SICMA CONNECTION SYSTEM FAMILY OVERVIEW



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Higher current carrying capacity requirements

Higher operating temperature and vibration

Higher compatibility for transportation industry



The Solution

Presenting the SICMA
(Automotive Modular
Interconnect System) family.
A comprehensive product
portfolio for full interconnect
system.



Robust features, meaningful benefits



Harsh Environment

- Water tightness of high level including jet spray IPx9K
- Submersion proof IP68
- Compact design to improve space efficiency
- Terminals are clean body design preventing any damages to wires and seals
- High temperature T4 endurance
- High vibration V3 endurance for Sensomate

Easy Assembly

- Mat seal design with ergonomic terminal insertion
- TPA (Terminal Position Assurance) detects not fully inserted terminals
- CPA (Connector Position Assurance) ensures perfect mating between male and female connectors
- Low mating force between male and female under 60N
- Optional wire dress / back shell
- Convenient assembly and disassembly tools are available
- Mechanical coding well distinguished by color

High Compatibility

- Foot print interface from 2 up to 6 way fully standardized at several OEMs
- Terminal cavity compatible with industry standard
- Terminal sizes: 0.64, 1.5, 2.8 mm
- Crimping ranges from 0.13 up to 5 mm²

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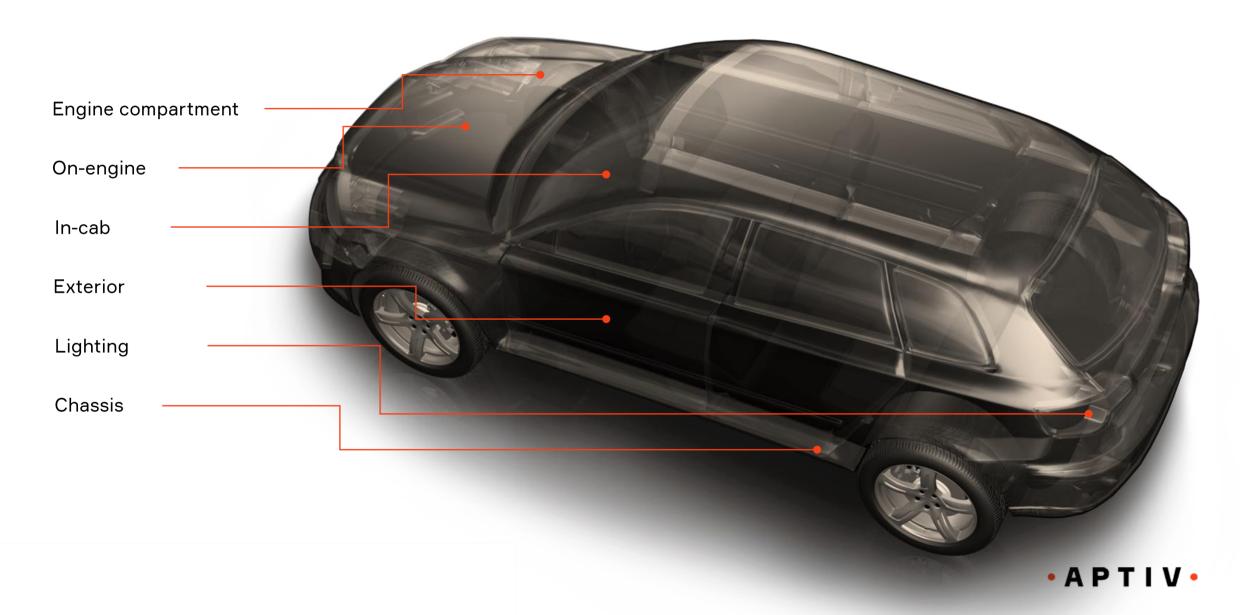
Technical Overview

Design features

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Versatility of application



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A wide family range



Connectors

- Inline and device applications
- 2 through 90 way configurations
- SICMA Mini-Sealed, SICMA Sensomate Series, SICMA Inline Unsealed Series, SICMA Panel Through Unsealed Series, SICMA Panel Through Sealed Series, SICMA Full Interconnect Series, and SICMA Relay Sockets

Terminals

- One-piece terminal system
- 0.64mm, 1.5mm, 2.8mm
- Tin, silver, or gold plating

