

ACT20X – Universal, intrinsically safe signal conditioners for hazardous area applications

PC-configurable conditioners family for hazardous areas in the new Weidmüller electronics housing for installation in safe or hazardous areas of Zone 2

The ACT20X products fulfil the strict standards of the hazardous area industries and process signals from various Ex zones (Zones 0, 1, 2) for the control system.

ACT20X can be used universally. On the input side, the ACT20X can process HART® input signals, DC, RTD, thermocouple or

NAMUR signals from the Ex area. On the output side, field devices in the Ex area are controlled via the ACT20X with analogue or digital signals. All ACT20X products are characterised by insulation, accuracy and high temperature stability.

The 2-channel versions with width of 22.5 mm are available with either transistor or relay output. Due to this high component density, the space requirements and installation costs are reduced accordingly.





Configuration via FDT

All modules can be quickly and conveniently configured with manufacturer-independent FDT/DTM software.



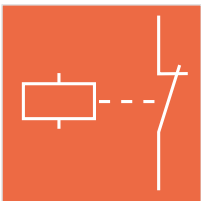
Worldwide application

Fulfills the strict standards and requirements of the process industry. Can be used worldwide due to international and local approvals ATEX, IECEx, CULUS, FM, GOST and DNV.



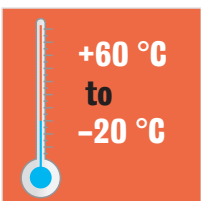
Intelligent connection system

Pluggable, coded, with release lever. The release lever simplifies maintenance and allows the disconnection without damaging the cables.



Alarm function

No laborious troubleshooting. Alarm function integrated for cable or sensor errors. In case of failures, a diagnostic signal is sent to the control system.



Robust

Wide ambient temperature range from -20 °C ... $+60\text{ °C}$.

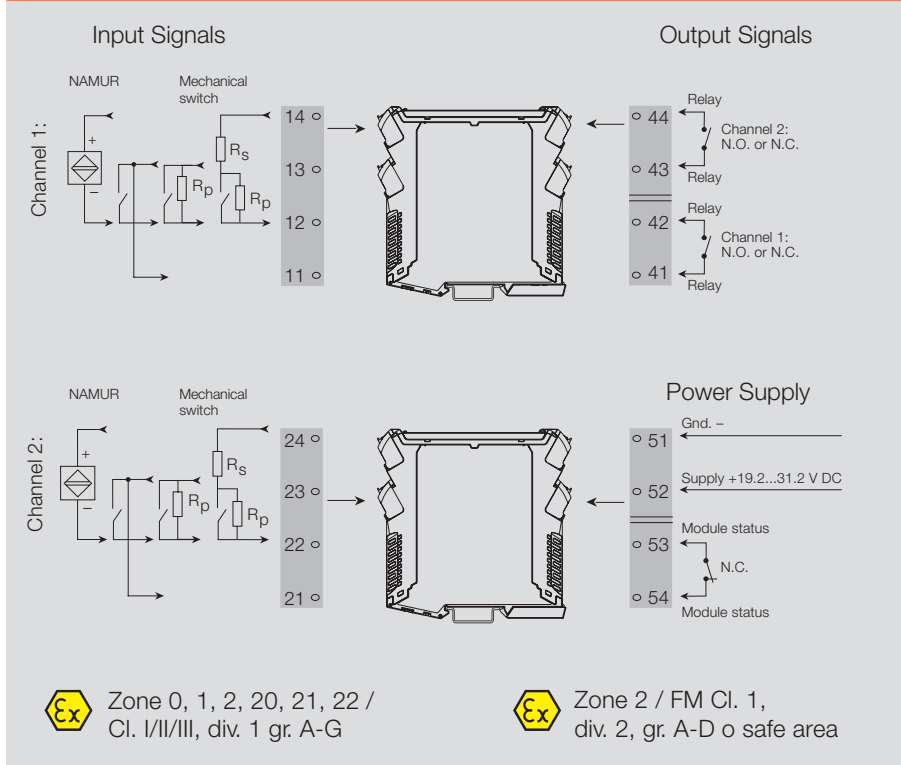
ACT20X

NAMUR isolating switching amplifier: with relay output

The ACT20X-HDI-SDO-RNO (NC) isolating switching amplifier is a specialized signal isolating converter for Namur sensor signals or for simple switching signals from the Ex Zone 0. A single relay, available optionally as NC or NO, provides the output signal in the safe zone. Single-channel or double-channel versions are also available.

