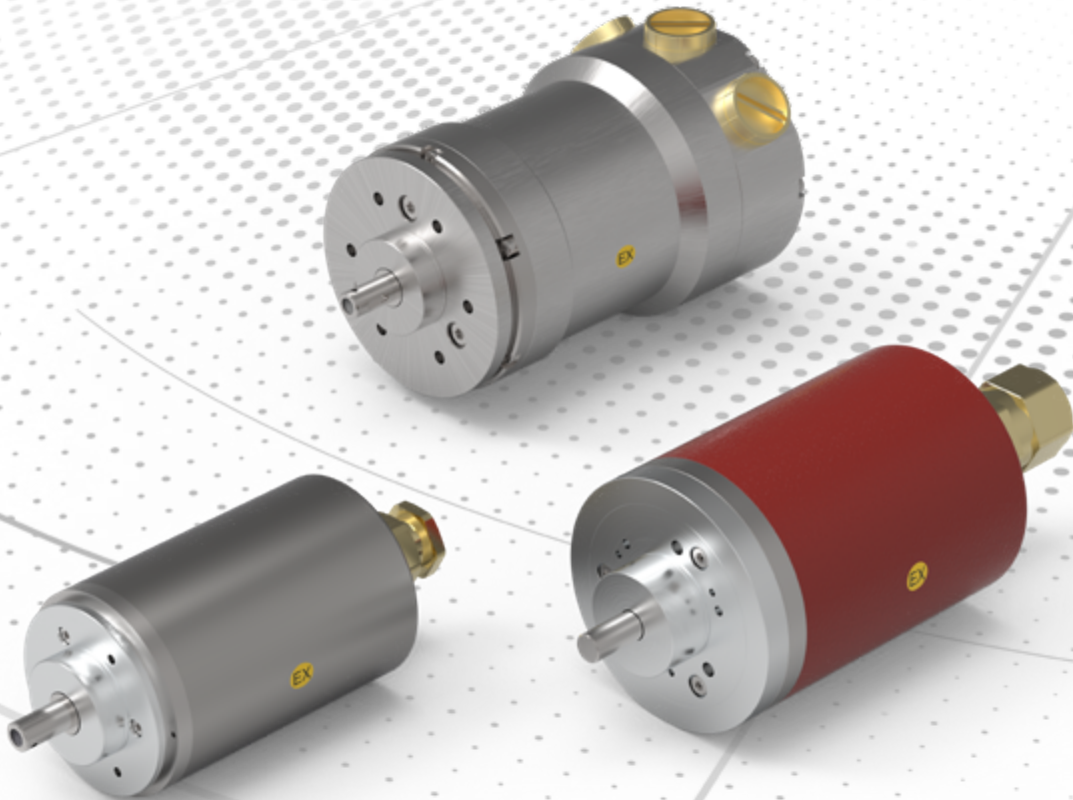
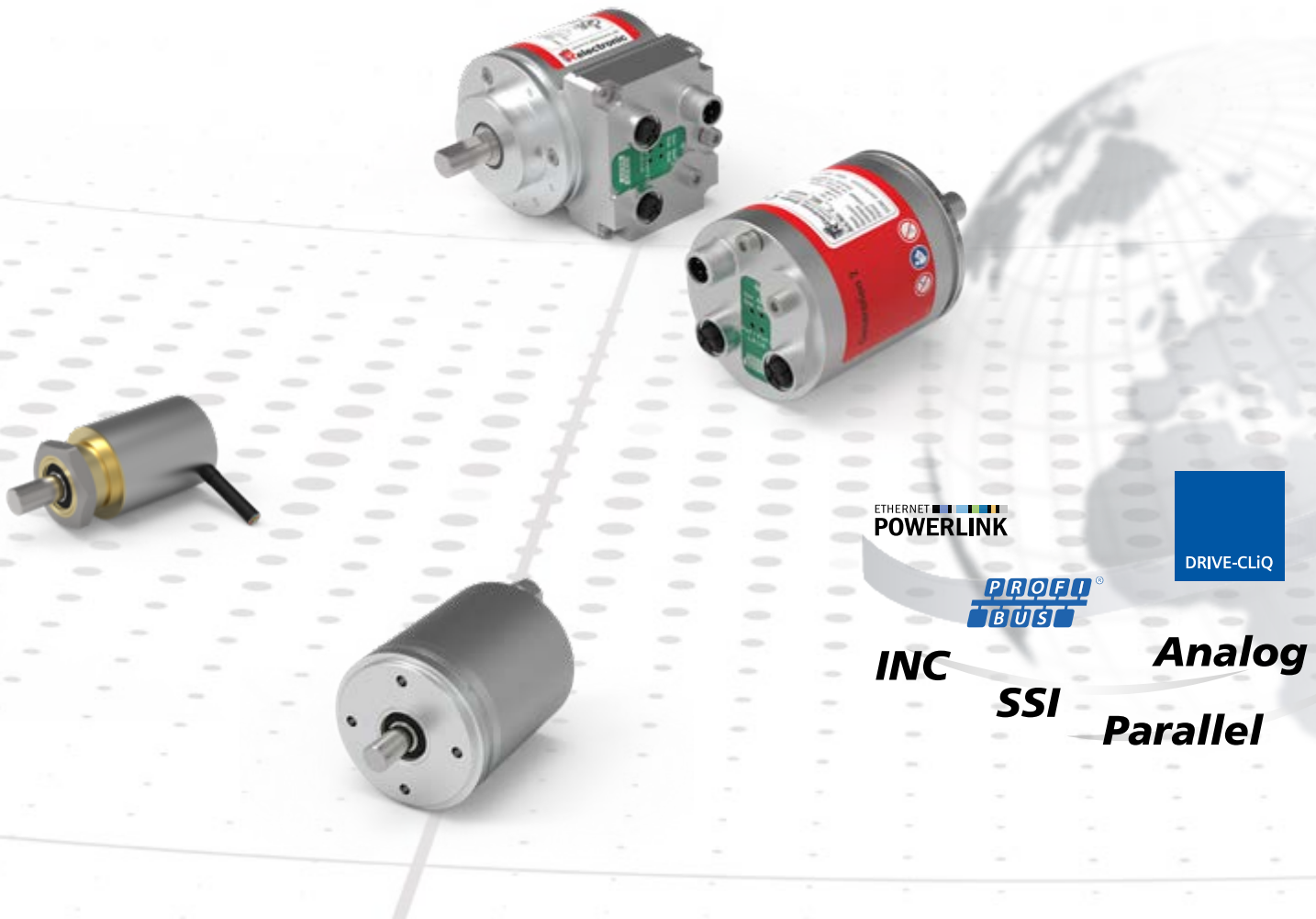


Absolute Rotary Encoders

ATEX



Absolute Rotary Encoders



Rotary encoders for industrial applications

TR-Electronic rotary encoders with optical or magnetic scanning precisely acquire position in steel production, wind power plants, cranes and ships as well as in explosion-proof versions in painting lines. Miniature versions ensure the correct position in medical technology and SIL-approved absolute rotary encoders ensure the necessary safety.

In addition to high-quality rotary encoders for almost every application, we also offer extensive accessories such as programming tools, displays and assembly components for quick and simple implementation and seamless integration into your processes.

EtherCAT[®] P

IO-Link

EtherCAT[®]

EtherNet/IP

INTERBUS

DeviceNet

PROFINET

Modbus

CANopen

LWL

ASI

ISI



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ATEX-compliant rotary encoders

Zone 0/20

**probability of explosion:
permanent, long-term or frequent.**

Dangerous, explosible atmosphere as a mixture of air and inflammable gases, vapors, mists or dust.



**risk of explosion by
gases, mists, vapors and dust**

Zone 1/21

**probability of explosion:
occasional**

Dangerous, explosible atmosphere as a mixture of air and inflammable gases, vapors, mists or dust.



Classification into EX zones

EX atmospheres are divided into six zones. The table on the right describes how the zones are classified, according to hazardous environments for gases, vapors and mists on the one hand and dust on the other.

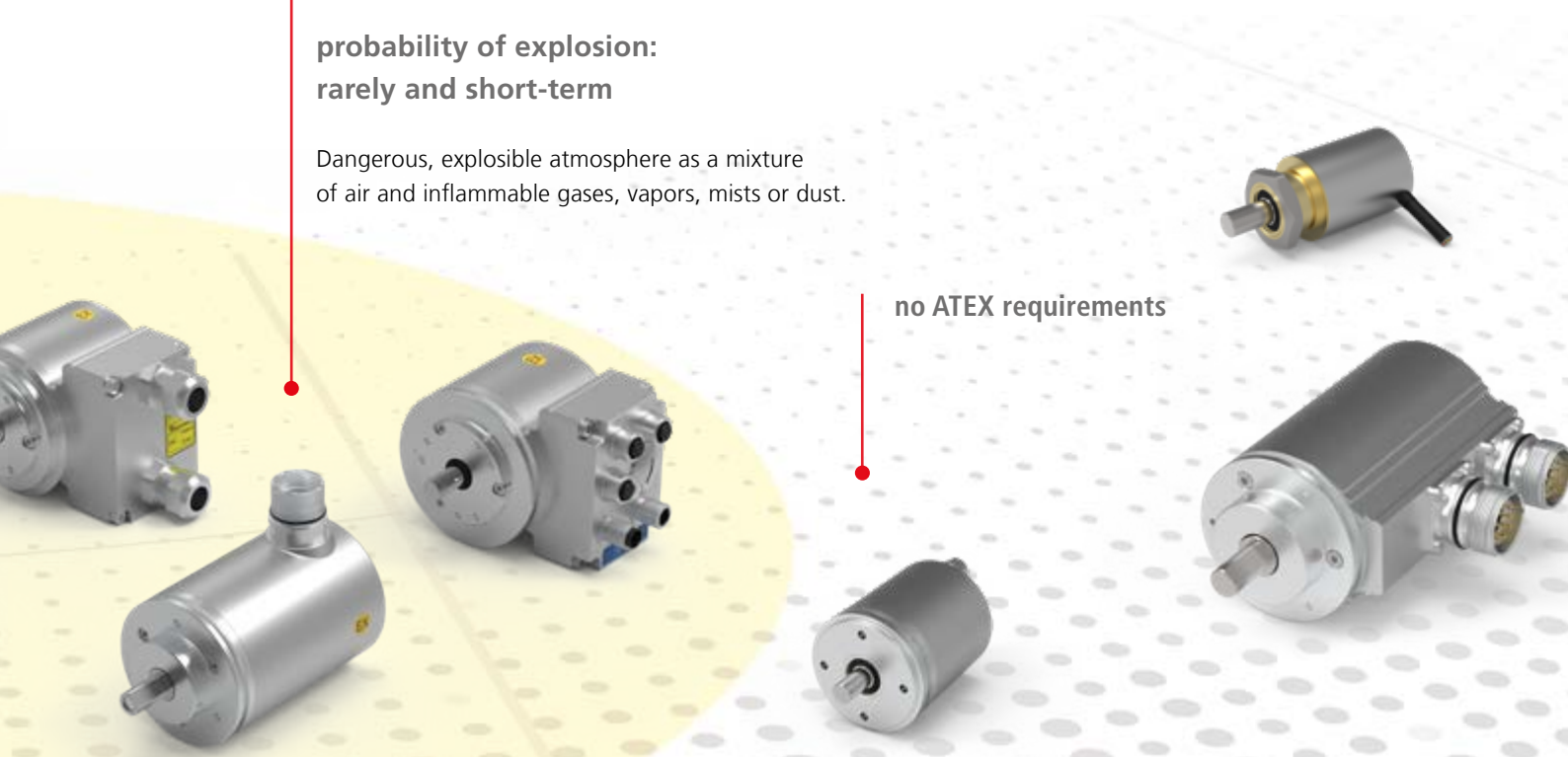
Additionally, a distinction is made between the risk category and the probability of a hazard occurring. Ultimately, the EX categories are allocated according to the degree of safety of the device. The table shows which specifications the device has to fulfill in order to be used in a specific zone. Naturally, the devices belonging to higher categories fulfill the requirements of the lower categories.

Zone 2/22

**probability of explosion:
rarely and short-term**

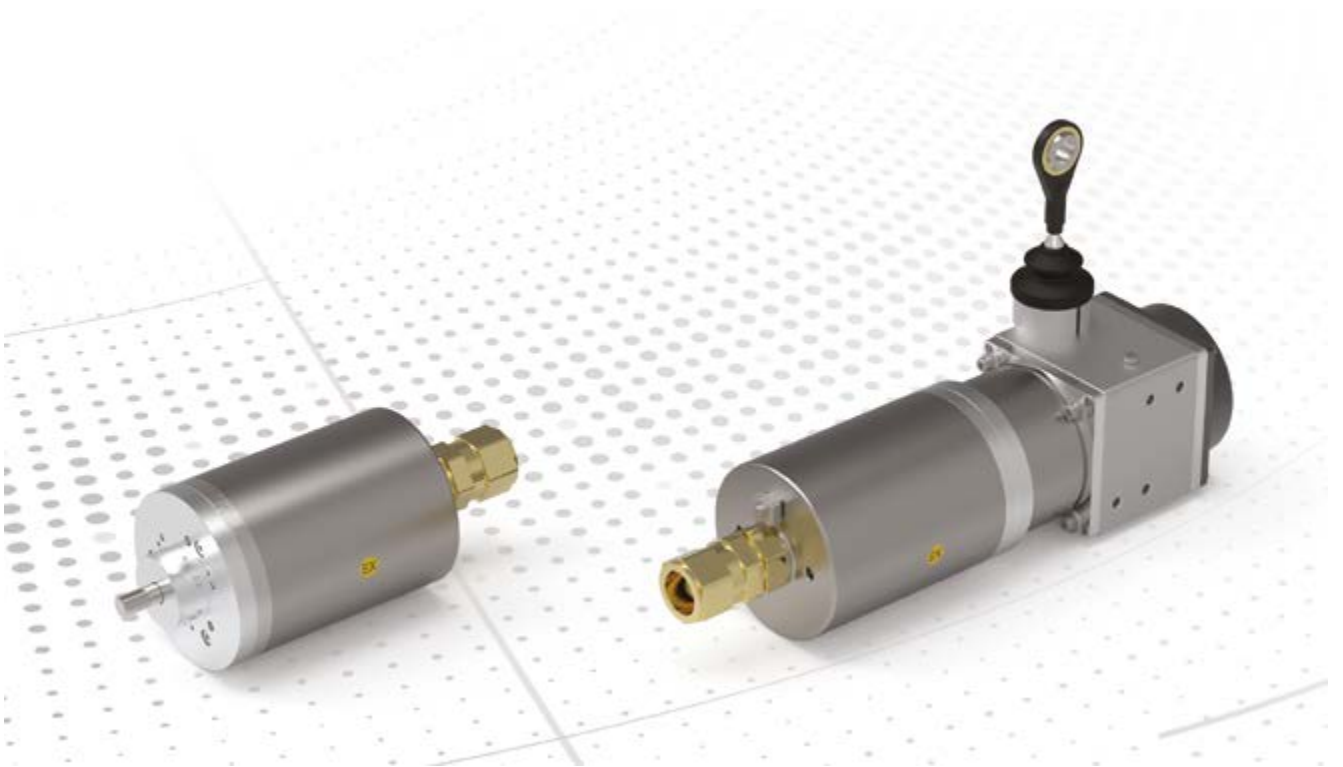
Dangerous, explosible atmosphere as a mixture of air and inflammable gases, vapors, mists or dust.

