K21045
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Specific Certification Program Fire Protection Systems for Services

Remote access & services on fire pump systems for sprinklers

Trust
Quality
Progress

Preface

This specific certification program has been accepted by the Kiwa Board of Experts Fire Safety, in which all relevant parties in the field of Fire Protection Systems are represented. The Board of Experts also supervises the certification activities and where necessary requires the evaluation guideline to be revised. All references to Board of Experts in this evaluation guideline pertain to the above mentioned Board of Experts.

This certification program will be used by Kiwa in conjunction with the Kiwa Regulations for Certification within the context of Certification Scheme K21045 “Fire Protection Systems”.

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1 Introduction

1.1 General

This specific certification program includes all relevant requirements which are employed by Kiwa when dealing with specific applications.

This specific certification program is a first version and shall be used in context with product certification scheme K21045 “Fire Protection Systems”.

Fire Protection Systems like sprinkler- and watermist systems need a fire pump to generate adequate volume and pressure of water to fulfill their purpose.

The maintenance of these fire pump systems is performed historical on site of the sprinkler-watermist system.

A development process has occurred within the market to allow the 2-weekly tests of the sprinkler pump system to be executed remotely as much as possible.

This change process has the following reasons:

- The better deployment of qualified personnel, the availability of which is becoming increasingly challenging due to tightness on the labor market;
- Limiting, among other things, the emission of NOx and COx in order to contribute to a sustainable economy;
- Less disturbing of users on location for granting access and possible cooperation;
- Better execution of maintenance through automated maintenance processes without human error and better recording of the results.

The preconditions for this change process to allow to execute this remote process are:

- The verification of the events at the maintenance location(s) by means of a video and audio surveillance system by the remote maintainer;
- The connection and communication to the remote location where the executive maintainer performs its activities has a physical and logical adequate security level, applicable for Industrial Automation Control Systems (IACS);
- The application of extra (redundant) sensors in the fire pump systems, which provide reliable measurement and control information.

Note.
This specifies certification program specifies the requirements for such a solution. The requirements are not detailed in the standard NFPA 25.

1.2 Field of application / scope

The functional and performance requirements for the service of remote access, monitoring and services of the fire pump systems of fire protection systems based on sprinkler- and watermist systems. A limited scope for only access and monitoring is also possible.

The basic scopes are:

- Scope A – Watermist systems – service;
- Scope B – Automatic Sprinkler systems – service.

Based on the results of this test protocol in this specific certification program is additional listing possible for these service scopes.

Below an example of the schematic of the infrastructure for this service.

