



Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

| | |
|---------------------|---|
| Manufacturer | ComatReleco AG |
| Address | Birchstrasse 24, Düringen, 3186, Switzerland |
| Type | Relays - Magnetic |
| Description | <p>Electromagnetic relays – pluggable: C7-series: 2-pole plug-in type with dust cover and base C9-series: 2-pole plug-in type with dust cover and base C9-series: 4-pole plug-in type with dust cover and base C2-A2x Series: 2-pole standard relays C3-A3x Series: 3-pole standard relays C4-A4x Series: 4-pole standard relays C5-A20 Series: 2-pole power relays C5-A3x Series: 3-pole power relays C5-M10 Series: 1-pole double make power relays C12-A2x Series: 2-pole interface relays (x refers to contact material)</p> <p>Sockets: S7-series: Sockets for C7-series relays S9-series: Sockets for C9- and R9x-series relays C11A, C12B CS-112, CS-155 S2-B, S2-BGR S3-B, S3-M, S3-M0, S3-M1 S4-J S5-M S10-PI, S10-PIR</p> |

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

Thorsten Wolff

Electrical & Control - Senior Specialist to
Lloyd's Register EMEA
A member of the Lloyd's Register group

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Type Approval Certificate

S12, S12-PI, S12-PIR

For detailed product description, pls. refer to appendix.

| | |
|---------------------------|--|
| Trade Name | C7, C9, S7, S9, C2, C3, C4, C5, C12, C11A, C12B, CS-112, CS-155, S2-B, S2-BGR, S3-B, S3-M, S3-M0, S3-M1, S4-J, S5-M, S10-PI(R), S12, S12-PI(R) |
| Application | Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2 and ENV3 (types C2, C3, C4, C5, C12, C11A, C12B, CS-112, CS-155, S2-B, S2-BGR, S3-B, S3-M, S3-M0, S3-M1, S4-J, S5-M, S10-PI(R), S12, S12-PI(R) only) as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 - December 2021. |
| Specified Standard | Manufacturer's specification IACS unified requirements E10 (Rev.9 Aug 2023) |
| Ratings | For detailed ratings refer to the appendix. |
| Additional Tests | Low Temperature test: -40 °C / 16 hours (types C2, C3, C4, C5, C12, C11A, C12B, CS-112, CS-155, S2-B, S2-BGR, S3-B, S3-M, S3-M0, S3-M1, S4-J, S5-M, S10-PI(R), S12, S12-PI(R)) |
| Other Conditions | Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations. If the specified standards are amended during the validity of this certificate, the product is to be re- approved prior to it being supplied to vessels to which the amended standards apply. |

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Type Approval Certificate

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: LR2195369TA-04 and LR2195606TA-04

The Design Appraisal Document TSO-25-045194/TW and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

DESCRIPTION

Electromagnetic relays with sockets (pluggable)

RATINGS

Relays:

| Type | No. of poles | Coil voltage (V) | Max. switching current (A) | Max. switching voltage (V) |
|---|--------------|-----------------------------------|----------------------------|----------------------------|
| C7-series: Industrial Relays – pluggable (x = 1,2) | | | | |
| C7-A2x/AC...V | 2 | 12, 24, 48, 115, 230 VAC 50/60 Hz | 10 | 250 |
| C7-A2xX/AC...V | | | | |
| C7-A2x/DC..V | | 12, 24, 48, 60, 110, 220 VDC | | |
| C7-A2xX/DC..V | | | | |
| C7-A2xDX/DC..V | | | | |
| C7-A2xFX/DC..V | | | | |
| C7-A2xBX/UC..V | | | | |
| C7-A10X/AC...V | 1 | 12, 24, 48, 115, 230 VAC 50/60 Hz | 16 | 250 |
| C7-A10X/DC...V | | | | |
| C7-A10DX/DC...V | | 12, 24, 48, 60, 110, 220 VDC | | |
| C7-A10FX/DC...V | | | | |
| C7-G20/AC...V | 2 | 12, 24, 48, 115, 230 VAC 50/60 Hz | 10 | 250 |
| C7- G20X/AC...V | | | | |
| C7- G20/DC...V | | 12, 24, 48, 110 VDC | | |
| C7- G20X/DC...V | | | | |
| C7- G20DX/DC...V | | | | |
| C7- G20FX/DC...V | | | | |
| C7-H23X/AC...V | | | | |
| C7-H23X/DC...V | 24 VDC | | | |
| C7-T2x/AC...V | 2 | 12, 24, 115, 230 VAC 50/60 Hz | 6 | 250 |
| C7-T2xX/AC...V | | | | |
| C7-T2x/DC...V | | 12, 48, 60, 110, 220 VDC | | |
| C7- T2xX/DC...V | | | | |
| C7- T2xDX/DC...V | | | | |
| C7- T2xFX/DC...V | | | | |
| C7- T2xX/UC...V | | | | |
| C7-W10/AC...V | 1 | 48, 115, 230 VAC 50/60 Hz | 10 | 250 |
| C7-W10X/AC...V | | | | |
| C7-W10/DC...V | | 12, 48, 60, 110 VDC | | |
| C7-W10X/DC...V | | | | |
| C7-W10FX/DC...V | | | | |
| C7-W10BX/UC...V | | | | |