no ATEX requirements



Flammable materials	Probability	Classification of explosive atmospheres	Identification of equipment		
			Device group	Device category for EX atmosphere	
Gases Mist Vapors	permanent, long-term or frequent	Zone 0	II	1 G	
	occasional	Zone 1	II		2 G
	unlikely	Zone 2	II		3 G
Dusts	permanent, long-term or frequent	Zone 20	II	1 D	
	occasional	Zone 21	II		2 D
	unlikely	Zone 22	II		3 D

ATEX - Zone 1/21



All our encoders that are suitable for use in zone 1/21.

The following pages show a selection from our families of absolute encoders that are suitable for use in zone 1/21.



Housing option for rotary encoders

Product	AEV70 	AOV70 	AEV70 AOV70 
Type	Housing option for rotary encoders - aluminum	Housing option for rotary encoders - aluminum	Housing option for rotary encoders - stainless steel
Single / multi	(M) Multi (S) Single	(M) Multi (S) Single	(M) Multi (S) Single
Supply	11...27 VDC	11...27 VDC	11...27 VDC
Full resolution	<= 33 bit *	<= 36 bit *	<= 36 bit *
Steps per turn	<= 32768 *	<= 262144 *	<= 262144 *
Number of turns	<= 256000 *	<= 262144 *	<= 262144 *
Shaft diameters available	6...12mm	6...12mm	6...12mm
Connectors	Cable gland with ATEX-specified cable	Cable gland with ATEX-specified cable	Cable gland with ATEX-specified cable
Ambient temperature	-20°C...+60°C	-20°C...+60°C	-20°C...+60°C
Protection class	IP65 (option IP67)	IP65 (option IP67)	IP65 (option IP67)
ATEX zone	1/21	1/21	1/21
Interface	<p>SSI INC</p> <p>Analog SIN / COS</p> <p>ASI PROFINET</p> <p>CANopen</p>	<p>SSI INC</p> <p>Analog SIN / COS</p> <p>ASI PROFINET</p> <p>CANopen</p>	<p>SSI INC</p> <p>Analog SIN / COS</p> <p>ASI PROFINET</p> <p>CANopen</p>
Option, additional interfaces (on request)	Analog INC	Analog INC	Analog INC
Weblink	www.tr-electronic.com/s/S008508	www.tr-electronic.com/s/S008508	www.tr-electronic.com/s/S008508
QR-Code			

* depending on the interface

Can't find the right variant? Please contact us (info@tr-electronic.de)

Absolute rotary encoder SIL3/PLe

Product	ADV88M 	ADV88M 	ADV100M AEV100M 
Type	Absolute rotary encoder SIL3/ PLe - aluminum	Absolute rotary encoder SIL3/ PLe - stainless steel	Aluminum or stainless steel housing
Single / multi	(M) Multi	(M) Multi	(M) Multi, (S) Single
Supply	11...27 VDC	11...27 VDC	24 VDC
Full resolution	28 bit	28 bit	28 bit
Steps per turn	8192	8192	8192
Number of turns	32768	32768	32768
Shaft diameters available	10 mm with groove	10 mm with groove	10 mm / 12 mm with groove
Connectors	Cable gland axial	Cable gland axial	Cable glands radial chosen by customer.
Ambient temperature	-20°C...+60 °C	-20°C...+60°C	-40°C...+40/+50/+60/+75°C
Protection class	IP65	IP65	IP65 (option IP67)
ATEX zone	1/21	1/21	1/21
Interface	<p>SSI ETHERNET POWERLINK</p> <p>PROFINET</p>	<p>SSI ETHERNET POWERLINK</p> <p>PROFINET</p>	<p>PROFINET EtherNet/IP</p> <p>CANopen ETHERNET POWERLINK</p> <p>PROFINET EtherCAT</p>
Option, additional interfaces (on request)	INC	INC	INC
Weblink	www.tr-electronic.com/s/S011187	www.tr-electronic.com/s/S011187	www.tr-electronic.com/s/S024415
QR-Code			










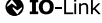






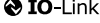




ATEX - Zone 2/22



All our encoders that are suitable for use in zone 2/22.

