

# Antares I/O Remote System DATASHEET

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## RCU (Rail Control Unit) ANTARES

### Features

- No isolating repeater needed
- Up to 32 remote I/O modules can be connected
- PROFIBUS-DP, PROFINET, MODBUS TCP and EtherNet/IP
- Integrated power supply unit
- Integrated Ethernet switch
- Installation in ATEX Zone 1/2 or Zone 21/22
- Hot swap (head module exchangeable without disconnection from voltage)
- Optional SD card for data back-up
- Redundancy with PROFIBUS-DP

### Description

The Rail Control Unit (RCU) ANTARES is the central unit in the ANTARES system. It consists of the head module and the connection module.

Various field bus and Ethernet-based head modules are available. There is no need to use an isolating repeater to connect them.

Redundancy with no single point of failure is achieved by connecting two PROFIBUS-DP RCUs.

The head module, consisting of the CPU, the communication interface and an integrated power supply unit, is produced with the Ex d type of protection and is plugged into the corresponding connection module.

The innovative interlocking technology ensures a reliable connection. The hot swap capability allows the head module to be replaced even in an Ex atmosphere.

The connection module has an integrated Ex e junction box. A version is also available for armoured leads.

The system is configured by means of Software ANTARES Designer through the USB interface.

See the system description for installation instructions.

Note: More approvals and data are available at [www.bartec.de](http://www.bartec.de).

### Explosion protection

#### Ex protection type

##### ATEX

Ex II 2G Ex d e [ib] IIC T4 Gb

##### Certification

PTB 11 ATEX 2009 X

##### IECEx

Ex d e [ib] IIC T4 Gb

##### Certification

IECEx PTB 11.0051 X

#### Ambient temperature

-20 °C to +60 °C

#### Protection class (EN 60529)

- RCU IP 54
- Internal system bus IP 30  
(in the ANTARES system construction)

### Technical data

#### Enclosure material

Connection module	PA
Head module	aluminium die-casting PA

#### Mounting rail

TH 35-15 DIN EN 60715  
(Metal, galvanized steel)  
flush on mounting plate

#### Supply I/O modules

up to max. 32 modules (module dependent)

#### Electrical connections Ex e

Data and power supply cable through  
tension spring clamp up to 2.5 mm<sup>2</sup>

#### Displays

LED connection modules	
Operation	LED RUN
Communication	LED COM
Redundancy (primary)	LED PRI
Error	LED ERR

#### Rated voltage

DC 24 V -15 %, +25 %

#### Power consumption

max. 100 W

#### Overvoltage category

I

#### Degree of contamination

2

#### Dimension RCU (W x H x D)

114 mm x 192 mm x 298 mm

#### Weight

approx. 5 kg

#### Storage and transport temperature

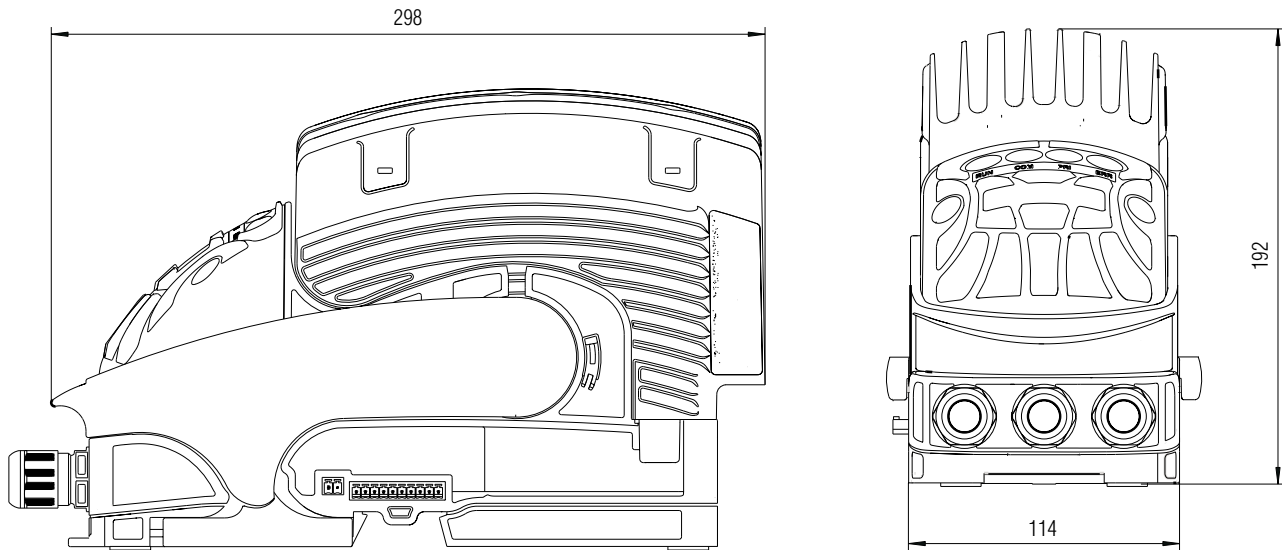
-25 °C to +70 °C

#### Humidity

5 to 95 %, non-condensing



## Dimensions



### **Vibration** (EN 60068-2-6)

2 g/7 mm; 5 Hz to 200 Hz in all 3 axes

### **Shock** (EN 60068-2-27)

15 g, 11 ms,  $\pm 3$  shocks per direction

### ■ **Process connection**

#### **Internal Bus communication**

10 + 2 pole connector

#### **PROFIBUS-DP**

Full redundancy possible up to 1.5 Mbit/s

#### **Ethernet 100BaseT** with integrated switch

- PROFINET
- MODBUS/TCP
- EtherNet/IP

### ■ **Configuration**

#### **Interface**

USB

#### **Software**

ANTARES Designer

#### **Back up**

SD card



## ANTARES 8DI-N

### Features

- 8 channel digital in Ex ia IIC
- 2 channels programmable as counters
- For NAMUR sensors DIN EN 60947-5-6
- Integrated bus rail
- Installation in ATEX Zone 1/2 or Zone 21/22
- Hot-Swap
- Galvanic isolation between the inputs and system
- Line break/short-circuit monitoring
- Plug-in and codable spring clamps
- 2 LED displays per channel

### Description

The Remote I/O Module ANTARES 8DI-N is operated and supplied with power by means of the Rail Control unit (RCU) ANTARES.

This module is suitable for connecting 8 intrinsically safe binary signals in hazardous areas. NAMUR sensors, optocouplers, mechanical contacts or other actuating elements can be connected with intrinsic safety.

The hot swap capability allows the electronic unit to be replaced without disconnecting from voltage even in an Ex atmosphere.

The internal and galvanically isolated bus connection is established by simply joining the modules to the RCU. A bus rail is not necessary.

Line break/short-circuit monitoring can be programmed for each channel.

The bus status messages and individual messages per channel are displayed through the LEDs. This facilitates diagnosis at the module as well.

Each channel can be programmed with the ANTARES Designer software.

See the system description for installation instructions.

### ➔ Explosion protection

#### Ex protection type

##### ATEX

Ex II 2 (1)G Ex ib [ia IIC/IIB Ga] IIC T4 Gb  
Ex II (1)D [Ex ia Da] IIIC

##### Certification

PTB 11 ATEX 2015

##### IECEx

Ex ib [ia IIC/IIB Ga] IIC T4 Gb  
[Ex ia Da] IIIC

##### Certification

IECEx PTB 11.0055

#### Ambient temperature range

-20 °C up to +60 °C

#### Safety data per transmission channel

$U_o = 9.9 \text{ V}$

$I_o = 11.2 \text{ mA}$

$P_o = 27.7 \text{ mW}$

$C_i = \text{negligibly low}$

$L_i = \text{negligibly low}$

Ex ia IIC:  $C_o = 3.2 \mu\text{F}$ ;  $L_o = 20 \mu\text{H}$  or  
 $C_o = 0.47 \mu\text{F}$ ;  $L_o = 100 \text{ mH}$

Ex ia IIB:  $C_o = 22 \mu\text{F}$ ;  $L_o = 10 \mu\text{H}$  or  
 $C_o = 2.5 \mu\text{F}$ ;  $L_o = 100 \text{ mH}$

### ➔ Technical data

#### Enclosure material

PA

#### Protection class (EN 60529)

Enclosure: IP 30  
in the ANTARES system construction

#### Electrical connections

- plug-in tension spring-loaded clamp, 4-pole
- to 2.5 mm<sup>2</sup>
- optional coding and numbering

#### Mounting rail

TH 35-15 DIN EN 60715 (Metal)

#### Device and terminal designation

see accessories

#### Dimensions (W x H x D)

45 mm x 110 mm x 114.5 mm

#### Weight

approx. 380 g

#### Storage and transport temperature

-25 °C up to +85 °C

#### Humidity

5 up to 95 %, non-condensing

#### Degree of contamination

2

#### Vibration (EN 60068-2-6)

2 g/7 mm; 3 Hz up to 200 Hz  
in all 3 axes

#### Shock (EN 60068-2-27)

15 g, 11 ms in all 3 axes



## Electrical data

### Number of channels

NAMUR to DIN EN 60947-5-6

- 8 digital inputs Ex i (short-circuit-proof)
- Channel 7 and Channel 8 configurable as counters (max. count rate 5 kHz)

