# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

| | |
|---|---|
| **171971** | **SL High-Temp Headers, Vertical, 2 to 25 Circuits, Through Hole** |
| **171972** | **SL High-Temp Headers, Vertical, 2 to 25 Circuits, Through Hole w/ Pegs** |
| **171974** | **SL High-Temp Headers, Right Angle, 2 to 25 Circuits, Through Hole** |
| **171975** | **SL High-Temp Headers, Right Angle, 2 to 25 Circuits, Through Hole w/ Pegs** |
| **171973** | **SL High-Temp Headers, Vertical, 2 to 25 Circuits, SMT** |
| **171976** | **SL High-Temp Headers, Right Angle, 2 to 25 Circuits, SMT** |
| **171977** | **SL High-Temp Headers, Right Angle, 2 to 25 Circuits, SMT w/Pegs** |

| | |
|---|---|
| **Category:** | Signal |
| **Circuits:** | 2 to 25 |
| **Pitch:** | 2.54mm |
| **Current:** | 3.0A |

**With its large number of options and configurations, SL Modular Connectors and Assemblies deliver ideal wire-to-wire solutions and its varying PCB termination methods, including reflow process capable versions, support a range of wire-to-board applications**

**http://www.molex.com/link/slmodular.html**

*SL Modular Connector System, High-Temperature Header Made With Liquid Crystal Polymer (LCD) Material*

| | |
|---|---|
| Training presentation | SL Modular Connectors_PRES.pdf |
| Datasheet | 987651-0406.pdf (English) |
| Global Product Manager | Will Brumleve, Power & Signal, CCS |

## RELEASE CONTENT

***Solution Information***

***Market / Application Information***

***SPIN Analysis***

***Competitor Info / Pricing Strategy***

***Molex Products / Cross-Selling***

***Specifications / Ordering Info***

# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

## VITAL PRODUCT INFORMATION

***What makes this product different compared to the competition?***

This is a typical industry-standard product, but Molex has the most extensive offering of variations and configurations, including high-temperature headers that can withstand 260°C soldering temperatures and are reflow process capable.

***How does this product/solution create value for our customers?***

Variety of products. Release revision focuses on High-Temperature Headers, which enables customers to use reflow ovens in affixing headers to PCBs, therefore automating the process. The breadth of the product line offers customers a wide range of options for design flexibility and to meet varied application needs.

***For Whom is it intended (current and future customers)?***

Makers of signal and/or low-power applications such as computers, medical instruments and automotive controls

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# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

### VITAL PRODUCT INFORMATION (continued)

| Industry Need | Industry Challenge | Industry Solution | Anticipated Results |
|---|---|---|---|
| Automation | As **consumer electronics** become more prevalent, contract manufacturers (CMs) are continually being driven to produce more devices at lower costs. | The comprehensive SL Modular Connector System, now includes high-temperature LCP headers that are reflow process capable to enable the automation of termination on PCBs and reduce labor costs. | Customers will be able to employ automation with the high-temperature headers, reducing costs and improving manufacturing time. |
| Mating Assurance | As electronic components decrease in size and increase in mobility, customers in **consumer, automotive and medical industries** need added assurance that terminals will not back out, and that plugs and receptacles will not disengage in high-vibration environments. | The SL Modular System, with an integrated terminal position assurance (TPA) lock, more than doubles the retention force of terminals in their housings. The connector position assurance (CPA) feature reinforces the positive-lock mating interface, ensuring the thumb latch will not disengage due to high vibration or moving parts | The reliability of end products will increase due to the decreased risk of terminal back-outs and accidental disconnections. |
| Design Flexibility | With constantly changing demands in the **consumer products** marketplace, designers need to respond quickly but available components often create design limitations. | The SL Modular Connector System provides a wide range of variations and are compatible with some C-Grid and KK products, making it a versatile solution to meet a wide range of design needs. | Increased design flexibility will result in faster time to market. |

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# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

## MARKETS AND APPLICATIONS

**Consumer**
- Computer Peripherals
- Copiers
- HVAC Equipment
- Modems
- Printers
- Scanners

**Automotive**
- Airbag Sensors
- Interior Lighting
- Sound Systems
- Steering Controls

**Medical**
- Panel Displays on Portable Medical
- Dental Equipment
- Breathing Machines

***Target Accounts/Customers (non-exclusive list)***
- *GM*
- *Chrysler*
- *Ford*
- *Philips Respironics*
- *Baxter*
- *HP*
- *Cisco*

