

# 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.



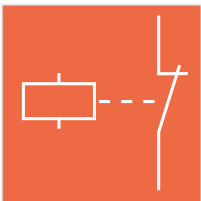
### Worldwide application

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.



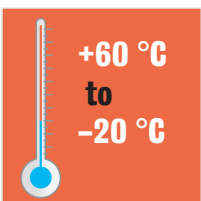
### Intelligent connection system

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 °C.

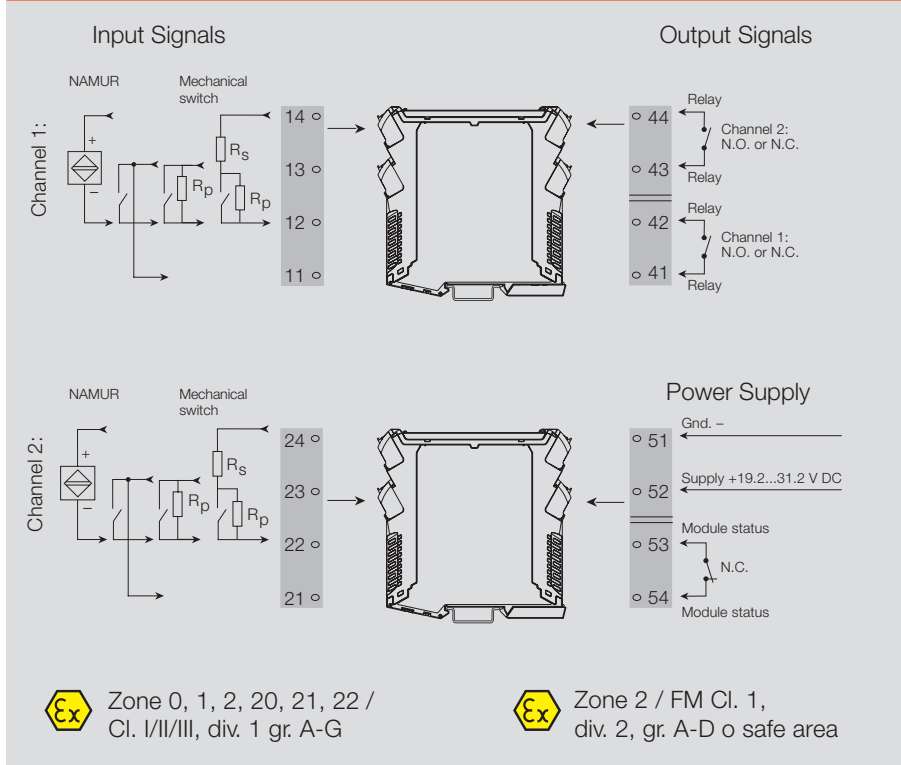
**ACT20X**

**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**

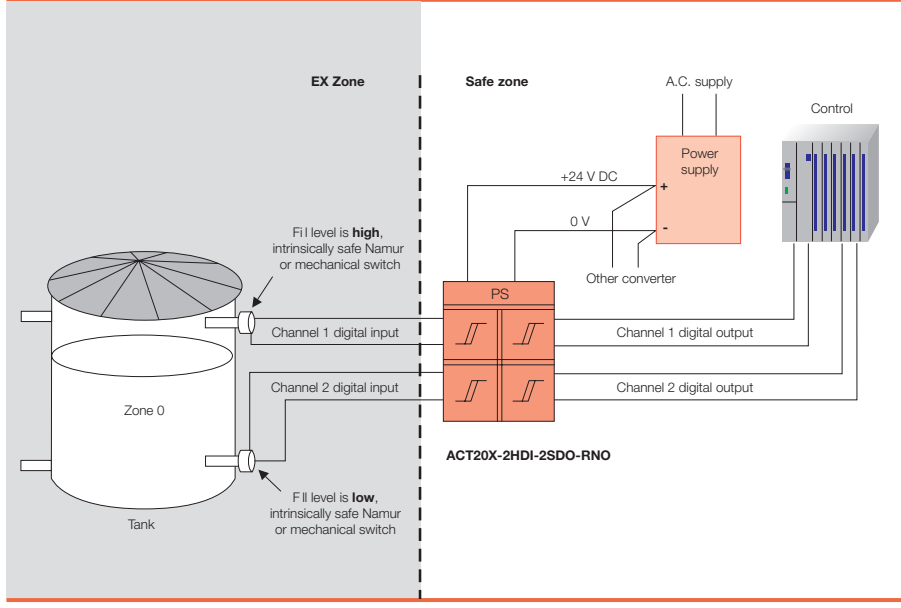


**Ex label**

<b>ATEX</b>
II 3 G Ex nA nC IIC T4
II (1) G [Ex ia] IIC/II B/IIA
II (1) D [Ex iaD]
<b>IECEX</b>
Ex nA nC IIC T4 Gc
[Ex ia Ga] IIC/II B/IIA
[Ex ia Da] IIIC
<b>FM</b>
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)**

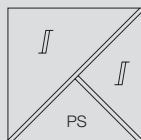


## NAMUR isolating switching amplifier

- 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](http://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 <sub>0</sub>	10.6 V DC
Current I <sub>0</sub>	12 mA DC
Power P <sub>0</sub>	32 W
Dimensions	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 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.
<b>1-channel version, NO</b>		
ACT20X-HDI-SDO-RNO-S	1	8965340000
<b>1-channel version, NC</b>		
ACT20X-HDI-SDO-RNC-S	1	8965350000
<b>2-channel version, NO</b>		
ACT20X-2HDI-2SDO-RNO-S	1	8965370000
<b>2-channel version, NC</b>		
ACT20X-2HDI-2SDO-RNC-S	1	8965380000
CBX200 USB configuration interface - 8978580000		