B

Connection diagram: ACT20X HDI-SDO-RNC

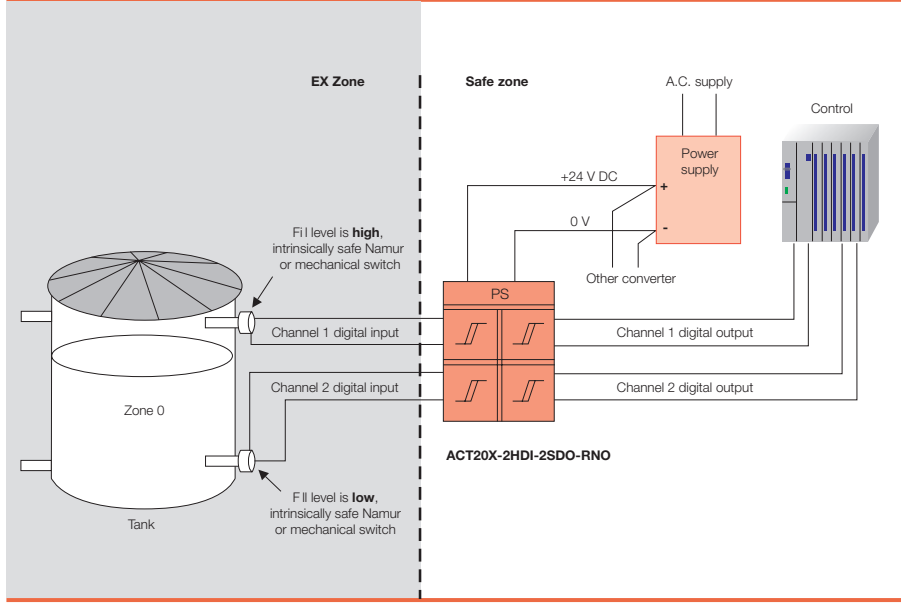


Ex label

ATEX
II 3 G Ex nA nC IIC T4
II (1) G [Ex ia] IIC/II B/IIA
II (1) D [Ex iaD]
IECEX
Ex nA nC IIC T4 Gc
[Ex ia Ga] IIC/II B/IIA
[Ex ia Da] IIIC
FM
Installation in CL I DIV2 GP A-D T4
Protects Ex circuits, in compliance with
Cl. I-III ABT 1/2 GP A-G or
Cl. I Zn2 AEx/Ex nA nC [ia] IIC T4.

Note

Application: monitoring of fill level with the ACT20X HDI-SDO-RNO (relay output)

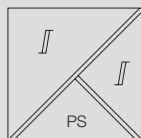


NAMUR isolating switching amplifier

- Converts intrinsically safe digital signals (NAMUR / switching contact) from EX Zone 0 into digital output signals (relay output) for the safe zone
- PC configuration with FDT/DTM software, download at www.weidmueller.com
- Relay output for error alarm
- 1 or 2 channels in one module

