

ATEX



From 30.06.2003 all new system installations must conform to directive 94/9/EC (ATEX 100a).

Preconditions for an explosion are:
Ignition source + oxygen source + burning substances

Products permitted for use in hazardous areas with potentially explosive atmospheres carry additional labelling in line with RL 94/9/EG and EN 50014.

Responsibility of plant construction companies and Kübler:

Plant const. comp. (Zone)

Assessment of the plant according to ATEX 137 directive 99/92/EG

Result:

- Zonal classification
- Temperature classes
- Explosion groups
- Ambient temperature

Kübler (Category)

Assessment of the products according to ATEX 95a directive 94/9/EG

Result:

- Product categories
- Temperature classes
- Explosion groups
- Ambient temperature

Zonal classification of potentially hazardous areas

Zone	Gas	Dust	Definition
0	0	20	Continuous, long-term or frequent hazard
1	1	21	Occasional hazard
2	2	22	Infrequent hazard

Device Category

2G	products for use in zone 1
3GD	products for use in zone 2 and 22
3G	products for use in zone 2

(G: Gas, D: Dust)

Additional marking to RL 94/9/EG

Marking to EN 50 014

Certification from the test laboratory (authorised body). In Germany e.g. PTB, TÜV, DQS ...

Ex II 2 G E Ex d II B T6 PTB 03 Atex 1211

Serial certificate number

Directive 94/9/EG

Year of certification

Test laboratory

Explosion-proof equipment

Conforms to European Standard Cenelec EN 50...

Explosion hazardous areas
G = Gas, D = Dust

Category, determines the appropriate Ex-zone usage

Cluster:
I = Mining
II = Other areas

Indication that the product can be used in explosion hazardous areas

Category 1

very high protection sufficient protection due to 2 independent protective measures for 2 error conditions

Use in zone
0 20
atmosphere
G D

G = Gas, D = Dust

Category 2

high protection sufficient protection to handle frequent device malfunction, for 1 error condition

Use in zone
1 21
atmosphere
G D

Category 3

normal protection sufficient protection for normal operation without malfunctions

Use in zone
2 22
atmosphere
G D

Explosion proof types

Designation	Standard	Remarks
o	EN 50 015	Oil immersion
p	EN 50 016	Pressurised enclosure
q	EN 50 017	Sand filling
d	EN 50 018	Flameproof enclosure
e	EN 50 019	Increased safety
i	EN 50 020	Intrinsic safety
n	EN 50 021	non igniting
m	EN 50 028	Ecapsulation
i	EN 50 039	Intrinsically safe electrical systems

Temperature classification (maximum surface temperature of the equipment)

T1 =	450 °C
T2 =	300 °C
T3 =	200 °C
T4 =	135 °C
T5 =	100 °C
T6 =	85 °C

Explosions group

Cenelec-designation	Typical Gas	Ignition power µJ
I	Methane	280
II A	Propane	>180
II B	Ethylene	60 ... 180
II C	Hydrogen	<60

Fritz Kübler GmbH
Zähl- und Sensortechnik
P.O. Box 3440
D-78054 Villingen-Schwenningen
Phone +49 (0) 77 20 - 39 03-0
Fax +49 (0) 77 20 - 2 15 64
sales@kuebler.com
www.kuebler.com

Ex All Kübler encoders are available as explosion proof zone 2 and 22



Version	Ex-proof hollow shaft	EX-proof shaft	Singleturn ATEX certification hollow shaft	Singleturn ATEX certification hollow shaft
Type series	7030	7030	7031	7031
Mechanical characteristics				
Shaft/hollow shaft ø [mm]	12	12	12	12
max. housing dimension [mm]	Ø70x94	Ø70x94	Ø 70x94	Ø 70x94
max. speed [min ⁻¹]	6000	6000	6000	6000
max. shaft load radial/axial [N]	n/a	20/10	—	20/10
max. operating temp [°C]	-20 ... +60	-20...+60	-20 ... +70	-20 ... +70
Protection to	IP 64	IP 64	IP 64	IP 64
Type of connection	Cable	Cable	Plug/cable	Plug/cable
max. resolution [Imp./U.]	5000	5000	16384 (14 Bit) Gray, binary, BCD	16384 (14 Bit) Gray, binary, BCD
Electrical characteristics				
Output	RS 422, Push-pull	RS 422, Push-pull	SSI, Parallel, 4 ... 20 mA	SSI, Parallel, 4 ... 20 mA
Power supply [V DC]	5 or 10 ... 30	5 or 10 ... 30	5 or 10 ... 30	5 or 10 ... 30
max. pulse frequency [kHz]	300	300	—	—
SSI pulse rate min./max. [kHz]	—	—	100/500	100/500
EU prototype test certificate number	PTB 03ATEX1027	PTB 03ATEX1027	PTB 03ATEX1027	PTB 03ATEX1027