### Galvanic isolation

between inputs and the internal bus

### Line break/short-circuit

settable for each channel with ANTARES Designer software

### Sensor supply

8.2 V

### Switching thresholds

damped	< 1.2 mA
not damped	> 2.1 mA
Open circuit	< 0.1 mA
Short-circuit	> 7.4 mA

### Displays

LEDs in enclosure front:

Status ST, PWR, ERR1, ERR2

Inputs 2 LEDs per channel

1 x LED yellow Channel active

1 x LED red Channel error

### Norms

EN 60079-0:2009	EN 60079-11:2007
EN 61241-0:2006	EN 61241-11:2006
EN 61000-6-2:2005	EN 61000-6-4:2007
EN 55011:2007	

IEC 60079-0:2007

IEC 60079-11:2006

IEC 61241-0:2004,

modified + Corr. Nov. 2005

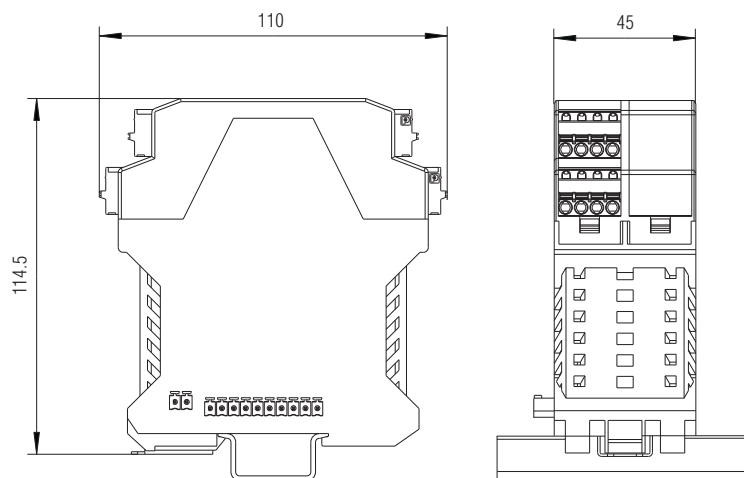
IEC 61241-11:2005 + Corr. Feb. 2006

### Directives

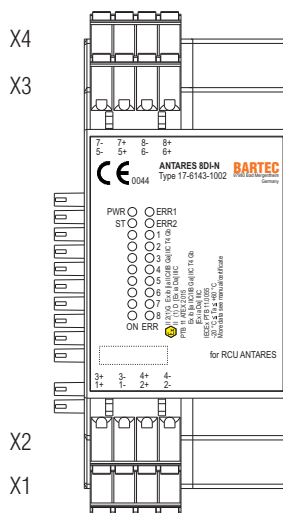
94/9/EC

2004/108/EC

## Dimensions



## Wiring diagram/terminal assignment



Terminal block	Terminal	Description
X4	7-	Minus terminal Channel 7
	7+	Plus terminal Channel 7
	8-	Minus terminal Channel 8
	8+	Plus terminal Channel 8
X3	5-	Minus terminal Channel 5
	5+	Plus terminal Channel 5
	6-	Minus terminal Channel 6
	6+	Plus terminal Channel 6
X2	3+	Plus terminal Channel 3
	3-	Minus terminal Channel 3
	4+	Plus terminal Channel 4
	4-	Minus terminal Channel 4
X1	1+	Plus terminal Channel 1
	1-	Minus terminal Channel 1
	2+	Plus terminal Channel 2
	2-	Minus terminal Channel 2

LED	Colour	Meaning
ST	GN	Data exchange active
PWR	GN	Supply okay, goes out in the event of undervoltage
ERR1	RT	Communication error
ERR2	RT	Error in the module
ON 1-8	GE	Channel switched on
ERR 1-8	RT	Channel error line break/short circuit



## ANTARES 16DI-N

### Features

- 16 channels digital in Ex ia IIC
- For NAMUR sensors DIN EN 60947-5-6
- Integrated bus rail
- Installation in ATEX Zone 1/2 or Zone 21/22
- Hot-Swap
- Galvanic isolation between the inputs and system
- Line break/short-circuit monitoring
- Plug-in and codable spring clamps
- 2 LED displays per channel

### Description

The Remote I/O Module ANTARES 16DI-N is operated and supplied with power by means of the Rail Control Unit (RCU) ANTARES.

This module allows 16 binary signals to be connected in the Ex area. NAMUR sensors, optocouplers, mechanical contacts or other actuating elements can be connected with intrinsic safety.

The hot swap capability allows the electronic unit to be replaced without disconnecting from voltage even in an Ex atmosphere.

The internal and galvanically isolated bus connection is established by simply joining the modules to the RCU. A bus rail is not necessary.

Line break/short-circuit monitoring can be programmed for each channel.

The bus status messages and individual messages per channel are displayed through the LEDs. This facilitates diagnosis at the module as well.

The module is programmed with ANTARES Designer software.

See the system description for installation instructions.

### ➔ Explosion protection

#### Ex protection type

##### ATEX

- Ex II 2 (1)G Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- Ex II (1)D [Ex ia Da] IIIC

##### Certification

PTB 11 ATEX 2015

##### IECEx

- Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- [Ex ia Da] IIIC

##### Certification

IECEx PTB 11.0055

#### Ambient temperature range

-20 °C up to +60 °C

#### Safety data per transmission channel

$U_0 = 9.9 \text{ V}$

$I_0 = 11.2 \text{ mA}$

$P_0 = 27.7 \text{ mW}$

$C_i = \text{negligibly low}$

$L_i = \text{negligibly low}$

Ex ia IIC:  $C_0 = 3.2 \mu\text{F}$ ;  $L_0 = 20 \mu\text{H}$  or  
 $C_0 = 0.47 \mu\text{F}$ ;  $L_0 = 100 \text{ mH}$

Ex ia IIB:  $C_0 = 22 \mu\text{F}$ ;  $L_0 = 10 \mu\text{H}$  or  
 $C_0 = 2.5 \mu\text{F}$ ;  $L_0 = 100 \text{ mH}$

### ➔ Technical data

#### Enclosure material

PA

#### Protection class (EN 60529)

Enclosure: IP 30  
in the ANTARES system construction

#### Electrical connections

- plug-in tension spring-loaded clamp, 4-pole
- to 2.5 mm<sup>2</sup>
- optional coding and numbering

#### Mounting rail

TH 35-15 DIN EN 60715 (Metal)

#### Device and terminal designation

see accessories

#### Dimensions (W x H x D)

45 mm x 110 mm x 114.5 mm

#### Weight

approx. 490 g

#### Storage and transport temperature

-25 °C up to +85 °C

#### Humidity

5 up to 95 %, non-condensing

#### Degree of contamination

2

#### Vibration (EN 60068-2-6)

2 g/7 mm; 3 Hz bis 200 Hz in all 3 axes

#### Shock (EN 60068-2-27)

15 g, 11 ms in all 3 axes

**Electrical data****Number of channels**

NAMUR to DIN EN 60947-5-6  
- 16 digital inputs Ex i (short-circuit-proof)

**Galvanic Isolation**

between inputs and internal bus

**Line break/short-circuit**

settable for each channel with ANTARES  
Designer software

**Sensor supply**

8.2 V

**Switching thresholds**

damped < 1.2 mA  
not damped > 2.1 mA  
Open circuit < 0.1 mA  
Short-circuit > 7.4 mA

**Displays**

LEDs in enclosure front:

Status ST, PWR, ERR1, ERR2

Inputs 2 LEDs per channel

1 x LED yellow Channel active  
1 x LED red Channel error

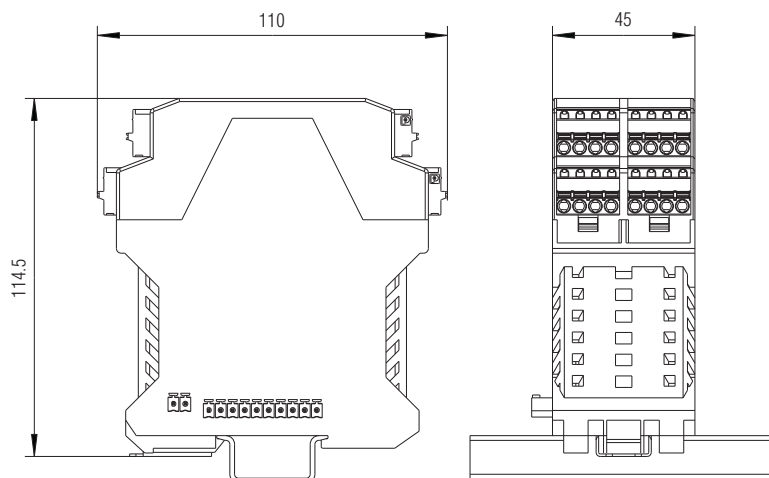
**Norms**

EN 60079-0:2009 EN 60079-11:2007  
EN 61241-0:2006 EN 61241-11:2006  
EN 61000-6-2:2005 EN 61000-6-4:2007  
EN 55011:2007

