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GOVERNMENT APPROVED TEST LABORATORY

IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

IA CERTIFICATE

Date Issued: 21 Jan 2019

*Expiry date: 21 Jan 2022

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Issue: 0

Ex – Type Examination Certificate

Certificate Number: S-XPL/19.0040 X

Equipment: Fieldbus Components

Model / Type: Type BK ..., Type KL ..., Type KS ..., Type EK ..., EL ... and Type ES ...

Applicant: Beckhoff Automation (Pty) Ltd

7 Ateljee Street

Randpark Ridge

Randburg, Gauteng

2169, South Africa

Manufacturer: Beckhoff Automation GmbH & Co. KG

Serial No: All serial numbers imported between issued- and expire date and all serial numbers covered by a valid report or acceptable product certification mark.

Supplied by

Beckhoff Automation (Pty) Ltd

Identified by Inspection Authority number

S-XPL/19.0040 X

And as described in the Explolabs file number **XPL/20209/19.0040** is hereby certified "Explosion Protected (Refer to clause 1, for Ex Rating)", having been examined and inspected in accordance with the relevant requirements of South African Standards.

SANS 60079-0: 2012 Ed 5

Explosive atmospheres Part 0: Equipment — General requirements

IEC 60079-0: 2011 Ed 6

SANS 60079-15: 2010 Ed 4

Explosive atmospheres Part 15: Equipment protection by type of protection "n"

IEC 60079-15: 2010 Ed 4

SANS 60079-31: 2014 Ed 2

Explosive atmospheres Part 31: Equipment dust ignition protection by enclosure "t"

IEC 60079-31: 2013 Ed 2

Risk of ignition provided:

Protection afforded	Equipment Protection Level (EPL)	Performance of protection	Conditions of operation	T class or Max Surface Temp (°C)
	Group			
Enhanced	Gc Group II	Suitable for normal operation	Equipment remains functioning in zone 2	T4 (135°C)
Enhanced	Dc Group III		Equipment remains functioning in zone 22	T135°C

This certification indicates compliance with R10.1 of the Mines Health and Safety Act and/or EMR 9(2) of the Occupational Health and Safety Act, provided that the apparatus is used as relevant in accordance with:

- SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
- Any conditions mentioned in the above report;
- Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
- Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
- A revision certificate replaces all previous version of the certificate.
- * - Only covers equipment Imported between the "Issued" and "Expire" dates.
- If and when your QAN (Quality Assurance Notification) Certificate for your equipment manufacturer expires during the valid period of the IA Certification (issued for your equipment) and a new certificate is not submitted the existing IA Certification will then be cancelled. It is thus the client's responsibility to always submit the updated and valid QAN certificate(s) to Explolabs (Pty) Ltd

1.

GENERAL

The marking of the Fieldbus Components shall include the following:

Ex nA IIC T4 Gc and

Ex tc IIIC T135 °C Dc

Fieldbus Components Type BK ..., Type KL ..., Type KS ... Type EK ..., EL ... and Type ES ... for use in I/O and Fieldbus systems.

The type code, the ambient temperature range and the temperature class of the modules shall be taken from Table 1, below.

Table 1

Description	Type	Temp. code	Ambient Range	Technical Data	Supply Volt.
PROFIBUS "Economy plus" Bus Coupler	BK3120	T4	-25...+60°C	----	----
	BK3115	T4	-25...+60°C	----	----
	KL9031-GL	T4	-25...+60°C	----	24Vdc
2-channel digital input terminal 24 V DC for Namur sensors	KL/KS1352	T4	-25...+60°C	----	24Vdc
Up/down counter 24 V DC, 100 kHz	KL/KS1501	T4	-25...+60°C	----	24Vdc
8-channel digital output terminal 24 V DC	KL/KS2408	T4	-25...+60°C	24Vdc/0.5A	----
2-channel pulse width output terminal 24 V DC	KL/KS2502	T4	-25...+60°C	24Vdc/0.1A	----
2-channel analog input terminal 0...20 mA	KL/KS3012	T4	-25...+60°C	0 ... 20mA	----
4-channel analog input terminal 4...20 mA	KL/KS3054	T4	-25...+60°C	4 ... 20mA	----
4-channel analog output terminal 4...20 mA	KL/KS4424	T4	-25...+60°C	4 ... 20mA	----
Potential supply terminal, 24 V DC, with diagnostics	KL/KS9110	T4	-25...+60°C	----	24Vdc
End terminal	KL9010	T4	-25...+60°C	----	----
EtherCAT Coupler	EK1100	T4	-25...+60°C	----	24Vdc
	EK1105	T4	-25...+60°C	----	----
EtherCAT Coupler with ID switch for Ebus terminals	EK1101	T4	-25...+60°C	----	24Vdc
	EK1105	T4	-25...+60°C	----	----
PROFINET RT Bus Coupler	EK9300	T4	-25...+60°C	----	----
	CX8000	T4	-25...+60°C	----	----
	CX8095	T4	-25...+60°C	----	----
	CX5125	T4	-25...+60°C	----	24Vdc
2-channel digital input terminal 24Vdc, filter 3.0 ms, 1-wire system	EL/ES1002	T4	-25...+60°C	----	24Vdc
4-channel digital input terminal 24Vdc, filter 3.0 ms, 1-wire system	EL/ES1004	T4	-25...+60°C	----	24Vdc
8-channel digital input terminal 24Vdc, filter 3.0 ms, 1-wire system	EL/ES1008	T4	-25...+60°C	----	24Vdc
2-channel digital input terminal NAMUR	EL/ES1052	T4	-25...+60°C	8,2Vdc	----
4-channel digital input terminal NAMUR	EL/ES1054	T4	-25...+60°C	8,2Vdc	----
2-channel digital input terminal with oversampling	EL/ES1262	T4	-25...+60°C	24Vdc	----
8-channel digital output terminal 24 V DC, 0.5 A	EL/ES2008	T4	-25...+60°C	24Vdc, 0.5 A	----
4-channel digital output terminal 24 V DC, 0.5 A, with diagnostics	EL2014	T4	-25...+60°C	24Vdc, 0.5 A	----
2-channel digital output terminal 24 V DC, 2 A	EL/ES2022	T4	-25...+60°C	24Vdc, 2 A	----
2-channel pulse width current terminals 24 V DC	EL/ES2535-0002	T4	-25...+60°C	24Vdc, ±2 A	----
4-channel digital output terminal 30 V AC/DC, 2 A, solid state	EL2794	T4	-25...+60°C	30Vac/dc, 2 A	----

