



Issue Date: 10 December 2018
 Expiry Date: 10 December 2021

IA Certificate Number: **MASC MS/18-3256X**
 Our ref: **18-3256**

IA – CERTIFICATE

(IN TERMS OF REGULATION 21.17.2 OF THE MINERALS ACT (INCORPORATION THE MINE HEALTH AND SAFETY ACT) AND REGULATION 9 (1) OF THE ELECTRICAL MACHINERY REGULATIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT)

ExCam Series T08

This document is based on and must be read in conjunction with certificate IECEX TUR 18.0023X.

Further to your request, we have evaluated the supplied documentation.

The following is applicable:

Description	Detail
Requested By :	SAMCON Prozessleittechnik GmbH Schillerstraße 17 D-35102 Lohra-Altenvers Germany
Equipment :	ExCam Series T08
Manufacturer :	SAMCON Prozessleittechnik GmbH Schillerstraße 17 D-35102 Lohra-Altenvers Germany
Model(s) / Type(s) :	ExCam Series T08
Rating :	Ex db I Mb* Ex db IIC T6 Gb* Ex tb IIIC T80°C Db* *See Marking below
Certification body :	TÜV Rheinland Industrie Service GmbH
Type Certificate No :	IECEX TUR 18.0023X.
Variations/Issue/Amendment :	0
Assessment Report No :	DE/TUR/ExTR18.0023/00
Quality Assurance report (QAR) / Notification (QAN) :	DE/BVS/QAR14.0006/04

/ . STANDARDS...

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Standards:	- IEC 60079-0	(2017)	“General requirements”
	- IEC 60079-1	(2014)	“Equipment protection by flameproof enclosures ‘d’”
	- IEC 60079-11	(2011)	“Equipment protection by intrinsic safety ‘i’”
	- IEC 60079-18	(2014)	“Equipment protection by encapsulation ‘m’”
	- IEC 60079-28	(2015)	“Protection of equipment and transmission systems using optical radiation”
	- IEC 60079-31	(2013)	“Equipment dust ignition protection by enclosures ‘t’”

COMPLIANCE:

The equipment as described below is hereby certified “Explosion Protected” Ex db I Mb, Ex db IIC T6 Gb and Ex tb IIIC T80°C Db and is suitable for use in hazardous locations as stated below and as tested, assessed and inspected in accordance with the relevant requirements of SANS / IEC Standards:

The evaluation was conducted according to the requirements of:

- SANS (IEC) 60079-0 : 2012 “Explosive atmospheres – Part 0: Equipment — General requirements”
- SANS (IEC) 60079-1 : 2015 “Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures ‘d’”
- SANS (IEC) 60079-11 : 2012 “Explosive atmospheres Part 11: Equipment protection by intrinsic safety ‘i’”
- SANS (IEC) 60079-18 : 2016 “Explosive atmospheres Part 18: Equipment protection by encapsulation ‘m’”
- SANS (IEC) 60079-28 : 2016 “Explosive atmospheres Part 28: Protection of equipment and transmission systems using optical radiation”
- SANS (IEC) 60079-31 : 2014 “Explosive atmospheres Part 31: Equipment dust ignition protection by enclosures ‘t’”

Location	Zone 1, 2 Zone 21, 22	Gas Surface/Mining Underground Dust
Hazard Frequency	---	Intermittent as could occur under normal operating conditions in hazardous area
Environment	Group I Group IIC Group IIIC	Methane/coal dust (As Applicable) Propane to Hydrogen/Acetylene (As Applicable) Conductive dust (As Applicable)
Surface Temperature	150°C T6 T80°C	85°C (As Applicable)
Service/Ambient Temperature	As Applicable	

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The use of apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:

- i. SANS 10086 requirements;
- ii. Any conditions mentioned in the above document;
- iii. Codes of Practice enforced in terms of Regulations 21.17.2 of Minerals Act, by Chief Inspector of Mines;
- iv. Any restrictions and conditions enforced by Chief Inspectors of Mines, Principal Inspector (Group I equipment) of Chief Inspector of Factories (Group II equipment);
- v. Any relevant requirements of the MHS Act or the OHS Act.

DESCRIPTION OF EQUIPMENT (According to TÜV Certificate):

The ExCam Series is an electrical device that is protected by a pressure-resistant (Ex-d) enclosure.