ACT20X-HDI-SDO-RNO-S / RNC-S ACT20X-2HDI-2SDO-RNO-S / RNC-S

With relay output



Technical data

Input	
Sensor	NAMUR sensor, according to EN60947, Switch with or without RS, RP
Sensor supply	8 V DC / 8 mA
Resistance	RP = 750 Ω / RS = 15kΩ
Input frequency	0...5 kHz
Pulse duration	> 0.1 ms
Input resistance	1 kΩ
Triggerlevel low / Triggerlevel high	< 1.2 mA /
Output signal in case of wire break	< 0.1 mA, > 6.5 mA (in case of wire break)
Output	
Type	Relay, 1 or 2 NO / NC (potential-free)
Rated switching voltage	≤ 250 V AC / 30 V DC (safe area) ≤ 32 V AC / 32 V DC (Zone 2)
Continuous current	≤ 2 A AC/DC (safe area, Zone 2 area)
Power rating	≤ 500 VA / 60 W (safe area) ≤ 16 VA / 32 W (Zone 2)
Alarm output	
Type	Relay, 1 NO (voltage-free)
Nominal switching voltage	≤ 125 V AC / 110 V DC (safe area) ≤ 32 V AC / 32 V DC (Zone 2)
Continuous current	≤ 0.5 A AC / 1 A DC (safe area, Zone 2)
Power rating	≤ 62.5 V AC / 32 W (safe area) ≤ 16 VA / 32 W (Zone 2)
General data	
Supply voltage	19...31.2 V DC
NAMUR supply	8 V DC / 8 mA
Power consumption	≤ 3 W (2 channels)
Tightening torque, min. / Tightening torque, max.	0.4 Nm / 0.6 Nm
Ambient temperature / Storage temperature	-20 °C...+60 °C / -20 °C...+85 °C
Approvals	
Approvals	cULus; CE; ATEX; IECEX; FM
Insulation coordination	
Insulation voltage	2.6 kV (input / output)
Rated voltage	300 V
EMC standards	DIN EN 61326
Data for Ex applications (ATEX)	
Voltage U ₀	10.6 V DC
Current I ₀	12 mA DC
Power P ₀	32 W
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 0.5 / 2.5
Length x width x height	mm 119.2 / 22.5 / 113.6
Screw connection	
	2.5 / 0.5 / 2.5
	119.2 / 22.5 / 113.6
Note	

Ordering data

Type	Qty.	Order No.
1-channel version, NO		
ACT20X-HDI-SDO-RNO-S	1	8965340000
1-channel version, NC		
ACT20X-HDI-SDO-RNC-S	1	8965350000
2-channel version, NO		
ACT20X-2HDI-2SDO-RNO-S	1	8965370000
2-channel version, NC		
ACT20X-2HDI-2SDO-RNC-S	1	8965380000
CBX200 USB configuration interface - 8978580000		

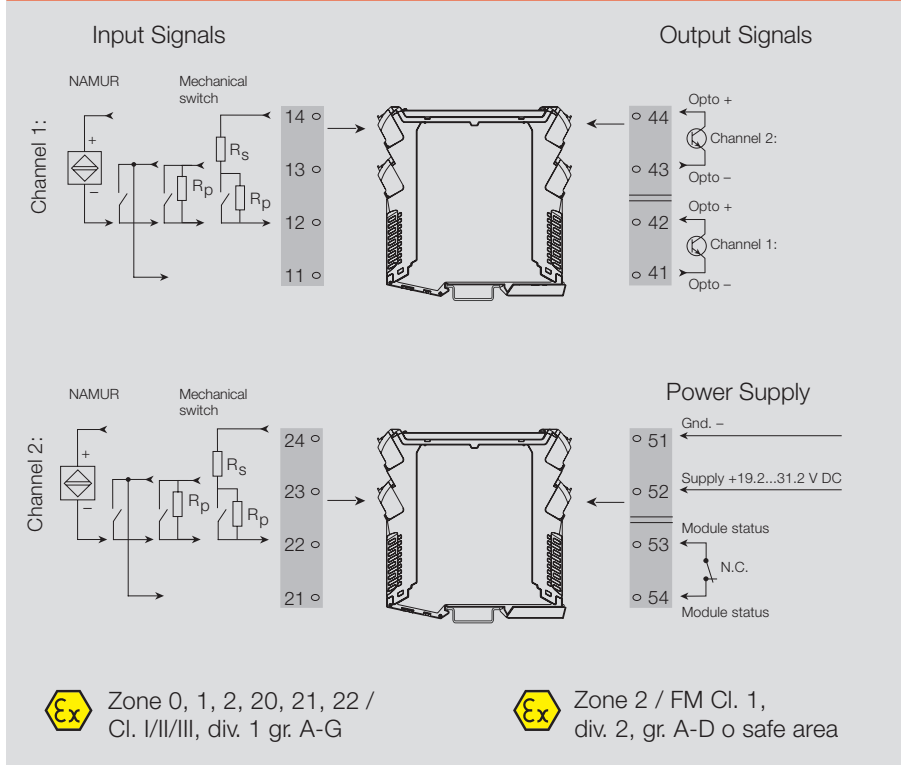
ACT20X

NAMUR isolating switching amplifier: with NPN transistor output

The ACT20X-HDI-SDO isolating switching amplifier is a specialized signal isolating converter for Namur sensor signals or for simple switching signals from the Ex Zone 0. A plus-switching (NPN) transistor provides the output signal in the safe zone. Single-channel or double-channel versions are also available.

