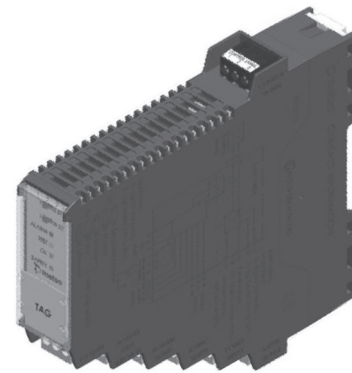# RCI9H2

Remote Communication Interface RCI9H2 is intended to be used together with the Neles ValvGuard VG9000H intelligent safety solenoid. When 24 VDC output (DO) in the safety system or logic is used RCI9H2 is needed between the DO and VG9000H field device. The primary function of RCI9H2 is to convert binary signal to SIL 3 compatible 4/20mA current signal. RCI9H2 also provides relay outputs for monitoring the test and alarm status of the VG9000H and a discrete input for commanding VG9000H to start a PST (Partial Stroke Test). Additionally, RCI9H2 includes an isolator barrier and can be used in intrinsically safe applications. RCI9H2 provides HART communication for diagnostics and configuration of the VG9000H. The HART communication is available when a 24 VDC power supply is connected, also during the emergency trip.

Features

- 24 VDC input from ESD system
- 4/20 mA output to VG9000H
- Two status relays (test, alarm)
- PST start via separate input
- HART communication
- Isolated Ex barrier

SIL 3 certificate

RCI9H2 is approved by TÜV Rheinland to be used in safety applications up to and including safety integrity level 3 (SIL3) according to IEC 61508.
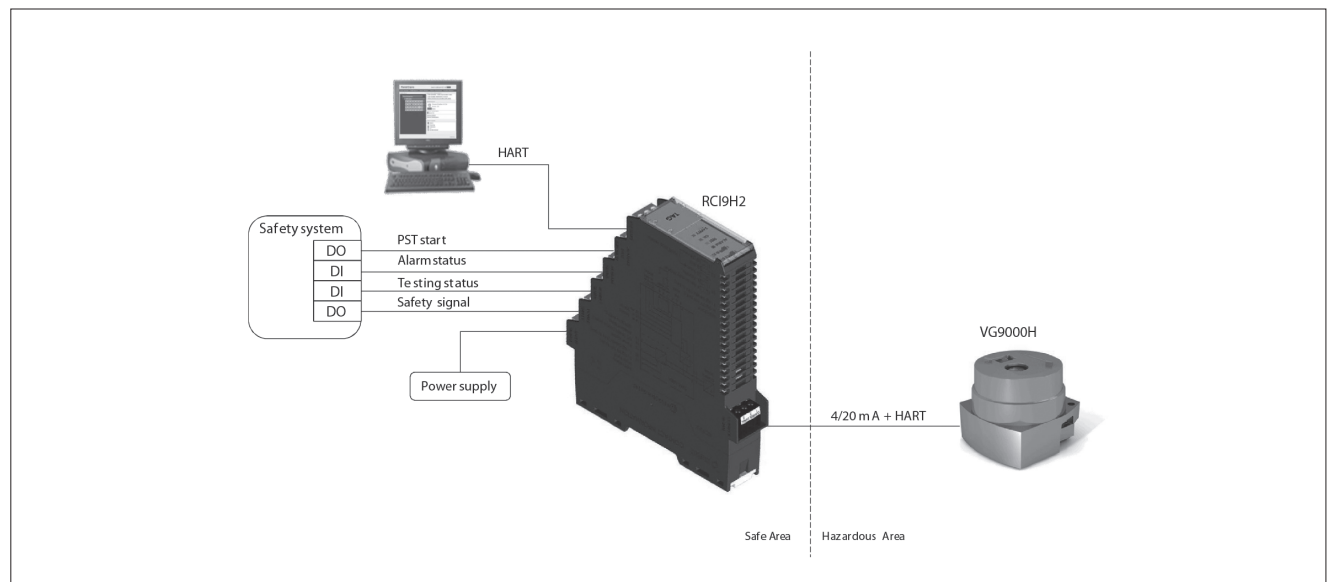
Technical specifications

Safety (input) signal:

Connection:	Terminals 19+, 20-
Signal levels:	0-Signal: nominal 0V (-3 - 5V) (leakage <2 mA) 1-Signal: nominal 24/48V (19 - 54 VDC)
Input current:	46.4mA at 24VDC, 47.9mA at 48VDC
Max. voltage:	60 VDC
Polarity protection:	-60 VDC
Over voltage protection:	60 VDC