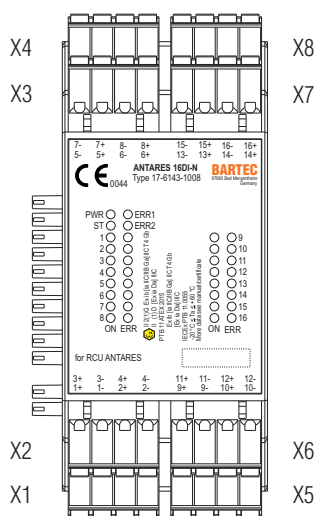
IEC 60079-0:2007  
IEC 60079-11:2006  
IEC 61241-0:2004,  
modified + Corr. Nov. 2005  
IEC 61241-11:2005 + Corr. Feb. 2006

**Directives**

94/9/EC  
2004/108/EC

**Dimensions**

LED	Colour	Meaning
ST	GN	Data exchange active
PWR	GN	Supply okay, goes out in the event of undervoltage
ERR1	RT	Communication error
ERR2	RT	Error in the module
ON 1-16	GE	Channel switched on
ERR 1-16	RT	Channel error line break/short circuit

**Wiring diagram/terminal assignment**

Terminal block	Terminal	Description	Terminal block	Terminal	Description
X4	7-	Minus terminal Channel 7	X8	15-	Minus terminal Channel 15
	7+	Plus terminal Channel 7		15+	Plus terminal Channel 15
	8-	Minus terminal Channel 8		16-	Minus terminal Channel 16
	8+	Plus terminal Channel 8		16+	Plus terminal Channel 16
X3	5-	Minus terminal Channel 5	X7	13-	Minus terminal Channel 13
	5+	Plus terminal Channel 5		13+	Plus terminal Channel 13
	6-	Minus terminal Channel 6		14-	Minus terminal Channel 14
	6+	Plus terminal Channel 6		14+	Plus terminal Channel 14
X2	3+	Plus terminal Channel 3	X6	11+	Plus terminal Channel 11
	3-	Minus terminal Channel 3		11-	Minus terminal Channel 11
	4+	Plus terminal Channel 4		12+	Plus terminal Channel 12
	4-	Minus terminal Channel 4		12-	Minus terminal Channel 12
X1	1+	Plus terminal Channel 1	X5	9+	Plus terminal Channel 9
	1-	Minus terminal Channel 1		9-	Minus terminal Channel 9
	2+	Plus terminal Channel 2		10+	Plus terminal Channel 10
	2-	Minus terminal Channel 2		10-	Minus terminal Channel 10



## ANTARES 8DO

### Features

- 8 channel digital out Ex ia IIC
- Integrated bus rail
- Installation in ATEX Zone 1/2 or Zone 21/22
- Hot-Swap
- Galvanic isolation between the inputs and the system
- Line break/short circuit monitoring
- Plug-in and codable spring clamps
- 2 LED displays per channel

### Description

The Remote I/O-Module ANTARES 8DO is operated and supplied with power by means of the ANTARES Rail Control Unit (RCU).

This module is suitable for the direct control of up to 8 intrinsically safe solenoid valves in hazardous areas.

The hot swap capability allows the electronic unit to be replaced without disconnecting from voltage even in an Ex atmosphere.

The internal and galvanically isolated bus connection is established by simply joining the modules to the RCU. A bus rail is not necessary.

Line break/short-circuit monitoring can be programmed for each channel.

The bus status messages and individual messages per channel are displayed through the LEDs. This facilitates diagnosis at the module as well.

The Software ANTARES Designer allows the module to be programmed and the output load to be calculated automatically.

See the system description for installation instructions.

### Explosion protection

#### Ex protection type

##### ATEX

- Ex II 2(1)G Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- Ex II (1)D [Ex ia Da] III

##### Certification

PTB 11 ATEX 2014

##### IECEx

- Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- [Ex ia Da] IIC

##### Certification

IECEx PTB 11.0054

#### Ambient temperature range

- 20 °C to +50 °C
- 20 °C to +60 °C
- (in conjunction with a distance module)

#### Safety data per transmission channel

- $U_0 = 27.5 \text{ V}$
- $I_0 = 104 \text{ mA}$
- $P_0 = 715 \text{ mW}$
- $C_i = 6 \text{ nF}$
- $L_i = \text{negligibly low}$
- Ex ia IIC:  $C_o = 80 \text{ nF}$ ;  $L_o = 0.2 \text{ mH}$  or  $C_o = 60 \text{ nF}$ ;  $L_o = 0.53 \text{ mH}$
- Ex ia IIB:  $C_o = 666 \text{ nF}$ ;  $L_o = 0.1 \text{ mH}$  or  $C_o = 244 \text{ nF}$ ;  $L_o = 11 \text{ mH}$

### Technical data

#### Enclosure material

PA

#### Protection class (EN 60529)

Enclosure: IP 30  
in the ANTARES system construction

#### Electrical connections

- plug-in tension spring clamp 4-pole
- up to  $2.5 \text{ mm}^2$
- optional coding and numbering

#### Mounting rail

TH 35-15 DIN EN 60715 (Metal)

#### Device and terminal designation

see accessories

#### Dimensions (W x H x D)

45 mm x 110 mm x 114.5 mm

#### Weight

approx. 390 g

#### Storage and transport temperature

-25 °C to +85 °C

#### Humidity

5 to 95 % non-condensing

#### Degree of contamination

2

#### Vibration (EN 60068-2-6)

2 g/7 mm; 3 Hz to 200 Hz  
in all 3 axes

#### Shock (EN 60068-2-27)

15 g, 11 ms in all 3 axes

### Electrical data

#### Number of channels

8 digital outputs Ex i (short-circuit-proof)

#### Galvanic Isolation

between outputs and internal bus

#### Line break/short-circuit

settable for each channel with Software  
ANTARES Designer

#### No-load voltage

DC 24 V

#### Total current of all 8 channels

max. 160 mA (limited)

#### Output current

max. 40 mA per channel

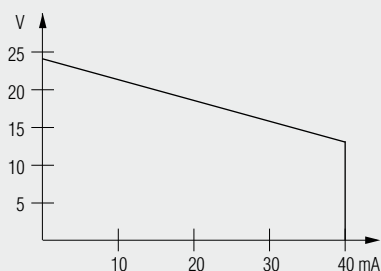
#### Internal resistance

271  $\Omega$

#### Rated output current

$I_N = 20 \text{ mA}$  ( $U_N = 18.5 \text{ V}$ )



**Output level**

Currents between 40 mA and 70 mA can be supplied to each channel also. For this purpose, the short-circuit monitoring for the channel concerned must be switched off in the Antares Designer. However, in each individual case, this must be checked in relation to the corresponding requirement.

The total current of 160mA for the module continues to apply in each case. Accordingly, if the channel current is high, the number of available outputs per module will be reduced.

**Displays**

LEDs in enclosure front:

Status ST, PWR, ERR1, ERR2

Outputs 2 LEDs per channel

1 x LED yellow Channel active

1 x LED red Channel error

**Norms**

EN 60079-0:2009 EN 60079-11:2007

EN 61241-0:2006 EN 61241-11:2006

EN 61000-6-2:2005 EN 61000-6-4:2007

EN 55011:2007

IEC 60079-0:2007

IEC 60079-11:2006

IEC 61241-0:2004,

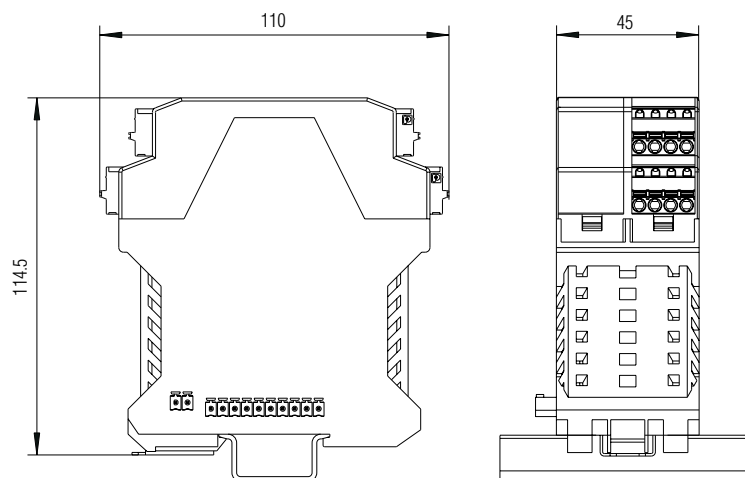
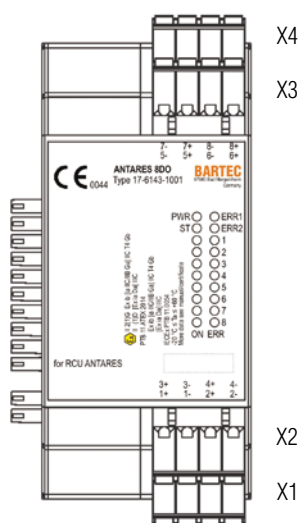
modified + Corr. Nov. 2005