***Target Customer Job Functions***
- *Distributor*
- *End User*
- *Manufacturing/Quality*

*Copiers and Printers*

*Automotive Interior Lighting and Sound System*

*Portable Diagnostics*

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# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

### Situation, Problem, Implication, Need Payoff (SPIN)

The SPIN questions on this page are examples and should be used as a possible starting point for a deeper inquiry that pertains to specific customers and their situations/environments. Please use the techniques from the Molex Value Selling training to develop your own SPIN questions to use when meeting with your prospects and customers.

| Need | Situation | Problem | Implication | Need Payoff |
|---|---|---|---|---|
| Automation | Is a competitive marketplace driving you to reduce costs? | Are you unable to automate the termination of the PCB headers you currently use? | Is the manual placement and termination of PCB headers driving up manufacturing costs? | If you were able to use a PCB header that could withstand solder temperatures, how would that enable you to automate termination? How would that affect manufacturing costs? |
| Mating Assurance | Are customers demanding smaller and more mobile devices? | Are you forced to use ever shrinking components to accommodate shrinking designs? | Is the risk of terminal back-out and accidental connector disengagement increasing as components get smaller? | How would compact components with features such as terminal position assurance and connector position assurance and secondary locks mitigate the risks of terminal back-outs and accidental disengagements? |
| Design Flexibility | Are your designs having trouble keeping pace with quickly evolving marketplace demands? | Do available components present limitations to your designs? | Is your time to market affected by the limitations of your current supply of components? | How would a family of connectors with a wide range of features that are compatible with other connector families provide design flexibility and, thus, your time to market? |

### *ADDITIONAL SPIN QUESTIONS TO ASK CUSTOMERS*

- Are you looking for a system with a terminal retention feature and applied cost savings?
- Do you have a need to save PCB space in unsealed automotive and/or commercial vehicle applications?
- Do you require a USCAR approved interface?
- Any other questions??

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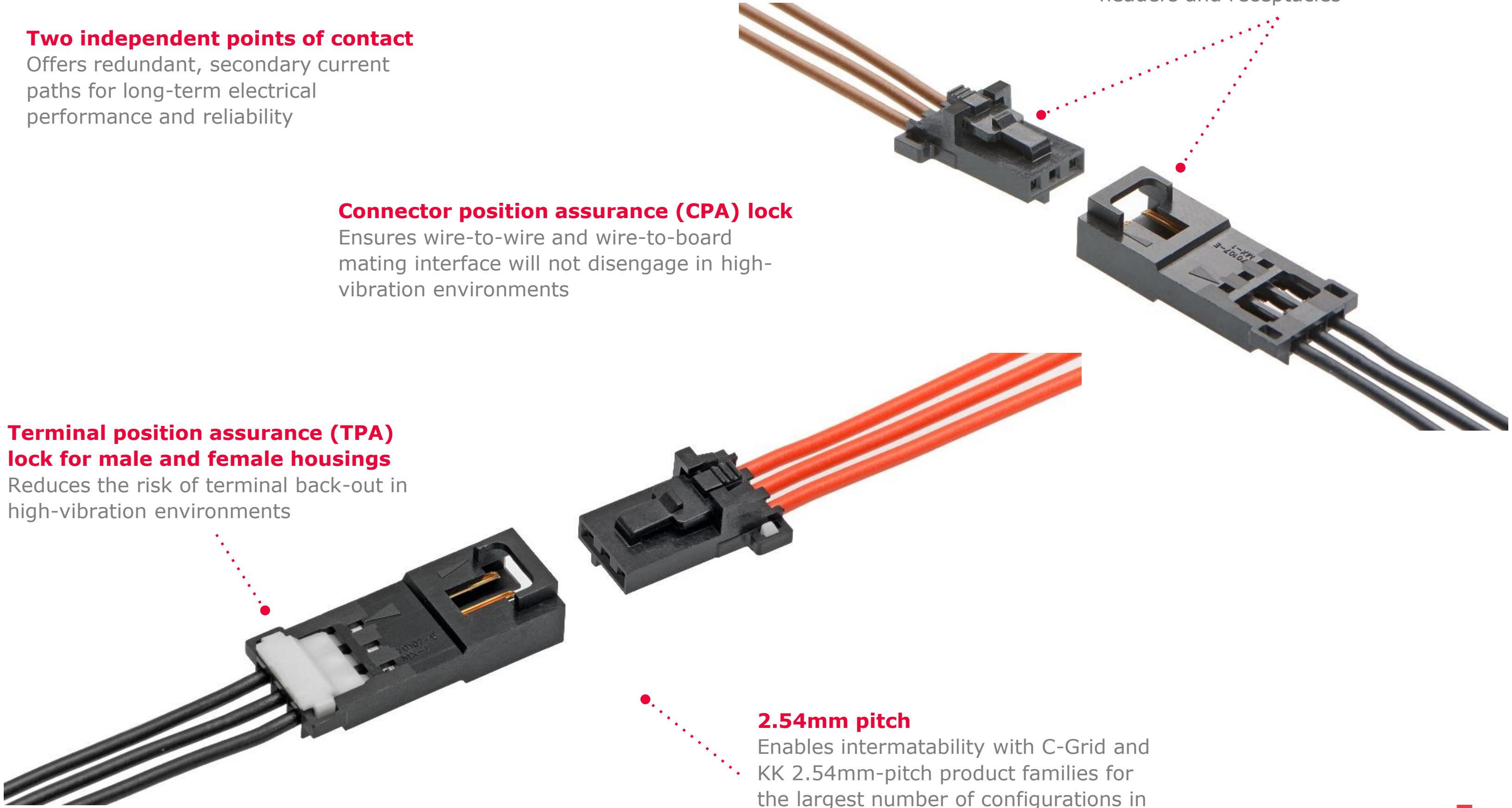
# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

