1 # TYPE EXAMINATION CERTIFICATE

2 **Equipment Intended for use in Potentially Explosive Atmospheres**
Directive 94/9/EC

3 Type Examination Certificate Number: **Baseefa15ATEX0093X**

4 Equipment: **Redfox Industrial Routing Switches**

5 Manufacturer: **Westermo Teleindustri AB**

6 Address: **SE-640 40 Stora Sundby, Sweden**

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

8 Baseefa certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment of Category 3 intended for use in potentially explosive atmospheres given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR15.0158/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2012 + A11: 2013   EN 60079-15: 2010   EN 60079-28: 2007

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment 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 shall include the following :

⟨Ex⟩ **II 3G   - See Certificate Schedule for markings**

Baseefa Customer Reference No. **6934**   Project File No. **14/0873**

13   **Schedule**

14   **Certificate Number Baseefa15ATEX0093X**

15   **Description of Equipment**

The Redfox Industrial Routing Switches are a range of high performance Ethernet switches designed to provide a secure communication interface using fibre optic, multi and single mode trans-receivers in a network. The range offers a number of Ethernet interface combinations that can be tailored for given network application. The Redfox is also able to provide secure remote access to these networks across unsecured connections by acting as a VPN endpoint.

The Redfox Industrial Routing Switches comprise either a two or three slot metallic enclosure that can be either DIN Rail or wall mounted. The first slot of all variants contains power supply and CPU modules. The equipment is supplied via dual power supply terminals which support redundancy power connection to the equipment. All variants of the equipment have a digital I/O interface to allow the equipment's status to be reported to external equipment and external events to be monitored. The CPU module provides three 10/100/1000 Mbit/s Ethernet TX ports for connection, as well as a USB port and micro-USB Console port for connection for servicing and upgrading the equipment.

The second, and where applicable, third slot of the equipment house Ethernet Interface modules comprising a combination of 10/100/1000 Mbit/s Ethernet TX ports and sockets for the fitting of a range of 100/1000 Mbit/s Ethernet FX or TX Small Form-factor Pluggable (SFP) transceivers. The number and configuration of these is dependent on the Redfox Model.

The various modules in the equipment are interconnected via a backplane fitted in the base of the equipment.

Where fitted, the Redfox SFP ports can be only fitted with the following Westermo Optical Transceiver modules:

SFP Transceivers, 100 Mbit	
1100-0131	MLC2, Multimode, LC-Connector, 2km, 1310nm
1100-0132	SLC20, Single mode, LC-Connector, 20km, 1310nm
1100-0133	SLC40, Single mode, LC-Connector, 40km, 1310nm
1100-0134	SLC80, Single mode, LC-Connector, 80km, 1550nm
1100-0140	SLC120, Single mode, LC-Connector, 120km, 1550nm
BiDi Transceivers, 100 Mbit	
1100-0145	SLC15-BiDi-A, Single mode, BiDi, 20km, 1310nm TX, 1550nm RX
1100-0146	SLC15-BiDi-B, Single mode, BiDi, 20km, 1550nm TX, 1310nm RX
1100-0152	MLC2-BiDi-A, Multimode, BiDi, 2km, 1310nm TX, 1550nm RX
1100-0153	MLC2-BiDi-B, Multimode, BiDi, 2km, 1550nm TX, 1310nm RX
DDM SFP Transceivers, 100 Mbit	
1100-0531	MLC2-DDM, Multimode, DDM, 2km, 1310nm
1100-0532	SLC20-DDM, Multimode, DDM, 20km, 1310nm
1100-0533	SLC40-DDM, Multimode, DDM, 40km, 1310nm
DDM SFP Transceivers, 1 Gbit	
1100-0542	GSLC50-DDM, Single mode, DDM, 50km, 1550nm
1100-0547	GMLC2-DDM, Multimode, DDM, 2km, 1310nm
SFP Transceivers, 1 Gbit	
1100-0144	GMLC550-SX, Multimode, LC-Connector, 550m, 850nm, SX
1100-0147	GMLC2-SX+, Multimode, LC-Connector, 2km, 1310nm, SX+
1100-0141	GSLC10-LX, Single mode, LC-Connector, 10km, 1310nm, LX
1100-0142	GSLC50-XD, Single mode, LC-Connector, 50km, 1550nm, XD
1100-0143	GSLC80-ZX, Single mode, LC-Connector, 80km, 1550nm, ZX
1100-0171	GSLC110-EZX, Single mode, LC-Connector, 110km, 1550nm, EZX
BiDi Transceiver, 1 Gbit	
1100-0156	GSLC20-BiDi-A, Single mode, BiDi, 20km, 1310nm TX, 1490nm RX
1100-0157	GSLC20-BiDi-B, Single mode, BiDi, 20km, 1490nm TX, 1310nm RX
Copper Transceiver, 1Gbit	
1100-0148	GC100, Copper, RJ45, 100m, 1000BaseT