IEC 61241-11:2005 + Corr. Feb. 2006

**Directives**

94/9/EC

2004/108/EC

**Dimensions****Wiring diagram/terminal assignment**

Terminal block	Terminal	Description
X4	7-	Minus terminal Channel 7
	7+	Plus terminal Channel 7
	8-	Minus terminal Channel 8
	8+	Plus terminal Channel 8
X3	5-	Minus terminal Channel 5
	5+	Plus terminal Channel 5
	6-	Minus terminal Channel 6
	6+	Plus terminal Channel 6
X2	3+	Plus terminal Channel 3
	3-	Minus terminal Channel 3
	4+	Plus terminal Channel 4
	4-	Minus terminal Channel 4
X1	1+	Plus terminal Channel 1
	1-	Minus terminal Channel 1
	2+	Plus terminal Channel 2
	2-	Minus terminal Channel 2

LED	Colour	Meaning
ST	GN	Data exchange active
PWR	GN	Supply okay, goes out in the event of undervoltage
ERR1	RT	Communication error
ERR2	RT	Error in the module
ON 1-8	GE	Channel switched on
ERR 1-8	RT	Channel error line break/ short circuit



## ANTARES 8AI

### Features

- 8 channel analog in Ex ia IIC
- Two-conductor transmitter
- Integrated bus rail
- Installation in ATEX Zone 1/2 or Zone 21/22
- Hot-Swap
- Galvanic isolation between the inputs and the system
- Line break/short-circuit monitoring
- Plug-in and codable spring clamps

### Description

The Remote I/O-Module ANTARES 8AI is operated and supplied with power by means of the Rail Control Unit (RCU) ANTARES.

This module is suitable for the direct connection of 8 intrinsically safe two-conductor transmitters.

The hot-swap capability allows the electronic unit to be replaced without disconnecting from voltage even in an Ex atmosphere.

The internal and galvanically isolated bus connection is established by simply joining the modules to the RCU. A bus rail is not necessary.

Line break/short-circuit monitoring can be programmed for each channel.

The bus status messages and individual messages per channel are displayed through the LEDs. This facilitates diagnosis at the module as well.

The ANTARES Designer software allows parameters to be set for the signal range and a 4-stage input filter for each channel.

See the system description for installation instructions.

### ➔ Explosion protection

#### Ex protection type

##### ATEX

- II 2 (1)G Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- II (1)D [Ex ia Da] IIIC

##### Certification

PTB 11 ATEX 2017

##### IECEx

- Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- [Ex ia Da] IIIC

##### Certification

IECEx PTB 11.0059

#### Ambient temperature range

- 20 °C up to +50 °C
- 20 °C up to +60 °C (in conjunction with a distance module)

#### Safety data per transmission channel

- $U_0 = 27.5 \text{ V}$
- $I_0 = 87 \text{ mA}$
- $P_0 = 598 \text{ mW}$
- $C_i = 6 \text{ nF}$
- $L_i = \text{negligibly low}$

- Ex ia IIC:  $C_0 = 79 \text{ nF}$ ;  $L_0 = 0.2 \text{ mH}$  or  $C_0 = 37 \text{ nF}$ ;  $L_0 = 1.7 \text{ mH}$

- Ex ia IIB:  $C_0 = 666 \text{ nF}$ ;  $L_0 = 0.1 \text{ mH}$  or  $C_0 = 264 \text{ nF}$ ;  $L_0 = 16 \text{ mH}$

### ➔ Technical data

#### Enclosure material

PA

#### Protection class (EN 60529)

Enclosure: IP 30  
in the ANTARES system construction

#### Electrical connections

- plug-in tension spring clamp 4-pole
- up to 2.5 mm<sup>2</sup>
- optional coding and numbering

#### Mounting rail

TH 35-15 DIN EN 60715 (Metal)

#### Device and terminal designation

see accessories

#### Dimensions (W x H x D)

45 mm x 110 mm x 114.5 mm

#### Weight

approx. 390 g

#### Storage and transport temperature

-25 °C up to +85 °C

#### Humidity

5 up to 95 %, non-condensing

#### Degree of contamination

2

#### Vibration (EN 60068-2-6)

2 g/7 mm; 3 Hz - 200 Hz in all 3 axes

#### Shock (EN 60068-2-27)

15 g, 11 ms in all 3 axes

**Electrical data****Number of channels**

8 analog inputs Ex i (short-circuit-proof)

**Galvanic Isolation**

between inputs and internal bus

**Line break/short-circuit**

settable for each channel with ANTARES Designer software

**Signal range**

4 up to 20 mA

**Signal**min. 0 mA  
max. 22.8 mA**Short-circuit current**

max. 35 mA

**Input resistance** $R_i = 50 \Omega$ **Resolution**

16 bit (15 bit + prefix)

**Minimum voltage at 20 mA**

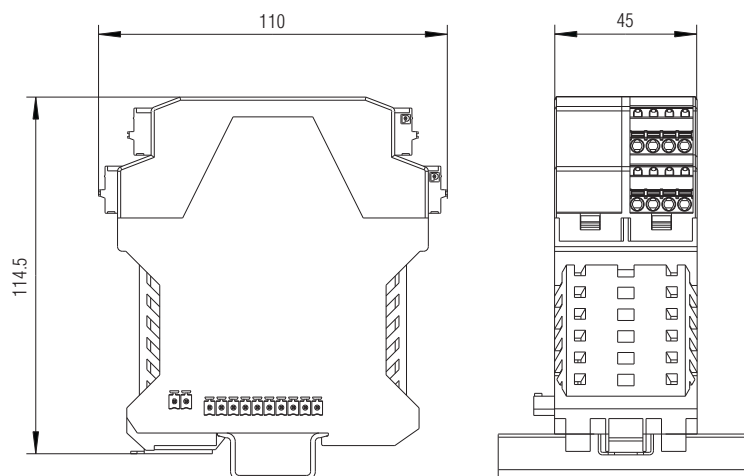
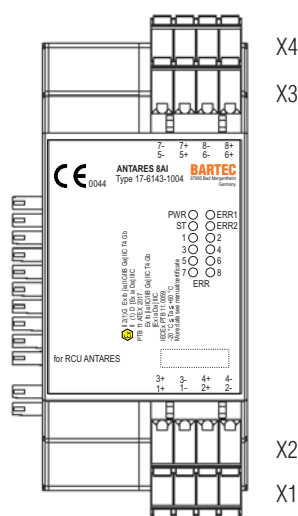
16 V

**Displays**

LEDs in enclosure front:

Status ST, PWR, ERR1, ERR2

Inputs for each channel 1 LED ERR

**Norms**EN 60079-0:2009 EN 60079-11:2007  
EN 61241-0:2006 EN 61241-11:2006  
EN 61000-6-2:2005 EN 61000-6-4:2007  
EN 55011:2007IEC 60079-0:2007  
IEC 60079-11:2006  
IEC 61241-0:2004,  
modified + Corr. Nov. 2005  
IEC 61241-11:2005 + Corr. Feb. 2006**Directives**94/9/EC  
2004/108/EC**Dimensions****Wiring diagram/terminal assignment**

Terminal block	Terminal	Description
X4	7-	Minus terminal Channel 7
	7+	Plus terminal Channel 7
	8-	Minus terminal Channel 8
	8+	Plus terminal Channel 8
X3	5-	Minus terminal Channel 5
	5+	Plus terminal Channel 5
	6-	Minus terminal Channel 6
	6+	Plus terminal Channel 6
X2	3+	Plus terminal Channel 3
	3-	Minus terminal Channel 3
	4+	Plus terminal Channel 4
	4-	Minus terminal Channel 4
X1	1+	Plus terminal Channel 1
	1-	Minus terminal Channel 1
	2+	Plus terminal Channel 2
	2-	Minus terminal Channel 2

LED	Colour	Meaning
ST	GN	Data exchange active
PWR	GN	Supply okay, goes out in the event of undervoltage
ERR1	RT	Communication error
ERR2	RT	Error in the module
ERR 1-8	RT	Channel error line break/short circuit



## ANTARES 8AIH

### Features

- 8 channel analog in HART Ex ia IIC
- Two-conductor transmitter
- 8 fold HART Multiplexer
- Integrated bus rail
- Installation in ATEX Zone 1/2 or Zone 21/22
- Hot-Swap
- Galvanic isolation between the inputs and the system
- Line break/short-circuit monitoring
- Plug-in and codable spring clamps

### Description

The Remote I/O Module ANTARES 8AIH is operated and supplied with power by means of the Rail Control Unit (RCU) ANTARES.

This module allows 8 intrinsically safe two-conductor transmitters to be linked directly.

In addition to analog signal transmission, the Remote I/O Module also offers the possibility of HART communication with the connected transmitters.

The hot-swap capability allows the module to be replaced without disconnecting from voltage even in an Ex atmosphere.

The internal and galvanically isolated bus connection is established by simply joining the modules to the RCU. A bus rail is not necessary.

Line break/short-circuit monitoring can be programmed for each channel.