### PRODUCT FEATURES AND ADVANTAGES



**Positive lock**
Provides secure retention between headers and receptacles

**Two independent points of contact**
Offers redundant, secondary current paths for long-term electrical performance and reliability

**Connector position assurance (CPA) lock**
Ensures wire-to-wire and wire-to-board mating interface will not disengage in high-vibration environments

**Terminal position assurance (TPA) lock for male and female housings**
Reduces the risk of terminal back-out in high-vibration environments

**2.54mm pitch**
Enables intermatability with C-Grid and KK 2.54mm-pitch product families for the largest number of configurations in the industry

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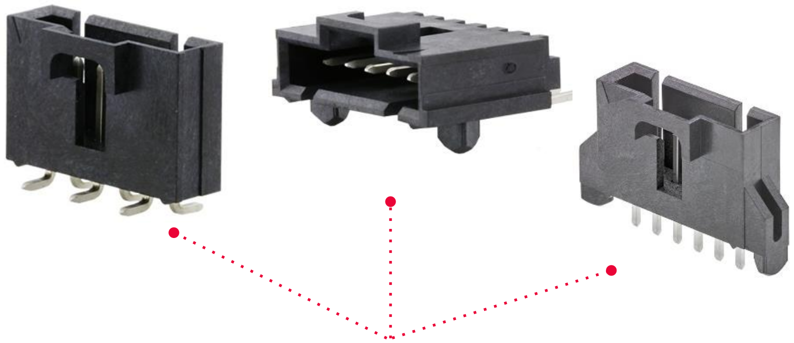
# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

### PRODUCT FEATURES AND ADVANTAGES



**High-temperature headers available, made with liquid crystal polymer (LCP)**
Reflow process capable. Enables automated termination to PCBs. Reduces labor costs.