Accessories

- 90° or 180° back shells
- Locking cam
- Fixing clips

Relay Sockets

7 & 8 way

Headers

- 6, 24, 56, 90 way
- Straight and right angle

SICMA housing range

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SICMA Mini-sealed Connector

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Housing family





Application: body and chassis, engine compartment

Key features & benefits

- Standard commodity connection system
- Reliable inline harness sectioning connectors featuring a mechanical coding
- Compatible with standard interface footprint of several devices used in automotive and commercial vehicles
- Water tightness of high level including jet spray
- · Compact design around 1.5 mm terminal
- 2, 3, 4, 5, 6 way connectors use 1.5 terminals
- Additional hybrid 6 way and 24 way connectors use both 1.5 & 2.8 mm terminals

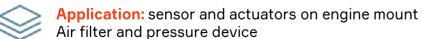
| Performance characteristics | |
|----------------------------------|--------------------------------------|
| Sealing protection (up to) | IP 58 & IPx9K |
| Temperature range (up to) | -40°C to +125°C |
| Vibration performance (up to) | 12 g |
| Terminal retention force (up to) | > 100 N |
| Terminal insertion force (up to) | < 15 N |
| Connector mating force | < 80 N |
| Available cavity configurations | 2, 3, 4, 5, 6, 6 (Mixed), 8 & 24 way |



SICMA Sensomate High Performance Commercial

Housing family





Key features & benefits

- High performance connector featuring T4 and V3
- Back shell covers available
- As connector endures high temperature it will last for all the life of the vehicle without having any stoppage
- CPA is premounted
- Compatible with exisiting Mini Sealed family

| Performance characteristics | |
|----------------------------------|-----------------|
| Sealing protection (up to) | IP 68 & IPx9K |
| Temperature range (up to) | -40°C to +150°C |
| Vibration performance (up to) | 25 G |
| Terminal retention force (up to) | > 100 N |
| Terminal insertion force (up to) | < 15 N |
| Connector mating force | < 80 N |
| Available cavity configurations | 4, 5 & 6 way |



SICMA Panel Through Unsealed Connector Connect

Housing family





Application: door to body connection, firewall between cockpit and engine interconnection, bulkhead for battery control in HV/EHV

Key features & benefits

- Compact size for a panel mount solution and electrical link passing through a wall
- Pass through, bulk head type, mounted on a metal panel sheet
- · Providing a convenient door-to-body or a reliable cockpit-to-engine
- 24 & 29 way connectors use 0.64, 1.5 & 2.8 mm terminals
- 42 way connectors use 1.5 & 2.8 mm terminals

| Performance characteristics | |
|----------------------------------|------------------|
| Sealing protection (up to) | IP 40 |
| Temperature range (up to) | -40°C to +125°C |
| Vibration performance (up to) | 3 g |
| Terminal retention force (up to) | > 60 N ~ 120 N * |
| Terminal insertion force (up to) | 8 N ~ 10 N * |
| Connector mating force | < 60 N |
| Available cavity configurations | 24, 29 & 42 way |

^{*} Specifications vary for different cavity and used terminals.



SICMA Panel Through Sealed Connector ANN ET ABACUS

Housing family





Application: door to body connection, firewall between cockpit and engine interconnection, bulkhead for battery control in HV/EHV

Key features & benefits

- Compact size for a panel mount solution and electrical link passing through a wall
- Circular through hole convenient for implementation
- Pass through, bulk head type, mounted on a metal panel sheet
- · Providing a convenient door-to-body or a reliable cockpit-to-engine
- 26 way connectors use 0.64, 1.5 & 2.8 mm terminals
- 14, 24, 33, 34 way connectors use 1.5 & 2.8 mm terminals
- 16 & 50 way connectors use 1.5 mm terminals

| IP 64 ~ 68 * |
|---------------------------------|
| -40°C to +125°C |
| 3 g |
| > 60 ~ 120 N * |
| 5 ~ 17 N * |
| 60 ~ 90 N * |
| 14, 16, 24, 26, 33, 34 & 50 way |
| |

^{*} Specifications vary for different cavity and used terminals.



