

[1]

TYPE EXAMINATION CERTIFICATE



[2]

Equipment or Protective System intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

[3]

Type Examination Certificate Number: **DEMKO 14 ATEX 1285X Rev. 0**

[4]

Equipment: **Open Type Programmable Controllers; Opal5, Opal5-E, Opal8, Opal8-E Series**

[5]

Manufacturer: **Kyland Technologies Co. Ltd.**

[6]

Address: **No. 901, Floor 8-12 Building No. 2, Shixing Avenue 30#, Shijingshan Dist., Beijing 100144 China**

[7]

This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8]

UL International Demko A/S certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of **Category 3** equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to the European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in confidential report no. **4786196589**

[9]

Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to Standards:

EN 60079-0:2012+A11:2013

EN 60079-15:2010

[10]

If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

[11]

This Type examination certificate relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

[12]

The marking of the equipment or protective system shall include the following:

 **II 3 G Ex nA IIC T4 Gc**

Certification Manager

Jan-Erik Storgaard

This is to certify that the sample(s) of the Equipment described herein ("Certified Equipment") has been investigated and found in compliance with the Standard(s) indicated on this Certificate, in accordance with the ATEX Equipment Certification Program Requirements. This certificate and test results obtained apply only to the equipment sample(s) submitted by the Manufacturer. UL did not select the sample(s) or determine whether the sample(s) provided were representative of other manufactured equipment. UL has not established Follow-Up Service or other surveillance of the equipment. The Manufacturer is solely and fully responsible for conformity of all equipment to all applicable Standards, specifications, requirements or Directives. The test results may not be used, in whole or in part, in any other document without UL's prior written approval.

Date of issue: 2014-09-30



Certification Body

UL International Demko A/S, Borupvang 5A, 2750 Ballerup, Denmark
Tel. +45 44 85 65 65, info.dk@ul.com, www.ul.com

[13]

[14]

Schedule
TYPE EXAMINATION CERTIFICATE No.
DEMKO 14 ATEX 1285X Rev. 0
Report: 4786196589

[15]

Description of Equipment:

Open Type Programmable Controllers, Opal5, Opal5-E, Opal8, Opal8-E Series are Industrial Ethernet Switches and Media Converters with communication interfaces and intended for use in industrial applications (as part of PLC system). They are microcomputer-based and communicate via interfaces through wire. They are open type devices intended for DIN rail mounting. The models consist of one or two circuit boards that utilize the non-sparking “nA” protection method.

The optical radiation output of the apparatus with respect to explosion protection, according to Annex II clause 1.3.1 of the directive 94/9/EC is not covered in this certificate.

Nomenclature for type Opal5, Opal5-E, Opal8, Opal8-E:

Cat. Nos. Opal5 and Opal5-E, followed by -5T, -1S4T or -1M4T, followed by SC, ST, FC or Blank, followed by 02, 05, 40, 60, 80 or Blank, followed by LV, followed by LV or Blank.

Cat. Nos. Opal8 and Opal8-E, followed by -8T, -1S7T, -1M7T, -2S6T or -2M6T, followed by SC, ST, FC or Blank, followed by 02, 05, 40, 60, 80 or Blank, followed by LV, followed by LV or Blank.

Models	Description	Ethernet RJ45 TX Ports	Fiber Port FX Ports	Fiber Physical Connector shape	Transmission Mode
Opal5-5T, Opal5-E-5T		5	-	-	-
Opal5 and Opal5-E, followed by -1S4T		4	1	SC, ST, FC	Single
Opal5 and Opal5-E, followed by -1M4T		4	1	SC, ST, FC	Multi
Opal8-8T, Opal8-E-8T		8	-	-	-
Opal8 and Opal8-E, followed by -1S7T		7	1	SC, ST, FC	Single
Opal8 and Opal8-E, followed by -1M7T		7	1	SC, ST, FC	Multi
Opal8 and Opal8-E, followed by -2S6T		6	2	SC, ST, FC	Single
Opal8 and Opal8-E, followed by -2M6T		6	2	SC, ST, FC	Multi

Temperature range

The ambient temperature range is as below table:

Series No.	Maximum Ambient Temperature	Temperature Class
Opal5, Opal8	-40 °C to +75 °C	T4
Opal5-E, Opal8-E	-10 °C to + 60 °C	T4

Electrical data

Model / Series No.	Rated Input		Output
	Voltage	Power	
Opal5, Opal5-E	9 – 60 Vdc;	3.4 W, Class 2	Signal (Note)
Opal8, Opal8-E	18 - 30 Vac, 50/60 Hz	4.6 W, Class 2	

Note: “Signal” means it is a signal output rated less than 30 volts. Electrical rating of “Signal” may be marked on the device or in the instruction manual supplied with the equipment.

Installation instructions

All field wiring intended for connection to the power terminal shall consist of copper conductors with the insulation locally removed. Additional intermediate connecting parts, other than ferrules, shall not be used.

Routine tests

No routine tests are necessary.

[16]

Descriptive Documents

Project Report No.: 4786196589 (Hazardous Location Testing)

Drawings:

Description:	Drawing No.:	Rev. Level:	Date:
Opal5&Opal8 Series Entry-Level Industrial Ethernet Switch Hardware Installation Manual	Kyland Opal5/Opal8 IM-EN	V1.0	2013-12
Opal5 device label information	BQ-13084	V1.0	2014-08-05
Opal8 device label information	BQ-13085	V1.0	2014-08-05
Mechanical Drawing-Opal5 Series	DT/Opal5-01-02	V1.0	2014-04-16



[13]

[14]

Schedule
TYPE EXAMINATION CERTIFICATE No.
DEMKO 14 ATEX 1285X Rev. 0
Report: 4786196589

PCB-Opal5	1.08.99.1024-1	V1.1	2014-08-21
Mechanical Drawing-Opal8 Series	DT/Opal8-01-02	V1.0	2014-04-16
PCB-Opal8, Main Board	1.08.99.1025-1	V1.0	2014-08-21
PCB-Opal8, FX Board	1.08.99.1026.0	V1.0	2014-08-22
SCH-Opal5	SCH_1.08.99.1024-1	V1.1	2013-05-21
SCH-Opal8, Main Board	SCH_1.08.99.1025-1	V1.0	2013-05-24
SCH-Opal8, FX Board	SCH_1.08.99.1026.0	V1.0	2013-05-24
key components of Opal5	KT/RD-Opal5 Series-027	V1.0	2014-03-06
key components of Opal8, Main Board	KT/RD-Opal8 Series-027	V1.0	2014-03-06
Key components of Opal 8, FX Board	KT/RD-2.40.01.2010-0-BMX	V1.02	2014-03-06

[17]

Special conditions for safe use:

- Subject devices are to be installed in an ATEX Certified IP54 enclosure and accessible only by the use of a tool.
- Subject devices are for use in an area of not more than pollution degree 2 in accordance with IEC 60664-1.
- Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 140% of the rated voltage.
- Conductors suitable for use in an ambient temperature of 80°C must be used for the Power Supply Terminal.

o

[18]

Essential Health and Safety Requirements

Met by compliance with the standards EN 60079-0:2012+A11:2013 and EN 60079-15:2010.