The following pages show a selection from our families of absolute encoders that are suitable for use in zone 2/22.




























Optical 15 bit (E) Magnet detection (M)

Product	AEV65 	CMV582 	CMS582 
Detection	Optical 15 bit (E)	Magnet detection (M)	Magnet detection (M)
Single / multi	(M) Multi (S) Single	(M) Multi (S) single	(M) Multi (S) single
Supply	11...27 VDC (A: 18...27VDC)	11...27 VDC (12...30 VDC)*	11...27 VDC (12...30 VDC)*
Full resolution	<= 33 bit	<= 25 bit*	<= 25 bit*
Steps per turn	32768	<= 8192*	<= 8192*
Number of turns	25600	<= 4096*	<= 4096*
Special			
Shaft diameters available	6...12 mm	6, 8, 10, 12, 14, 1/4", 3/8", 1/2"	6, 8, 10, 12, 14, 15, 1/4", 3/8", 1/2"
Connectors	Connectors axial or radial*	Connector axial or radial*	Connector axial or radial*
Ambient temperature	-20°C...+60 °C	-20°C...+75 °C	-20°C...+75 °C
Protection class	IP64	IP65	IP65
ATEX zone	2/22	Option 2/22	Option 2/22
Interface	SSI Analog	SSI PROFINET       	SSI PROFINET       
Option, additional interfaces (on request)			
Weblink	www.tr-electronic.com/s/S007151	www.tr-electronic.com/s/S013306	www.tr-electronic.com/s/S013307
QR-Code			

* depending on the interface

Can't find the right variant? Please contact us (info@tr-electronic.de)

Optical 15 bit (E)

Product	CEV582	CEH582	CES582	
				
Detection	Optical 15 bit (E)	Optical 15 bit (E)	Optical 15 bit (E)	
Single / multi	(M) Multi (S) single	(M) Multi (S) single	(M) Multi (S) single	
Supply	11...27 VDC	11...27 VDC	11...27 VDC	
Full resolution	<= 33 bit*	<= 33 bit*	<= 33 bit*	
Steps per turn	<= 32768*	<= 32768*	<= 32768*	
Number of turns	<= 256000*	<= 256000*	<= 256000*	
Special				
Shaft diameters available	6, 8, 10, 12, 14, 1/4", 3/8", 1/2"	6, 8, 10, 12, 14, 15, 1/4", 3/8", 1/2"	6, 8, 10, 12, 14, 15, 1/4", 3/8", 1/2"	
Connectors	Connector axial or radial*	Connector radial	Connector axial or radial*	
Ambient temperature	-20°C...+75 °C	-20°C...+75 °C	-20°C...+75 °C	
Protection class	IP65	IP54	IP65	
ATEX zone	Option 2/22	Option 2/22	Option 2/22	
Interface	      	      	      	
Option, additional interfaces (on request)				
Weblink	www.tr-electronic.com/s/S013308	www.tr-electronic.com/s/S013312	www.tr-electronic.com/s/S013313	
QR-Code				

* depending on the interface

Optical 18 bit (O) Double detection (D)

COV582	COH582	COS582	CDV582+FS
Optical 16 bit (O)	Optical 18 bit (O)	Optical 18 bit (O)	Double detection (D)
(M) Multi (S) single	(M) Multi (S) single	(M) Multi (S) single	(M) Multi
11...27 VDC	11...27 VDC	11...27 VDC	11...27 VDC
<= 36 bit*	<= 36 bit*	<= 36 bit*	28 bit
<= 262144*	<= 262144*	<= 262144*	8192
<= 262144*	<= 262144*	<= 262144*	65536
			SIL3 / PLe; SIL2 / PLd
6, 8, 10, 12, 14, 1/4", 3/8", 1/2"	6, 8, 10, 12, 14, 15, 1/4", 3/8", 1/2"	6, 8, 10, 12, 14, 15, 1/4", 3/8", 1/2"	10 mm mit Nut
Connector axial or radial*	Connector radial	Connector axial or radial*	Connectors radial, axial
-20°C...+75 °C	-20°C...+75 °C	-20°C...+75 °C	-20°C...+75°C
IP65	IP54	IP65	IP 65
Option 2/22	Option 2/22	Option 2/22	
www.tr-electronic.com/s/S013314	www.tr-electronic.com/s/S013315	www.tr-electronic.com/s/S013316	www.tr-electronic.com/s/S018153

* depending on the interface

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Double detection (D)