SICMA Inline Unsealed Connector

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Housing family



Application: harness sectioning in cockpit, dashboard and interior connections

Key features & benefits

- Reliable inline harness sectioning connector
- Using standard fixing clip
- Compact male and female housings which provide a convenient inline wire to wire solution
- Mixed sizes of 1.5 & 2.8 mm terminals populating 24 & 36 way connectors
- 1.5 mm terminals are used for 2 & 6 way connectors

| Performance characteristics | |
|----------------------------------|---|
| Sealing protection (up to) | IP 40 |
| Temperature range (up to) | $-40^{\circ}C$ to $+125^{\circ}C$ (up to $85^{\circ}C$ for 24 & 36 way) |
| Vibration performance (up to) | 3 g |
| Terminal retention force (up to) | > 60 ~ 120 N * |
| Terminal insertion force (up to) | 5 ~ 15 N * |
| Connector mating force | 30 ~ 60 N * |
| Available cavity configurations | 2, 6, 10, 24 & 36 way |
| | |

^{*} Specifications vary for different cavity and used terminals.

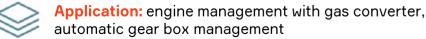


SICMA Sealed Full Interconnect

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Housing family





Key features & benefits

- Market standard, foot print interface to device headers
- Wire to Electronic Printed Circuit Board (PCB) solution in order to built electronic control units
- Sealed Interconnection from harness wiring to an electronic equipment
- 6 & 24 way connectors use 1.5 & 2.8 mm terminals
- 56 & 90 way connectors use 1.5 mm terminals

| P 68 |
|-------------------|
| 40°C to +125°C |
| 3 G |
| 75 N |
| 2 ~ 17 N |
| 75 N |
| , 24, 56 & 90 way |
| |

^{*} Specifications vary for different cavity and used terminals.



SICMA Sealed Relay Socket

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Housing family





Application: pre-heating of diesel engines, comfort heating of cockpit, antipollution systems by EOBD

Key features & benefits

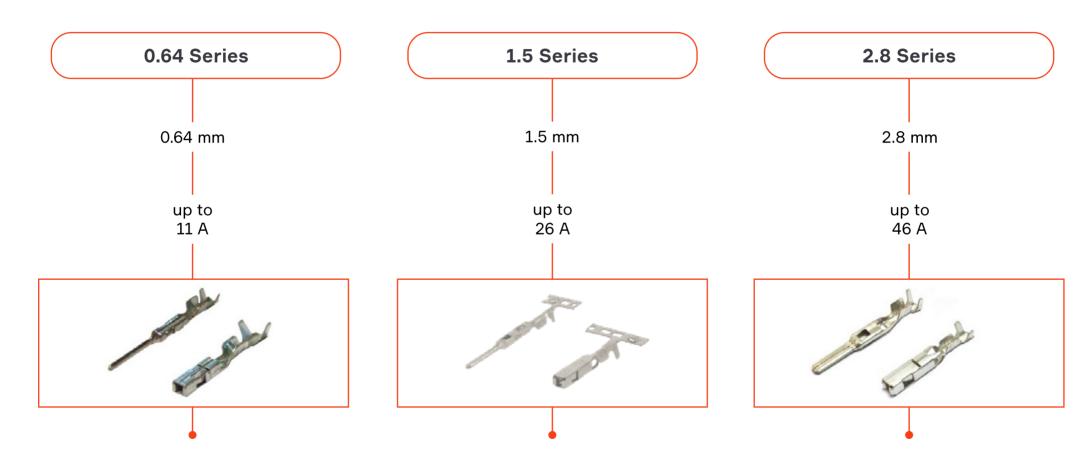
- Reliable connection to relay which will last all the life of the vehicle.
- Easily disconnected and reconnected back again In case of relay change.
- Sliding lever mate assist for easy mating to the relay switch.
- Standard to different EOBD (Electronic on Board Diagnostics) devices.
- Cable seal (SWS) to ensure the water tightness

| Performance characteristics | |
|----------------------------------|-----------------|
| Sealing protection (up to) | IP 68/IPx9K |
| Temperature range (up to) | -40°C to +125°C |
| Vibration performance (up to) | 3 G |
| Terminal retention force (up to) | > 120 N |
| Terminal insertion force (up to) | < 20 N |
| Connector mating force | < 60 N |
| Available cavity configurations | 7 & 8 way |



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SICMA terminal range



Micro SICMA - 0.64 Series

INTERPORT ABACUS

Terminal family



Key features & benefits

- Reliable contact pressure through life time of the vehicle
- Standard well known terminal cavity compatibility.
- Clean body which prevents of tearing the mat seal
- One piece terminal with high pressure contact
- Two crimping gauges for good slow motion performance and vibrations

