

# TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

**Object** Communication networks and systems for power utility automation

Certificate No.  
**103638704-25**

Revision 1

**Type** 19" Managed Substation Automation Switch  
RedFox-5728 Series



**Manufacturer** Westermo Network Technologies AB,  
Metallverksgatan 6,  
721 30 Västerås, Sweden  
(location as declared by the manufacturer)

**Production location** Westermo Network Technologies AB,  
Wij 4, 635 35 Stora Sundby, Sweden  
(location as declared by the manufacturer)

The test object, constructed in accordance with the description, drawings and photographs incorporated in the documents forming part of this Certificate, has been subjected to the series of proving tests in accordance with

**EN 61850-3:2014, IEC 61850-3:2013**

This Certificate is based on the report(s) listed in the report list in this Certificate.

The values obtained and the general performance are considered to comply with the above standard(s) and to justify the ratings assigned by the manufacturer as listed in this Certificate.

This Certificate applies only to the individual object tested. KEMA Labs makes no representations or warranties with respect to any device other than the object tested. It is the responsibility of the applicable device manufacturer to ensure that any other devices or units having the same name and descriptions as the test object are identical.

This Certificate comprises 10 pages in total.

Issued by KEMA B.V.

Marten Dekker  
Operations Director Netherlands

Arnhem, June 11, 2025



## REVISION OVERVIEW

The edition with the highest revision number always replaces the earlier editions issued.

| Rev. No. | Date of issue | Page no. and changes                                                                                                                                                                 |
|----------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0        | June 4, 2025  | First issue                                                                                                                                                                          |
| 1        | June 11, 2025 | On the front page the date was adapted..<br>On page 3 the production location was adapted.<br>On page 9 RedFox-5728-(E-)F24G-T4G-HVLV was changed into RedFox-5728-(E-)F24G-T4G-HVHV |

## REPORT LIST

This Certificate is issued based on the following report(s).

| Report number | Revision | Variant                         | Firmware version |
|---------------|----------|---------------------------------|------------------|
| 1028-21       | 0        | RedFox-5728-(E-) F4G-T24G-HV    | WeOS v5.9.2      |
|               |          | RedFox-5728-(E-) F4G-T24G-HVHV  | WeOS v5.9.2      |
|               |          | RedFox-5728-(E-) F16G-T12G-HV   | WeOS v5.9.2      |
|               |          | RedFox-5728-(E-) F16G-T12G-HVHV | WeOS v5.9.2      |
| 1364-21       | 0        | RedFox-5728-(E-) F4G-T24G-LV    | WeOS v5.9.2      |
|               |          | RedFox-5728-(E-) F16G-T12G-LV   | WeOS v5.9.2      |
| 1677-22       | 0        | RedFox-5728-(E-) F4G-T24G-LVLV  | WeOS v5.12.1     |
|               |          | RedFox-5728-(E-) F16G-T12G-LVLV | WeOS v5.12.1     |
| 1700-24       | 1        | RedFox-5728-(E-)F24G-T4G-LVLV   | WeOS v5.20.1     |
| 103638701-25  | 0        | RedFox-5728-(E-) F24G-T4G-HVHV  | WeOS v5.20.1     |

## **1 IDENTIFICATION OF THE OBJECT**

### **1.1 Description of the object**

The test samples are selected and provided to KEMA Labs by the manufacturer.

|                     |                                                                                                                                   |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer        | Westermo Network Technologies AB,<br>Metallverksgatan 6,<br>721 30 Västerås, Sweden                                               |
| Object<br>Type      | Communication networks and systems for power utility automation<br>19" Managed Substation Automation Switch<br>RedFox-5728 Series |
| Production location | Westermo Network Technologies AB,<br>Wij 4, 635 35 Stora Sundby, Sweden                                                           |

## 1.2 Ratings/characteristics assigned by the manufacturer

The information below has been provided by the manufacturer/derived from the technical data.

