

TECHNICAL FEATURES

DESINA® (which stands for **DE**centralised and **Standardised INst**allation technology) is an innovative installation concept behind a study headed by the German manufacturers of machine tools association (VDW), with the co-operation of users (including German automotive manufacturers) and component manufacturers, which has led to the introduction of a specification aimed to standardise electrical, hydraulic and pneumatic components and their interconnection on common platform for CNC controlled machine tools and manufacturing lines.

In the last few years, the DESINA® specification has been successfully endorsed by the ISO TC 184/SC 1 "Industrial automation systems and integration / Physical device control" as an ISO standard.

This work has been completed, and the following standards have become available:

ISO 23570-1 Industrial automation systems and integration – Distributed installation in industrial applications:
Part 1 – Sensors and actuators.

ISO 23570-2 Industrial automation systems and integration – Distributed installation in industrial applications:
Part 2 – Hybrid communication bus.

ISO 23570-3 Industrial automation systems and integration – Distributed installation in industrial applications:
Part 3 – Power distribution bus.

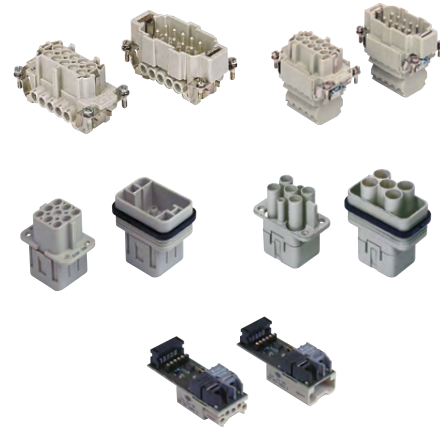
Normally, production systems are controlled by various field buses available on the market such as PROFIBUS, CAN, INTERBUS, etc. DESINA® decentralised approach and interface and connector standardisation, which allows a single distributed control system to be independent from the bus communication protocol selected by the final user, ensure lower installation costs.

The availability of diagnostic capabilities in all the system components ensures a speedier diagnosis in the event of faults and an easier and quicker reset operation, which may be carried out by less specialised staff. DESINA® connection topology requires a **control bus** and a **power bus**.

The hybrid (optical/electrical) control bus provides a serial connection for the devices by using a cable consisting of two fibre optics and four power lines. The devices are fitted with 2 hybrid connectors (and matching flush mounted enclosures) for bus entry and exit.

The hybrid connectors include an interface circuit which turns the TX electrical signal to optical signal with TTL levels and the RX signal from optical to electrical signal with TTL levels.

In other words, **the interface is independent from the selected field bus protocol**, and simply converts the electrical signals into optical signals and vice versa; by doing so, the physical connection between the devices can be used for different bus protocols and can reach a 50 m range by using POF plastic fibres or 300 m by using HCS® fibreglass (Hard Clad Silica – Spectran Corporation registered trademark). The highest baud rate is 12 Mbit/s, compatible with the most advanced field buses.



**ISO 23570-3 standard and
DESINA® specification compliant**

Another variant is also available, which is based on transmitting data on a pair of screened copper cables (instead of fibre optics); in this case, however, the system can only be used for PROFIBUS or CAN buses with RS 485 TX signals.

In both cases, the connector is fitted with housings for 5, 10A auxiliary contacts (**CD** series crimp contacts), which allow all connected devices to receive a permanent direct voltage of 24V (to supply circuits) and a 24V non permanent power supply (only used to open the contactors after operating an emergency switch or a safety switch), as well as a contact available for an optional earth.

The power bus provides a serial connection for drives, controls and power supplies and, more specifically, is suitable to supply power to motors and to their control units.

The standard connector to control motors is the **CQM/F 08** which, with 8 poles + ⊕ 16A 500V, and **CC** series crimp contacts, not only provides a power connection, but also connects the motor brake and safety thermistor.

Another variant is available in the same sizes as the enclosure: **CQM/F 04/2** featuring 4 poles + ⊕ 40A 400/690V and 2, 10A 250V auxiliaries.

For the motor side connection, the connector **CNEM/F 10** (10P + ⊕ 16A 500V 6kV 3, with screw terminals) should be used; with the option to make a star or a delta connection on the connector, the **CSSM/F 10** connector (10P + ⊕ 16A 500V 6kV 3, with spring terminals, two per pole) should be used.

ILME connectors are manufactured to DESINA® specifications and in compliance with ISO 23570-2 and 23570-3 standards.