B

Connection diagram: ACT20X HDI-SDO

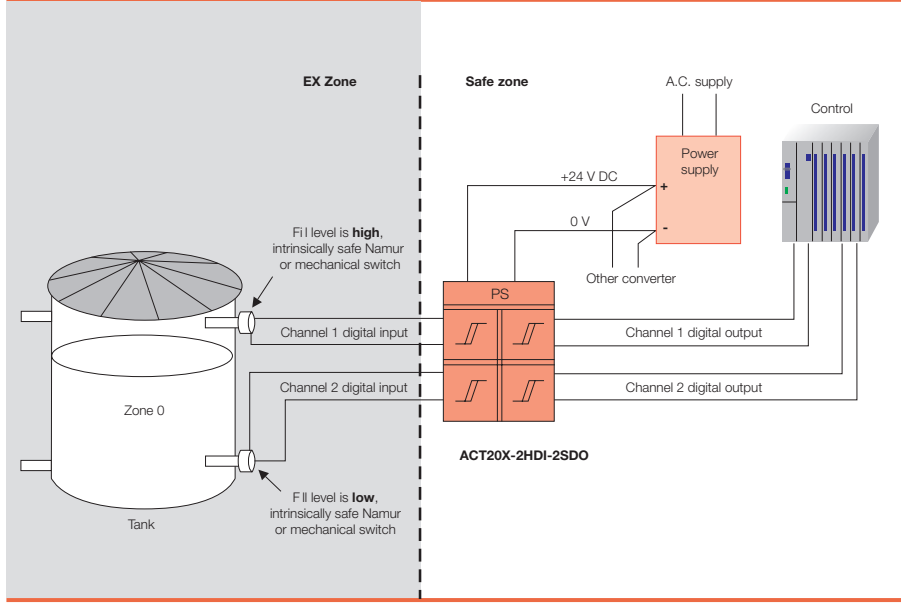


Ex label

ATEX
II 3 G Ex nA nC IIC T4
II (1) G [Ex ia] IIC/II B/IIA
II (1) D [Ex iaD]
IECEX
Ex nA nC IIC T4 Gc
[Ex ia Ga] IIC/II B/IIA
[Ex ia Da] IIIC
FM
Installation in CL I DIV2 GP A-D T4
Protects Ex circuits, in compliance with
Cl. I-III ABT 1/2 GP A-G or
Cl. I Zn2 AEx/Ex nA nC [ia] IIC T4.

Note

Application: monitoring the fill level with isolating switching amplifier

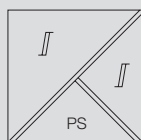


NAMUR isolating switching amplifier

- Converts intrinsically safe digital signals (NAMUR / switching contact) from EX Zone 0 into digital output signals (transistor output) for the safe zone
- PC configuration with FDT/DTM software, download at www.weidmueller.com
- Relay output for error alarm
- 1 or 2 channels in one module

ACT20X-HDI-SDO-S / 2HDI-2SDO-S

with transistor output

**Technical data**

Input	
Sensor	NAMUR sensor, according to EN60947, Switch with or without RS, RP
Sensor supply	8 V DC / 8 mA
Resistance	RP = 750 Ω / RS = 15kΩ
Input frequency	0...5 kHz
Pulse duration	> 0.1 ms
Input resistance	1 kΩ
Triggerlevel low / Triggerlevel high	< 1.2 mA / > 2.1 mA
Output signal in case of wire break	< 0.1 mA, > 6.5 mA (in case of wire break)
Output	
Type	NPN transistor output
Switching frequency	5 kHz
Pulse duration	60 μs
Rated switching voltage	≤ 30 V DC
Power rating	≤ 80 mA / ≤ 2.4 W
Voltage drop at max. load	< 2.5 V DC
Alarm output	
Type	Relay, 1 NO (voltage-free)
Nominal switching voltage	≤ 125 V AC / 110 V DC (safe area) ≤ 32 V AC / 32 V DC (Zone 2)
Continuous current	≤ 0.5 A AC / 1 A DC (safe area, Zone 2)
Power rating	≤ 62.5 V AC / 32 W (safe area) ≤ 16 VA / 32 W (Zone 2)
General data	
Supply voltage	19...31.2 V DC
NAMUR supply	8 V DC / 8 mA
Power consumption	≤ 3 W (2 channels)
Tightening torque, min. / Tightening torque, max.	0.4 Nm / 0.6 Nm
Ambient temperature / Storage temperature	-20 °C...+60 °C / -20 °C...+85 °C
Approvals	
Approvals	cULus; CE; ATEX; IECEX; FM
Insulation coordination	
Insulation voltage	2.6 kV (input / output)
Rated voltage	300 V
EMC standards	DIN EN 61326
Data for Ex applications (ATEX)	
Voltage U ₀	10.6 V DC
Current I ₀	12 mA DC
Power P ₀	32 W
Dimensions	
Clamping range (nominal / min. / max.)	mm ² 2.5 / 0.5 / 2.5
Length x width x height	mm 119.2 / 22.5 / 113.6
Note	
Screw connection	