Output to VG9000H:

Connection:	Terminals 2+, 3-
Output current, normal mode:	
	0-Signal: nominal 4.2mA, (3.8 -5.6 mA) 1-Signal: nominal 20.5mA, (18-22 mA)
Output current, loop powered mode 1 (power supply not connected):	
	0-Signal: nominal 0 mA 1-Signal: nominal 16.4 mA, (16-17 mA)
Output current, loop powered mode 2 (power supply connected parallel with the safety signal):	
	0-Signal: nominal 0 mA 1-Signal: nominal 20.5 mA, (18-22 mA)
Maximum load:	596 Ω
Response time:	Input to output <100 ms

Power supply:

Connection:	Terminals 16+, 17-
Input voltage:	0-Signal: nominal 0V (-3 - 5V) 1-Signal: nominal 24/48V (19 - 54 VDC)
Input current:	57.4 mA at 24 VDC, 30.7 mA at 48 VDC.
Max. voltage:	60 VDC
Polarity protection:	-60 VDC
Over voltage protection:	60 VDC

HART:

Connection:	Terminals 7-, 8+ (source) Terminals 7+, 9- (sink)
Input current:	Fixed at 11 mA, source or sink mode
Source mode:	Output voltage max 24 VDC External load max 600 Ω
Sink mode:	Input voltage 24 VDC (nominal) Internal load 230 Ω

PST start:

Connection	Terminals 4+, 5-
Signal level:	0-Signal: nominal 0V (-3 - 5V) 1-Signal: nominal 24/48V (19 - 54 VDC)
Signal type:	Rising edge active
Input current	4.74 mA at 24 VDC, 9.47mA at 48 VDC
Max. voltage:	60 VDC
Polarity protection:	-60 VDC
Over voltage protection:	60 VDC

Testing status:

(Test Status Relay OFF with Test Status LED OFF indication):

Connection:	Terminals 13-14 open Terminals 13-15 connected

(Test Status Relay ON with Test Status LED ON indication):

Connection:	Terminals 13-15 open Terminals 13-14 connected
Relay:	Type SPDT Current 1A (max) Voltage 24V (nominal)

Alarm status:

(Alarm status relay OFF with Alarm Status LED ON indication):

Connection:	Terminals 10-11 open Terminals 10-12 connected

(Alarm Status relay ON with Alarm Status LED OFF indication):

Connection:	Terminals 10-12 open Terminals 10-12 connected
Relay:	Type SPDT Current 1A (max) Voltage 24V (nominal)

Ambient conditions:

Ambient temperature range:	
	-20 to +60 °C

Mechanical specifications:

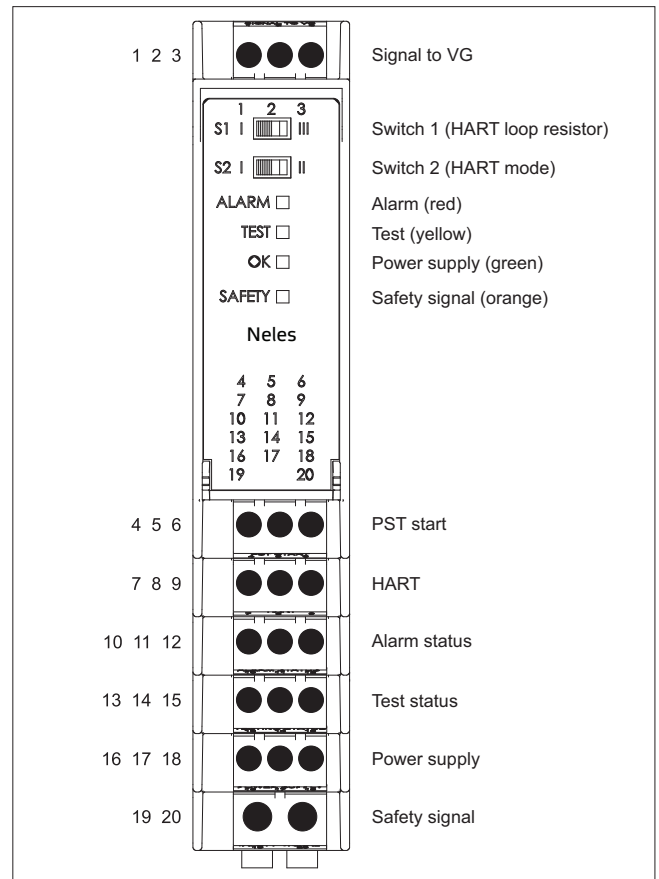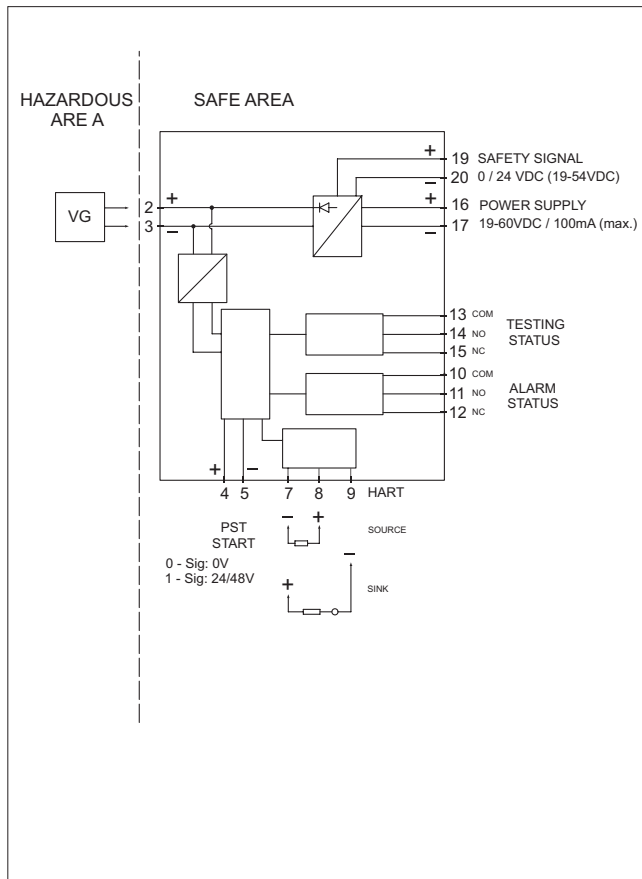|	
Protection degree:	IP20
Weight:	Approx. 215g
Dimensions:	151.5 x 136.2 x 25.2 mm
Mounting:	On 35 mm DIN mounting rail acc. to EN 60715

Data for application in connection with Ex-areas:

Ex values:	U_o = 24.5 V I_o = 93.6 mA P_o = 595 mW C_o = 0.117 μF L_o = 4.29 mH

Approvals

Safety:	Certified by TUV Rheinland up to and including SIL3 according to IEC61508
ATEX, IECEX, CCC	[Ex ia Ga] IIC
cCSAus	[AEx ia Ga] IIC Class 1 Zone 0, Class I, Division 1, Groups A, B, C, D

Electromagnetic compatibility:	
	According to EN61326, EN61000-6-2, EN61000-6-4

Additional accessories

Wiring connections

HAZARDOUS AREA

SAFE AREA

VG

19 SAFETY SIGNAL
20 0 / 24 VDC (19-54VDC)
16 POWER SUPPLY
17 19-60VDC / 100mA (max.)

13 COM
14 NO   TESTING STATUS
15 NC
10 COM
11 NO   ALARM STATUS
12 NC

4 5 7 8 9 HART

PST START
0 - Sig: 0V
1 - Sig: 24/48V

SOURCE

SINK

1 2 3 — Signal to VG

1 2 3
S1 I — III — Switch 1 (HART loop resistor)
S2 I — II — Switch 2 (HART mode)
ALARM ☐ — Alarm (red)
TEST ☐ — Test (yellow)
OK ☐ — Power supply (green)
SAFETY ☐ — Safety signal (orange)

Neles

4 5 6
7 8 9
10 11 12
13 14 15
16 17 18
19 20

4 5 6 — PST start
7 8 9 — HART
10 11 12 — Alarm status
13 14 15 — Test status
16 17 18 — Power supply
19 20 — Safety signal

Dimensions (mm)

25.20

151.5

146.0

136.2

Valmet Flow Control Oy
Vanha Porvoontie 229, 01380 Vantaa, Finland.
Tel. +358 10 417 5000.
www.valmet.com/flowcontrol

Valmet ◆