Hybrid socket and plug connectors for field buses compliant with DESINA® specifications and with ISO 23570-2 standard

The hybrid connectors for field buses are listed below:

- optical field bus **plug**

- optical field bus **socket**

electrical auxiliary female contacts

CXL 2/4 PF (for plastic fibre optics POF)

CXL 2/4 PFH (for glass fibre optics HCS®)

CXL 2/4 SF

electrical auxiliary male contacts

CXL 2/4 PM (for plastic fibre optics POF)

CXL 2/4 PMH (for glass fibre optics HCS®)

CXL 2/4 SM

The hybrid inserts for **socket** type optical field buses can only be fitted inside **fixed enclosures**.

The **plug** types, on the other hand, can only be fitted inside **free enclosures (hoods)**.

The enclosures and matching accessories available are listed below:

Construction details

- fixed, flush mounted enclosure:

- free enclosures (hoods), top entry:

- free enclosures (hoods), side entry:

- cover:

Material: **PLASTIC**

CK 03 IN

CKG 03 VN (Pg 11)

MKG VN20 (M 20)

CKG 03 VAN (Pg 11)

MKG VAN20 (M 20)

CKG 03 CN

Material: **METAL**

CKAX 03 I

CKAG 03 V (Pg 11)

MKAG V20 (M 20)

CKAG 03 VA (Pg 11)

MKAG VA20 (M 20)

CKAX 03 C

The portable enclosures and the covers are fitted with an additional seal in order to achieve the versatile **IP65/IP67** degree of protection according to IEC/EN 60529. With these accessories the enclosures also achieve the **IP69** degree of protection (tightness to high pressure and temperature water jets) according to the same standard. The full versatile degree of protection becomes therefore **IP65/IP67/IP69**. The **IPX9** test is identical with that of former German standard DIN 40050-9 (IP69K) currently specified by **ISO 20653** for use on board road vehicles.

Specifications

Interface

Hybrid electrical-optical connector insert consisting of 2 connectors for fibre optics and 4 contacts for electrical wires; an interface circuit built into the optical socket converts the electrical signals into optical signals and vice versa.

Optical parts

transmitter (T): Agilent (HP) Versatile Link HFBR-1525, or equivalent

receiver (R): Agilent (HP) Versatile Link HFBR-2525, or equivalent

male optical contact: Agilent (HP) Versatile Link

HFBR-4531, or equivalent, Simplex snap-in type (without crimping) for POF plastic fibre optics;

HFBR-4521, or equivalent, crimp contact, for HCS® glass fibre optics

note: POF is a plastic fibre optic with a 1000 µm diameter for red light and wavelength = 660 nm.

HCS® is a Hard Clad Silica glass fibre optic with a 200 µm diameter for red light with wavelength = 660 nm.

Optical parts:

laser class I

Electrical contacts

4 maximum current 10A, gold or silver plated brass crimp contacts, cable section 0,14...2,5 mm² (CD series); live wire end female. Nominal voltage 24V.

Electrical data in compliance with EN 61984: **10A 25V 0,8kV 3**

Degrees of protection: IP65/IP67/IP69 according to EN 60529 (if a cable clamp with IP67/IP69 rating is used).

Temperature range: -40 °C / +70 °C

Data transmission/reception rate (Data rate): up to 12 Mbit/s

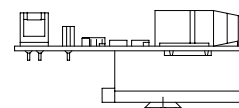
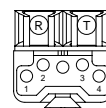
Designation of auxiliary electrical contacts

Designation of auxiliary electrical contacts (male and female) in the hybrid socket connector with optical TX system:

Socket connector with male auxiliary electrical contacts CXL 2/4 SM

| Pos. | Function |
|------|------------------------------|
| 1: | + 24V not switched |
| 2: | 0V (reference for contact 1) |
| 3: | 0V (reference for contact 4) |
| 4: | + 24V switched |

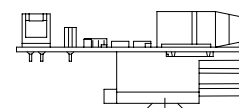
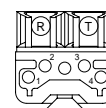
optical →
electrical →



Socket connector with female auxiliary electrical contacts CXL 2/4 SF

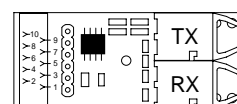
| Pos. | Function |
|------|------------------------------|
| 1: | + 24V not switched |
| 2: | 0V (reference for contact 1) |
| 3: | 0V (reference for contact 4) |
| 4: | + 24V switched |

optical →
electrical →



Insulation displacement connector (IDC) for ribbon flat cable on printed circuit

| Pos. | Function | Pos. | Function |
|------|----------|------|----------|
| 1: | earth | 6: | TXD |
| 2: | RXD | 7: | earth |
| 3: | RXD | 8: | +5V DC |
| 4: | earth | 9: | +5V DC |
| 5: | TXD | 10: | earth |



The contacts in the hybrid socket connector are numbered in a clockwise direction.
With reference to this, the contacts in the field bus hybrid plug connector are numbered anticlockwise.
"R" Data reception (beam exit) - "T" Data transmission (beam entry).