Description	Type	Temp. code	Ambient Range	Technical Data	Supply Volt.
HD EtherCAT Terminal, 16-channel digital output 24 V DC, 0.5 A	EL2809	T4	-25...+60°C	24Vdc, 0.5 A	----
4-channel analog input terminal 0...20 mA, single-ended, 12 bit	EL/ES3044	T4	-25...+60°C	0 ... 20mA	----
4-channel analog input terminal -10 V...+10 V, differential input, 16 bit	EL/ES3104	T4	-25...+60°C	-10 ... +10V	----
4-channel analog input terminal 4...20 mA, single-ended, 16 bit, 4 x 2-wire system	EL/ES3154	T4	-25...+60°C	4 ... 20mA	----
2-channel analog input terminal 4...20 mA, single-ended, 16 bit, 4 x 2-wire system	EL/ES3182	T4	-25...+60°C	4 ... 20mA	----
4-channel thermocouple input terminal with open-circuit recognition	EL3314	T4	-25...+60°C	----	----
1-channel precise load cell analysis (resistor bridge), 24 bit	EL3356-0010	T4	-25...+60°C	----	----
2-channel analog input terminal -10...+10 V with oversampling	EL/ES3702	T4	-25...+60°C	-10 ... +10V	----
4-channel analog output terminal 0...20 mA, 12 bit	EL/ES4014	T4	-25...+60°C	0 ... 20mA	----
2-channel analog output terminal 4...20 mA, 12 bit	EL/ES4022	T4	-25...+60°C	4 ... 20mA	----
2-channel analog output terminal 10...+10 V with oversampling	EL/ES4732	T4	-25...+60°C	-10 ... +10V	----
2-channel incremental encoder interface, 32 bit	EL/ES5152	T4	-25...+60°C	----	----
Serial interface RS422/RS485	EL/ES6021	T4	-25...+60°C	----	----
License key terminal for TwinCAT 3.1	EL6070	T4	-25...+60°C	----	----
Ethernet switch port terminal	EL6601	T4	-25...+60°C	----	----
	EL6605	T4	-25...+60°C	----	----
System terminal, surge filter system and field supply	EL/ES9550	T4	-25...+60°C	24Vdc	24Vdc

Based on the following documentation: IECEx DEK 16.0078X Issue No.: 2

2. INSTALLATION INSTRUCTIONS

It is the manufacturer's responsibility to supply installation instructions with each unit offered for sale as required by IEC/SANS 60079-0 Clause 30.

3. SPECIAL CONDITIONS FOR SAFE USE *(denoted by "X" after certificate number)*

For Ex nA:

The Fieldbus Components shall only be used in an area of not more than pollution degree 2, as defined in IEC 60664-1.

The Fieldbus Components shall be installed in a suitable enclosure providing a degree of protection of at least IP54 according to IEC 60079-15, taking into account the environmental conditions under which the equipment will be used.

Provisions shall be made to prevent the rated voltages from being exceeded by transient disturbances of more than 119 V.

The Fieldbus Components may only be removed or inserted when the system supply and the field supply are switched off, or when the location is known to be non-hazardous.

The Fieldbus Components may only be disconnected or connected when the system supply is switched off, or when the location is known to be non-hazardous.

Address selectors and ID switches may only be adjusted when the system supply is switched off, or when the location is known to be non-hazardous.

For Ex t:

The Fieldbus Components shall be installed in a suitable enclosure providing a degree of protection of IP65 according to IEC 60079-31 and SANS 10108 for group IIIA, IIIB and IIIC, taking into account the environmental conditions under which the equipment is used.

4. **SCHEDULE OF LIMITATIONS** (denoted by "U" after certificate number)
None.

5. **CONDITIONS OF CERTIFICATION**

All production units must be covered by a QAN (Quality Assurance Notification), Product Mark Scheme or batch evaluation.

6. **MARKING**

The following (or similar) information have to be clearly and permanently marked on all units:

Supplier : Beckhoff Automation (Pty) Ltd
Manufacturer : Beckhoff Automation GmbH & Co. KG
Equipment : Fieldbus Components
Model/Type : Type BK ..., Type KL ..., Type KS ..., Type EK ..., EL ... and Type ES ...
Serial No. : ---
Ex Rating : Ex nA IIC T4 Gc and
Ex tc IIIC T135 °C Dc
IA Certificate No : S-XPL/19.0040 X

Responsible Testing Officer:



D Maree

Testing Officer

EXPLOLABS EXPLOSION PREVENTION SERVICES

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