The bus status messages and individual messages per channel are displayed through the LEDs. This facilitates diagnosis at the module as well.

The ANTARES Designer Software allows parameters to be set for the signal range, HART function through DTM and a 4-stage input filter for each channel.

See the system description for installation instructions.

### Explosion protection

#### Ex protection type

##### ATEX

- Ex II 2 (1)G Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- Ex II (1)D [Ex ia Da] IIIC

##### Certification

PTB 11 ATEX 2017

##### IECEx

- Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- [Ex ia Da] IIIC

##### Certification

IECEx PTB 11.0059

#### Ambient temperature range

- 20 °C up to +50 °C
- 20 °C up to +60 °C (in conjunction with a distance module)

#### Safety data per transmission channel

- $U_0 = 27.5 \text{ V}$
- $I_0 = 87 \text{ mA}$
- $P_0 = 598 \text{ mW}$
- $C_i = 6 \text{ nF}$
- $L_i = \text{negligibly low}$
- Ex ia IIC:  $C_0 = 79 \text{ nF}$ ;  $L_0 = 0.2 \text{ mH}$  or  $C_0 = 37 \text{ nF}$ ;  $L_0 = 1.7 \text{ mH}$
- Ex ia IIB:  $C_0 = 666 \text{ nF}$ ;  $L_0 = 0.1 \text{ mH}$  or  $C_0 = 264 \text{ nF}$ ;  $L_0 = 16 \text{ mH}$

### Technical data

#### Enclosure material

PA

#### Protection class (EN 60529)

Enclosure: IP 30  
in the ANTARES system construction

#### Electrical connections

- plug-in tension spring clamp 4-pole
- up to 2.5 mm<sup>2</sup>
- optional coding and numbering

#### Mounting rail

TH 35-15 DIN EN 60715 (Metal)

#### Device and terminal designation

see accessories

#### Dimensions (W x H x D)

45 mm x 110 mm x 114.5 mm

#### Weight

approx. 390 g

#### Storage and transport temperature

-25 °C up to +85 °C

#### Humidity

5 up to 95 %, non-condensing

#### Degree of contamination

2

#### Vibration (EN 60068-2-6)

2 g/7 mm; 3 Hz bis 200 Hz in all 3 axes

#### Shock (EN 60068-2-27)

15 g, 11 ms in all 3 axes



## Electrical data

### Number of channels

8 analog inputs Ex i HART  
(short-circuit-proof)

### Galvanic Isolation

between inputs and internal bus

### Line break/short-circuit

settable for each channel with ANTARES  
Designer software

### Signal range

4 up to 20 mA

### Signal

min. 0 mA  
max. 22.8 mA

### Short-circuit current

max. 35 mA

### Input resistance

$R_i = 50 \Omega$

### Resolution

16 bit (15 bit + prefix)

### Minimum voltage at 20 mA

16 V

### Displays

LEDs in enclosure front:

Status ST, PWR, ERR1, ERR2  
Inputs per channel 1 LED ERR

### Norms

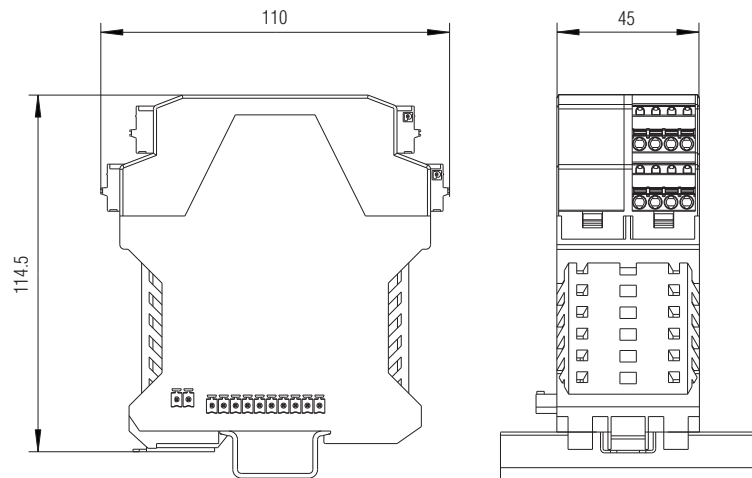
EN 60079-0:2009 EN 60079-11:2007  
EN 61241-0:2006 EN 61241-11:2006  
EN 61000-6-2:2005 EN 61000-6-4:2007  
EN 55011:2007

IEC 60079-0:2007  
IEC 60079-11:2006  
IEC 61241-0:2004, modified + Corr. Nov. 2005  
IEC 61241-11:2005 + Corr. Feb. 2006

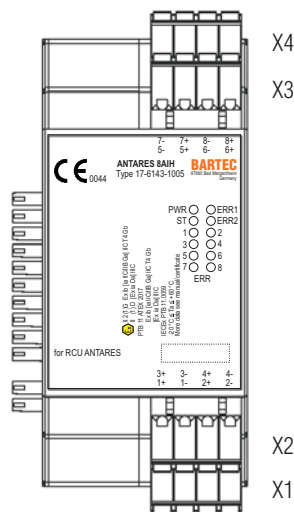
### Directives

94/9/EC  
2004/108/EC

## Dimensions



## Wiring diagram/terminal assignment



Terminal block	Terminal	Description
X4	7-	Minus terminal Channel 7
	7+	Plus terminal Channel 7
	8-	Minus terminal Channel 8
	8+	Plus terminal Channel 8
X3	5-	Minus terminal Channel 5
	5+	Plus terminal Channel 5
	6-	Minus terminal Channel 6
	6+	Plus terminal Channel 6
X2	3+	Plus terminal Channel 3
	3-	Minus terminal Channel 3
	4+	Plus terminal Channel 4
	4-	Minus terminal Channel 4
X1	1+	Plus terminal Channel 1
	1-	Minus terminal Channel 1
	2+	Plus terminal Channel 2
	2-	Minus terminal Channel 2

LED	Colour	Meaning
ST	GN	Data exchange active
PWR	GN	Supply okay, goes out in the event of undervoltage
ERR1	RT	Communication error
ERR2	RT	Error in the module
ERR 1-8	RT	Channel error line break/short circuit



## ANTARES 4AIO

### Features

- 4 channels analog in/out Ex ia IIC
- 4 channels freely configurable as In or Out
- Inputs active or passive
- 2-, 3-, 4-conductor technology
- Integrated bus rail
- Installation in ATEX Zone 1/2 or Zone 21/22
- Hot-Swap
- Galvanic isolation between the inputs/outputs and the system
- Line break/short-circuit monitoring
- Plug-in and codable spring clamps

### Description

The Remote I/O Module ANTARES 4AIO is operated and supplied with power by means of the Rail Control Unit (RCU) ANTARES.

This module allows the direct linking of 4 intrinsically safe 2-, 3-, 4-conductor transmitters or the output of 0 up to 20 mA or 4 up to 20 mA signals.

The hot-swap capability allows the electronic unit to be replaced without disconnecting from voltage even in an Ex atmosphere.

The internal and galvanically isolated bus connection is established by simply joining the modules to the RCU. A bus rail is not necessary.

Line break/short-circuit monitoring can be programmed for each channel.

The bus status messages and individual messages per channel are displayed through the LEDs. This facilitates diagnosis at the module as well.

The ANTARES Designer software allows parameters to be set for the signal range, channel type (in or out) and a 4-stage input filter for each channel.

See the system description for installation instructions.

### Explosion protection

#### Ex protection type

##### ATEX

- Ex II 2 (1)G Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- Ex II (1)D [Ex ia Da] IIIC

##### Certification

PTB 11 ATEX 2018

##### IECEx

- Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- [Ex ia Da] IIIC

##### Certification

IECEx PTB 11.0061

#### Ambient temperature range

-20 °C up to +60 °C

#### Safety data per transmission channel

$U_0 = 27.5 \text{ V}$

$I_0 = 87 \text{ mA}$

$P_0 = 598 \text{ mW}$

$C_i = 6 \text{ nF}$

$L_i = \text{negligibly low}$

Ex ia IIC:  $C_0 = 79 \text{ nF}$ ;  $L_0 = 0.2 \text{ mH}$  or  
 $C_0 = 37 \text{ nF}$ ;  $L_0 = 1.7 \text{ mH}$

Ex ia IIB:  $C_0 = 666 \text{ nF}$ ;  $L_0 = 0.1 \text{ mH}$  or  
 $C_0 = 264 \text{ nF}$ ;  $L_0 = 16 \text{ mH}$

### Technical data

#### Enclosure material

PA

#### Protection class (EN 60529)

Enclosure: IP 30

in the ANTARES system construction

#### Electrical connections

- plug-in tension spring clamp 4-pole
- up to 2.5 mm<sup>2</sup>
- optional coding and numbering

#### Mounting rail

TH 35-15 DIN EN 60715 (Metal)