Ordering data

Type	Qty.	Order No.
1-channel version		
ACT20X-HDI-SDO-S	1	8965360000
2-channel version		
ACT20X-2HDI-2SDO-S	1	8965390000

CBX200 USB configuration interface - 8978580000

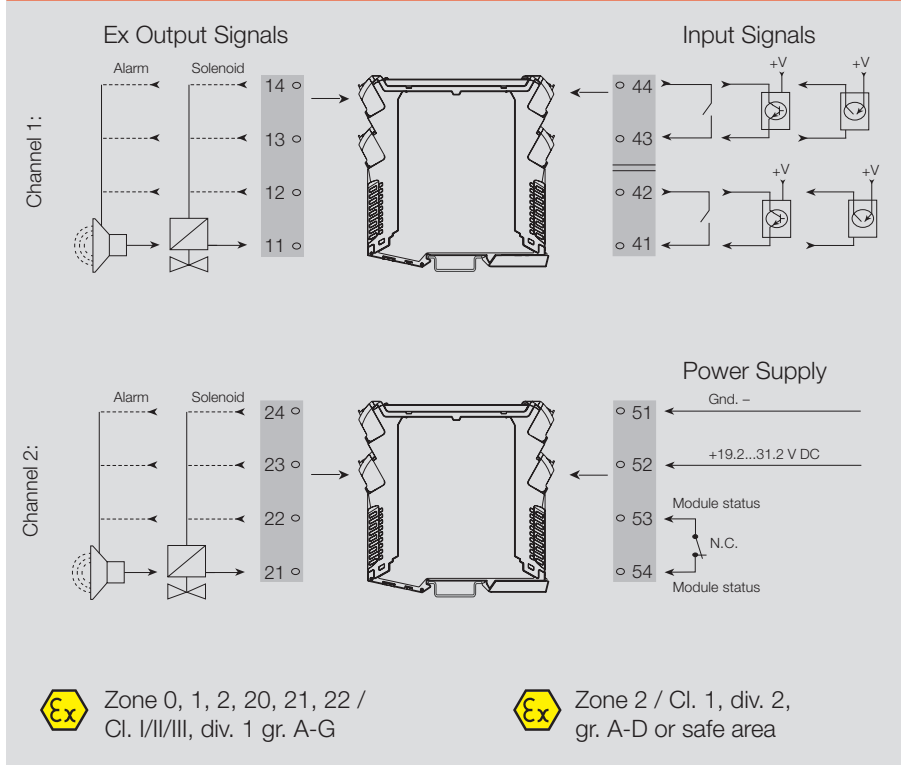
ACT20X

Solenoid driver for ignition protection IIC, 35 mA

The ACT20X-SDI-HDO solenoid driver has an input in the safe zone and an output in the Ex zone 0. This driver is suitable for switching solenoid valves or alarm transmitters. It is optionally available in a single-channel or double-channel version.