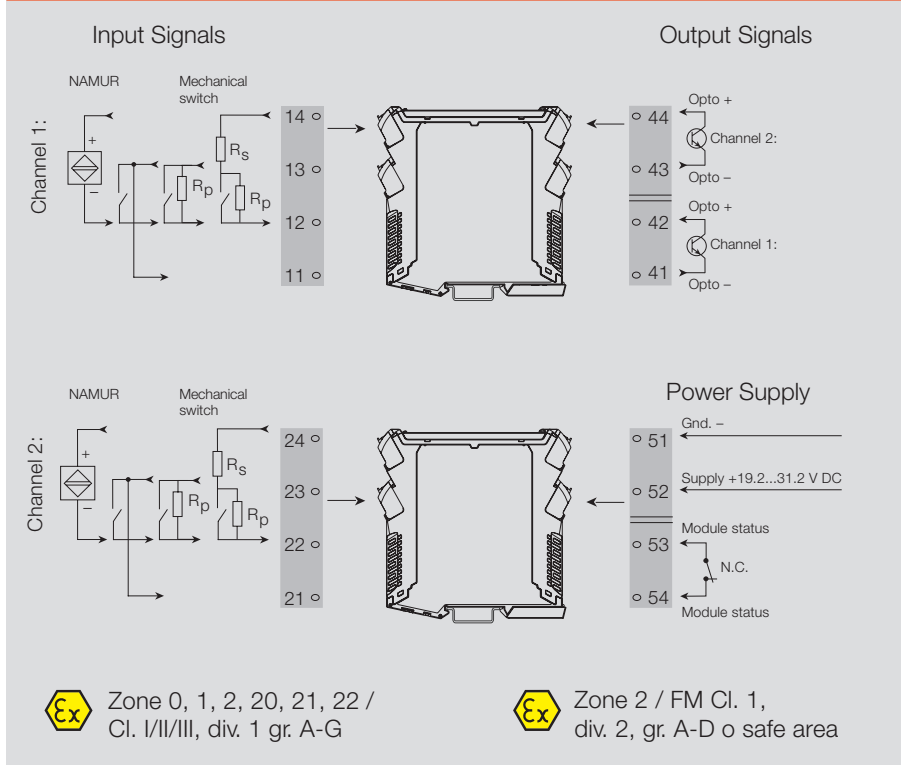
**ACT20X**

**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**

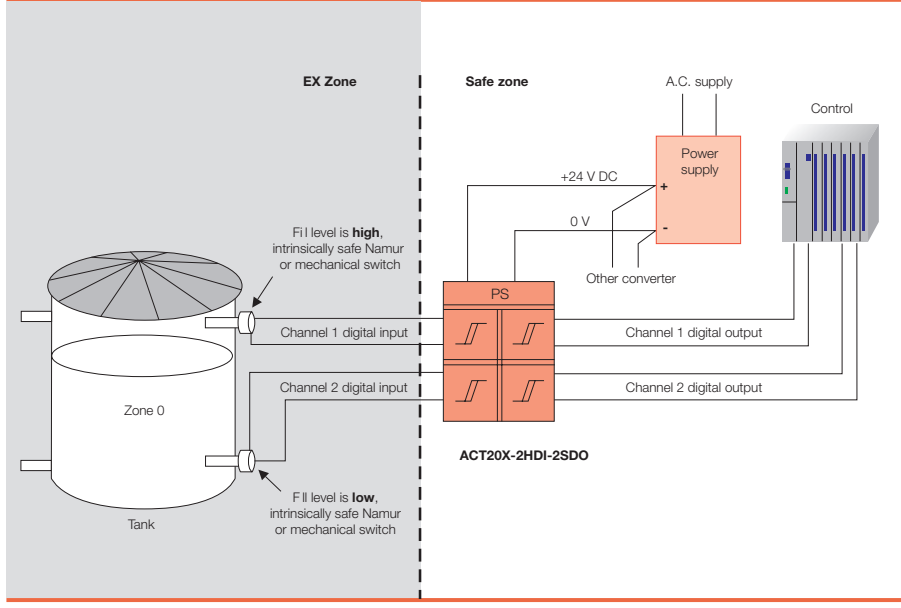


**Ex label**

<b>ATEX</b>
II 3 G Ex nA nC IIC T4
II (1) G [Ex ia] IIC/II B/IIA
II (1) D [Ex iaD]
<b>IECEX</b>
Ex nA nC IIC T4 Gc
[Ex ia Ga] IIC/II B/IIA
[Ex ia Da] IIIC
<b>FM</b>
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](http://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 <sub>0</sub>	10.6 V DC
Current I <sub>0</sub>	12 mA DC
Power P <sub>0</sub>	32 W
Dimensions	
Clamping range (nominal / min. / max.)	mm <sup>2</sup> 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.
<b>1-channel version</b>		
ACT20X-HDI-SDO-S	1	8965360000
<b>2-channel version</b>		
ACT20X-2HDI-2SDO-S	1	8965390000