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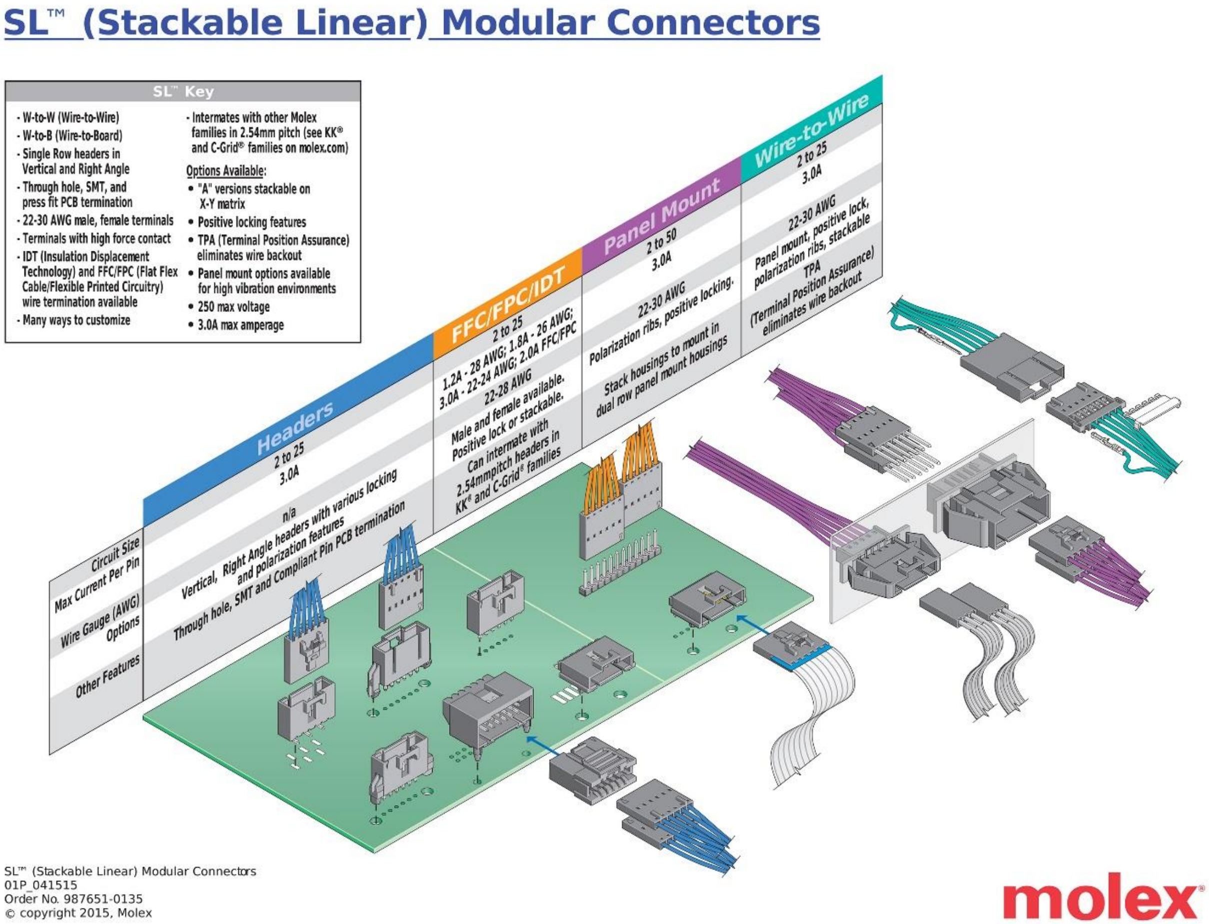
# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

### ADDITIONAL PRODUCT FEATURES



## SL™ (Stackable Linear) Modular Connectors

**SL™ Key**

- W-to-W (Wire-to-Wire)
- W-to-B (Wire-to-Board)
- Single Row headers in Vertical and Right Angle
- Through hole, SMT, and press fit PCB termination
- 22-30 AWG male, female terminals
- Terminals with high force contact
- IDT (Insulation Displacement Technology) and FFC/FPC (Flat Flex Cable/Flexible Printed Circuitry) wire termination available
- Many ways to customize
- Intermates with other Molex families in 2.54mm pitch (see KK® and C-Grid® families on molex.com)

Options Available:

- "A" versions stackable on X-Y matrix
- Positive locking features
- TPA (Terminal Position Assurance) eliminates wire backout
- Panel mount options available for high vibration environments
- 250 max voltage
- 3.0A max amperage

| | Headers | FFC/FPC/IDT | Panel Mount | Wire-to-Wire |
|---|---|---|---|---|
| Circuit Size | 2 to 25 | 2 to 25 | 2 to 50 | 2 to 25 |
| Max Current Per Pin | 3.0A | 1.2A - 28 AWG; 1.8A - 26 AWG;<br>3.0A - 22-24 AWG; 2.0A FFC/FPC | 3.0A | 3.0A |
| Wire Gauge (AWG) | n/a | 22-28 AWG | 22-30 AWG | 22-30 AWG |
| Options | Vertical, Right Angle headers with various locking and polarization features | Male and female available. Positive lock or stackable. | Polarization ribs, positive locking. | Panel mount, positive lock, polarization ribs, stackable |
| Other Features | Through hole, SMT and Compliant Pin PCB termination | Can intermate with 2.54mmpitch headers in KK® and C-Grid® families | Stack housings to mount in dual row panel mount housings | TPA (Terminal Position Assurance) eliminates wire backout |