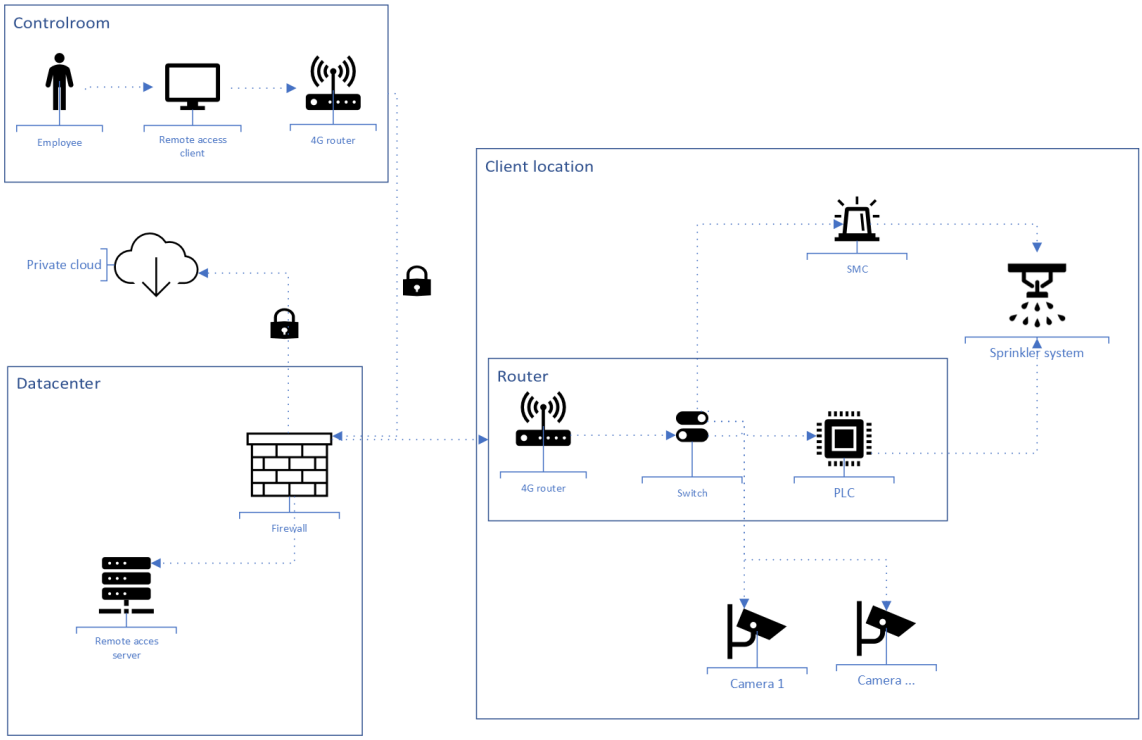

Figure 1.

1.3 Acceptance of test reports provided by the supplier

See TIC scheme K21045.

1.4 Quality declaration

See TIC scheme K21045.

2 Terms and definitions

See TIC scheme K21045.

2.1 Additional terms and definitions

Booster pump set: EN 12845: 3.15;
Automatic pump supplying water to a sprinkler system from a gravity tank or town main.

Pressure maintenance pump (jockey pump): EN 12845: 3.49;
Small automatic pump set used to replenish minor water loss and maintain system pressure.

Fire Pump Unit: NFPA 20: 3.3.18;
An assembled unit consisting of a fire pump, driver, controller, and accessories.

Automated Inspections and Testing: NFPA 25: 4.4.6;
This chapter contains 12 requirements for automatic inspections and testing. These are applicable for this service process.

Remote service: EN 50710: 3.1.19;
Any service for the client of a fire safety systems and security systems, carried out via a remote connection.

Remote access: EN 50710: 3.1.12;
Logical access to a fire safety systems and security systems to apply read, control or write functions.

Remote access: TS 50136-10: 3.1.2;
Provision of access for a remote user or third-party systems to an alarm system installed at the supervised premises to perform authorized activities remotely, for example remote servicing, remote support, remote operations or other functions.

Remote access: IEC 62443-3-3: 3.1.35;
Access to a control system by any user (human, software process or device) communicating from outside the perimeter of the zone being addressed.

Authentication: EN 50710: 3.1.2;
Provision of assurance that a claimed characteristic of an entity is correct.
[SOURCE: EN ISO/IEC 27000:2018, 3.5]

Authorization: EN 50710: 3.1.3;
Permission to gain access to the various functions of a system.

3 Procedure for granting a product certificate

See TIC scheme K21045.

4 Setup of this specific certification program

4.1 General

This chapter contains the setup for the specification certification program.
For the performance of its certification work, Kiwa is bound to the requirements as included in EN-ISO/IEC 17065 “Conformity assessment - Requirements for bodies certifying products, processes and services” and certification scheme K21045.

This program describes the test plan for the assessment of the service of:
- the secure remote access to the serviced objects and its logical and physical infrastructure;
- the process of the automated servicing of the fire pump system.

5 Requirements and testing of the service

5.1 General

These chapters describe the requirements that the services, applied in the processes stated, shall meet. These requirements are part of the technical specification of the process and services, which is recorded in the service certificate for the Fire Protection System.

5.2 Connection and communication to the remote site

If the connection and communication applies the alarm transmission system for the fire detection and fire protection system the secure connection and communication to the remote service shall comply with the requirements in:

- TS 50136-10: Alarm systems - Alarm transmission systems and equipment - Part 10: Requirements for remote access &;
- EN 50136-1/A1: Alarm systems - Alarm transmission systems and equipment - Part 1: General requirements for alarm transmission systems (level DP4).

Note.
The certification based on scheme K21030 complies with standard EN50136-1/A1.
EN 50136-1/A1 requires that data processing equipment in a secure locations such as data centre complies with the EN50600 series.

If the connection and communication applies the transmission and communication based on a industrial communication networks the secure connection and communication to the remote service shall comply with the requirements in:
IEC62443-3-3: Industrial communication networks – Network & system security – Part 3-3; System security requirement and levels (Security Level 3).

Note.
The Directive (EU) 2022/2555 (known as NIS2) entered into force replacing Directive (EU) 2016/1148 – Network Information Security. Customers of these services may have to comply with this directive. Complying to the requirements of the standard IEC62443-3-3 is on the level of The Directive (EU) 2022/2555.

5.3 Remote services fire safety systems

The servicing of the fire pump systems shall comply with the standard:
EN 50710: Requirements for the provision of secure remote services for fire safety systems and security systems.