Performance characteristics

 Contact resistance
 < 3 mΩ

 Contact mating force
 < 4 N

 Contact unmating force
 < 2.5 N

Range of wire gauge 0.35-0.75 mm² / 22-18 AWG

Current carrying capacity for 0.6 mm²

at 23°C up to approx.: 11 A
at 85°C up to approx.: 7 A
at 100°C up to approx.: 5 A



SICMA 3 Plus & SICMA 4 - 1.5 Series * AVNET ABACUS

Terminal family



* SICMA 3 Plus are female terminals and SICMA 4 are male terminals

Key features & benefits

- Reliable contact pressure through life time of the vehicle
- Standard well known terminal cavity compatibility.
- · Clean body which prevents of tearing the mat seal
- One piece terminal with high pressure contact
- Several crimping gauges for good slow motion performance and vibrations

Performance characteristics

| Contact resistance | < 2 mΩ |
|------------------------|------------------------|
| Contact mating force | < 4 N |
| Contact unmating force | < 3 N |
| Range of wire gauge | 0.13-2 mm² / 24-14 AWG |
| 0 | |

Current carrying capacity for 2 mm²

| at 23°C up to approx. : | 26 A |
|--------------------------|------|
| at 85°C up to approx. : | 15 A |
| at 100°C up to approx. : | 12 A |



SICMA 2 & SICMA 3 - 2.8 Series

INTERPORT ABACUS

Terminal family



Key features & benefits

- Reliable contact pressure through life time of the vehicle
- Standard well known terminal cavity compatibility.
- Clean body which prevents of tearing the mat seal
- One piece terminal with high pressure contact
- Several crimping gauges for good slow motion performance and vibrations.

Performance characteristics

Contact unmating force < 1.5 N

Range of wire gauge 0.35-5.0 mm² / 22-10 AWG

Current carrying capacity for 5 mm²

at 23°C up to approx.: 46 A
at 85°C up to approx.: 27 A
at 100°C up to approx.: 21 A



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Connector design overview

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Benefits

- Easy assembly
- · High industry compatibility
- Compact package for space efficiency
- Robust performance to ensure long time duration

Design features

- CPA (Connector Position Assurance) ensures perfect mating between male and female connectors
- 2 TPA (Terminal Position Assurance) detects not fully inserted terminals
- 3 Mat seal design with ergonomic terminal insertion
- 4 Housing designed for high temperature T4 endurance
- Interfacial seal to ensure high vibration V3 and sealing S3 endurance for Sensomate
- 6 Rear grid provides excellent guidance for terminals



Terminal design overview

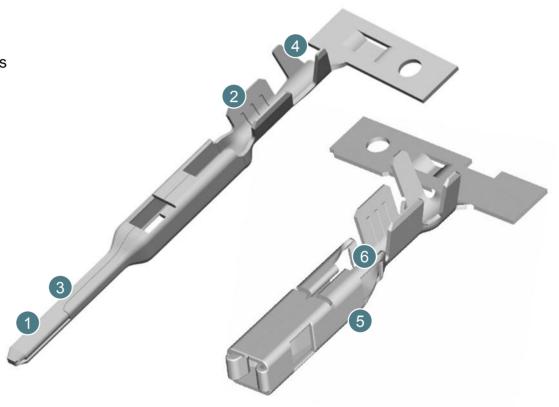
/\VNET ABACUS

Benefits

- Standard well know cavity compatibility
- Several crimping gauges for good slow motion performance and vibration
- Clean body design for terminals to prevent any damages to wires and seals