SL™ (Stackable Linear) Modular Connectors
01P_041515
Order No. 987651-0135

# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

### *COMPETITIVE PRODUCT AND CROSS-REFERENCE INFORMATION with UNIQUE AND USEFUL MOLEX ADVANTAGES VS. COMPETING PRODUCT

| | **Product and Technical Differences** | |
|---|---|---|
| **Attribute** | Molex \| SL Modular Connector System High-Temp Headers | TE Connectivity \| AMPMODU – MTE Connectors |
| Competitive URL<br>(delete row for presentation usage) | | [http://www.te.com/usa-en/plp/ampmodu-mte/X27xE.html](http://www.te.com/usa-en/plp/ampmodu-mte/X27xE.html) |
| Pitch (mm) | 2.54mm | 2.54mm |
| Current (Amperage) | 3.0A | 3.0A |
| Soldering Temperature | 260°C: Wave and Reflow | 265°C: Wave; 245°C: Reflow |

*Information gathered from the world wide web at the time of this product launch

## PRICING STRATEGY (MARKET / COMPETITION / MOLEX)

- The high-temperature headers are made with LCP material but have same functions as before. They enable automation by being able to withstand 260°C reflow, saving on labor costs.

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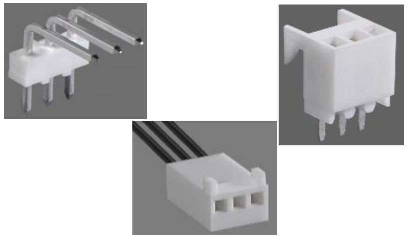
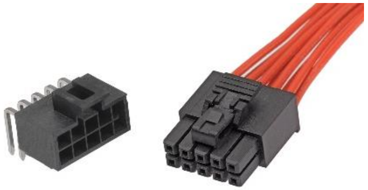
# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

## UNIQUE AND USEFUL DIFFERENTIATION VS. SIMILAR MOLEX PRODUCT

**Product and Technical Differences**

| Attribute | SL Modular Connector System | KK 254 Connector System | Nano-Fit Power Connectors |
|---|---|---|---|
| Configurations | Wire-to-Wire; Wire-to-Board | Wire-to-Wire; Wire-to-Board | Wire-to-Wire; Wire-to-Board |
| PCB Termination Options | Through hole, SMT, compliant pin, RPC | Through Hole | Through Hole, SMT |
| Terminal Position Assurance? | Yes | No | Yes |
| Connector Position Assurance? | Yes | No | No |
| Wire Gauge | 22 to 30 AWG | 22 to 30 AWG | 20 to 26 AWG |
| Operating Temperature | -40 to +105˚C | 0 - +85ºC, brass terminals; -40 to +105ºC, phosphor bronze terminals | -40 to +115˚C |
| Locking, Polarization | Positive lock; polarization features | Friction lock, polarization features | Positive lock with anti-snag design |
| Product Image |  |  |  |

## CROSS-SELLING AND UP-SELLING OPPORTUNITIES

Nano-Fit, Micro-Fit, especially if customer is interested in Glow Wire or Halogen. If they're looking for inexpensive with friction lock, KK 254. Wire-to-Wire options so customers can build cable assemblies; panel mount options.

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# SL Modular Connector System

molex®

## Revision 5 – Adding High-Temperature Headers

## SPECIFICATIONS

***Reference Information***
Packaging: Tape-and-reel, tube
UL File No.: E29179
CSA File No.: LR19980
Mates With: SL Series 70066
Designed In: Millimeters
RoHS: Yes
Halogen Free: No
Glow Wire Compliant: No

***Electrical***
Voltage (max.): 250V
Current (max.): 3.0A
Contact Resistance (max.): 15 milliohms
Dielectric Withstanding Voltage (min.): 600V AC
Insulation Resistance (min.): 10000 Megohms

***Mechanical***
Mating Force (min.): 45N
Unmating Force (min.): 15N
Durability (min.): 25 (Tin) 50 (Gold)

***Physical***
Housing: Glass-filled polyester
  High-Temp Housings: Liquid Crystal Polymer (LCP)
Contact: Brass
Plating:
  Contact Area — Matte tin or select gold
  Solder Tail Area — Matte tin
  Underplating — Nickel
Operating Temperature: -40 to +105°C

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# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