CBX200 USB configuration interface - 8978580000

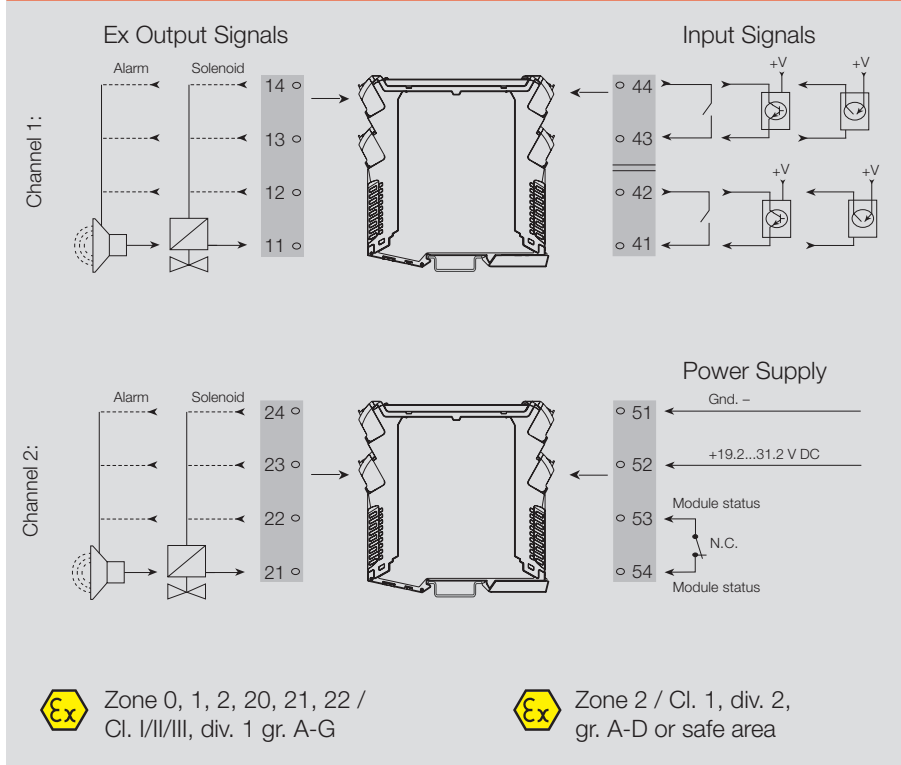
**ACT20X**

**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**

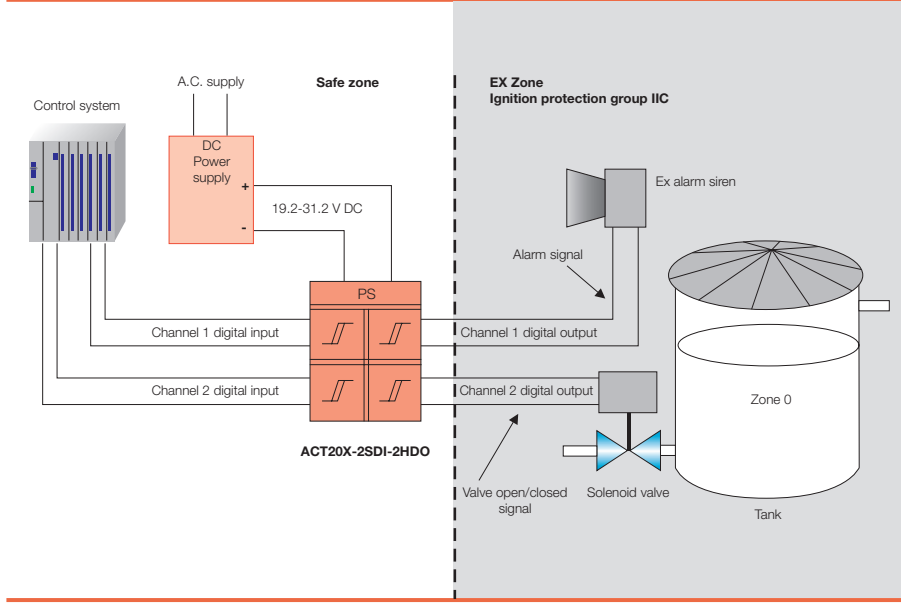


**Ex label**

<b>ATEX</b>
II 3 G Ex nA nC IIC T4
II (1) G [Ex ia] IIC/IIA
II (1) D [Ex iaD]
<b>IECEx</b>
Ex nA nC IIC T4 Gc
[Ex ia Ga] IIC/IIA
[Ex ia Da] IIIC
<b>FM</b>
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

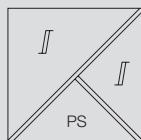
**Note**

### Solenoid driver

- The solenoid driver controls intrinsically safe valves, LEDs, acoustic alarms, etc.
- PC configuration with FDT/DTM software, download at [www.weidmueller.com](http://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 <sup>2</sup>
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.
<b>1-channel version</b>		
ACT20X-SDI-HDO-L-S	1	8965400000
<b>2-channel version</b>		
ACT20X-2SDI-2HDO-S	1	8965420000

