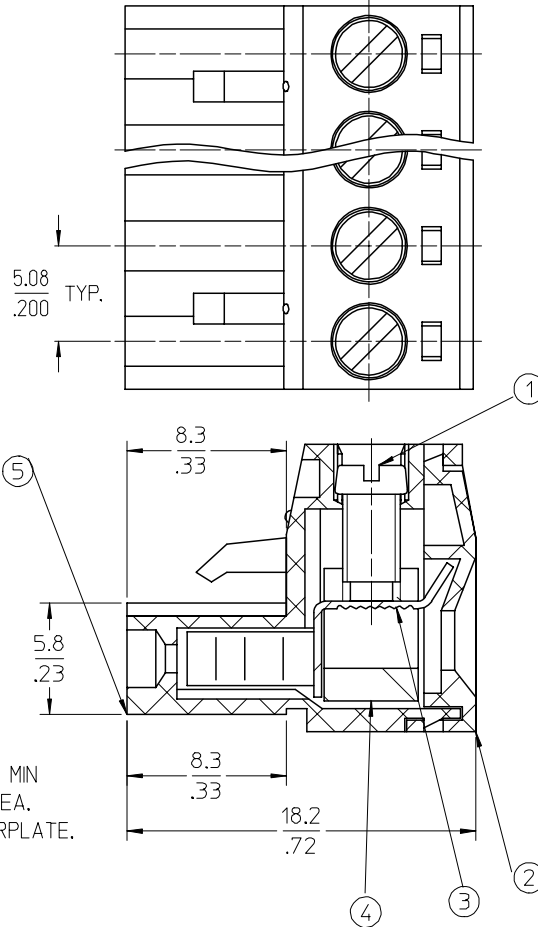
E

D

C

B

A



## SPECIFICATIONS:

## 1. MATERIAL:

- (1). SCREW: ZINC PLATED STEEL  
 (2). COVER: PA66  
 (3). TERMINAL MATERIAL: PHOSPHOR BRONZE

## (B) TERMINAL FINISH:

- TIN - 3  $\mu$ m (118  $\mu$ in) MIN MATTE TIN  
 OVER 2  $\mu$ m (79  $\mu$ in) MIN NICKEL  
 GOLD - 0.76  $\mu$ m (30  $\mu$ in) MIN GOLD IN  
 CONTACT AREA, 3  $\mu$ m (118  $\mu$ in) MIN  
 MATTE TIN IN WIRE ENTRY AREA.  
 2  $\mu$ m (79  $\mu$ in) MIN NICKEL UNDERPLATE.

## (4). CAGE: NICKEL PLATED BRASS

## (5). BODY: PA66

## 2. WIRE RANGE: 12 - 26 AWG

## 3. ELECTRICAL RATING: 300V, 15A.

## 4. WIRE STRIP LENGTH: 5.0mm.

## 5. OPERATING TEMPERATURE: -40°C TO +105°C.

## 6. MAX TORQUE: 5 In-Lbs.

## 7. INSULATION RESISTANCE: DC 500V, 500M.

## 8. DIELECTRIC WITHSTAND: AC 2500V FOR 1 MINUTE.

## 9. BREAKDOWN VOLTAGE: 4000V.

## 10. CONTACT RESISTANCE: &lt;10 MILLIOHMS.

## 11. NUMBER OF POSITIONS AVAILABLE = 2 THROUGH 24.

## (B) 12. ASSEMBLY IS ROHS COMPLIANT

| ADD TIN & GOLD PLATE SPEC |                |                |            |
|---------------------------|----------------|----------------|------------|
| EC NO: ETC2007-0414       | 2007/05/21     | 2007/05/21     | 2007/05/21 |
| DRWN: CLYORK              | CHKD: JMACNEIL | APPR: JMACNEIL | REV        |
| DESCRIPTION               |                |                |            |

| QUALITY SYMBOLS |  |
|-----------------|--|
| ▽=0             |  |
| ▽=0             |  |

| GENERAL TOLERANCES (UNLESS SPECIFIED)                |         |        |
|------------------------------------------------------|---------|--------|
|                                                      | mm      | INCH   |
| 4 PLACES                                             | ± ---   | ±.0015 |
| 3 PLACES                                             | ± 0.038 | ±.005  |
| 2 PLACES                                             | ± 0.13  | ±.01   |
| 1 PLACE                                              | ± 0.3   | ± ---  |
| ANGULAR ± 2 °                                        |         |        |
| DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS |         |        |

| DIMENSION STYLE |          |
|-----------------|----------|
| MM/IN           |          |
| DRAWN BY        | DATE     |
| LROTHAUS        | 12/6/05  |
| CHECKED BY      | DATE     |
| C. YORK         | 01/04/06 |
| APPROVED BY     | DATE     |
| J. PAWLICKI     | 01/10/06 |
| MATERIAL NO.    |          |
| SEE SHT. 2      |          |

| SCALE                                                                                                                         | DESIGN UNITS | THIRD ANGLE PROJECTION |        |
|-------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------|--------|
| 4:1                                                                                                                           | INCH         |                        |        |
| 5.08MM, EURO PLUG, RIGHT ANGLE                                                                                                |              |                        |        |
| MOLEX INCORPORATED                                                                                                            |              |                        |        |
| DOCUMENT NO.                                                                                                                  | SD-39530-001 | SHEET NO.              | 1 OF 2 |
| THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |              |                        |        |

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