5.4 The control room maintenance operator

The servicing is processed by maintenance operator from a control room that complies with parts standard: EN50518: Monitoring & Alarm Receiving Centres - category 2:
Part 4 - Planning of the standard is not applicable;
Part 5 - Construction – ARC structure of the standard is only applicable category 2;
Part 6 - Alarm systems of the ARC of the standard is only applicable category 2;
Part 7 - Electrical power supplies of the standard is only following chapter applicable;
7.1 Mains supply;
Part 8 - Alarm Management System of the standard are only following chapters applicable;
8.2 Time synchronization of equipment;
8.4 Storage of master data;
Part 9 - Operation of the ARC of the standard are only following chapters applicable;
9.1.2 Creation, modification and cancellation of services or customer accounts;

9.1.5 Individual services provided by the ARC;
9.1.9 Controls to maintain quality of service;
9.1.13 Information management;
9.1.14 Data back-up;
9.1.15 Confidentiality and classification of information;
9.1.16 Relationships with essential suppliers;
9.1.17 Administrative procedures;
9.1.19 Remote access;

Part 10 - General Principles, Leadership, Governance, Management, and Staffing is not applicable.

5.5 The remote servicing of the fire pump system

The remote servicing of the fire pump systems shall comply with the standards;

- NFPA 25 - Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems;
- NFPA 20 - Standard for the Installation of Stationary Pumps for Fire Protection.

In situations whereby the present of persons is needed on site shall qualified staff perform the servicing on site.
The remote servicing requires a structure whereby the servicing provider has the capability to monitor the performance of the fire pump systems based on reliable inputs from onsite sensors. When needed are these sensors redundant to verify the output remotely.

The remote visual and audio verification of the servicing process on the fire pump systems shall comply with the standard:
IEC 62676-4: Video surveillance systems for use in security applications - Part 4: Application guidelines.
When needed in this specific application shall the level “Inspection” be required.

If the standard EN 12845: Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance – has more strict requirements then NFPA standards are these requirements also be applicable for servicing part.

5.5.1 Additional requirements for the Netherlands for servicing

In the Netherlands are the following additional requirements applicable for the servicing part:

- NEN 1073: Automatic sprinkler systems - Dutch addition on NEN-EN 12845;
- Technisch Bulletin 80 - Beheer en onderhoud van watervoerende blussystemen.

6 Factory Production Control Fire Protection Components by Kiwa

See TIC- scheme K21045.

7 Inspection of Fire Protection Systems by Kiwa

See TIC- scheme K21045.

8 Marking

8.1 General

See TIC scheme K21045.

8.2 Certification mark

See TIC scheme K21045.

9 Requirements in respect of the quality system

See TIC scheme K21045.

10 Summary of tests and inspections

See TIC scheme K21045.

11 Agreements on the implementation of certification

See TIC scheme K21045.

12 Titles of standards

12.1 Public law rules

See TIC scheme K21045.

12.2 Standards / normative documents

See TIC scheme K21045. Additional standards or standards in conjunction with this subject are shown below.

Number	Title	Version*
TS 50136-10	Alarm systems - Alarm transmission systems and equipment - Part 10: Requirements for remote access	
EN 50136-1/A1	Alarm systems - Alarm transmission systems and equipment - Part 1: General requirements for alarm transmission systems	
IEC 62443-3-3	Industrial communication networks - Network and system security - Part 3-3: System security requirements and security levels	
EN 50600-2-5	Information technology - Data centre facilities and infrastructures - Part 2-5: Security systems	
EN 50518	Monitoring & Alarm Receiving Centres	
EN 50710	Guidelines and requirements for Remote Services for fire safety and security systems	
IEC 62676-4	Video surveillance systems for use in security applications - Part 4: Application guidelines	
NFPA 25	Inspection, Testing and Maintenance of water-based fire protection systems #	
NFPA 20	Installation Standard for the of Stationary Pumps for Fire Protection #	
EN 12845	Fixed firefighting systems - Automatic sprinkler systems - Design, installation and maintenance #	
NEN 1073	Automatic sprinkler systems - Dutch addition on NEN-EN 12845	
Technisch Bulletin 80	Beheer en onderhoud van watervoerende blussystemen	

*) When no date of issue has been indicated, the latest version of the document is applicable for new systems. Kiwa shall inform the certificate holders about changes in version. For design, installation and maintenance is the version of standard applicable set in the basic design.

already appointed (in)direct in scheme K21045.