Socket and plug connectors for power buses compliant with DESINA® specifications and with ISO 23570-3 standard

The connector inserts on the power bus for a motor controller are as follows:

- **CQM 08** plug
- **CQF 08** socket

The connector inserts for the motor controller may be fitted inside the following enclosures:

Construction details

Material: **PLASTIC**

- bulkhead mounting, straight, fixed enclosure: **CQ 08 I**
- bulkhead mounting, angled, fixed enclosure: **CQ 08 IA**
- bulkhead mounting, angled, fixed enclosure, rear entry: **CQ 08 IAP**
- free enclosure (hood), top entry: **CQ 08 V**
- free enclosure (hood), side entry: **CQ 08 VA**
- free enclosure (hood), top entry and lever: **CQ 08 VG**
- free enclosure (hood), side and top entry: **MQ 08 V0225**
- socket cover: **CQ 08 C**
- plug cover: **CQ 08 CA**

The **CQ/MQ 08** enclosures and covers once complete and fitted with suitably rated cable gland or conduit fitting ensure the versatile **IP65/IP67** degree of protection according to IEC/EN 60529. With these accessories the enclosures also achieve the **IP69** degree of protection (tightness to high pressure and temperature water jets) according to the same standard. The full versatile degree of protection becomes therefore **IP65/IP67/IP69**. The **IPX9** test is identical with that of former German standard DIN 40050-9 currently specified by **ISO 20653** for use on board road vehicles.

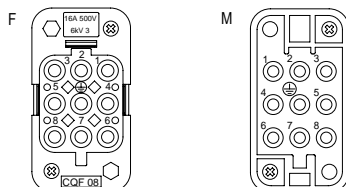
Specifications

| | |
|---------------------------------------|--|
| Connection: | 9 contacts (8 + ⊕) The male connectors (plugs) are used for termination of connecting cables; the female connectors (sockets) are fitted on the motor controller |
| Electrical contacts: | 9 maximum current 10A, gold or silver plated crimp contacts, cable section 0,5...2,5 mm ² (20 AWG -14 AWG) CC series |
| Degrees of protection: | IP65/IP67/IP69 according to EN 60529 (if a cable clamp with IP67/IP69 rating is used) |
| Temperature range: | -40 °C / +125 °C |
| Electrical data: | compliant with EN 61984: 16A 500V 6kV 3 |
| Self extinguishing properties: | 94V-0 compliant with UL 94 standard; glow-wire 960 °C compliant with IEC/EN 60695-2-11 standard |

Designation of contacts

The designation of contacts for motor controller outlet is as follows:

| contact | designation |
|---------|--------------------|
| 1 | line L1 |
| 2 | |
| 3 | line L3 |
| 4 | brake (0 V) |
| 5 | temperature sensor |
| 6 | brake (+24V c.c.) |
| 7 | line L2 |
| 8 | temperature sensor |
| PE | protective earth |



The connector inserts on the power bus for a motor controller are as follows:

- **CQM 04/2** plug
- **CQF 04/2** socket

These connector inserts can be fitted inside the following enclosures:

Construction details

Material: **PLASTIC**

- bulkhead mounting, straight, fixed enclosure: **CQ 08 I**
- bulkhead mounting, angled, fixed enclosure: **CQ 08 IA**
- bulkhead mounting, angled, fixed enclosure, rear entry: **CQ 08 IAP**
- free enclosure (hood), top entry: **CQ 08 V**
- free enclosure (hood), side entry: **CQ 08 VA**
- free enclosure (hood), top entry and lever: **CQ 08 VG**
- free enclosure (hood), side and top entry: **MQ 08 V0225**
- socket cover: **CQ 08 C**
- plug cover: **CQ 08 CA**

The **CQ/MQ 08** enclosures and covers once complete and fitted with suitably rated cable gland or conduit fitting ensure the versatile **IP65/IP67** degree of protection according to IEC/EN 60529. With these accessories the enclosures also achieve the **IP69** degree of protection (tightness to high pressure and temperature water jets) according to the same standard. The full versatile degree of protection becomes therefore **IP65/IP67/IP69**. The **IPX9** test is identical with that of former German standard DIN 40050-9 (IP69K) currently specified by **ISO 20653** for use on board road vehicles.