#### Device and terminal designation

see accessories

#### Dimensions (W x H x D)

45 mm x 110 mm x 114.5 mm

#### Weight

approx. 390 g

#### Storage and transport temperature

-25 °C up to +85 °C

#### Humidity

5 up to 95 %, non-condensing

#### Degree of contamination

2

#### Vibration (EN 60068-2-6)

2 g/7 mm; 3 Hz up to 200 Hz in all 3 axes

#### Shock (EN 60068-2-27)

15 g, 11 ms in all 3 axes

**Electrical data Inputs/Outputs****Number of channels**

4 inputs or outputs Ex i (short-circuit-proof)  
Inputs active/passive

**Galvanic Isolation**

between inputs or outputs and  
internal bus

**Line break/short-circuit**

settable for each channel with ANTARES  
Designer software

**Data input channels****Signal range**

4 up to 20 mA

**Signal**

min. 0 mA  
max. 23.5 mA

**Short-circuit current**

max. 35 mA

**Input resistance**

$R_i = 50 \Omega$

**Resolution**

16 bit (15 bit + prefix)

**Minimum voltage at 20 mA**

16 V

**Data output channels****Signal range**

0 up to 20 mA

**Signal**

min. 0 mA  
max. 21.8 mA

**Short-circuit current**

max. 24 mA

**Load**

max. 750 W

**Resolution**

14 bit

**Displays**

LEDs in enclosure front:

Status ST, PWR, ERR1, ERR2

Inputs/ 2 LEDs per channel

Outputs 1 x LED gelb channel setting

1 x LED rot channel error

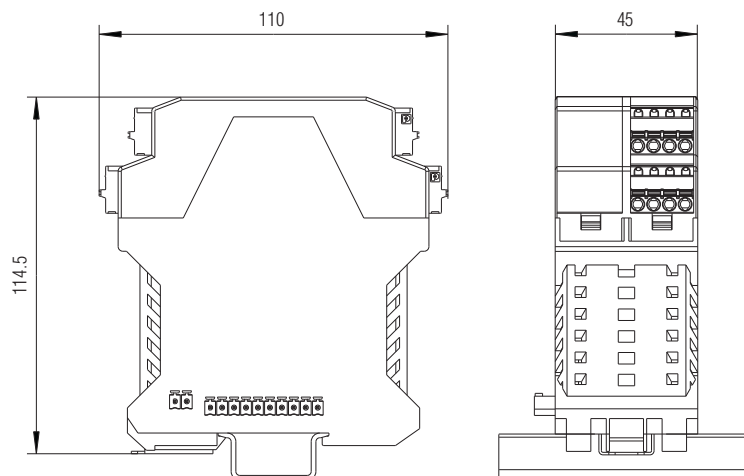
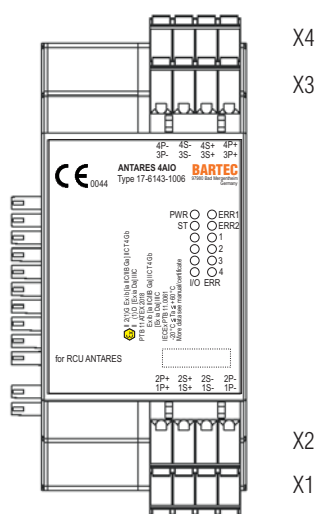
**Norms**

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EN 61241-0:2006 EN 61241-11:2006  
EN 61000-6-2:2005 EN 61000-6-4:2007  
EN 55011:2007

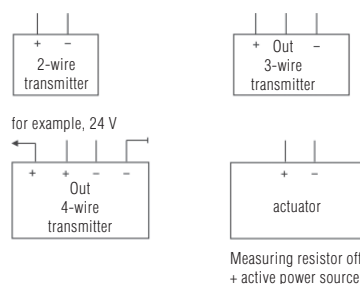
IEC 60079-0:2007  
IEC 60079-11:2006  
IEC 61241-0:2004,  
modified + Corr. Nov. 2005  
IEC 61241-11:2005 + Corr. Feb. 2006

**Directives**

94/9/EC  
2004/108/EC

**Dimensions****Wiring diagram/terminal assignment**

Terminal block	Terminal	Description
X4	4P-	Supply - Channel 4
	4S-	Signal - Channel 4
	4S+	Signal + Channel 4
	4P+	Supply + Channel 4
X3	3P-	Supply - Channel 3
	3S-	Signal - Channel 3
	3S+	Signal + Channel 3
	3P+	Supply + Channel 3
X2	2P+	Supply + Channel 2
	2S+	Signal + Channel 2
	2S-	Signal - Channel 2
	2P-	Supply - Channel 2
X1	1P+	Supply + Channel 1
	1S+	Signal + Channel 1
	1S-	Signal - Channel 1
	1P-	Supply - Channel 1

**Connection examples**

LED	Colour	Meaning
ST	GN	Data exchange active
PWR	GN	Supply okay, goes out in the event of undervoltage
ERR1	RT	Communication error
ERR2	RT	Error in the module
ON 1-4	GE	Differentiation input/output module
ERR 1-4	RT	Channel error line break/short circuit



## ANTARES 4AIOH

### Features

- 4 channels analog in/out HART Ex ia IIC
- 4 channels freely configurable as In or Out
- Inputs active or passive
- 2-, 3-, 4-conductor technology
- Integrated bus rail
- Installation in ATEX Zone 1/2 or Zone 21/22
- Hot-Swap
- Galvanic isolation between the inputs/outputs and the system
- Line break/short-circuit monitoring
- Plug-in and codable spring clamps

### Description

The Remote I/O Module ANTARES 4AIOH is operated and supplied with power by means of the Rail Control Unit (RCU) ANTARES.

This module allows the direct linking of 4 intrinsically safe 2-, 3-, 4-conductor transmitters or the output of 0 up to 20 mA or 4 up to 20 mA signals.

The hot-swap capability allows the electronic unit to be replaced without disconnecting from voltage even in an Ex atmosphere.

The internal and galvanically isolated bus connection is established by simply joining the modules to the RCU. A bus rail is not necessary.

Line break/short-circuit monitoring can be programmed for each channel.

The bus status messages and individual messages per channel are displayed through the LEDs. This facilitates diagnosis at the module as well.

The ANTARES Designer software allows parameters to be set for the signal range, channel type (in or out), HART function through DTM and a 4-stage input filter for each channel.

See the system description for installation instructions.

### Explosion protection

#### Ex protection type

##### ATEX

- Ex II 2 (1)G Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- Ex II (1)D [Ex ia Da] IIIC

##### Certification

PTB 11 ATEX 2018

##### IECEx

- Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- [Ex ia Da] IIIC

##### Certification

IECEx PTB 11.0061

#### Ambient temperature range

- 20 °C up to +50 °C
- 20 °C up to +60 °C (in conjunction with a distance module)

#### Safety data per transmission channel

$U_0 = 27.5 \text{ V}$

$I_0 = 87 \text{ mA}$

$P_0 = 598 \text{ mW}$

$C_i = 6 \text{ nF}$

$L_i = \text{negligibly low}$

Ex ia IIC:  $C_0 = 79 \text{ nF}$ ;  $L_0 = 0.2 \text{ mH}$  or  
 $C_0 = 37 \text{ nF}$ ;  $L_0 = 1.7 \text{ mH}$

Ex ia IIB:  $C_0 = 666 \text{ nF}$ ;  $L_0 = 0.1 \text{ mH}$  or  
 $C_0 = 264 \text{ nF}$ ;  $L_0 = 16 \text{ mH}$

### Technical data

#### Enclosure material

PA

#### Protection class (EN 60529)

Enclosure: IP 30  
in the ANTARES system construction

#### Electrical connections

- plug-in tension spring clamp 4-pole
- up to 2.5 mm<sup>2</sup>
- optional coding and numbering

#### Mounting rail

TH 35-15 DIN EN 60715 (Metal)

#### Device and terminal designation

see accessories

#### Dimensions (W x H x D)

45 mm x 110 mm x 114.5 mm

#### Weight

approx. 390 g

#### Storage and transport temperature

-25 °C up to +85 °C

#### Humidity

5 up to 95 %, non-condensing

#### Degree of contamination

2

#### Vibration (EN 60068-2-6)

2 g/7 mm; 3 Hz up to 200 Hz in all 3 axes

#### Shock (EN 60068-2-27)

15 g, 11 ms in all 3 axes





## Electrical data Inputs/Outputs

### Number of channels

4 inputs or outputs Ex i (short-circuit-proof)  
Inputs active/passive

### Galvanic Isolation

between inputs or outputs and internal bus

### Line break/short-circuit

settable for each channel with ANTARES  
Designer software

## Data input channels

### Signal range

4 up to 20 mA

### Signal

min. 0 mA  
max. 23.5 mA

### Short-circuit current

max. 35 mA

### Input resistance

$R_i = 50 \Omega$

### Resolution

16 bit (15 bit + prefix)

### Minimum voltage at 20 mA

16 V

## Data output channels

### Signal range

0 up to 20 mA

### Signal

min. 0 mA  
max. 21.8 mA

### Short-circuit current

max. 24 mA

### Load

max. 750  $\Omega$

### Resolution

14 bit

### Displays

LEDs in enclosure front:

Status ST, PWR, ERR1, ERR2

Inputs/ 2 LEDs per channel

Outputs 1 x LED yellow channel setting  
1 x LED red channel error

### Norms

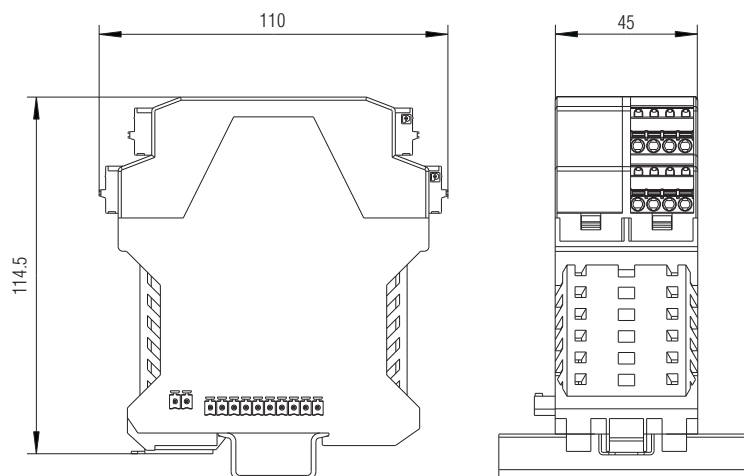
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EN 55011:2007

IEC 60079-0:2007  
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IEC 61241-0:2004,  
modified + Corr. Nov. 2005  
IEC 61241-11:2005 + Corr. Feb. 2006

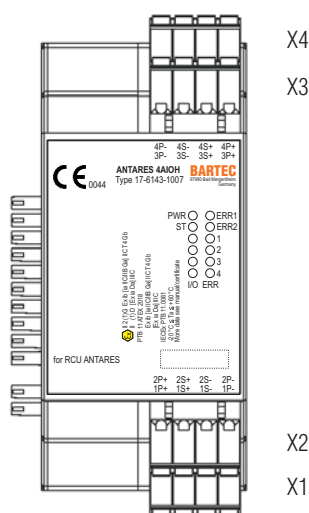
### Directives

94/9/EC  
2004/108/EC

## Dimensions

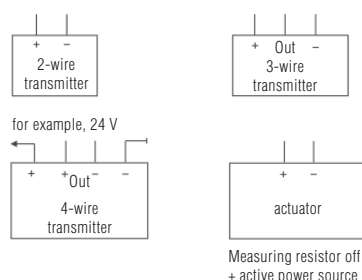


## Wiring diagram/terminal assignment



Terminal block	Terminal	Description
X4	4P-	Supply - Channel 4
	4S-	Signal - Channel 4
	4S+	Signal + Channel 4
	4P+	Supply + Channel 4
X3	3P-	Supply - Channel 3
	3S-	Signal - Channel 3
	3S+	Signal + Channel 3
	3P+	Supply + Channel 3
X2	2P+	Supply + Channel 2
	2S+	Signal + Channel 2
	2S-	Signal - Channel 2
	2P-	Supply - Channel 2
X1	1P+	Supply + Channel 1
	1S+	Signal + Channel 1
	1S-	Signal - Channel 1
	1P-	Supply - Channel 1

## Connection examples



LED	Colour	Meaning
ST	GN	Data exchange active
PWR	GN	Supply okay, goes out in the event of undervoltage
ERR1	RT	Communication error
ERR2	RT	Error in the module
ON 1-4	GE	Differentiation input/output module
ERR 1-4	RT	Channel error line break/short circuit



## ANTARES 4TI

### Features

- 4 channels temperature in
- Pt100, Pt1000 or resistor up to 10 k $\Omega$
- 2-, 3-, 4-conductor technology
- Integrated bus rail
- Installation in ATEX Zone 1/2 or Zone 21/22
- Hot-Swap
- Galvanic isolation between the inputs and the system
- Line break/short-circuit monitoring
- Plug-in and codable spring clamps

### Description

The Remote I/O Module ANTARES 4TI is operated and supplied with power by means of the Rail Control Unit (RCU) ANTARES.

This module allows 4 Pt100, Pt1000, resistors or potentiometers to be connected with intrinsic safety.

The hot-swap capability allows the electronic unit to be replaced without disconnecting from voltage even in an Ex atmosphere.

The internal and galvanically isolated bus connection is established by simply joining the modules to the RCU. A bus rail is not necessary.

Line break/short-circuit monitoring can be programmed for each channel.

The bus status messages and individual messages per channel are displayed through the LEDs. This facilitates diagnosis at the module as well.

The ANTARES Designer software allows parameters to be set for the sensor type.

See the system description for installation instructions.

### ➔ Explosion protection

#### Ex protection type

##### ATEX

- ⊕ II 2 (1)G Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- ⊕ II (1)D [Ex ia Da] IIIC

##### Certification

PTB 11 ATEX 2016

##### IECEx

- Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- [Ex ia Da] IIIC

##### Certification

IECEx PTB 11.0058

#### Ambient temperature range

-20 °C up to +60 °C

#### Safety data per transmission channel

$U_0 = 6.5 \text{ V}$

$I_0 = 25.9 \text{ mA}$

$P_0 = 42.1 \text{ mW}$

$C_i = 16.6 \text{ nF}$

$L_i = \text{negligibly low}$

Ex ia IIC:  $C_0 = 24.9 \text{ }\mu\text{F}$ ;  $L_0 = 2 \text{ }\mu\text{H}$  or  
 $C_0 = 593 \text{ nF}$ ;  $L_0 = 73 \text{ mH}$

Ex ia IIB:  $C_0 = 569 \text{ }\mu\text{F}$ ;  $L_0 = 2 \text{ }\mu\text{H}$  or  
 $C_0 = 4.68 \text{ }\mu\text{F}$ ;  $L_0 = 100 \text{ mH}$

### ➔ Technical data

#### Enclosure material

PA

#### Protection class (EN 60529)

Enclosure: IP 30

in the ANTARES system construction

#### Electrical connections

- plug-in tension spring clamp 4-pole
- up to 2.5 mm<sup>2</sup>
- optional coding and numbering

#### Mounting rail

TH 35-15 DIN EN 60715 (Metal)

#### Device and terminal designation

see accessories

#### Dimensions (W x H x D)

45 mm x 110 mm x 114.5 mm

#### Weight

approx. 380 g

#### Storage and transport temperature

-25 °C up to +85 °C

#### Humidity

5 up to 95 %, non-condensing

#### Degree of contamination

2

#### Vibration (EN 60068-2-6)

2 g/7 mm; 3 Hz up to 200 Hz  
in all 3 axes

#### Shock (EN 60068-2-27)

15 g, 11 ms in all 3 axes

**Electrical data****Number of channels**

4 inputs Ex i (short-circuit-proof)

**Supply voltage**

through internal bus

**Galvanic isolation**

between inputs and internal bus

**Line break/short-circuit**

settable for each channel with ANTARES Designer software

**Measurement range**Potentiometer 0 up to 10 k $\Omega$ 

Temperature -150 °C up to +850 °C

**Sensors**Pt100, Pt1000, Potentiometer  
with 2-, 3-, 4-conductor technology**Readings**

Temperature (Pt100, Pt1000)

in °C, K or °F

Potentiometer in  $\Omega$ , settable for each  
channel with ANTARES Designer software**Displays**

LEDs in enclosure front:

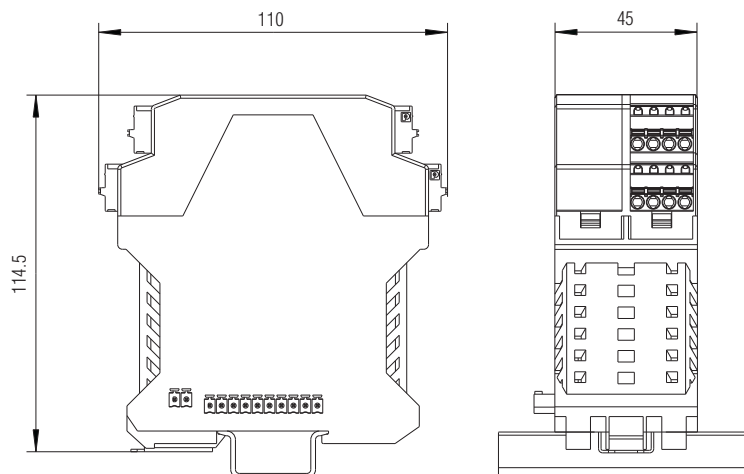
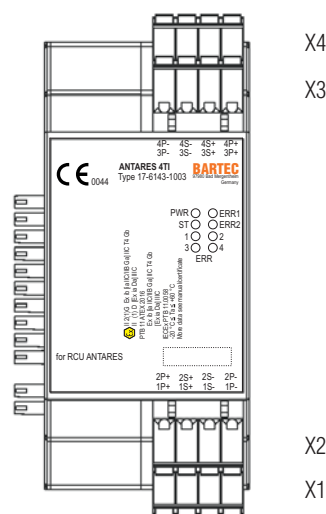
Status ST, PWR, ERR1, ERR2