Rated auxiliary power supply port energizing voltage

- LV and LVLV models 24-48 Vdc
- HV and HVHV models 110-240 Vac, 50 - 60 Hz

110-240 Vdc

Rated binary input voltage

≤ 60 Vdc

Rated binary output voltage

≤ 60 Vdc

Rated ambient temperature range operating

-40 to 70 °C

Rated ambient temperature range storage

-50 to 85 °C

Number of ethernet ports

1 Maintenance port (front)

24/12/4 Mixed Fiber SFP / Copper RJ-45 model

Number of optical ports

4/16/24 Mixed Fiber SFP / Copper RJ-45 model

### Classifications

IP-class

IP 4X Front

IP 4X Rear

IP 4X Left, Right, Bottom, Top

Mechanical class

2

EMC emission class

A

EMC immunity zone

Location

G power stations and MV substations

H HV substations

P "protected" areas

Signal connections

l Local connections

f Field connections

h HV equipment connections

t telecommunication

p "protected" areas

Reliability class

2

Overvoltage category

III

Pollution degree

2

Insulation type

Power supply to chassis

Basic

Power supply to others

Reinforced

Ethernet and digital IO

Basic

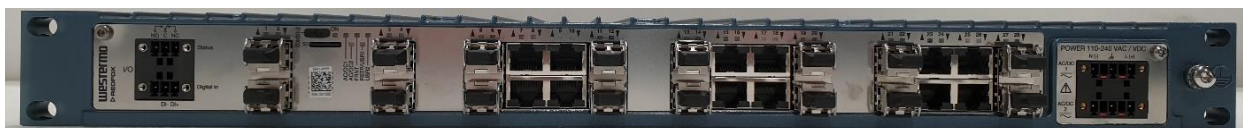
## 2 PHOTOGRAPHS



RedFox-5728-F16G-T12G-HVHV



RedFox-5728-F16G-T12G-HVHV



RedFox-5728-F16G-T12G-HVHV



RedFox-5728-F4G-T24G-HV



RedFox-5728-F4G-T24G-HV



RedFox-5728-F4G-T24G-LV



RedFox-5728-E-F16G-T12G-LVLV



RedFox-5728-F16G-T12G-LVLV



RedFox-5728-F24G-T4G-LVLV



RedFox-5728-F24G-T4G-HVHV

### 3 VARIANTS AND ACCESSORIES

Overview of variants and accessories with details:

| Type designation               | Ports                           | Fiber SFP | Copper RJ-45 |
|--------------------------------|---------------------------------|-----------|--------------|
| RedFox-5728-(E-)F4G-T24G-LV    | 28                              | 4         | 24           |
| RedFox-5728-(E-)F4G-T24G-LVLV  | 28                              | 4         | 24           |
| RedFox-5728-(E-)F4G-T24G-HV    | 28                              | 4         | 24           |
| RedFox-5728-(E-)F4G-T24G-HVHV  | 28                              | 4         | 24           |
| RedFox-5728-(E-)F16G-T12G-LV   | 28                              | 16        | 12           |
| RedFox-5728-(E-)F16G-T12G-LVLV | 28                              | 16        | 12           |
| RedFox-5728-(E-)F16G-T12G-HV   | 28                              | 16        | 12           |
| RedFox-5728-(E-)F16G-T12G-HVHV | 28                              | 16        | 12           |
| RedFox-5728-(E-)F24G-T4G-LV    | 28                              | 24        | 4            |
| RedFox-5728-(E-)F24G-T4G-LVLV  | 28                              | 24        | 4            |
| RedFox-5728-(E-)F24G-T4G-HV    | 28                              | 24        | 4            |
| RedFox-5728-(E-)F24G-T4G-HVHV  | 28                              | 24        | 4            |
| Console                        | USB 2.0 device interface        |           |              |
| Digital I/O                    | 1 x digital in, 1 x digital out |           |              |
| Micro SD                       | Secure Digital 2.0              |           |              |
| 100/1000 Mbit transceivers     | Copper RJ-45 ports              |           |              |
| 1 Gbit transceivers            | Fiber optical ports             |           |              |

## END OF DOCUMENT

The laboratories of KEMA Labs are:

- CESI S.p.A., Milan, Italy.
- FGH Engineering & Test GmbH, Mannheim, Germany.
- IPH Institut "Prüffeld für elektrische Hochleistungstechnik" GmbH, Berlin, Germany.
- KEMA B.V., Arnhem, The Netherlands.
- KEMA Labs, Zkušebníctví, a.s., Prague, the Czech Republic.
- KEMA-Powertest, LLC, Chalfont, United States.