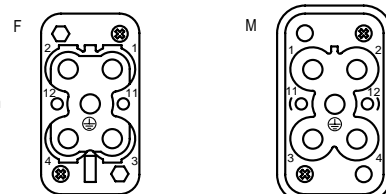
Specifications

| | |
|---------------------------------------|---|
| Connection: | 5 (4 + ⊕) power contacts + 2 auxiliary contacts The male connectors (plugs) are used for termination of connecting cables; the female connectors (sockets) are fitted on the motor controller |
| Electrical contacts: | 5 maximum current 40A (3P+N+⊕) gold or silver plated crimp contacts, cable section 1,5...6 mm ² (16 AWG -10 AWG) CX series; 2 maximum current 10A, gold or silver plated crimp contacts, cable section 0,14...2,5 mm ² (26 AWG -14 AWG) CD series |
| Degrees of protection: | IP65/IP67/IP69 according to EN 60529 (if a cable clamp with IP67/IP69 rating is used) |
| Temperature range: | -40 °C / +125 °C |
| Electrical data: | compliant with EN 61984: 40A 400/690V 6kV 3 |
| Self extinguishing properties: | 94V-0 compliant with UL 94 standard glow-wire 960 °C compliant with IEC/EN 60695-2-11 standard |

Designation of contacts

The designation of contacts for motor controller outlet is as follows:

| contact | designation |
|---------|------------------|
| 1 | line L1 |
| 2 | line L2 |
| 3 | line L3 |
| 4 | neutral |
| PE | protective earth |
| 11 | aux |
| 12 | aux |



The connector inserts on the power bus for a motor controller are as follows:

| | | |
|----------|------------------|------------------------|
| | screw type | spring type |
| | with cover | dual terminal for pole |
| - plug | CNEM 10 T | CSSM 10 |
| - socket | CNEF 10 T | CSSF 10 |

To be installed in the enclosures illustrated in this catalogue or equivalent, with single lever (directed towards the motor).

The enclosures once complete and fitted with suitably rated cable gland or conduit fitting ensure the versatile **IP65/IP67** degree of protection according to IEC/EN 60529. With these accessories the enclosures also achieve the **IP69** degree of protection (tightness to high pressure and temperature water jets) according to the same standard. The full versatile degree of protection becomes therefore **IP65/IP67/IP69**. The **IPX9** test is identical with that of former German standard DIN 40050-9 (IP69K) currently specified by **ISO 20653** for use on board road vehicles.

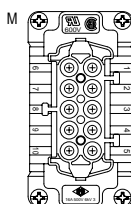
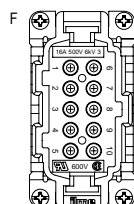
Specifications

| | |
|--------------------------------------|---|
| Connection: | 10 contacts + ⊕ |
| Electrical contacts: | 10 screw type contacts (CNE series) or spring type (CSS series), maximum current 16A, silver plated, wire section 0,5...2,5 mm ² (20 AWG - 14 AWG) |
| Degrees of protection: | IP65/IP67/IP69 according to EN 60529 (if a cable clamp with IP67/IP69 rating is used). |
| Temperature range: | -40 °C / +125 °C |
| Electrical data | compliant with EN 61984: 16A 500V 6kV 3 |
| Self extinguishing properties | 94V-0 compliant with UL 94 standard glow-wire 960 °C compliant with IEC/EN 60695-2-11 standard |