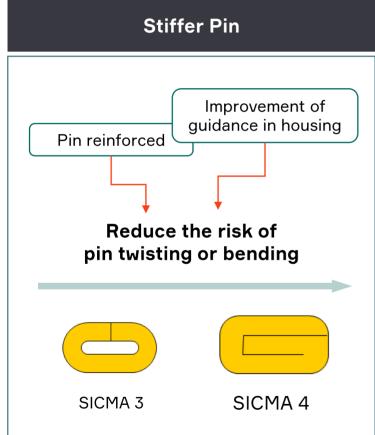
Design features

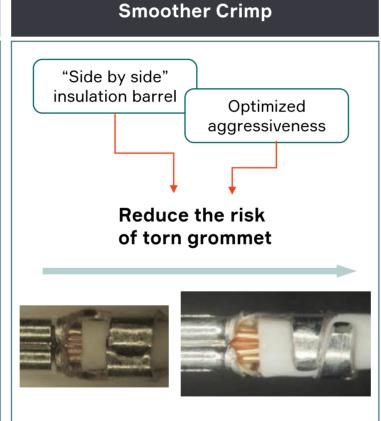
- No seam in contact area, enabling smooth contact area on both sides and enhancing electrical connection
- SICMA terminals have very stable crimping resistance and high performances on pull-out force and slow motion test, and thanks to L-shape technology, 0.13 mm² cable is able to be crimped
- Reinforced pin improves the guidance in housing and reduces the risk of pin twisting or bending
- "Side by side" insulation crimping barrel optimizes aggressiveness and reduces the risk of torn grommet
- 5 Smooth edges to enable easy assembly without damage mat seal
- 6 Optimization of brace for better insertion and extraction

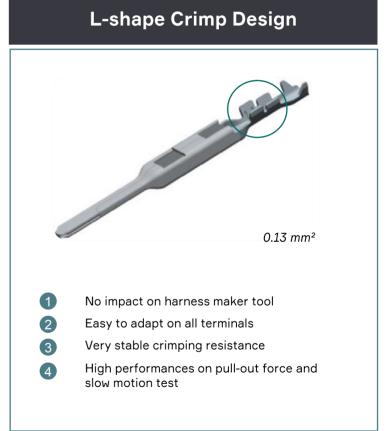


SICMA terminal technology









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Housing sample part numbers

SICMA Mini-sealed Connector

| Mini-sealed Connector | Cavity Count | Blade Size (mm) | Gender | Color | Part Number | Codings Offered |
|------------------------------|-----------------|--------------------|--------|-------|-------------|-----------------|
| | 2 | 1.5 | F | Black | 10820158 | 9 |
| | 2 | 1.5 | Μ | Black | 10787262 | 7 |
| | 3 | 1.5 | F | Black | 10820167 | 8 |
| | 3 | 1.5 | Μ | Black | 10788983 | 6 |
| | 4 | 1.5 | F | Black | 10763691 | 3 |
| die | 4 | 1.5 | Μ | Black | 10768812 | 3 |
| | 5 | 1.5 | F | Black | 10820113 | 3 |
| SICMA Mini-Sealed Connectors | 5 | 1.5 | Μ | Black | 33500323 | 3 |
| | 6 | 1.5 | F | Black | 10866615 | 3 |
| | 6 | 1.5 | Μ | Black | 13716617 | 3 |
| | 6* | 1.5(4), 2.8(2) | F | Black | 10866611 | 3 |
| | 6* | 1.5(4), 2.8(2) | М | Black | 15396354 | 3 |
| | 24 | 1.5(18), 2.8(6) | F | Black | 10820454 | 4 |
| | 24 | 1.5(18), 2.8(6) | М | Black | 15470023 | 4 |

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Housing sample part numbers

SICMA Sensomate High Performance Connector

SICMA Sensomate High Perfomance Connectors

| Sensomate High Temperature Connector | Cavity Count | Blade Size (mm) | Gender | Index | Part Number | Other Available Indexes |
|---|-----------------|--------------------|--------|--------|-------------|----------------------------|
| | 4 | 1.5 | F | Black | 13876521 | 5 |
| | 4 | 1.5 | M | Black | 33502133 | 5 |
| | 5 | 1.5 | F | Black | 13893671 | 5 |
| | 5 | 1.5 | M | Black | 13855072 | 5 |
| | 6 | 1.5 | F | Purple | 33511993 | 5 |
| | 6 | 1.5 | М | Purple | 33511739 | 5 |

INVINET ABACUS

Housing sample part numbers

SICMA Inline Unsealed Connector

| Unsealed Inline Connector | Cavity Count | Blade Size (mm) | Gender | Color | Part Number | Codings Offered |
|---|-----------------|--------------------|--------|-------|-------------|-----------------|
| | 2 | 1.5 | F | Black | 33500298 | 1 |
| Jun 20 | 2 | 1.5 | M | Black | 33500318 | 1 |
| A THE WAY | 6 | 1.5 | F | Black | 10788770 | 5 |
| | 6 | 1.5 | М | Black | 10846895 | 5 |
| 1373 | 24 | 1.5(18), 2.8(6) | F | Black | 13751295 | 3 |
| | 24 | 1.5(18), 2.8(6) | М | Black | 33500326 | 3 |
| SICMA Inline Unsealed Connectors 6 way | 36 | 1.5(30), 2.8(6) | F | Black | 33500789 | 2 |
| он поско о о мау | 36 | 1.5(30), 2.8(6) | М | Black | 13651194 | 2 |