Product	CDH582+FS 	CDS582+FS 	CDV582MM+FS 	
Detection	Double detection (D)	Double detection (D)	Double detection (D)	
Single / multi	(M) Multi	(M) Multi	(M) Multi	
Supply	11...27 VDC	11...27 VDC	11...27 VDC	
Full resolution	28 bit	28 bit	28 bit	
Steps per turn	8192	8192	8192	
Number of turns	65536	65536	65536	
Special	SIL3 / PLe; SIL2 / PLd	SIL3 / PLe; SIL2 / PLd	SIL3 / PLe; SIL2 / PLd	
Shaft diameters available	15 mm mit Teilnut	15 mm mit Teilnut	10 mm mit Nut	
Connectors	Connectors radial	Connectors radial, axial	Connectors radial, axial	
Ambient temperature	-20°C...+75°C	-20°C...+75°C	-20°C...+75°C	
Protection class	IP 54	IP 54	IP 65	
ATEX zone				
Interface				
Option, additional interfaces (on request)	SSI INC	SSI INC	SSI INC	
Weblink	www.tr-electronic.com/s/S018153	www.tr-electronic.com/s/S018153	www.tr-electronic.com/s/S018153	
QR-Code				

Double detection (D)

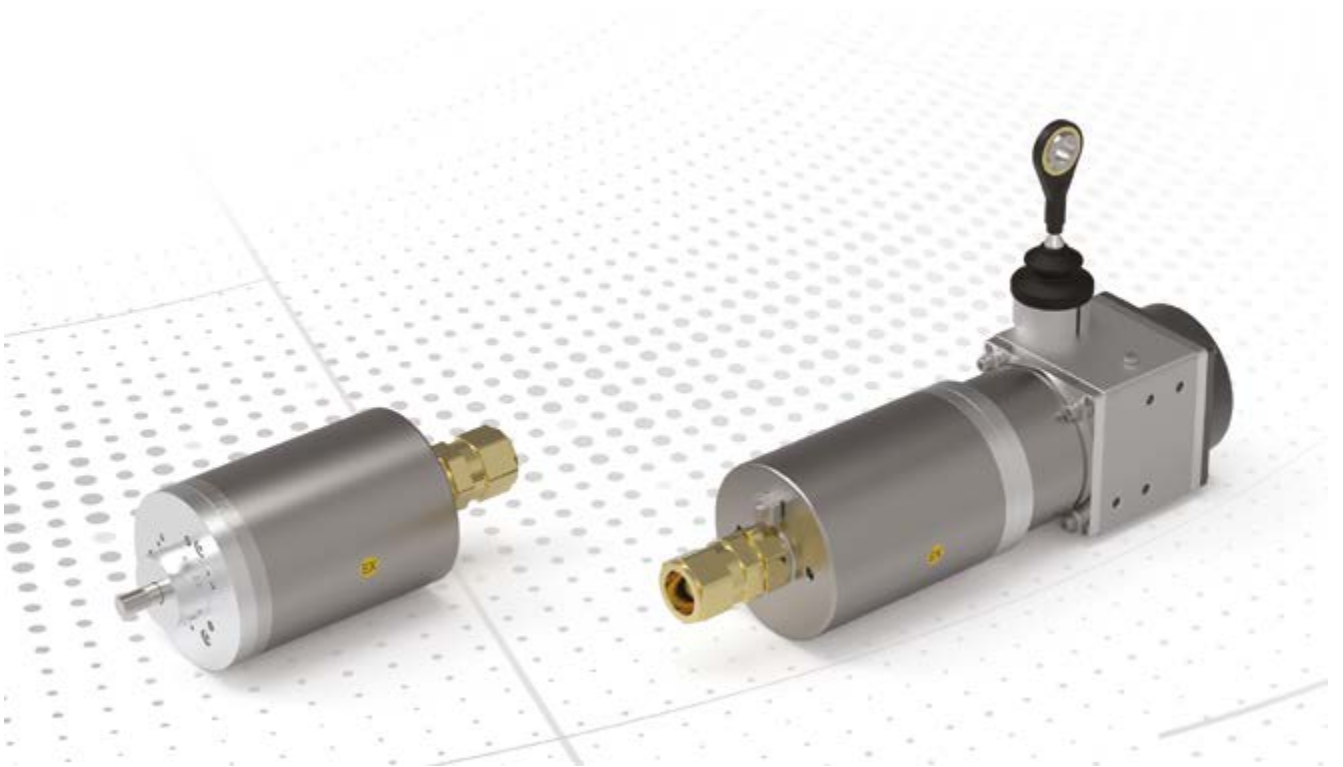
CDH582MM+FS	CDS582MM+FS	CDV75M	CDV75MM
			
Double detection (D)	Double detection (D)	Double detection (D)	Double detection (D)
(M) Multi	(M) Multi	(M) Multi	(M) Multi
11...27 VDC	11...27 VDC	11...27 VDC	11...27 VDC
28 bit	28 bit	28 bit	28 bit
8192	8192	8192	8192
65536	4096	32768	32768
SIL3 / PLe; SIL2 / PLd	SIL3 / PLe; SIL2 / PLd	SIL3 / PLe; SIL2 / PLd	SIL3 / PLe; SIL2 / PLd
15 mm mit Teilnut	15 mm mit Teilnut	10 mm with keyway	10 mm with keyway
Connectors radial	Connectors radial, axial	Connectors radial, cable glands radial (SSI)	Connectors radial, cable glands radial (SSI)
-20°C...+75°C	-20°C...+75°C	-20°C...+70 °C	-40°C...+65°C
IP 54	IP 54	IP 54	IP 65
		    	    