Inputs for each channel 1 x LED

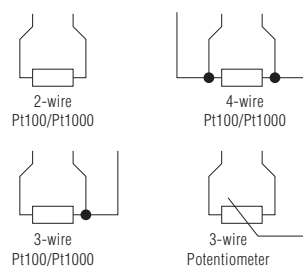
**Norms**EN 60079-0:2009 EN 60079-11:2007  
EN 61241-0:2006 EN 61241-11:2006  
EN 61000-6-2:2005 EN 61000-6-4:2007  
EN 55011:2007IEC 60079-0:2007  
IEC 60079-11:2006  
IEC 61241-0:2004,  
modified + Corr. Nov. 2005  
IEC 61241-11:2005 + Corr. Feb. 2006**Directives**

94/9/EC

2004/108/EC

**Dimensions****Wiring diagram/terminal assignment**

Terminal block	Terminal	Description
X4	4P-	Supply - Channel 4
	4S-	Signal - Channel 4
	4S+	Signal + Channel 4
	4P+	Supply + Channel 4
X3	3P-	Supply - Channel 3
	3S-	Signal - Channel 3
	3S+	Signal + Channel 3
	3P+	Supply + Channel 3
X2	2P+	Supply + Channel 2
	2S+	Signal + Channel 2
	2S-	Signal - Channel 2
	2P-	Supply - Channel 2
X1	1P+	Supply + Channel 1
	1S+	Signal + Channel 1
	1S-	Signal - Channel 1
	1P-	Supply - Channel 1

**Connection examples**

LED	Colour	Meaning
ST	GN	Data exchange active
PWR	GN	supply okay goes out if voltage is too low
ERR1	RT	Communication error
ERR2	RT	Error in the module
ERR 1-4	RT	Channel error line break/ short circuit



## ANTARES 8DO-SCL

### Features

- 8 channels digital out Ex ia IIC
- Single Channel Current Limitation
- Integrated bus rail
- Installation in ATEX Zone 1/2 or Zone 21/22
- Hot-Swap
- Galvanic isolation between the inputs and the system
- Line break/short circuit monitoring
- Plug-in and codable spring clamps
- 2 LED displays per channel

### Description

The Remote I/O Module ANTARES 8DO-SCL (single channel limitation) is operated and supplied with power through the Rail Control Unit (RCU) ANTARES.

This module is suitable for the direct control of up to 8 intrinsically safe solenoid valves in the explosion hazardous area.

The hot swap capability allows the electronic unit to be replaced without disconnecting from voltage even in an Ex atmosphere.

The internal and galvanically isolated bus connection is established by simply joining the modules to the RCU. A bus rail is not necessary.

Line break/short-circuit monitoring can be programmed for each channel.

The bus status messages and individual messages per channel are displayed through the LEDs. This facilitates diagnosis at the module as well.

The ANTARES Designer software allows the module to be programmed and the output load to be calculated automatically.

See the system description for installation instructions.

### Explosion protection

#### Ex protection type

##### ATEX

- Ex II 2 (1)G Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- Ex II (1)D [Ex ia Da] IIIC

##### Certification

PTB 11 ATEX 2014

##### IECEx

- Ex ib [ia IIC/IIB Ga] IIC T4 Gb
- [Ex ia Da] IIIC

##### Certification

IECEx PTB 11.0054

#### Ambient temperature range

- 20 °C up to +50 °C
- 20 °C up to +60 °C (in conjunction with a distance module)

#### Safety data per transmission channel

- $U_0 = 27.5 \text{ V}$
- $I_0 = 104 \text{ mA}$
- $P_0 = 715 \text{ mW}$
- $C_i = 6 \text{ nF}$
- $L_i = \text{negligibly low}$
- Ex ia IIC:  $C_0 = 80 \text{ nF}$ ;  $L_0 = 0.2 \text{ mH}$  or  $C_0 = 60 \text{ nF}$ ;  $L_0 = 0.53 \text{ mH}$
- Ex ia IIB:  $C_0 = 666 \text{ nF}$ ;  $L_0 = 0.1 \text{ mH}$  or  $C_0 = 244 \text{ nF}$ ;  $L_0 = 11 \text{ mH}$

### Technical data

#### Enclosure material

PA

#### Protection class (EN 60529)

Enclosure: IP 30  
in the ANTARES system construction

#### Electrical connections

- plug-in tension spring clamp 4-pole
- up to 2.5 mm<sup>2</sup>
- optional coding and numbering

#### Mounting rail

TH 35-15 DIN EN 60715 (Metal)

#### Device and terminal designation

see accessories

#### Dimensions (W x H x D)

45 mm x 110 mm x 114.5 mm

#### Weight

approx. 390 g

#### Storage and transport temperature

-25 °C up to +85 °C

#### Humidity

5 up to 95 %, non-condensing

#### Degree of contamination

2

#### Vibration (EN 60068-2-6)

2 g/7 mm; 3 Hz bis 200 Hz in all 3 axes

#### Shock (EN 60068-2-27)

15 g, 11 ms in all 3 axes

**Electrical data****Number of channels**

8 digital outputs Ex i (short-circuit-proof)

**Galvanic isolation**

between outputs and internal bus

**Line break/short-circuit**

settable for each channel with ANTARES Designer software

**No-load voltage**

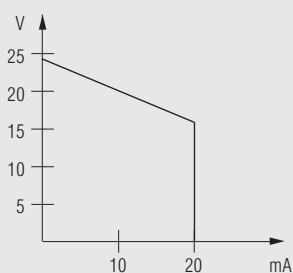
DC 24 V

**Total current of all 8 channels**

max. 160 mA

**Output current**

max. 20 mA per channel (limited)

**Internal resistance**271  $\Omega$ **Rated output current** $I_N = 20 \text{ mA}$  ( $U_N = 18.5 \text{ V}$ )**Output level****Displays**

LEDs in enclosure front:

Status ST, PWR, ERR1, ERR2

Outputs 2 LEDs per channel

1 x LED yellow Channel active

1 x LED red Channel error

**Normen**

EN 60079-0:2009 EN 60079-11:2007

EN 61241-0:2006 EN 61241-11:2006

EN 61000-6-2:2005 EN 61000-6-4:2007

EN 55011:2007

IEC 60079-0:2007

IEC 60079-11:2006

IEC 61241-0:2004,

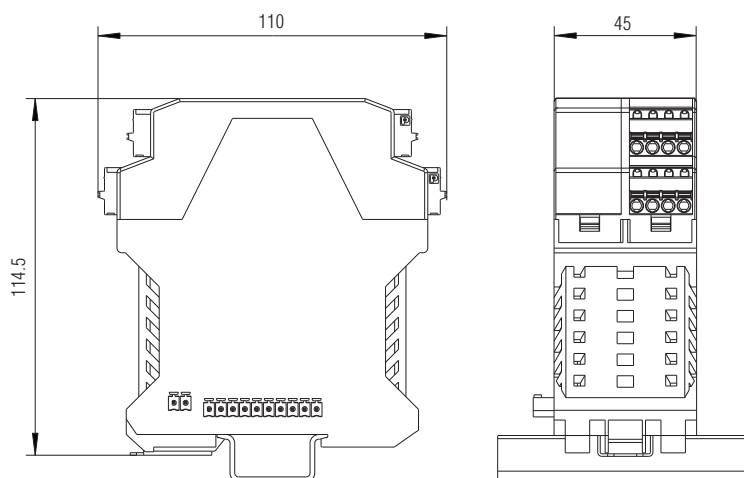
modified + Corr. Nov. 2005

IEC 61241-11:2005 + Corr. Feb. 2006

**Directives**

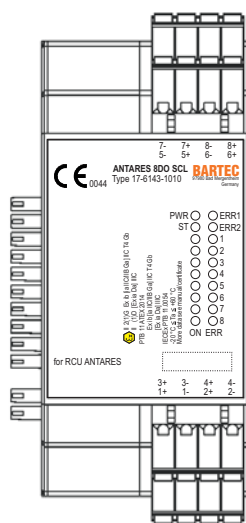
94/9/EC

2004/108/EC

**Dimensions****Wiring diagram/terminal assignment**

X4

X3



X2

X1

Terminal block	Terminal	Description
X4	7-	Minus terminal Channel 7
	7+	Plus terminal Channel 7
	8-	Minus terminal Channel 8
	8+	Plus terminal Channel 8
X3	5-	Minus terminal Channel 5
	5+	Plus terminal Channel 5
	6-	Minus terminal Channel 6
	6+	Plus terminal Channel 6
X2	3+	Plus terminal Channel 3
	3-	Minus terminal Channel 3
	4+	Plus terminal Channel 4
	4-	Minus terminal Channel 4
X1	1+	Plus terminal Channel 1
	1-	Minus terminal Channel 1
	2+	Plus terminal Channel 2
	2-	Minus terminal Channel 2

LED	Colour	Meaning
ST	GN	Data exchange active
PWR	GN	Supply okay, goes out in the event of undervoltage
ERR1	RT	Communication error
ERR2	RT	Error in the module
ON 1-8	GE	Channel switched on
ERR 1-8	RT	Channel error line break / short circuit

## Contactos/Contacts:

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