CBX200 USB configuration interface - 8978580000

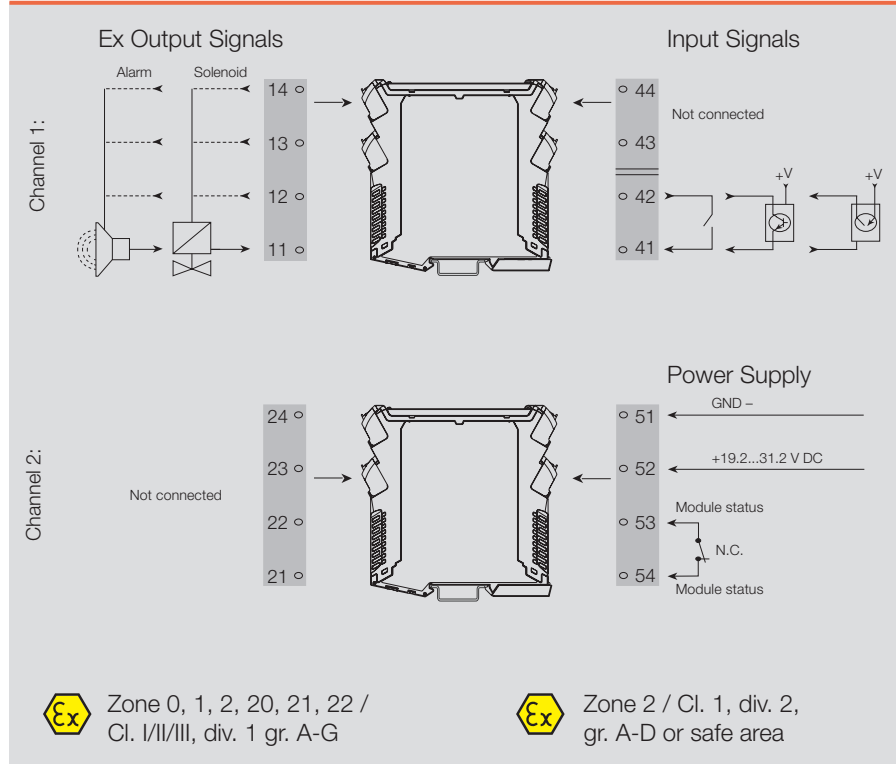
## ACT20X

### 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

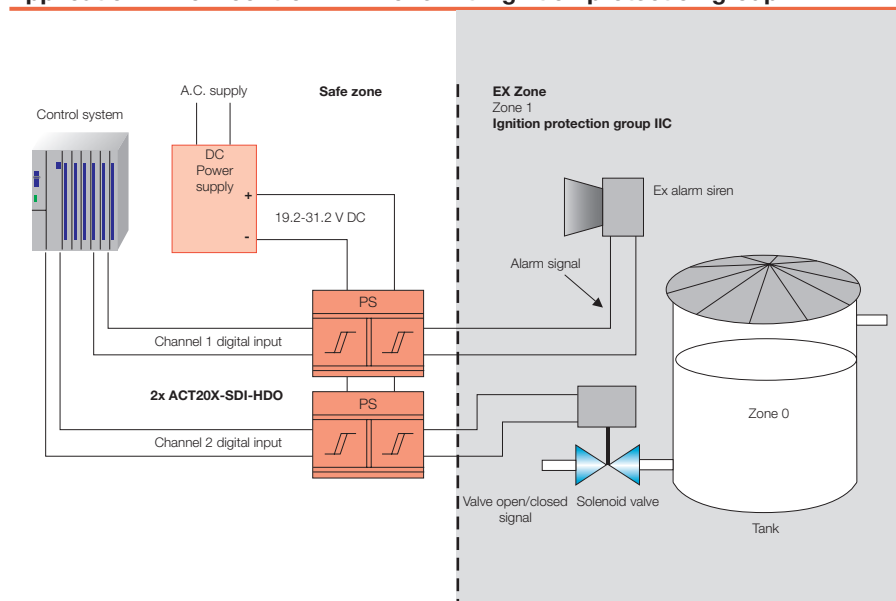


### Ex label

<b>ATEX</b>
II 3 G Ex nA nC IIC T4
II (1) G [Ex ia] IIC/II/IIA
II (1) D [Ex iaD]
<b>IECEX</b>
Ex nA nC IIC T4 Gc
[Ex ia Ga] IIC/II/IIA
[Ex ia Da] IIIC
<b>FM</b>
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	60 mA
		Min. 11.5 V	50 mA
11-13	Min. 24 V	Min. 12.5 V	60 mA
		Min. 10 V	50 mA
11-14	Min. 24 V	Min. 11 V	60 mA
		Min. 13 V	50 mA

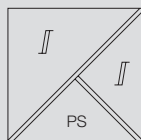
Note

### Solenoid driver

- The solenoid driver controls intrinsically safe valves, LEDs, acoustic alarms, etc.
- PC configuration with FDT/DTM software, download at [www.weidmueller.com](http://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 <sub>0</sub>	28 V DC
Current I <sub>0</sub>	≤ 110 mA
Power P <sub>0</sub>	≤ 0.77 W

Dimensions	
Clamping range (nominal / min. / max.)	mm <sup>2</sup>
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.
<b>1-channel version</b>		
ACT20X-SDI-HDO-H-S	1	8965410000

CBX200 USB configuration interface - 8978580000