The flameproof housings not only make the device flameproof but also robust for a variety of industries and applications.

Within the pressure-resistant enclosure, various camera modules and lenses, reflecting different technical specifications, are installed.

Accessory components such as PTC heating elements, fans, NIR LEDs, lighting devices, mechanical components, and clamps are optional. Furthermore, the ExCam Series can be used in combination with other IECEx device certified modules such as HF-barriers, cable glands, media-converter, or certified lighting devices ([op is])

The marking of the equipment shall include the following:

Ex db IIC T6 Gb*
Ex tb IIIC T80°C Db*
Ex db I Mb*

* Optional and additional type of protection markings for all types:

The mining certification can be cancelled if required. **
The explosion group can be downgraded if required. **
The ambient temperature range can be downgraded if required. **
The temperature class/value (gas/dust) can be downgraded if required. **

ix Gx/Dx = for models with [ix Gx/Dx] intrinsically safe circuits. **
op is Gx/Dx = for models with [op is Gx/Dx] FOC connectors or illuminators. **
op pr Gx/Dx = for models with [op pr Gx/Dx] FOC Connectors. **
mb = for models with HF Barrier. **

Technical data

Supply voltage

Model:	Supply Voltage:
T08-VA...:	60V DC I 240V (50/60 Hz) AC
T08-TNXCD ...:	60V DC I 240V (50/60 Hz) AC

/ . Maximum...

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Maximum Input Power:

...for T6 Temperature Class (T_{sur} < 85°C)

Model:	T _{amb max}			
	40°C	50°C	60°C	70°C
T08-VA1.1...	17,4 W	13,0 W	8,7 W	4,3 W
T08-VA1.2 ...	18,2 W	13,6 W	9,1 W	4,5 W
T08-VA2.0 ...	18,2 W	13,6 W	9,1 W	4,5 W
T08-VA2.1 ...	22,2 W	16,7 W	11,1 W	5,6 W
T08-VA2.2 ...	25,0 W	18,8 W	12,5 W	6,3 W
T08-VA2.3 ...	28,6 W	21,4 W	14,3 W	7,1 W
T08-VA4.3 ...	57,1 W	42,9 W	28,6 W	14,3 W
TNXCD	57,1 W	42,9 W	28,6 W	n.a.

...for T5 Temperature Class (T_{sur} < 100°C)

Model:	T _{amb max}					
	40°C	50°C	60°C	70°C	80°C	85°C
T08-VA1.1	23,9 W	19,6 W	15,2 W	10,9 W	6,5 W	4,3 W
T08-VA1.2 ...	25,0 W	20,6 W	15,9 W	11,4 W	6,8 W	4,5 W
T08-VA2.0 ...	25,0 W	20,6 W	15,9 W	11,4 W	6,8 W	4,5 W
T08-VA2.1 ...	30,6 W	25,0 W	19,4 W	13,9 W	8,3 W	5,6 W
T08-VA2.2 ...	34,4 W	28,1 W	21,9 W	15,6 W	9,4 W	6,3 W
T08-VA2.3 ...	39,3 W	32,1 W	25,0 W	17,9 W	10,7 W	7,1 W
T08-VA4.3...	78,6 W	64,3 W	50,0 W	35,7 W	21,4 W	14,3 W
TNXCD	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

...for T4 Temperature Class (T_{sur} < 135°C)

Model:	T _{amb max}					
	50°C	70°C	90°C	100°C	110°C	120°C
T08-VA1.1	34,8 W	26,1 W	17,4 W	13,0 W	8,7 W	4,3 W
T08-VA1.2 ...	36,4 W	27,3 W	18,2 W	13,6 W	9,1 W	4,5 W
T08-VA2.0...	36,4 W	27,3 W	18,2 W	13,6 W	9,1 W	4,5 W
T08-VA2.1 ...	44,4 W	33,3 W	22,2 W	16,7 W	11,1 W	5,6 W
T08-VA2.2 ...	50,0 W	37,5 W	25,0 W	16,7 W	12,5 W	6,3 W
T08-VA2.3 ...	57,1 W	42,9 W	28,6 W	21,4 W	14,3 W	7,1 W
T08-VA4.3 ...	114,3 W	85,7 W	57,1 W	42,9 W	28,6 W	14,3 W
TNXCD	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