**ESTIMATED LEAD TIME : *7 to 8 weeks after receipt of order***

### ORDERING INFORMATION

***Tape-and-Reel Packaging Versions***

| Order No. | Component | Circuits | Plating | Minimum Order Quantity (MOQ) | Book Price & Samples Loaded* in SAP | |
|---|---|---|---|---|---|---|
| | | | | | Pricing (Y or N) | Samples Plant # |
| 74099-06XX | Wire-to-Board Headers, Vertical SMT | 3 through 12 | Tin | 700 | Y | 3109 (3 *to 6 circuits only*) |
| 74099-06YY | | | 15µ" Gold | | Y | |
| 74099-06ZZ | | | 30µ" Gold | | Y | |
| 15-91-6XX9 | Wire-to-Board Headers, Right Angle SMT | 2 through 25 | Tin | 500 | Y | 3109 *(all sizes)* |
| 15-91-7XX0 | | | 15µ" Gold | | Y | |
| 15-91-7XX1 | | 2 through 12 | 30µ" Gold | | Y | |

*XX: Replace XX with desired circuit size*
*YY: Replace YY with desired circuit size +20 (e.g.: 3 circuit = 74099-0623)*
*ZZ: Replace ZZ with desired circuit size +40 (e.g.: 3 circuit = 74099-0643)*

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# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

### ORDERING INFORMATION

***Tube Packaging Versions***

| Series No. | Component | Circuit Sizes | Book Price & Samples* Loaded in SAP | |
|---|---|---|---|---|
| | | | Pricing (Y or N) | Samples Plant # |
| 70066, 70107 | Crimp Housings | 2 to 25 | Y | 3109 |
| 70021, 70058, 71851 | Crimp Terminals | 22 to 32 AWG | | |
| 70541, 70543, 70545, 70551, 70553, 70555, 70634, 74095, 74099, 87898 | PCB Headers | 2 to 25 | | |
| 73838 | Female TPA Locks | 2 to 8 | | |
| 70400, 70475 | IDT Assemblies | 2 to 25 | | |
| 70013, 70022 | Clips and Modular Branches | 2 to 50 | | |

| Series No. | Component | Wire Gauge | Book Price & Samples* Loaded in SAP | |
|---|---|---|---|---|
| | | | Pricing (Y or N) | Samples Plant # |
| 70021, 70058, 71851 | Crimp Terminals | 22 to 32 AWG | Y | 3109 |

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# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

### ORDERING INFORMATION

***High-Temperature Headers That Are Reflow Process Capable***

| Series No. | Type | Orientation | Circuit Sizes | Book Price & Samples* Loaded in SAP | |
|---|---|---|---|---|---|
| | | | | Pricing (Y or N) | Samples Plant # |
| 171971 | Through Hole | Vertical | 2 to 25 | Y | 3109 |
| 171972 | Through Hole with Pegs | | | | |
| 171974 | Through Hole | Right-Angle | | | |
| 171975 | Through Hole with Pegs | | | | |
| 171973 | SMT | Vertical | | | |
| 171976 | | Right-Angle | | | |
| 171977 | SMT with Pegs | Right-Angle | | | |

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# SL Modular Connector System

## Revision 5 – Adding High-Temperature Headers

| | |
|---|---|
| **Industry Webpage Placement** | Consumer Electronics — AME: Chris Slinkman, Bart van Ettinger, Mike Higashikawa; APS: Jamie Yung; Japan: Yoshinori Ueno<br>Automotive - AME/EUR: Mark Rettig; APN: Masahiro Sakano, Jiwoong Lee<br>Medical: Anthony Kalaijakis, Wayne Shockloss, Bob Zeitler; Korea: ManHo Choo |

## CONTENT INDEX

| Contact Information | Category Tab |
|---|---|
| Global Product Manager | Will Brumleve |
| Content Marketing Specialist | Laura Knapp |
| Web Location | Super Family Page: Signal; Tab: Wire-to-Wire/Wire-to-Board |
| Web overview page | **www.molex.com/link/slmodular.html** *(note, confirm address with Pam Barry)* |
| Datasheet - Translations will be available 8 weeks after the release of the English datasheet | 987651-0406.pdf (English) 987651-0609.pdf (German) 987651-0631.pdf (Korean)<br>987651-0633.pdf (Spanish) 987651-0608.pdf (French) 987651-0610.pdf (Japanese)<br>987651-0632.pdf (Chinese) |
| Training presentation | Presentation Site: **SL_Modular_Connectors_PRES.pdf** |
| New Product Introduction (NPI) Package (NPRs only) | **Yes, Digikey, Mouser, TTI, Avnet, more selective.** |
| *Design Registration (for global series numbers sold through American and European distributors)* | Yes |
| Do you want a Press Release? | If yes, what is the ECD? |
| SEO keywords for **molex.com** | TIER 1: 3.0A, 2.54mm pitch, modular connectors, wire to wire, wire to board<br>TIER 2: Reflow process capable, terminal position assurance, CPA, TPA |

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