Housing sample part numbers

SICMA Panel Through Unsealed Connector

| Panel Through Unsealed Connector | Cavity Count | Blade Size (mm) | Gender | Color | Part Number | Codings Offered |
|-------------------------------------|-----------------|--------------------------|--------|-------|-------------|-----------------|
| | 24 | 0.64(12), 1.5(8), 2.8(4) | F | Black | 33500458 | 1 |
| | 24 | 0.64(12), 1.5(8), 2.8(4) | M | Black | 33500459 | 1 |
| PANATIRA (| 29 | 0.64(21), 1.5(4), 2.8(4) | F | Black | 10819390 | 1 |
| | 29 | 0.64(21), 1.5(4), 2.8(4) | M | Black | 10811880 | 1 |
| | 42 | 1.5(34), 2.8(8) | F | Black | 10811874 | 1 |
| G 1888 | 42 | 1.5(34), 2.8(8) | M | Black | 10811875 | 1 |
| | | | | | | |

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Housing sample part numbers

SICMA Panel Through Sealed Connector

| Panel Through Sealed Connector | Cavity Count | Blade Size (mm) | Gender | Color | Part Number | Other Available Indexes |
|-----------------------------------|-----------------|--------------------------|--------|-------|-------------|----------------------------|
| | 14 | 1.5(10), 2.8(4) | F | Black | 33517516 | 1 |
| | 14 | 1.5(10), 2.8(4) | M | Black | 13798672 | 1 |
| | 16 | 1.5 | F | Black | 10779313 | 1 |
| | 16 | 1.5 | M | Black | 33500530 | 1 |
| | 24 | 1.5(18), 2.8(6) | F | Black | 10820454 | 4 |
| | 24 | 1.5(18), 2.8(6) | M | Black | 33500427 | 4 |
| SICMA Panel Through Sealed | 26 | 0.64(18), 1.5(4), 2.8(4) | F | Black | 10811873 | 1 |
| Connectors 14 way | 26 | 0.64(18), 1.5(4), 2.8(4) | M | Black | 10811880 | 1 |
| | 33 | 1.5(28), 2.8(5) | F | Black | 33503444 | 2 |
| | 33 | 1.5(28), 2.8(5) | М | Black | 33503443 | 2 |
| | 34 | 1.5(30), 2.8(4) | F | Black | 10763095 | 3 |
| | 34 | 1.5(30), 2.8(4) | Μ | Black | 10889065 | 3 |
| | 50 | 1.5 | F | Black | 10867079 | 1 |
| | 50 | 1.5 | М | Black | 10866552 | 1 |

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Housing sample part numbers

SICMA Sealed Full Interconnect

| Sealed Full Interconnect | Cavity Count | Blade Size (mm) | Gender | Color | Part Number | Codings Offered |
|--------------------------|-----------------|--------------------|--------|-------|-------------|---------------------------|
| | 6 | 1.5(4), 2.8(2) | F | Black | 10768569 | 1 |
| | 24 | 1.5(18), 2.8(6) | F | Black | 10820454 | 4 |
| | 24* | 1.5(18), 2.8(6) | F | Black | 33504115 | 4 |
| The same | 56 | 1.5 | F | Black | 13669859 | 1 |
| | 90 | 1.5 | F | Black | 10776517 | 1 |
| | 90* | 1.5 | F | Black | 33525675 | 1 |
| | | | | | | * Cavity with locking cam |

^{*} Cavity with locking cam

| Compatible Pin Header | Cavity count | Angle | Color | Part number | Codings Offered |
|-----------------------|--------------|----------|-------|-------------|-----------------|
| | 6 | Right | Black | 33508361 | 1 |
| | 24 | Straight | Black | 33503978 | 3 |
| 3/1/2 | 24 | Right | Black | 33501039 | 3 |
| | 56 | Right | Black | 33511394 | 1 |
| | 90 | Straight | Black | 33508365 | 1 |



Housing sample part numbers

/\VNET ABACUS

SICMA Sealed Relay Socket

| Relay Socket | Cavity Count | Blade Size (mm) | Gender | Color | Part Number | Codings Offered |
|--------------|-----------------|--------------------|--------|-------|-------------|-----------------|
| | 7 | 2.8(6), 8(1) | F | Brown | 10889825 | 1 |
| | 8 | 2.8(6), 8(2) | F | Black | 10812007 | 2 |
| | | | | | | |