B

Connection diagram: ACT20X SDI-HDO

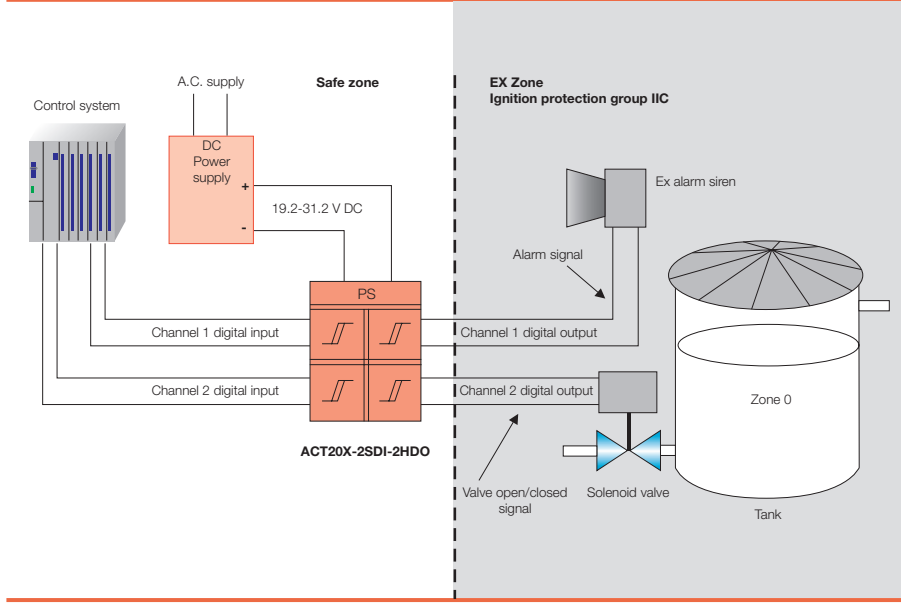


Ex label

ATEX
II 3 G Ex nA nC IIC T4
II (1) G [Ex ia] IIC/II B/IIA
II (1) D [Ex iaD]
IECEX
Ex nA nC IIC T4 Gc
[Ex ia Ga] IIC/II B/IIA
[Ex ia Da] IIIC
FM
Installation in CL I DIV2 GP A-D T4
Protects Ex circuits, in compliance with
Cl. I-III ABT 1/2 GP A-G or
Cl. I Zn2 AEx/Ex nA nC [ia] IIC T4.

Note

Application: Inflow control in Ex zone with ignition protection group IIC



Output data: Solenoid driver for ignition protection group IIC (< 35 mA)

Connection terminal			
Channel 1	U without load	U with load	I max
11-12	Min. 24 V	Min. 12.5 V	35 mA
11-13	Min. 24 V	Min. 13.5 V	35 mA
11-14	Min. 24 V	Min. 14.5 V	35 mA

Note

for ignition protection group IIC (< 35 mA)

Connection terminal			
Channel 2	U without load	U with load	I max
21-22	Min. 24 V	Min. 12.5 V	35 mA
21-23	Min. 24 V	Min. 13.5 V	35 mA
21-24	Min. 24 V	Min. 14.5 V	35 mA

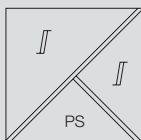
Note

Solenoid driver

- The solenoid driver controls intrinsically safe valves, LEDs, acoustic alarms, etc.
- PC configuration with FDT/DTM software, download at www.weidmueller.com
- Output current is limited to 35 mA for gas group IIC
- 1 or 2 channels in one module
- Relay output for error alarm

ACT20X-SDI-HDO / 2SDI-2HDO

For gas group IIC 35 mA



Technical data

Input	
Type	NPN, PNP switching signal
Input voltage	≤ 28 V DC
Input resistance, voltage	3.5 kΩ
Triggerlevel low	≤ 2.0 V DC (NPN), ≤ 8.0 V DC (PNP)
Triggerlevel high	≥ 4.0 V DC (NPN), ≥ 10V DC (PNP)
Alarm output	
Type	Relay, 1 NO (voltage-free)
Nominal switching voltage	≤ 125 V AC / 110 V DC (safe area) ≤ 32 V AC / 32 V DC (Zone 2)
Continuous current	≤ 0.5 A AC / 1 A DC (safe area, Zone 2)
Power rating	≤ 62.5 V AC / 32 W (safe area) ≤ 16 VA / 32 W (Zone 2)
General data	
Supply voltage	19...31.2 V DC
Power consumption	≤ 3 W (2 channels)
Tightening torque, min. / Tightening torque, max.	0.4 Nm / 0.6 Nm
Ambient temperature / Storage temperature	-20 °C...+60 °C / -20 °C...+85 °C
Approvals	
Approvals	cULus; CE; ATEX; IECEX; FM
Insulation coordination	
Insulation voltage	2.6 kV (input / output)
Rated voltage	300 V
EMC standards	DIN EN 61326
Data for Ex applications (ATEX)	
Voltage U_0	28 V DC
Current I_0	≤ 135 mA
Power P_0	≤ 0.95 W