| | | | | |
|------------------|---|---------------------------|----|-----|
| C7-X10/AC...V | 1 | 24, 115, 230 VAC 50/60 Hz | 10 | 250 |
| C7- X10X/AC...V | | | | |
| C7- X10/DC...V | | 12, 24, 48, 110 VDC | | |
| C7- X10X/DC...V | | | | |
| C7- X10FX/DC...V | | | | |
| C7- X10BX/UC...V | | | | |

| | | | | |
|--|---|---------------------------------|---|-----|
| C9-series: Industrial Relays – pluggable (x = 1,2) | | | | |
| C9-A4x/AC...V | 2 | 12, 24, 48,60, 230 VAC 50/60 Hz | 5 | 250 |
| C9-A4xX/AC...V | | | | |
| C9-A4x/DC...V | | 12, 24, 48, 60, 110, 220 VDC | | |
| C9- A4xX/DC...V | | | | |
| C9- A4xDX/DC...V | | | | |
| C9- A4xFX/DC...V | | | | |
| C9- A4xBX/UC...V | | | | |

| Type | No. of poles | Coil voltage (V) | Max. switching current (A) | Max. switching voltage (V) |
|--|--------------|----------------------------------|----------------------------|----------------------------|
| C9-series: Industrial Relays – pluggable (x = 1,2) | | | | |
| C9-E21X/AC...V | 2 | 12, 24, 48, 60, 230 VAC 50/60 Hz | 5 | 250 |
| C9-E21FX/DC...V | | 12, 24, 48, 60, 110, 220 VDC | | |
| C9-E21BX/UC...V | | 24 VDC or AC | | |
| C9-R21/AC...V | 2 | 24, 48, 115, 230 VAC 50/60 Hz | 5 | 120 |
| C9-R21/DC...V | | 12, 24, 48, 60 VDC | | |

AgNi C7-A10, C7-A20, C7-G20, C7-X10
 AgNi + 0.2 μ Au C7-T21, C9-A41, C9-E21, C9-R21
 AgNi + 5 μ Au C7-A28, C9-A42, C7-T22
 Tungsten = Pre-contact / AgNi = Main contact C7-W10

Sockets:

| Type designation | No. of pins | Suitable for relay type | Mounting | Max. switching current (A) | Max. switching voltage (V) |
|------------------|-------------|-------------------------|----------|----------------------------|----------------------------|
| S7-C | 8 | C7x | TS35 | 10 A / 16 A (1 pole) | 250 V |
| S7-IO | | | | 10 A | |
| S9-M | 14 | C9x | TS35 | 6 A | 250 V |
| S9-PI | | | TH35 | | |
| S9-PIR | | R9x | | | |

Relays:

| Type | No. of poles | Coil voltage (V) | Max. switching current (A) | Max. switching voltage (V) |
|------|--------------|------------------|----------------------------|----------------------------|
|------|--------------|------------------|----------------------------|----------------------------|

| C2-A2x Series: 2-pole plug-in type standard relays (incl. C2-A20, C2-A28) | | | | |
|---|---|-----------------------------------|----|-----|
| C2-A2x/AC...V | 2 | 12, 24, 48, 115, 230 VAC 50/60 Hz | 10 | 250 |
| C2-A2xX/AC...V | | | | |
| C2-A2x/DC...V | | 12, 24, 48, 110, 220 VDC | | |
| C2-A2xX/DC...V | | | | |
| C2-A2xDX/DC...V | | | | |
| C2-A2xFX/DC...V | | | | |

| C3-A3x Series: 3-pole plug-in type standard relays (incl. C3-A30, C3-A38, C3-A39) | | | | |
|---|---|------------------------------------|----|-----|
| C3-A3x/AC...V | 3 | 12, 24, 48, 60, 115, 230 VAC 50/60 | 10 | 250 |
| C3-A3xX/AC...V | | | | |
| C3-A3x/DC...V | | 12, 24, 48, 60, 110, 220 VDC | | |
| C3-A3xX/DC...V | | | | |
| C3-A3xDX/DC...V | | | | |
| C3-A3xFX/DC...V | | | | |

