

## CDSH NC - SQUICH® series

### AutoShort connector

ILME developed an innovative connector **suitable for interfacing measuring current transformers (CTs)** with the dedicated electronic measurement processing equipment. Use of such systems is increasing in transformer substations with the diffusion of smart grid concepts due to the growth of self-standing power generation plants (photovoltaic, wind).

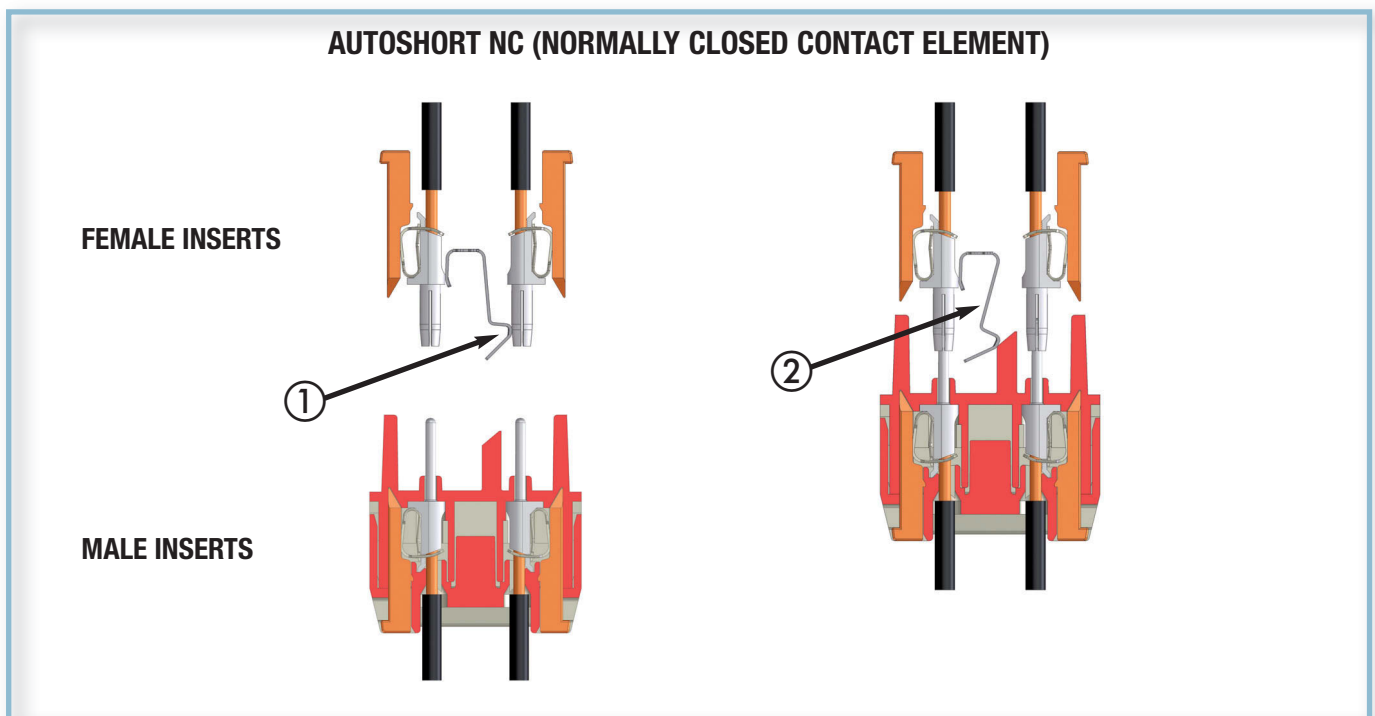
The new **CDSH...NC** connector has the same dimensions of a 6 poles size "44.27" CSH connector, and it is **easy to wire thanks to ILME proprietary SQUICH® tool-less quick connection technology**.

Inside the female insert, for **each of the three contact pairs 1-2, 3-4 and 5-6**, a suitable spring element is foreseen, **providing a NC (normally closed) contact between the female contact pair**.