Dimensions	
Clamping range (nominal / min. / max.)	mm ²
Length x width x height	mm
Note	

Screw connection	
	2.5 / 0.5 / 2.5
	119.2 / 22.5 / 113.6

Ordering data

Type	Qty.	Order No.
1-channel version		
ACT20X-SDI-HDO-L-S	1	8965400000
2-channel version		
ACT20X-2SDI-2HDO-S	1	8965420000

CBX200 USB configuration interface - 8978580000

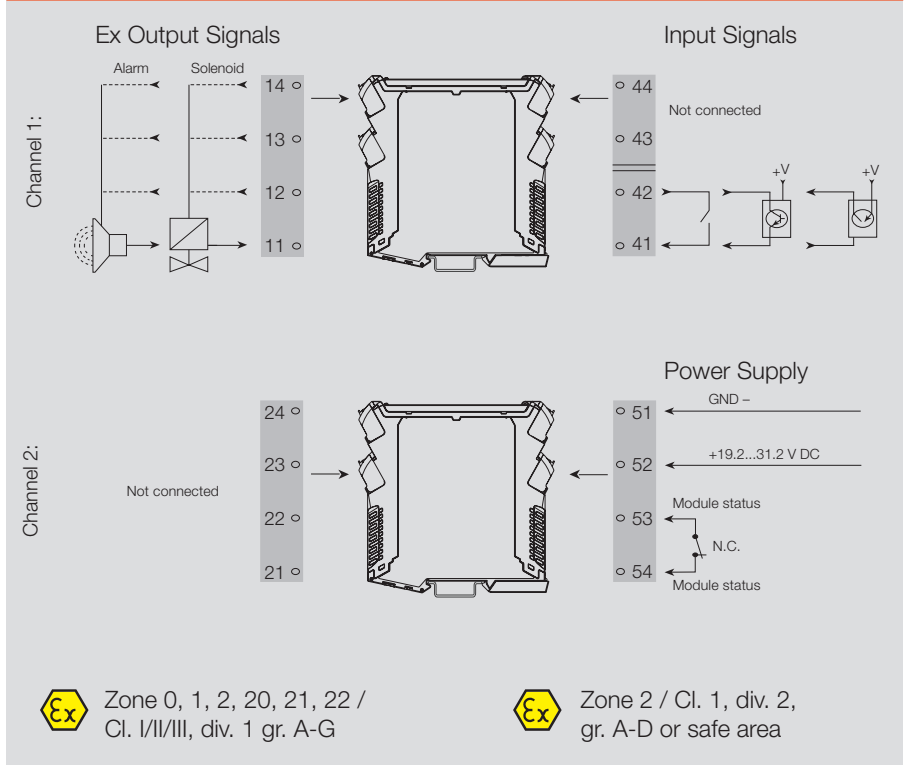
ACT20X

Solenoid driver for ignition protection group IIB, <60 mA

The ACT20X-SDI-HDO solenoid driver has an input in the safe zone and an output in the Ex zone 0. This driver is suitable for switching solenoid valves or alarm transmitters.