Version	LED Panel mount
Series	CODIX 716/717
Special features	EX-proof
Function	
Pulse counting	yes
Position indicator	yes
Frequency meter	yes
Timer	yes with reset
Scaling function	yes
Technical data	
Number of digits/Display	6/LED
Dimension [mm]	DIN 48 x 48
Panel cut-out [mm]	45 x 45
Max. count frequency [Hz]	20 000
Supply voltage [V DC]	10 ... 30
[V AC]	90 ... 250
Presets	1/2
Outputs	1 Relay/2 Optocouplers
Serial Interface	optional RS 232/422/485
EU prototype test certificate number	PTB 03ATEX1131

Installation instructions
Explosion-proof encoder
Series 7330
Introduction

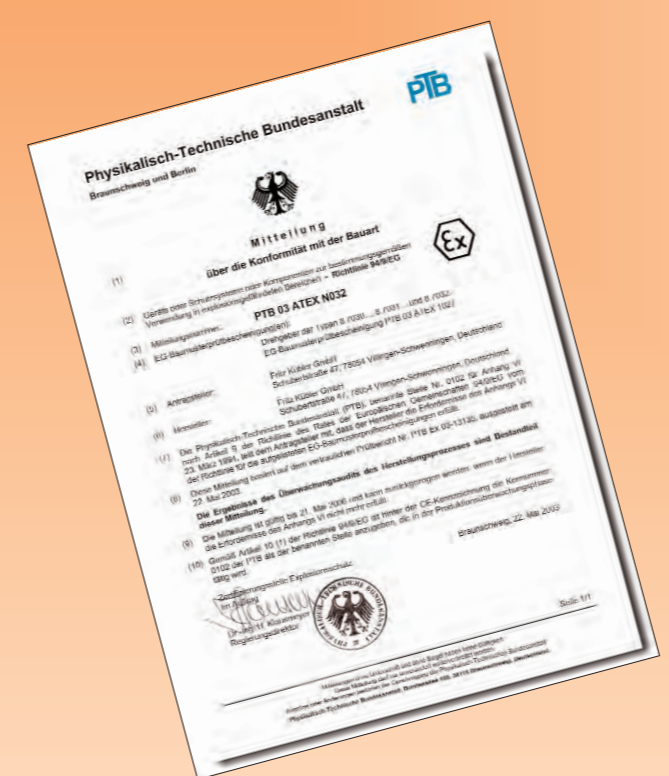
For further information:
Internet: www.kuebler.com
E-mail: info@kuebler.com

IP protection classification: (No part of directive ATEX)
The IP classification according to EN 60529 describes how the encoder is protected against particles and water. It is described as an abbreviation "IP" followed by two numbers. The first digit defines the size of the particles. The higher the number the smaller the particles. The second digit defines the resistance against water. The higher the number, the higher the water pressure can be. Our encoders have a protection up to IP 67.
These two tables summarise the most used IP ratings:

Protection against particles (first digit):	Protection against water (second digit)
0 not protected	0 not protected
1 protected against particles 50 mm and larger	1 protected against vertically falling drops of water
2 protected against particles 12.5 mm and larger	2 protected against falling drops of water up to 15° from vertical
3 protected against particles 2.5 mm and larger	3 protected against water sprayed up to 60° from vertical
4 protected against particles 1.0 mm and larger	4 protected against water sprayed from all directions, limited ingress permitted
5 protected against dust	5 protected against low pressure jets from all directions, limited ingress permitted
6 dust proof	6 protected against strong jets of water, e.g. for use on ship decks, limited ingress permitted
	7 protection against the affects of immersion between 15 cm and 1 m
	8 protected against long periods of immersion under pressure

Designation of colours
to DIN standard 757 (No part of directive ATEX)

abbreviation	colour
BK	black
BN	brown
RD	red
OG	orange
YE	yellow
GN	green
BU	blue
VT	violet
GY	grey
WH	white
PK	pink
GD	gold
TQ	turquoise
SR	silver



Fritz Kübler GmbH
Zähl- und Sensortechnik
P.O. Box 3440
D-78054 Villingen-Schwenningen
Phone +49 (0) 77 20 - 39 03-0
Fax +49 (0) 77 20 - 2 15 64
sales@kuebler.com
www.kuebler.com