Said short-circuit element automatically **establishes a short-circuit between the female contact pair while the connector is being unmated**, before the complete withdrawal of the corresponding male connector.

**This protects the measuring current transformer's secondary windings** to which this connector is deemed to be wired, against the high voltage that would arise if the ends of each winding were left open while the primary winding (the power line busbars) are still under load.

During the mating of these specially designed connector inserts, **three corresponding actuator pins realized on the mating face of the male connector**, once the male contacts are already engaged with the corresponding female contacts, **push aside the facing end of the AutoShort NC contact element**, in order to release the short-circuit previously provided. In mated condition the proper termination of the secondary windings of the CT must be provided by the customer's downstream circuit, e.g. by suitable resistors.

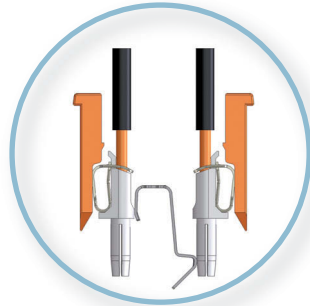


This new **CDSH...NC** connector can be used only for connecting up to three secondary (output) windings of measuring current transformers to specific measuring circuits; on the female side each contact pair is provided with said AutoShort NC contact element, to keep the secondary winding ends shorted while the female connector is not engaged with the male connector, thus avoiding damages to the insulation of the current transformer and consequent hazardous condition for the personnel operating the unmating of the connector while the power busbars are energized. When the female and male connectors are being mated, the short-circuit is released after proper electrical engagement of the two connector halves, thus allowing again current measurement by the dedicated electronic measurement processing equipment wired on the male connector side.

The new connector inserts can be used in size "44.27" connector enclosures, either metal (conductive) or thermoplastics (insulating), with up to IP68 degree of protection (IP66/IP68 with series CG/MG), within enclosures for aggressive environments (series "W") or with up to IP66/IP69 within series T-TYPE HYGIENIC enclosures for hygienic applications.

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### REQUIREMENTS

- › **Connections:** 3 pairs of contacts (with autoshunt on each pair of female connector), plus protective earth, size 44.27 housings
- › **Electrical contacts:** 6 spring clamp type contacts with actuator (SQUICH®) made by copper alloy, silver plated
- › **Wire gauge range:** 0,14 ÷ 2,5 mm<sup>2</sup> (AWG 26 ÷ 14) for solid or unprepared stranded copperwires,  
0,14 ÷ 1,5 mm<sup>2</sup> (AWG 26 ÷ 16) for stranded copper wires prepared with ferrules
- › **Temperature range:** -40 °C ÷ +125 °C
- › **Rating:** 6A 250V 4kV 3; 6A 500V 4kV 2 according EN 61984  
Fault condition (rated short time thermal current): 50A for 1 s
- › **Flammability:** 94V – 0 according to UL 94
- › **Mating cycles:** ≥ 50
- › **Contact resistance (connector mated):** ≤ 3 mΩ
- › **Insulation resistance:** ≥ 10 GΩ
- › **Degree of protection:** IP20 (connector without housing), IP65 or IP66 (connectors in T-TYPE housings), IP66 or more (connectors in ILME metal housings)

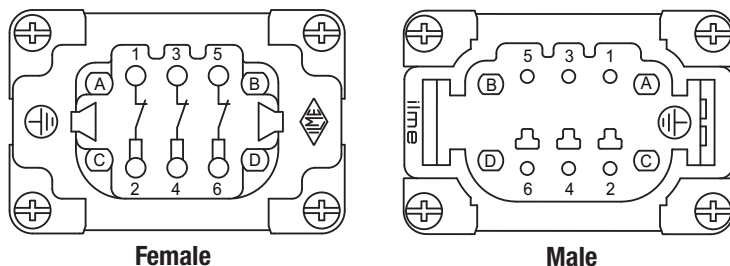
### PIN ASSIGNMENT

Female inserts with NC shorting contacts between contacts of pairs 1-2, 3-4, 5-6, opening upon with male inserts.