B

Connection diagram: ACT20X-SDI-HDO, for ignition protection group IIB, <60 mA

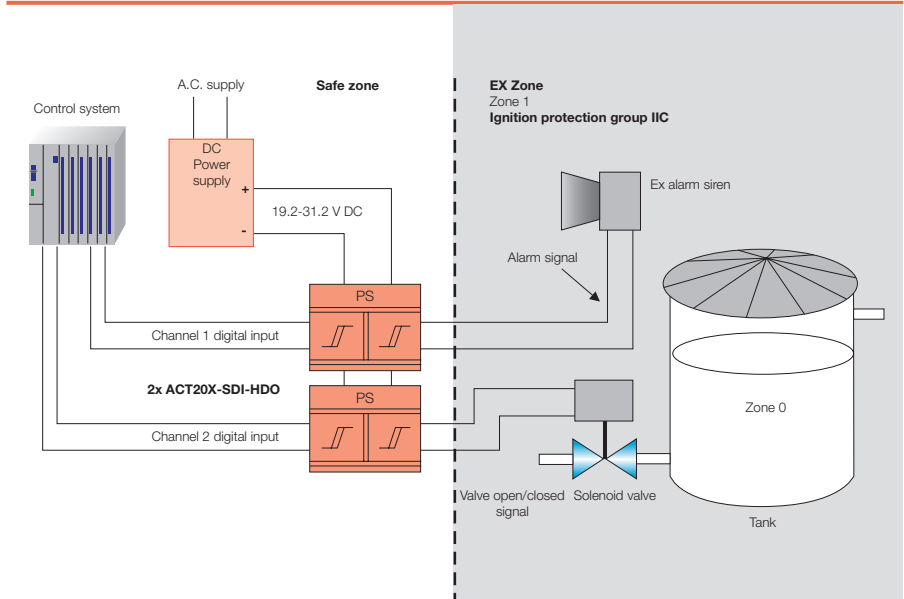


Ex label

ATEX
II 3 G Ex nA nC IIC T4
II (1) G [Ex ia] IIC/IIA
II (1) D [Ex iaD]
IECEX
Ex nA nC IIC T4 Gc
[Ex ia Ga] IIC/IIA
[Ex ia Da] IIIC
FM
Installation in CL I DIV2 GP A-D T4
Protects Ex circuits, in compliance with
Cl. I-III ABT 1/2 GP A-G or
Cl. I Zn2 AEx/Ex nA nC [ia] IIC T4.

Note

Application: Inflow control in Ex zone with ignition protection group IIB



Output data: Solenoid driver

for ignition protection group IIC (< 60 mA)

Connection terminal			
Channel 1	U without load	U with load	I max
11-12	Min. 24 V	Min. 9 V Min. 11.5 V	60 mA 50 mA
11-13	Min. 24 V	Min. 12.5 V Min. 10 V	60 mA 50 mA
11-14	Min. 24 V	Min. 11 V Min. 13 V	60 mA 50 mA

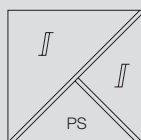
Note

Solenoid driver

- The solenoid driver controls intrinsically safe valves, LEDs, acoustic alarms, etc.
- PC configuration with FDT/DTM software, download at www.weidmueller.com
- Output current is limited to 60 mA for gas group IIB
- Relay output for error alarm

ACT20X-SDI-HDO-H-S

For gas group IIB < 60 mA



Technical data

Input	
Type	NPN, PNP switching signal
Input voltage	≤ 28 V DC
Input resistance, voltage	3.5 kΩ
Triggerlevel low	≤ 2.0 V DC (NPN), ≤ 8.0 V DC (PNP)
Triggerlevel high	≥ 4.0 V DC (NPN), ≥ 10V DC (PNP)
Alarm output	
Type	Relay, 1 NO (voltage-free)
Nominal switching voltage	≤ 125 V AC / 110 V DC (safe area) ≤ 32 V AC / 32 V DC (Zone 2)
Continuous current	≤ 0.5 A AC / 1 A DC (safe area, Zone 2)
Power rating	≤ 62.5 V AC / 32 W (safe area) ≤ 16 VA / 32 W (Zone 2)
General data	
Supply voltage	19...31.2 V DC
Power consumption	≤ 3 W (2 channels)
Tightening torque, min. / Tightening torque, max.	0.4 Nm / 0.6 Nm
Ambient temperature / Storage temperature	-20 °C...+60 °C / -20 °C...+85 °C
Approvals	
Approvals	cULus; CE; ATEX; IECEX; FM
Insulation coordination	
Insulation voltage	2.6 kV (input / output)
Rated voltage	300 V
EMC standards	DIN EN 61326
Data for Ex applications (ATEX)	
Voltage U ₀	28 V DC
Current I ₀	≤ 110 mA
Power P ₀	≤ 0.77 W

Available from



Dimensions		Screw connection	
Clamping range (nominal / min. / max.)	mm ²		2.5 / 0.5 / 2.5
Length x width x height	mm		119.2 / 22.5 / 113.6
Note			

Ordering data

Type	Qty.	Order No.
1-channel version		
ACT20X-SDI-HDO-H-S	1	8965410000

CBX200 USB configuration interface - 8978580000