Designation of contacts

The designation of contacts for motor connector is as follows:

| contact | designation |
|---------|--------------------|
| 1 | winding U1 - L1 |
| 2 | winding V1 - L2 |
| 3 | winding W1 - L3 |
| 4 | brake (0 V) |
| 5 | brake (+24V cc) |
| 6 | winding W2 |
| 7 | winding U2 |
| 8 | winding V2 |
| 9 | temperature sensor |
| 10 | temperature sensor |
| PE | protective earth |



| Inserts series | No. of poles | | EN 61984 (2001-11) pollution degree 3 | | | EN 61984 (2001-11) pollution degree 2 | | | Certification UL/CSA |
|--------------------|----------------|---------------|---|---------------------------------|------------------|---------------------------------------|---------------------------------|------------------|------------------------|
| Code | main contacts | aux. contacts | rated voltage | rated impulse withstand voltage | pollution degree | rated voltage | rated impulse withstand voltage | pollution degree | rated voltage AC or DC |
| CXL 2/4 | 2 | — | contacts for plastic fibre optics (POF) Ø 1mm | | | | | | — |
| | | 4 (+⊕) | 25V | 0,8kV | 3 | — | — | — | 50V |
| CXL 2/4...H | 2 | — | contacts for HCS® fibre optics Ø 200 µm | | | | | | — |
| | | 4 (+⊕) | 25V | 0,8kV | 3 | — | — | — | 50V |
| CQ 08 | 8 (+⊕) | — | 500V | 6kV | 3 | 400/690V | 6kV | 2 | 600V |
| CQ 04/2 | 4 (+⊕) | — | 400/690V | 6kV | 3 | — | — | — | 600V |
| | | 2 | 250V | 4kV | 3 | — | — | — | 600V |
| CQ 12 | 10 (+⊕) | — | 500V | 6kV | 3 | 400/690V | 6kV | 2 | 600V |
| CNE | 12 (+⊕) | — | 400V | 6kV | 3 | 400/690V | 6kV | 2 | 600V |

Nominal Data

Nominal data complies with requirements of EN 61984 standard.

Marking example to be applied only in a mains power supply with insulated neutral or with neutral to earth in a corner (see Table 5, EN 61984):

10 A 400/690 V 4 kV 3

Rated current -----

Rated voltage line-to-neutral -----

Rated voltage line-to-line -----

Rated impulse withstand voltage -----

Pollution degree -----

Marking example to be applied in any mains power supplies, including those with insulated neutral and the delta power supplies with earth in a corner (see Table 5, EN 61984):

16A 500V 6kV 3

Rated current -----

Rated voltage -----

Rated impulse withstand voltage -----

Pollution degree -----

| Insert series | | | | Ambient temperature limit (° C) | | Protection rating | | Wire connection ²⁾ | | | | | Certifications |
|--------------------|----------------------------------|----------------------|-------------------------|---------------------------------|------|-------------------|---|-------------------------------|--------|-------------------------|-------|---------|--|
| Code | max. rated current ¹⁾ | contact resistance ≤ | insulation resistance ≈ | min | max | with enclosures | without enclosures (in mated condition) | screw | spring | connection block at 45° | crimp | snap-in | |
| CXL 2/4 | — | — | — | -40 | +70 | IP65/IP67 | IP20 ³⁾ | — | | | • | — | — |
| | 10A | 3 mΩ | 10 GΩ | -40 | +70 | IP65/IP67 | IP20 ³⁾ | — | | | • | — | UL, CSA, DNV-GL, BV, EAC |
| CXL 2/4...H | — | — | — | -40 | +70 | IP65/IP67 | IP20 ³⁾ | — | | | • | — | — |
| | 10A | 3 mΩ | 10 GΩ | -40 | +70 | IP65/IP67 | IP20 ³⁾ | — | | | • | — | UL, CSA, DNV-GL, BV, EAC |
| CQ 08 | 16A | 1 mΩ | 10 GΩ | -40 | +125 | IP65/IP67 | IP20 ³⁾ | — | | | • | — | cUL _A , CSA, CQC, DNV-GL, BV, EAC |
| CQ 04/2 | 40A | 0,3 mΩ | 10 GΩ | -40 | +125 | IP65/IP67 | IP20 ³⁾ | — | | | • | — | cUL _A , CSA, CQC, DNV-GL, BV, EAC |
| | 10A | 3 mΩ | 10 GΩ | | | | | | | | | | |
| CQ 12 | 10A | 3 mΩ | 10 GΩ | -40 | +125 | IP66/IP67 | IP20 ³⁾ | — | | | • | — | cUL _A , CSA, CQC, DNV-GL, BV, EAC |
| CNE | 16A | 1 mΩ | 10 GΩ | -40 | +125 | IP65 | IP20 ³⁾ | • | — | | | — | cUL _A , CSA, CQC, DNV-GL, BV, EAC |

¹⁾ See the insert load curves to establish the actual maximum operating current according to the ambient temperature







²⁾ For the wire electrical connection data, see from page 22

³⁾ IPXXB.