The Redfox Switches are available with different port configurations denoted by characters in their model number. The Redfox model range along with their certification markings are as defined below:

Model	Certification Code
RFI-207-F4G-T3G-EX Two Slot Industrial Routing Switch with 3 x 10/100/1000 Mbit/s Ethernet TX ports and 4 x 100/1000 Mbit/s Ethernet FX or TX SFP ports.	⟨Ex⟩ II 3G Ex nA [op is T4] IIC T3 Gc (-40°C ≤ T_a ≤ +70°C)
RFI-211-T3G-EX Two Slot Industrial Routing Switch with 3 x 10/100/1000 Mbit/s Ethernet TX ports and 8 x 10/100 Mbit/s Ethernet TX ports.	⟨Ex⟩ II 3G Ex nA IIC T4 Gc (-40°C ≤ T_a ≤ +70°C)
RFI-211-F4G-T7G-EX Two Slot Industrial Routing Switch with 7 x 10/100/1000 Mbit/s Ethernet TX ports and 4 x 100/1000 Mbit/s Ethernet FX or TX SFP ports.	⟨Ex⟩ II 3G Ex nA [op is T4] IIC T3 Gc (-40°C ≤ T_a ≤ +70°C)
RFI-215-F4G-T3G-EX Three Slot Industrial Routing Switch with 3 x 10/100/1000 Mbit/s Ethernet TX ports, 8 x 10/100 Mbit/s Ethernet TX ports and 4 x 100/1000 Mbit/s Ethernet FX or TX SFP ports.	⟨Ex⟩ II 3G Ex nA [op is T4] IIC T3 Gc (-40°C ≤ T_a ≤ +70°C)
RFI-219-T3G-EX Three Slot Industrial Routing Switch with 3 x 10/100/1000 Mbit/s Ethernet TX ports and 16 x 10/100 Mbit/s Ethernet TX ports.	⟨Ex⟩ II 3G Ex nA IIC T4 Gc (-40°C ≤ T_a ≤ +70°C)
RFI-219-F4G-T7G-EX Three Slot Industrial Routing Switch with 7 x 10/100/1000 Mbit/s Ethernet TX ports, 4 x 100/1000 Mbit/s Ethernet FX or TX SFP ports and 8 x 10/100 Mbit/s Ethernet TX ports.	⟨Ex⟩ II 3G Ex nA [op is T4] IIC T3 Gc (-40°C ≤ T_a ≤ +70°C)
RFI-219-F4G-T7G-F8-EX Three Slot Industrial Routing Switch with 7 x 10/100/1000 Mbit/s Ethernet TX ports, 4 x 100/1000 Mbit/s Ethernet FX or TX SFP ports and 8 x 100 Mbit/s Ethernet FX or TX SFP ports.	⟨Ex⟩ II 3G Ex nA [op is T4] IIC T3 Gc (-40°C ≤ T_a ≤ +70°C)

Input Parameters:

Power Connector: +DC1, +DC2 & -COM

Working Voltage Range = 24V to 48V d.c.

I/O Connector: 'Status +' & 'Status –' and 'Digital in +' and 'Digital in –'

Maximum I/P Voltage = 60V d.c.

16   Report Number

GB/BAS/ExTR15.0158/00

17   Specific Conditions of Use

1.   The equipment must be installed in an area of not more than pollution degree 2 in accordance with IEC/EN 60664-1, and in an enclosure that provides a minimum degree of protection of at least IP54 and complies with the relevant requirements of EN 60079-0 and EN 60079-15.