Terminal sample part numbers

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Micro SICMA - 0.64 Series

| Micro SICMA 0.64 Series | Blade Size (mm) | Gender | Plating | Wire Size Range | Part Number | Other Available Platings |
|--|--------------------|--------|---------|---------------------------------------|-------------|-----------------------------|
| | 0.64 | F | Tin | 0.35-0.60 mm² (22-18 AWG) | 10811966 | Gold |
| 1 1 3 0 | 0.64 | M | Tin | 0.35-0.75 mm ² (22-18 AWG) | 10819388 | Gold |
| Construction of the party of th | | | | | | |

Terminal sample part numbers

SICMA 3 Plus & SICMA 4 - 1.5 Series

| SICMA 3 Plus & SICMA 4 1.5 Series | Blade Size (mm) | Gender | Plating | Wire Size Range | Part Number | Other Available Platings |
|---------------------------------------|--------------------|--------|---------|--------------------------------|-------------|-----------------------------|
| | 1.5 | F | Tin | 0.13-0.22mm² (26-24AWG) | 33308333 | Gold |
| por all provides | 1.5 | F | Tin | 0.35-0.70mm² (22-18AWG) | 10863984 | Gold |
| 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1.5 | F | Tin | 0.75-1.30mm² (18-16AWG) | 10865152 | Gold |
| 4 9 9 9 8 8 8 | 1.5 | F | Tin | 1.35-2mm² (*2.5mm²) (16-14AWG) | 10863985 | Gold |
| you do go of B | 1.5 | М | Tin | 0.13-0.22mm² (26-24AWG) | 33400435 | Silver |
| 9 00 4 9 9 | 1.5 | М | Tin | 0.35-0.70mm² (22-18AWG) | 33501792 | Gold, Silver |
| and the same of | 1.5 | М | Tin | 0.75-1.30mm² (18-16AWG) | 33512109 | Silver |
| 9 0 1 | 1.5 | М | Tin | 1.35-2.00mm² (16-14AWG) | 33512190 | Silver |
| | | | | + 1 |) 52 : | |

^{* 2.5} mm² is only applicable to unsealed connectors

Terminal sample part numbers

/\VNET ABACUS

SICMA 2 & SICMA 3 - 2.8 Series

| SICMA 2 & SICMA 3 2.8 Series | Blade Size (mm) | Gender | Plating | Wire Size Range | Part Number | Other Available Platings |
|--|--------------------|--------|---------|-------------------------------------|-------------|-----------------------------|
| O W Ar | 2.8 | F | Tin | 0.35-0.70mm² (22-18AWG) | 10781041 | Gold |
| 7 2 2 2 | 2.8 | F | Tin | 0.75-1.30mm² (18-16AWG) | 15522621 | Gold |
| 7 7 7 7 | 2.8 | F | Tin | 1.35-2.00mm² (16-14AWG) | 10726549 | Gold |
| 0 9 9 8 30 | 2.8 | F | Tin | 3.00-5.00mm ² (12-10AWG) | 10725665 | Gold |
| 20 4 1 1 1 | 2.8 | F | Tin | 0.35-0.70mm² (22-18AWG)* | 10740375 | Gold |
| 20 20 | 2.8 | F | Tin | 0.75-1.30mm² (18-16AWG)* | 13873373 | Gold |
| A B | 2.8 | F | Tin | 1.35-2.00mm² (16-14AWG)* | 10740376 | Gold |
| The state of the s | 2.8 | F | Tin | 3.00-5.00mm² (12-10AWG)* | 10725665 | Gold |
| | 2.8 | М | Tin | 0.35-0.70mm² (22-18AWG) | 10779316 | Gold |
| | 2.8 | М | Tin | 0.75-1.30mm² (18-16AWG) | 10779316 | Gold |
| | 2.8 | Μ | Tin | 1.35-2.00mm² (16-14AWG) | 10756743 | Gold |
| | 2.8 | М | Tin | 3.00-5.00mm² (12-10AWG) | 10738202 | Gold |

^{*} Single wire sealed terminal



Why SICMA?

Heavy-duty performance

Easy assembly

High compatibility







Our high performance solution with superior compatibility in the industry

Thank you.