A) UL for USA and Canada









Contacts series

10A max contacts - CD series

| Conductor section | | Number Identification |
|--------------------|---------|---|
| (mm ²) | AWG | |
| 0,14 - 0,37 | 26 - 22 |  |
| 0,5 | 20 |  |
| 0,75 | 18 |  |
| 1 | 18 |  |
| 1,5 | 16 |  |
| 2,5 | 14 |  |

☑ Contacts supplied in both silver/gold plated versions

16A max contacts - CC series

| Conductor section | | Throat Identification |
|--------------------|---------|---|
| (mm ²) | AWG | |
| 0,14 - 0,37 | 26 - 22 |  |
| 0,5 | 20 |  |
| 0,75 | 18 |  |
| 1 | 18 |  |
| 1,5 | 16 |  |
| 2,5 | 14 |  |
| 3,0 | 12 |  |
| 4 | 12 |  |

☑ Contacts supplied in both silver/gold plated versions; male contacts can also be supplied in the "advanced" version and iron/constantan contacts for thermocouples J type.

40A max contacts - CX series

| Conductor section | | Number hole |
|--------------------|-----|-------------|
| (mm ²) | AWG | |
| 1,5 | 16 | Ø 1,75 mm |
| 2,5 | 14 | Ø 2,25 mm |
| 4 | 12 | Ø 2,85 mm |
| 6 | 10 | Ø 3,5 mm |

☑ Contacts supplied in both silver/gold plated versions

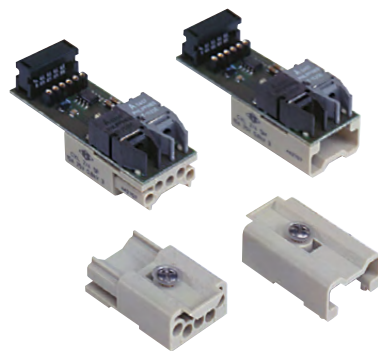
CXL 2 p fibre optics + 4 p 10A max - 25V/0,8kV/3 + ⊕ opt. DESINA®

enclosures: page:
size "21.21"
insulating type 346
metallic type 353
362 - 363

W-TYPE for aggressive environments
(MKAXW IF, MKAXXW IF) 516 - 517
(MKAXW VG25, MKAXXW VG25) 518

EMC
(MKAXS IF, MKAS/MKAXXS IF) 568 - 569
(MKAXS IVG20, MKAS/MKAXXS IVG20) 570 - 571

inserts, crimp connections

10A crimp contacts
silver and gold plated

description

part No.

part No.

inserts for fixed enclosures, complete with electro-optical interface ¹⁾
without contacts (to be ordered separately)
socket inserts for female contacts
plug inserts for male contacts

CXL 2/4 SF
CXL 2/4 SM

without electro-optical interface for housings
without contacts (to be ordered separately)
socket inserts for female contacts
plug inserts for male contacts

CXL SF
CXL SM

10A female contacts

| | | |
|---------------------------|-----------|----------------------|
| 0,14-0,37 mm ² | AWG 26-22 | identification No. 1 |
| 0,5 mm ² | AWG 20 | identification No. 2 |
| 0,75 mm ² | AWG 18 | identification No. 2 |
| 1 mm ² | AWG 18 | identification No. 3 |
| 1,5 mm ² | AWG 16 | identification No. 4 |
| 2,5 mm ² | AWG 14 | identification No. 5 |

CDFA 0.3
CDFA 0.5
CDFA 0.7
CDFA 1.0
CDFA 1.5
CDFA 2.5

silver plated

CDFD 0.3
CDFD 0.5
CDFD 0.7
CDFD 1.0
CDFD 1.5
CDFD 2.5

gold plated⁺

10A male contacts

| | | |
|---------------------------|-----------|----------------------|
| 0,14-0,37 mm ² | AWG 26-22 | identification No. 1 |
| 0,5 mm ² | AWG 20 | identification No. 2 |
| 0,75 mm ² | AWG 18 | identification No. 2 |
| 1 mm ² | AWG 18 | identification No. 3 |
| 1,5 mm ² | AWG 16 | identification No. 4 |
| 2,5 mm ² | AWG 14 | identification No. 5 |

CDMA 0.3
CDMA 0.5
CDMA 0.7
CDMA 1.0
CDMA 1.5
CDMA 2.5

CDMD 0.3
CDMD 0.5
CDMD 0.7
CDMD 1.0
CDMD 1.5
CDMD 2.5

¹⁾ fitted with IDC connector for TTL to bus connection ribbon cable

- characteristics according to EN 61984:

10A 25V 0,8kV 3

- certified

- rated voltage according to UL/CSA: 600V

- insulation resistance: ≥ 10 G Ω

- data baud rate: up to 12 MBit/s

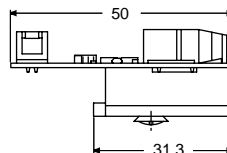
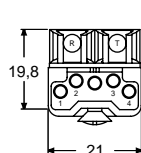
- temperature range: from -40 °C to +70 °C

- contact resistance: ≤ 3 m Ω

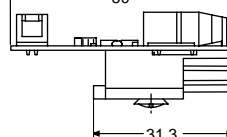
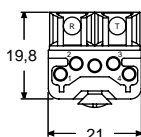
- inserts already supplied with stainless steel fixing screw with gasket, which ensures IP66/IP67/IP69 degree of protection

- it is recommended to crimp the contacts with crimping tools homologated by ILME (please see the crimping tool section 10A contacts, CDF and CDM series on pages 708 - 741)

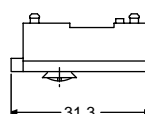
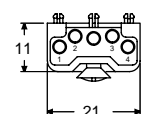
CXL 2/4 SM



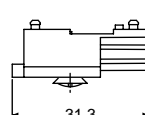
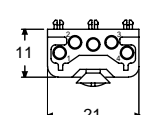
CXL 2/4 SF



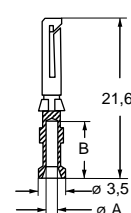
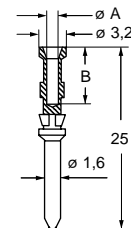
CXL SM



CXL SF



CDF and CDM



CDF and CDM contacts

| conductor section mm ² | conductor slot Ø A (mm) | conductors stripping length B (mm) |
|-----------------------------------|-------------------------|------------------------------------|
| 0,14-0,37 | 0,9 | 8 |
| 0,5 | 1,1 | 8 |
| 0,75 | 1,3 | 8 |
| 1,0 | 1,45 | 8 |
| 1,5 | 1,8 | 8 |
| 2,5 | 2,2 | 6 |

⁺ for basic or high thickness gold plating, please refer to page 674



| | |
|-----------------|-----------|
| enclosures: | page: |
| size "21.21" | |
| insulating type | 346 - 348 |
| metallic type | 353 - 355 |
| | 358 - 363 |

| | |
|------------------------------------|-----------|
| W-TYPE for aggressive environments | |
| (MKAXW IAP25/AP25) | 514 |
| (MKAXXW IAP25/AP25) | 515 |
| (MKAXW IF, MKAXXW IF) | 516 - 517 |
| (MKAXW VG25, MKAXXW VG25) | 518 |
| EMC | |
| (MKAXS IAP25/AP25) | 566 |
| (MKAS/MKAXXS IAP25/AP25) | 567 |
| (MKAXS IF, MKAS/MKAXXS IF) | 568 - 569 |
| (MKAXS IVG20, MKAS/MKAXXS IVG20) | 570 - 571 |
| (MKAXS/MKAS/MKAXXS VG25) | 572 |

inserts, snap-in (POF)
or crimp (HCS®) optical connection
electrical crimp connection



10A crimp contacts
silver and gold plated



| description | part No. | part No. |
|-------------|----------|----------|
|-------------|----------|----------|

inserts for portable enclosures with:
4 + 1 crimp 1,5 mm² contacts (included)
+ 2 snap on contacts for 1 mm ¹⁾ plastic (POF) fibre optics
socket inserts with CDFA 1.5 female contacts
plug inserts with CDMA 1.5 male contacts

CXL 2/4 PF
CXL 2/4 PM

inserts for hoods with:
4 + 1 crimp 1,5 mm² contacts (included)
+ 2 crimp contacts for 0,2 mm ²⁾ HCS® fibre optics
socket inserts with CDFA 1.5 female contacts
plug inserts with CDMA 1.5 male contacts

CXL 2/4 PFH
CXL 2/4 PMH

inserts for hoods with:
4 + 1 crimp contacts (not included – CDF and CDM series)
+ 2 snap on POF fibre optic contacts (not included) ³⁾
socket inserts with female contacts
plug inserts with male contacts