Pin assignment of contacts for the connector is the following:

Pin	Assignment
1	Winding 1 start
2	Winding 1 end
3	Winding 2 start
4	Winding 2 end
5	Winding 3 start
6	Winding 3 end
PE	Protective Earth

View from the contact side



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Optionally, it is possible to add the four special coding pins **CR CDS** that allow up to 6 different codings, by installing 2 coding pins on the male connector half and correspondingly 2 on the female connector half, according to the coding scheme provided in the following:

**CODING SCHEME**

**1**

**2**

**3**

**4**

**5**

**6**

**Legend**

- = coding pin installed
- + = no coding pin

The CR CDS coding pins can also be used in combination with other CR 20 / CRM / CRF / CR 72 metal pins instead of insert fixing screws in order to increase the number of possible combinations.

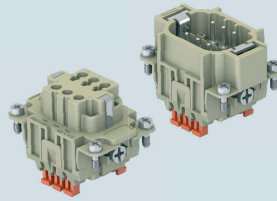
enclosures:  
size "44.27" page:

C-TYPE IP65/IP66 .....	240 - 243
C7 IP67, single lever .....	274
V-TYPE IP65/IP66, single lever .....	280/284 - 286
BIG hoods .....	304 - 306
T-TYPE IP65 insulating .....	326 - 327
T-TYPE / W IP66 insulating .....	336 - 337
HYGIENIC T-TYPE / H IP66/IP69 .....	350 - 351
HYGIENIC T-TYPE / C IP66/IP69, -50 °C .....	358 - 359
W-TYPE for aggressive environments .....	373
EMC .....	392
central lever .....	404 - 405
IP68 .....	420 - 423
LS-TYPE .....	450 - 451

panel supports: page:  
COB .....

refer to catalogue page CN.16

inserts,  
spring clamp connections with actuator pin,  
female inserts with NC shorting contacts



silver plated contacts

**NEW**

description

part No.

spring terminals with actuator button  
female inserts with female contacts  
male inserts with male contacts

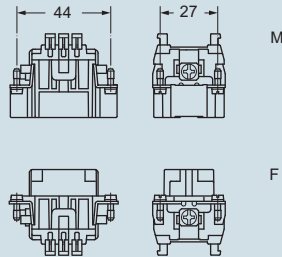
CDSHF 06 NC  
CDSHM 06 NC

- characteristics according to EN 61984:

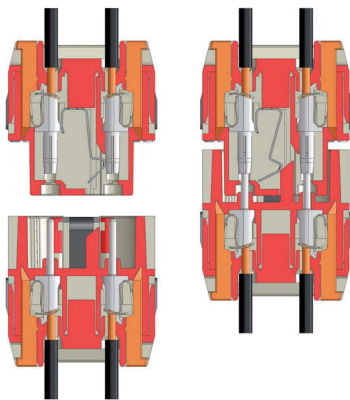
**6A 250V 4kV 3**  
**6A 500V 4kV 2**  
**10A with connector mated**

- insulation resistance:  $\geq 10 \text{ G}\Omega$
- ambient temperature limit:  $-40 \text{ }^\circ\text{C} \dots +125 \text{ }^\circ\text{C}$
- made of self-extinguishing thermoplastic resin 94V-0 according to UL 94
- mechanical life:  $\geq 50$  cycles
- contact resistance:  $\leq 3 \text{ m}\Omega$
- NC = Normally Closed

dimensions in mm

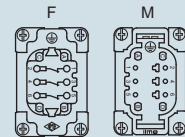


Female inserts with NC shorting contacts



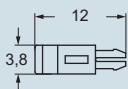
Male inserts

contacts side (front view)



- inserts for conductors cross-section: 0,14 - 2,5 mm<sup>2</sup> - AWG 26 - 14
- for wires with crimped ferrule, useful cross-section: up to 1,5 mm<sup>2</sup> - AWG 16
- conductors stripping length: 9...11 mm

CR CDS coding pin



dimensions shown are not binding  
and may be changed without notice

SQUICH® connections