SSI INC	SSI INC	INC	INC
www.tr-electronic.com/s/S018153	www.tr-electronic.com/s/S018153	www.tr-electronic.com/s/S007271	www.tr-electronic.com/s/S007271
			

Double detection (D)

Product	CDH75M	ADV115
		
Detection	Double detection (D)	Double detection (D)
Single / multi	(M) Multi	(M) Multi (S) Single
Supply	11...27 VDC	11...27 VDC
Full resolution	28 bit	25 bit
Steps per turn	8192	8192
Number of turns	32768	256000
Special	SIL3 / PLe; SIL2 / PLd	
Shaft diameters available	20 mm with keyway	12, 14, 20 mm
Connectors	Connectors radial, cable glands radial (SSI)	Cable gland
Ambient temperature	-20°C...+70 °C	0°C...+40 °C
Protection class	IP 54	IP65
ATEX zone		22
Interface	<p>SSI EtherCAT</p> <p> </p> <p></p>	<p>SSI </p>
Option, additional interfaces (on request)	INC	SSI INC
Weblink	www.tr-electronic.com/s/S007272	www.tr-electronic.com/s/S008525
QR-Code		





Incremental Encoders - ATEX - Zone 1/21



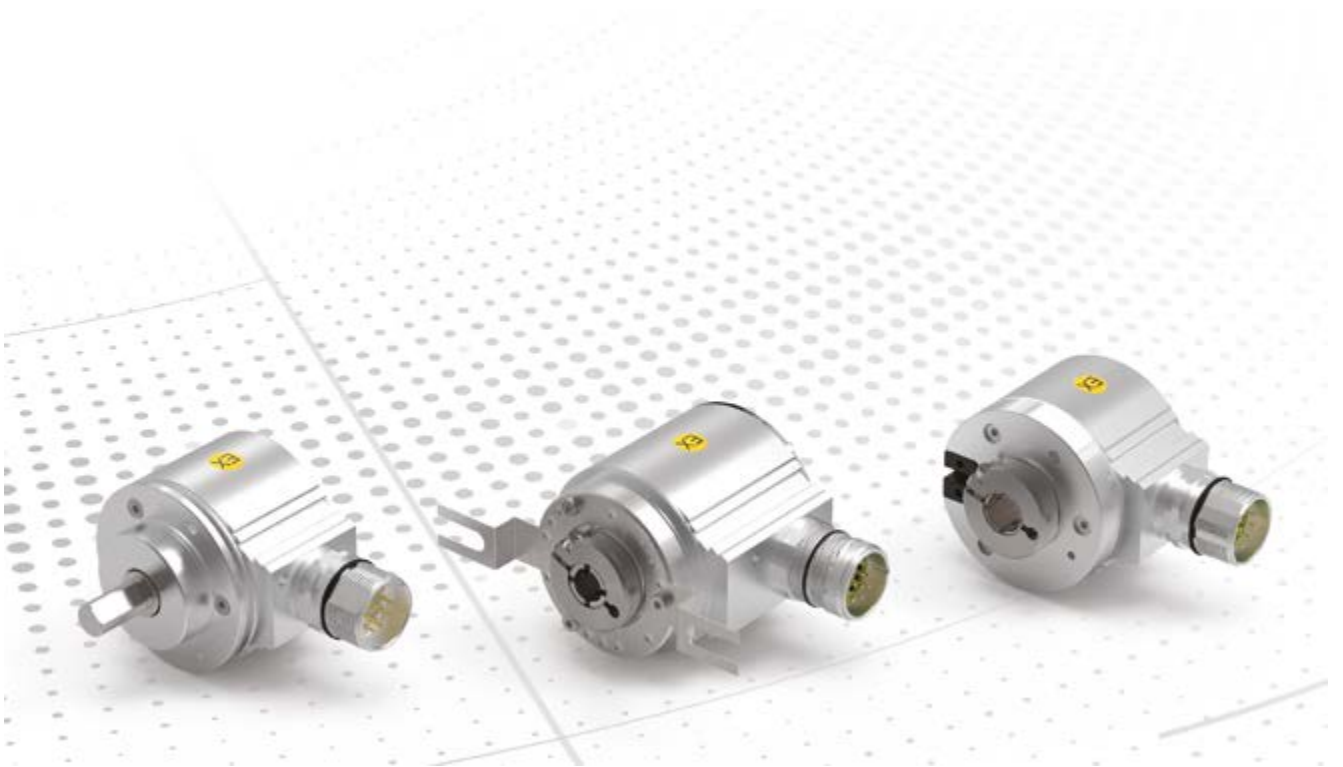
Protective housing for ATEX-zone 1/21 for rotary encoders I__58

The following pages show a selection from our families of incremental encoders that are suitable for use in zone 1/21.