| C4-A4x Series: 4-pole plug-in type standard relays (incl. C4-A40, C4-A48) | | | | |
|---|---|--|----|-----|
| C4-A4x/AC...V | 4 | 12, 24, 48, 115, 230, 400 VAC 50/60 Hz | 10 | 250 |
| C4-A4xX/AC...V | | | | |
| C4-A4x/DC...V | | 12, 24, 48, 60, 110, 220 VDC | | |
| C4-A4xX/DC...V | | | | |
| C4-A4xDX/DC...V | | | | |
| C4-A4xFX/DC...V | | | | |

| C5-A20 Series: 2-pole plug-in type power relays | | | | |
|---|---|--|----|-----|
| C5-A20/AC...V | 2 | 12, 24, 48, 115, 230, 400 VAC 50/60 Hz | 16 | 400 |
| C5-A20X/AC...V | | | | |
| C5-A20/DC...V | | 12, 24, 48, 60, 110, 220 VDC | | |
| C5-A20X/DC...V | | | | |
| C5-A20DX/DC...V | | | | |
| C5-A20FX/DC...V | | | | |

| C5-A3x Series: 3-pole plug-in type power relays (incl. C5-A30, C5-A35) | | | | |
|--|---|--|----|-----|
| C5-A3x/AC...V | 3 | 12, 24, 48, 115, 230, 400 VAC 50/60 Hz | 16 | 400 |
| C5-A3xX/AC...V | | | | |
| C5-A3x/DC...V | | 12, 24, 48, 60, 110, 220 VDC | | |
| C5-A3xX/DC...V | | | | |
| C5-A3xDX/DC...V | | | | |
| C5-A3xFX/DC...V | | | | |

| C5-M10 Series: 1-pole double make power relays | | | | |
|--|---|---|----|-----|
| C5- M10/AC...V | 1 | 12, 24, 48, 115, 230, 400 VAC 50/60 Hz | 16 | 400 |
| C5- M10X/AC...V | | | | |
| C5- M10/DC...V | | 12, 24, 48, 60, 110, 220 VDC | | |
| C5-M10X/DC...V | | | | |
| C5-M10DX/DC...V | | | | |
| C5-M10FX/DC...V | | | | |

| C12-A2x Series: 2-pole plug-in type interface relays (incl. C12-A20, C12-A21, C12-A22) | | | | |
|--|---|--------------------------------------|---|-----|
| C12-A2x/AC...V | 2 | 12, 24, 48, 115, 230 VAC 50/60 Hz | 5 | 250 |
| C12-A2xX/AC...V | | | | |
| C12-A2x/DC...V | | 12, 24, 48, 110 VDC | | |
| C12-A2xX/DC...V | | | | |
| C12-A2xFX/DC...V | | | | |
| C12-A2xBX/UC...V | | | | |

Contact materials:

| | |
|--------------------|--|
| AgNi | C2-A20, C3-A30, C4-A40, C5-A20, C5-A30, C5-M10 |
| AgNi + 0.2 μ Au | C3-A39, C12-A21 |
| AgNi + 5 μ Au | C2-A28, C3-A38, C4-A48, C12-A22 |
| AgSnO ₂ | C5-A35 |

Sockets:

| Type designation | No. of pins | Suitable for relay type | Mounting | Max. switching current (A) | Max. switching voltage (V) |
|------------------|-------------|-------------------------|----------|----------------------------|----------------------------|
| C11A | 11 | C3x | TS35 | 10 | 250 |
| C12B | | | | | |
| CS-112 | 8 | C12x | TS35 | 10 | 250 |
| CS-155 | 11 | C5x | TS35 | 16 | 400 |
| S2-B | 8 | C2x | TS35 | 10 | 300 |
| S2-BGR | | | | | |
| S3-B | 11 | C3x | TS35 | 10 | 300 |
| S3-M | 11 | C3x | TS35 | 10 | 250 |
| S3-M0 | | | | | |
| S3-M1 | | | | | |
| S4-J | 14 | C4 | TS35 | 10 | 250 |
| S5-M | 11 | C5x | TS35 | 16 | 400 |
| S10-PI | 5 | C10x | TH35 | 10 | 250 |
| S10-PIR | | | | | |
| S12 | 8 | C12x | TH35 | 5 | 250 |
| S12-PI | | | | | |
| S12-PIR | | | | | |