...for T3 Temperature Class (T_{sur} < 200°C- 40K)

Model:	T _{amb max}						
	50°C	70°C	90°C	110°C	130°C	140°C	150°C
T08-VA1.1	47,8 W	39,1 W	30,4 W	21,7 W	13,0 W	8,7 W	4,3 W
T08-VA1.2	50,0 W	40,9 W	31,8 W	22,7 W	13,6 W	9,1 W	4,5 W
T08-VA2.0	50,0 W	40,9 W	31,8 W	22,7 W	13,6 W	9,1 W	4,5 W
T08-VA2.1	61,1 W	50,0 W	38,9 W	27,8 W	16,7 W	11,1 W	5,6 W
T08-VA2.2	68,8 W	56,3 W	43,8 W	31,3 W	18,8 W	12,5 W	6,3 W
T08-VA2.3	78,6 W	64,3 W	50,0 W	35,7 W	21,4 W	14,3 W	7,1 W
T08-VA4.3	157,1 W	128,6 W	100,0 W	71,4 W	42,9 W	28,6 W	14,3 W
TNXCD	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

/Protection...

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Protection degrees:

Model:	Protection degree (EN 60529:2014):
T08-VA ...:	IP68 3m / 24h (immersion depth and duration)
T08-TNXCD ...:	IP66, IP67 or IP68

Maximum ambient temperature range:

Model:	Maximum ambient temperature range
T08-VA...:	$-60^{\circ}\text{C} \leq T_{\text{amb}} \leq +\text{xxx}^{\circ}\text{C}$ **
T08-TNXCD ...:	$-50^{\circ}\text{C} \leq T_{\text{amb}} \leq +\text{xxx}^{\circ}\text{C}$ **

** See power tables above, type plate, model key and installation-/user manual!

MARKING:

The **TÜV** marking remains applicable. In addition, the following MASC Certificate number must be applied to the equipment.

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CONDITIONS OF MANUFACTURE:

- None

SPECIAL CONDITIONS OF USE (X):

- When installing the ExCam, the requirements of IEC 60079-14 must be applied.
- For Group I and T08-VA2.x.x.BOR5 models, the enclosure is only suitable with a low risk of mechanical hazard.
- All used cable glands and plugs have to be certified.

CONDITIONS OF CERTIFICATION:

1. This IA Certificate covers all units sold from the date of this document to 10 December 2021.
2. As per ARP 0108 a three-yearly review is required on this IA Certificate.
3. The apparatus must be additionally marked with the MASC marking details above.
4. This approval only covers the equipment as certified above and does not include any scheduled additions or variations / amendments / new issues to the certificate(s), made after the above date.
5. The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by **TÜV** and in this approval.
6. The **TÜV** certification must remain valid.
7. The extent of the requirements in the ARP 0108 (or regulations) and SANS 10108 on the certification of the equipment must remain unchanged.
8. The Ex quality assurance notification/report for the equipment must remain valid.

/ . CONCLUSION...

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CONCLUSION:

From the above and the selective examination of the documentation, nothing contrary to the requirements of the applicable standards was found, provided that the equipment / component is used as described in the above document / certificate and according to the MASC conditions below. A MASC IA certificate is issued based on the work done by TÜV.

The routine tests for production units according to the TÜV Certificate must be complied with (if applicable).

Yours faithfully



D Visser
TECHNICAL SPECIALIST

Mining And Surface Certification

This document is issued based on Mining And Surface Certification's Standard Contract terms and conditions available on request.

While every endeavour is made to ensure that a test / assessment is representative and accurately performed, and that a report is accurate in the quoted results and conclusions drawn from the test / assessment, MASC or its members/employees shall in no way be liable for any error made in carrying out the test / assessment or for any erroneous statement, whether in fact or in opinion, contained in a report issued pursuant to a test / assessment.

MASC takes no responsibility for any non-conformances, exclusions or any results / assessments not in compliance with the standards. By marking the equipment in accordance with the documentation / standard, the manufacturer attests on his own responsibility that the equipment has been constructed in accordance with the applicable requirements of the relevant standards and that the routine verifications and routine tests have been successfully completed and the product complies with the documentation and standard(s).

This document is only for use and application in South Africa. It is issued based on National interpretations and accepted practises.

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