Housing option for rotary encoders

Product	A_V70 
Type	Housing option for rotary encoders
Technical data encoder	See rotary encoders C_58 / I_58
Shaft diameters available	6...12mm
Connectors	Cable gland with ATEX-specified cable
Ambient temperature	-20...+60 °C
Protection class	IP65 (option IP67)
ATEX zone	1/21
Interface	INC SIN / COS
Option, additional interfaces (on request)	
Weblink	www.tr-electronic.com/s/S008508
QR-Code	

Incremental Encoders - ATEX - Zone 2/22



All our encoders that are suitable for use in zone 2/22.

The following pages show a selection from our families of incremental encoders that are suitable for use in zone 2/22.

58 mm





Product	AEV58I:2	AES58I:2	AEH58I:2
			
Detection	Optical (E)	Optical (E)	Optical (E)
Supply	24 VDC (4,5 .. 32)	24 VDC (4,5 .. 32)	24 VDC (4,5 .. 32)
Steps per turn	$\geq 2 \dots \leq 10000$	$\geq 2 \dots \leq 10000$	$\geq 2 \dots \leq 10000$
Shaft diameters available	6, 8, 10, 12, 14, 1/4", 3/8", 1/2"	6, 8, 10, 12, 14, 15, 1/4", 3/8", 1/2"	6, 8, 10, 12, 14, 15, 1/4", 3/8", 1/2"
Connectors	Connector or cable	Connector or cable	Connector or cable
Ambient temperature	-30...+75 °C	-30...+75 °C	-30...+75 °C
Protection class	IP67 / shaft IP65	IP67 / shaft IP65	IP67 / shaft IP65
ATEX zone	2/22	2/22	2/22
Interface	Square	Square	Square
Weblink	www.tr-electronic.com/s/5008488	www.tr-electronic.com/s/5008489	www.tr-electronic.com/s/5008490
QR-Code			

Can't find the right variant? Please contact us (info@tr-electronic.de)

58 mm

Product	AOV58I:2 	AOS58I:2 	AOH58I:2 	
Detection	Optical (O)	Optical (O)	Optical (O)	
Supply	24 VDC (4,5 .. 32)	24 VDC (4,5 .. 32)	24 VDC (4,5 .. 32)	
Steps per turn	>= 2...<= 65536	>= 2...<= 65536	>= 2...<= 65536	
Shaft diameters available	6, 8, 10, 12, 14, 1/4", 3/8", 1/2"	6, 8, 10, 12, 14, 15, 1/4", 3/8", 1/2"	6, 8, 10, 12, 14, 15, 1/4", 3/8", 1/2"	
Connectors	Connector or cable	Connector or cable	Connector or cable	
Ambient temperature	-30...+75 °C	-30...+75 °C	-30...+75 °C	
Protection class	IP67 / shaft IP65	IP67 / shaft IP65	IP67 / shaft IP65	
ATEX zone	2/22	2/22	2/22	
Interface	Square	Square	Square	
Weblink	www.tr-electronic.com/s/S008492	www.tr-electronic.com/s/S008493	www.tr-electronic.com/s/S008491	
QR-Code				

115 mm
130 mm

<p>A_V115I</p> 	<p>ADH130I</p> 
<p>Housing option for rotary encoders</p>	<p>Double (D)</p>
<p>See rotary encoders I_58</p>	<p>11...30VDC</p>
<p>See rotary encoders I_58</p>	<p>1024</p>
<p>12, 14, 20</p>	<p>40, 45, 50, 55, 60 H7</p>
<p>Cable gland / connector</p>	<p>Cable</p>
<p>-20...+60 °C</p>	<p>-20...+60°C</p>
<p>IP65 (option IP67)</p>	<p>IP65</p>
<p>Option 22</p>	<p>2/22</p>
<p>See data encoder integrated</p>	<p>Square</p>
<p>www.tr-electronic.com/s/S008523</p>	<p>http://www.tr-electronic.com/s/S011358</p>
	

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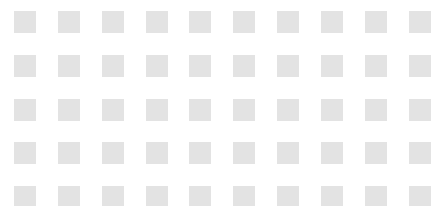
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www.tr-electronic.com



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Subject to technology and design modifications.

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