2.   External connections to the equipment and, where applicable, the SFP modules must not be inserted or removed unless either the area in which the equipment is installed is known to be non-hazardous, or the circuits connected have been de-energised.

3.   The network cables once installed must be properly fixed by the use of cable ties or similar to reduce the risk of accidently withdrawing the plugs.

18   Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19   Drawings and Documents

Number	Sheet	Issue	Date	Description
1212-1406-UP-04	1 of 1	04	2015-08-07	Label RFI-211-F4G-T7G-EX
1212-1417-UP-04	1 of 1	04	2015-08-07	Label RFI-215-F4G-T3G-EX
1212-1457-UP-03	1 of 1	03	2015-08-07	Label RFI-219-F4G-T7G-EX
1212-1458-UP-03	1 of 1	03	2015-08-07	Label RFI-219-F4G-T7G-F8-EX
1212-1459-UP-02	1 of 1	02	2015-08-06	Label RFI-219-T3G-EX
1212-1462-UP-02	1 of 1	02	2015-08-06	Label RFI-207-F4G-T3G-EX
1212-1463-UP-02	1 of 1	02	2015-08-06	Label RFI-211-T3G-EX
2010-4213-C	1 to 13	2	08/07/15	4SX SFP Base Board
2010-4213-H	1 & 2	Original	02/28/2013	2010-4213_4sx_sfp_gigbit_std
2010-4223-C	1 to 7	2	08/07/15	2010-422x 4TX Gigabit Daughter
2010-4223-H	1 & 2	Original	2009-09-29	2010-4223_4tx_gigab_d_std
2010-4810	1 of 1	2	2009-01-16	Backplane 2-Slot Redfox Westermo R&D
2010-4810-C	1 to 5	Original	06/22/2010	2 Slot Backplane RFI
2010-5165-C	1 to 9	1	05-05-2014	Redfox Industrial 8FX 100Mbps
2010-5165-H	1 & 2	Original	05/05/2014	8FX
2011-0053	1 to 14	Original	14.03.12	RFI CPU Board
2011-0091	1 to 7	Original	13.09.19	8TX RFI Board
2011-0101	1 to 5	Original	13.05.14	RF Backplane 3 Slot
2011-0182	1 to 9	Original	14.05.23	RFI Power
3641-5100-UE-02	1 & 2	02	2015-08-07	RFI-219-T3G-EX
3641-5110-UE-02	1 & 2	02	2015-08-07	RFI-211-T3G-EX
3641-5200-UE-02	1 & 2	02	2015-08-07	RFI-215-F4G-T3G-EX
3641-5210-UE-02	1 & 2	02	2015-08-07	RFI-207-F4G-T3G-EX
3641-5300-UE-03	1 to 3	03	2015-08-07	RFI-219-F4G-T7G-EX

Number	Sheet	Issue	Date	Description
3641-5310-UE-03	1 & 2	03	2015-08-07	RFI-211-F4G-T7G-EX
3641-5320-UE-02	1 to 3	02	2015-08-07	RFI-219-F4G-T7G-F8-EX
5013-4000-B	1 to 10	01	2015-03-13	RFI CPU EX
5013-4000-C	1 to 16	01	05-05-2014	RFI CPU Board
5013-4110-B	1 to 4	01	2015-03-18	RFI 8-Tx EX
5013-4110-C	1 to 5	01	10-09-2013	RFI 8-Tx
5013-4240-B	1 to 7	01	2015-03-18	RFI Power EX
5013-4240-C	1 to 5	01	21-02-2014	RFI Power
5013-4300-B	1 to 6	01	2015-03-18	4SX SFP Gigbit Std EX
5013-4310-B	1 to 6	01	2015-03-18	4SX SFP Gigbit Std EX
5013-4400-B	1 to 5	01	2015-03-20	4TX Gigabit Daughter Std EX
5013-4800-B	1 & 2	01	2015-03-20	2-Slot Backplane EX
5013-4820-B	1 of 1	01	2015-03-20	3-Slot Backplane EX
5013-4820-C	1 of 1	01	2015-03-13	RF Backplane 3-Slot
5013-4910-B	1 to 5	01	2015-03-18	RFI 8FX Board EX

The above drawing are associated and held with IECEx Certificate No. IECEx BAS 15.0066X