CXL PF
CXL PM

| | | |
|---------------------|-----------|----------------------|
| 10A female contacts | | |
| 0,14-0,37 mm² | AWG 26-22 | identification No. 1 |
| 0,5 mm² | AWG 20 | identification No. 2 |
| 0,75 mm² | AWG 18 | identification No. ② |
| 1 mm² | AWG 18 | identification No. 3 |
| 1,5 mm² | AWG 16 | identification No. 4 |
| 2,5 mm² | AWG 14 | identification No. 5 |

| | | | |
|----------|---------------|----------|--------------------------|
| CDFA 0.3 | silver plated | CDFD 0.3 | gold plated ⁺ |
| CDFA 0.5 | | CDFD 0.5 | |
| CDFA 0.7 | | CDFD 0.7 | |
| CDFA 1.0 | | CDFD 1.0 | |
| CDFA 1.5 | | CDFD 1.5 | |
| CDFA 2.5 | | CDFD 2.5 | |

| | | |
|-------------------|-----------|----------------------|
| 10A male contacts | | |
| 0,14-0,37 mm² | AWG 26-22 | identification No. 1 |
| 0,5 mm² | AWG 20 | identification No. 2 |
| 0,75 mm² | AWG 18 | identification No. ② |
| 1 mm² | AWG 18 | identification No. 3 |
| 1,5 mm² | AWG 16 | identification No. 4 |
| 2,5 mm² | AWG 14 | identification No. 5 |

| | | | |
|----------|---------------|----------|--------------------------|
| CDMA 0.3 | silver plated | CDMD 0.3 | gold plated ⁺ |
| CDMA 0.5 | | CDMD 0.5 | |
| CDMA 0.7 | | CDMD 0.7 | |
| CDMA 1.0 | | CDMD 1.0 | |
| CDMA 1.5 | | CDMD 1.5 | |
| CDMA 2.5 | | CDMD 2.5 | |

¹⁾ for POF fibre preparation, the polishing kit Agilent HFB-4593 (CXL POL) is available on request

²⁾ for HCS® (Hard Clad Silica - SpecTran Corporation registered TM) connection preparation, the Crimp & Clear cabling kit (without glue or polishing kit) for simplex connectors for 200/300 µm HCS® fibre optics is available on request.

The (CXL KCC) kit consists of:

- No. 1 scissors for kevlar cutting
- No. 1 cable stripper
- No. 1 fibre stripper
- No. 1 calibrated pliers
- No. 1 precision fibre optics cutter with diamond blade.
- All accessories are stored in a hard carrying case

³⁾ see data on page 245

- characteristics according to EN 61984:
10A 25V 0,8kV 3

- certified

- rated voltage according to UL/CSA: 600V

- insulation resistance: ≥ 10 GΩ

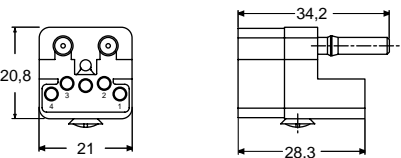
- temperature range: from -40 °C to +70 °C

- contact resistance: ≤ 3 mΩ

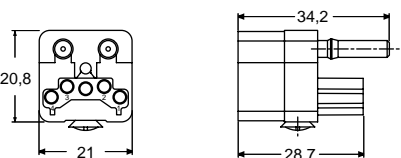
- inserts already supplied with stainless steel fixing screw with gasket, which ensures IP66/IP67/IP69 degree of protection

- **it is recommended to crimp the contacts with crimping tools homologated by ILME** (please see the crimping tool section 10A contacts, CDF and CDM series on pages 708 - 741)

CXL 2/4 PM and PMH

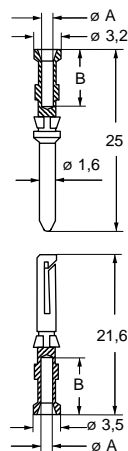


CXL 2/4 PF and PFH



- 8 mm wire stripping
- POF 7 mm fibre stripping

CDF and CDM



⁺ for basic or high thickness gold plating, please refer to page 674

| CDF and CDM contacts | | |
|-----------------------|-------------------------|------------------------------------|
| conductor section mm² | conductor slot ø A (mm) | conductors stripping length B (mm) |
| 0,14-0,37 | 0,9 | 8 |
| 0,5 | 1,1 | 8 |
| 0,75 | 1,3 | 8 |
| 1,0 | 1,45 | 8 |
| 1,5 | 1,8 | 8 |
| 2,5 | 2,2 | 6 |