

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Measurement Converter

with type designation(s)

SIRIUS 3RS70 Signal Converters, SIRIUS 3RQ3 Coupling Relays

Issued to

Siemens AG GWA
Amberg, Germany

is found to comply with

DNV GL rules for classification – Ships

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type	Temperature	Humidity	Vibration	EMC	Enclosure
SIRIUS 3RS70 Signal Converters	B	B	A	A	*
SIRIUS 3RQ3 Coupling Relays	B	B	A	B	*

*** Required protection acc. to DNV-GL Rules shall be provided upon installation on board**

This Certificate is valid until **2021-03-08**.

Issued at **Hamburg** on **2016-09-06**

for **DNV GL**

DNV GL local station: **Augsburg**

Approval Engineer: **Jens Dietrich**

Duy Nam Le
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

DIN-Rail mounted signal converters in 6,2mm narrow housing with following type key:

3RS70 aa - b c d e 0

aa – Input:

- 00 – 0 – 10V
- 01 – 2 – 10V
- 02 – 0 – 20mA
- 03 – 4 – 20mA
- 04 – 0 – 20mA, 4 – 20mA
- 05 – 0 – 10V, 0 – 20mA, 4 – 20mA, switchable
- 06 – 16 signals, selectable

- 20 – 0 – 20mA, 6.2mm, 1-channel
- 21 – 0 – 20mA, 12.5mm, 1-channel
- 22 – 0 – 20mA, 12.5mm, 2-channel
- 23 – Other measuring channels
- 25 – 3 standard signals, set point generator integrate

- 40 – PT100, 2- or 3- wire sensor
- 41 – PT100 and potentiometer, 2- or 3- wire sensor
- 42 – LG Ni 1000, 2- or 3- wire sensor

- 50 – PT100, 4- wire sensor
- 51 – PT100 and potentiometer, 4- wire sensor
- 52 – PT100 and PT1000, 4- wire sensor

- 60 – 2 PT100, difference transducer
- 61 – 3 PT100, difference transducer

- 70 – J, K - thermocouple
- 71 – J, K, T, N, R, S, B - thermocouple

- 8 – Others

b – Terminal:

- 1 – Screw terminal
- 2 – Push-in terminal

c – Output:

- A – 0 – 10V
- B – 2 – 10V
- C – 0 – 20mA
- D – 4 – 20mA
- E – 0 – 20mA / 4 – 20mA, passive
- F – 0 – 10 V / 0 – 20mA / 4 – 20mA, switchable
- K – 50Hz / 100Hz / 1kHz / 20kHz, switchable

d – Supply Voltage:

- B – 24V dc
- C – 24V ac
- D – 24V ac/dc, 2 way separation
- E – 24V ac/dc, 3 way separation
- F – 24V ac/dc, no galvanic separation
- G – 110 – 120V ac, 50/60Hz

M – 220 – 240V ac, 50/60Hz
K – 110 – 120V ac, 50/60Hz and 220 – 240V ac, 50/60Hz
P – 24V ac/dc and 220 – 240V ac
Q – 24V ac/dc and 110 – 120V ac
R – Loop powered, no galvanic isolation
S – Loop powered, 2 way separation
T – Loop powered, 3 way separation
V – 24 – 240V ac/dc, 2 way separation
W – 24 – 240V ac/dc, 3 way separation

e – Measuring range:
1 – -50°C - +100°C
2 – -50°C - +150°C
3 – -50°C - +600°C
4 – -50°C - +750°C / 0 – 1000 Ohm
5 – -50°C - +1750°C

DIN-Rail mounted coupling relays in 6,2mm narrow housing with following type key:

3RQ3 a b c d - e f g h iii

a – Function:

0 – Solid state
1 – Relay
9 – Accessory

b – Output:

1 – Output coupler relay without manual / automatic switch
2 – Output coupler relay with manual / automatic switch
3 – Input coupler with relay
5 – Output coupler solid state without manual / automatic switch
6 – Output coupler solid state with manual / automatic switch
7 – Input coupler solid state

c – Output current:

0 – 500mA solid state
2 – 2A solid state
3 – 3A solid state
5 – 5A solid state
8 – AC-15/230V 3A, DC-13/24V, 1A

d – Terminal:

1 – Screw terminal
2 – Push-in terminal

e – Switching element:

A – 1 changeover
B – 2 changeover
S – 1 make contact

f – Power supply:

A – 12V, 50/60Hz, ac/dc
B – 24V, 50/60Hz, ac/dc
E – 115V, 50/60Hz, ac/dc

F – 230V, 50/60Hz, ac/dc
G – 110-230V, 50/60Hz, ac/dc
M – 24V, dc
N – 115V

g – Output voltage:
0 – 24V – 250V, ac/dc
3 – 30V, dc
4 – 60V, dc, solid state
5 – 48V – 264V, ac, solid state

h – Contact:
0 – Not gold plated
1 – Gold plated
9 – Special type

iii – Customer specification (optional):
0AA0 – special voltage operation range

Accessories:

3RQ3901-0A:	Connector 2-pole
3RQ3901-0B:	Connector 4-pole
3RQ3901-0:	Connector 8-pole
3RQ3901-0D:	Connector 16-pole
3RQ3900-0A:	Potential barrier
3RQ3902-0A:	Tag 5x5mm, Titan-grey
3RQ3902-0B:	Tag 6x12mm, Tian-grey

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV GL Rules for Ships Pt.4 Ch.9 Control and Monitoring Systems.

Type Approval documentation

Tests carried out

Applicable tests according to class guideline DNV GL CG-0339, 2015.

Marking of product

Products are marked with the manufacturer, type designation based on type key, serial number and power supply specification.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

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Certificate No: **TAA00000NT**

The main elements of the assessment are:

- Ensure that type approved documentation is available
 - Inspection of factory samples, selected at random from the production line (where practicable)
 - Review of production and inspection routines, including test records from product sample tests and control routines
 - Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
 - Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
 - Ensuring traceability between manufacturer's product type marking and the type approval certificate
- Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE