

Mondi Štětí a. s.

**STANDARD**

**PART 20.06**

**ELECTRIC FIRE INSTALLATION**

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## **ELECTRIC FIRE INSTALLATION**

IMPLEMENTATION, CONDITIONS, QUALITY, REGULATIONS,  
STANDARDS, SUPPLIES, PROVISIONS

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## 1 General

### 1.1 Introductory Provisions

This part of the Mondi Štětí a. s. Standard is binding for tangible and intangible deliveries of fire alarm systems (hereinafter EFAS) to the Mondi Štětí a. s. plant.

For EFAS supplies, a direct link to other fields is dealt with, especially to other fire safety equipment – Fixed firefighting system, smoke and heat removal equipment, fire closures, then to Electro – Central stop, total stop, disconnection from energy supplies – switching off the gas supply to the technology, etc. measurement and regulation – shutdown of the production process.

The publication of this part of the Standard does not deny the validity of national standards for deliveries, in particular electrical standards and standards for reserved technical equipment. Czech national standards also apply to delivery parameters that are not mentioned in this Standard.

Parts of the Standard are available in Czech and English versions in the form of an electronic document.

This part of the Mondi Štětí a. s. standard is valid for deliveries of:

1. EFAS projects with links to other disciplines
2. fire safety solutions for EFAS supplies
3. EFAS devices consisting of:
  - the EFAS control panel,
  - detectors,
  - signaling devices,
  - power supply and backup,
  - the communication interface,
  - programming of the EFAS control panel
  - addition of newly installed elements to the AS200 graphic superstructure.
4. EFAS service and maintenance.

### 1.2 Terms and Abbreviations

Mondi Štětí a. s. **Standard** - quality system document containing a set of requirements of Mondi Štětí a. s. for the scope and quality of deliveries and services.

Part of **the Standard** - part of the Mondi Štětí a. s. Standard, issued in the form of a separate workbook, setting out the requirements for the scope and quality of deliveries and services in one field or type of activity.

**Abbreviations Used**

- FFS** fixed firefighting system  
**RTD** remote transmission devices  
**PD** project documentation  
**FSS** fire safety solution  
**FRS** Fire Rescue Service

**Terminology Used**

- **electronic fire alarm systems** (hereinafter referred to as EFAS) – a set of fire detectors, cables, cable routes, EFAS control panels and other components creating a system that acoustically and visually signals any state of the equipment and creates the initiation of appropriate fire measures
- **fire detector** – a device that generates an output electrical signal (automatically or by actuating)
- **main EFAS control panel** – a control panel that receives and evaluates the output signals emitted by the fire detectors, or receives and evaluates information from all secondary control panels of the system; all information from all control panels of the system must be fed into the main control panel
- **secondary EFAS control panel** - a control panel that receives and evaluates the output signals emitted by the fire detectors, further transmits information to the main EFAS control panel, while it does not have to be permanently operated
- **permanent operation** – organizational provision of the permanent presence of demonstrably trained persons at the location of the main EFAS control panel, respectively in the place where all EFAS states are signaled, from where it is possible to control the EFAS device
- **remote transmission device** – components that ensure the automatic transmission of information about an alarm or malfunction to a predetermined location
- **controlled devices** – components connected to the output part of the EFAS control panel that are activated in the event of fire alarm, e.g. fire dampers, fire doors, SHZ, etc.
- **zone alarm** – acoustic, optical or combined alarm signaling in a defined part of the building (zone), which is designed for the evacuation of persons and for the convening of preventive fire patrols and other persons intended to carry out the initial intervention in this part of the building
- **general alarm** - acoustic, optical, tactile or combined fire alarm signaling, which announces a fire alarm throughout the building and serves to initiate evacuation, carry out the necessary technical measures on the operating equipment according to the fire protection documentation and possibly announce an alarm to the fire brigade unit

### 1.3 Regulations and Standards

- Act No. 133/1985 Sb. on Fire Protection, as amended
- Act No. 183/2006 Sb. on Spatial Planning and Building Regulations (Building Act)
- Decree of the Ministry of the Interior No. 246/2001 Sb. on fire prevention
- Decree No. 499/2006 Sb. on Construction Documentation
- Decree of the Ministry of the Interior No. 23/2008 Sb. on technical conditions of fire protection of buildings
- standard ČSN 34 2710 Regulations for Electrical Fire Alarm Systems
- Standards Fire Safety of Buildings ČSN 73 08xx, in particular:
  - ČSN 73 0875 Fire safety of buildings – Determination of conditions for the design of EFAS within the fire safety solution
  - ČSN 73 0802 Fire safety of buildings – Non-production buildings
  - ČSN 73 0804 Fire safety of buildings – Production facilities
  - ČSN 73 0810 Fire safety of buildings – common provisions
  - ČSN 73 0834 Fire safety of buildings – Changes to buildings
  - ČSN 73 0845 Fire safety of buildings – Warehouses
  - ČSN 73 0848 Fire safety of buildings – Cable distribution systems
  - SDMS PN ENG-04B FIRE PROTECTION SECOND EDITION (OCTOBER 2015)

## 2 EFAS Delivery

A requirement to deliver and install EFAS equipment may arise in the following cases:

- During the implementation of construction modifications of the building, which will be characterized according to the ČEN EN 73 0834 standard as a change in the construction of group II and higher and the Fire Safety Solution of the building will result in the obligation to equip the building with EFAS equipment
- During the construction of a new building, where the Fire Safety Solution of the building will result in the obligation to equip the building with EFAS equipment
- Based on the investor's decision on the need to equip the building with EFAS equipment, e.g. according to the requirements of the insurance company, etc.

### 2.1 Basic rules for EFAS implementation

- To ensure the execution of a fire safety solution by an authorized person (Section 5 of Decree No. 246/2001 Sb.) – the processor of the FSS stipulates the following requirements in the paragraph concerning EFAS according to the regulations:
  - location of the EFAS control panel
  - determines the scope and type of fire detection in individual areas
  - sets requirements for the method of alarm signaling
  - determines the operating mode of EFAS
  - sets requirements for cable routes
  - determines the connection of EFAS to other equipment in the building (e.g. HVAC control, gates, fire closures, CENTRAL and TOTAL STOP, etc.)
- Ensure the execution of project documentation by an authorized person (Section 5 of Decree 246/2001 Sb.) – at least in the form of one-stage project documentation, which will serve both for the issuance of a building permit and for the implementation of the construction.
- After the execution of the FD and FSS, it is necessary to submit them to the Fire Rescue Service for comment.
- On the basis of the obtained consent of the Fire Rescue Service, it is necessary to submit an application for a building permit for the implementation of the installation of EFAS equipment.
- After the building permit has been issued, a professionally qualified company (Section 6 of Decree No. 246/2001 Sb.) will supply and install EFAS equipment
- Before putting the EFAS equipment into operation, tests are carried out in accordance with Article 410 of the ČSN 34 2710 standard and Section 7, Sub-section 1 of the Decree. No. 246/2001 Coll.

- After the functional test has been performed, the initial revision of the EFAS equipment must be carried out according to point 413 of the ČSN 34 2710 standard. The initial revision is carried out by an inspection technician according to ČSN 33 1500. The inspection technician prepares a report on the revision according to ČSN 33 1500.
- The handover and acceptance of the EFAS equipment shall be carried out immediately after the completion of the installation and after the initial revision of the EFAS equipment has been carried out. It is necessary to make a record of the handover and takeover of the EFAS equipment, which includes, among other things, a record of the training of persons (see below), a record of the performance of functional tests and other accompanying documentation according to Article 44 of the ČSN 34 2710 standard corresponding to the actual implementation.
- Sufficiently in advance before the inspection and commissioning of the EPS equipment, the user is obliged to designate the person responsible for the operation of the EFAS equipment, the person in charge of the maintenance of the EFAS and the persons in charge of the operation of the EFAS equipment. Those persons shall be demonstrably trained by an authorized assembly organization or manufacturer when handing over the EFAS equipment.
- In addition, an EFAS operations book shall be provided at the time of handover by the supplier, signed by the persons in charge of operating and maintaining the EFAS equipment and those responsible for the operation of the EFAS equipment. The handover and takeover of the EFAS equipment shall include the handover of the EPS Documentation (see section 3.1.).
- Only those EPS devices can be put into permanent operation for which it is contractually ensured that the performance of out-of-warranty service is provided, which comply with the provisions of the ČSN 34 2710 standard and are designed in accordance with SDMS PN ENG-04B FIRE PROTECTION SECOND EDITION (OCTOBER 2015)

## 2.2 Interface between EFAS and other disciplines

EFAS forms a comprehensive system that builds on other disciplines in the following points:

- **Electrical LV** – power supply of EFAS equipment – equipping the switchboard with the necessary circuit breaker
- **controlled devices** – the interface consists of EFAS input-output elements, through which the states of other devices are taken over, or other devices are controlled according to the requirements of the FSS (e.g. switching off energy supplies, starting FFS, controlling fire closures, controlling elevators, switching off the operating HVAC,

receiving information about the start of the FFS, etc.). Input-output elements are taken to mean:

- **input element (MHG 942, 943)**
- **actuator (MHG 923)**
- **output unit 8x relay (MHY918)**

## 2.3 Signals, power supply and EFAS enclosures

To ensure links to other devices, the following connection parameters are specified for the above elements:

**Input element**      input voltage 5-30V  
                             NO / NC contact  
                             output voltage 20 V  
                             18-21 V power supply

**output element**      supply voltage from the control panel 9-27 V  
                             the load capacity of each output is 0.3 A with the sum of the currents of all outputs being max. 0.5 A when powered from the control panel and max. 2 A when powered from an external source  
                             the output unit and the controlled devices can be powered from the control panel, from an external source, or the controlled device can have its own source.

**Control panel cabinet**      EFAS control panels will be located in standardized cabinets (part of the EFAS control panel delivery) with the necessary equipment:

- power supply 230V AC and 12V/24 V DC (depending on type)
- EFAS control panel motherboard with connection terminal blocks
- expansion cards
- batteries

**Cabinet of VV elements**      output elements will be located in plastic / metal wall-mounted distribution cabinets with a size corresponding to the number of installed units and the installation environment

### Auxiliary power supply cabinet

The auxiliary power supply with accumulators will be located in a metal box supplied as an accessory to the power supply. The size of the cabinet will be determined according to the required capacity of the backup batteries

## 2.4 Main EFAS control panel

Within the Mondi Štětí a.s. premises, individual EFAS devices are connected by means of communication modules to a circular digital line implemented by optical cable and are connected to the AS200 graphic superstructure of the A2D supplier.

This graphical superstructure is installed on a PC located in the fire reporting room (object 43NZ), where permanent operation is provided. The area of the fire reporting point, including the installation of the main EFAS control panel, was approved in 2009.

## 2.5 Auxiliary EFAS control panels

EFAS control panels installed at individual plants are defined as secondary control panels within the meaning of the standard, as it is not possible to provide permanent service within the meaning of the requirements of the Fire Rescue Service (permanent presence of 2 persons for substitutability).

## 2.6 Network

EFAS devices are not connected to the plant computer network. They have their own wiring – see 2.4.

# 3 Documentation

## 3.1 Mandatory content of EFAS documentation

In accordance with the requirements of the ČSN 34 2710 standard, a record of the handover and acceptance of the EFAS equipment must be drawn up, which includes, among other things, a record of the training of persons, a record of the performance of functional tests and other accompanying documentation according to Article 44 of the ČSN 34 2710 standard corresponding to the actual implementation. It can be documentation in the PD stage of the actual execution, or documentation of the construction with the indication of the actual state – drawing of changes. The documentation shall contain the following parts:

- technical report
  - operating conditions (e.g. voltage systems, types of environment, etc.)
  - description of the technical solution – used elements (control panel, detectors, other components)
    - distribution design – cabling, storage system
    - mode of operation of the EFAS equipment
    - EFAS relation to other devices – control, tie-ins
    - description of power supply and EFAS backup
    - instructions for EFAS equipment, obligations of the operator
- annexes to the technical report:
  - EFAS delivery material specification

- accompanying documentation of the manufacturer of EFAS elements
- opinions of specialized workplaces according to Section 48 of Decree. 246/2001 Sb.
- written confirmation of compliance with the conditions pursuant to Section 10(2) of Decree No. 246/2001 Sb.
- proof of professional competence of EFAS PD authors
- drawing part of PD:
  - floor plans – placement of individual elements of EFAS with addressing, position of distribution systems
  - EFAS block diagram

In addition, the following documentation shall be available for the EFAS equipment:

- record of EFAS functional test
- EFAS revision report
- proof of training
- EFAS Operations Book
- lists of recommended spare parts for two-year operation, including prices

The principles of execution of protocols, technical drawings and other documentation are determined by the valid Mondi Štětí a. s. Standard.

### 3.2 Additional Terms

Complete documentation must be supplied no later than the date of commissioning of the device (as built).

Complete documentation must be supplied, including the latest changes and additions.

The documentation is used for approval of EFAS equipment.

As part of the operation of the EFAS equipment, the following inspections and tests shall be provided:

1) **Inspection of operability** according to Section 7 of Decree 246/2001 Sb. and in accordance with SDMS PN ENG-04B FIRE PROTECTION SECOND EDITION (OCTOBER 2015) at least once per year. It is necessary to prepare a Document containing at least the following elements for the performed serviceability check:

- an indication of the company name, registered office or place of business of the operator of the fire safety equipment and the identification number; in the case of a person registered in the Commercial Register or other register, also an indication of such registration; if the operator of the installation is
- the address of the building in which the fire safety equipment was checked, if it is not identical to the address of the operator's registered office pursuant to letter a),
- the location, type, manufacturer's designation, type marking and, if necessary for accurate identification, the serial number of the equipment being inspected,
- the result of the serviceability check, the defects detected, including the method and date of their removal and a statement on the operability of the equipment,
- the date of implementation and the date of the next serviceability check,

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- confirmation pursuant to Section 10 (2), date, first name, surname and signature of the person who carried out the serviceability check; in the case of an entrepreneur, an indication of the company, company name, registered office or place of business and identification number; in the case of a person registered in the Commercial Register or other register, also an indication of such registration; in the case of an employee, similar data relating to his employer.

**2) Test of EFAS operation during operation according to Section 8 of Decree 246/2001 Sb. – EFAS control panels and additional panels** – carried out once per month

**3) Test of EFAS operation during operation according to Section 8 of Decree 246/2001 Sb. – automatic detectors and controlled devices from EFAS** – is carried out once every six months

## 4 Visualization

Visualization of the EFAS equipment is carried out in the form of a graphic superstructure AS 200 on a control PC at the plant fire reporting point.

Individual EFAS devices are incorporated into the graphic superstructure in planimetrics with the position of individual EFAS elements, which are highlighted in case of activation (alarm, failure) with a description of the place and event for immediate clarity and the possibility of operator response.

By default, the operation of the EFAS device is set so that the control panel announces a section alarm when the automatic detectors are activated. When a section alarm is declared, the time T1 begins to run, within which the operator of the EFAS control panel must confirm that it has received the information about the section alarm. After confirming the alarm state, the T2 time begins to run, within which the operator is obliged to verify whether it is a real or false alarm.

The times T1 and T2 are usually set as follows:

T1     2 minutes

T2     5 minutes

## 5 Other

### 5.1 Other Equipment

With the devices that are supplied to Mondi Štětí a. s. as novelties and the company is not equipped for their maintenance, it is necessary to supply diagnostic and other equipment (programming and communication means, computers, programs, gauges, testers, documents for the training of maintenance workers).

## 5.2 Amendment of Standard

For a specific case, the Standard can be supplemented with other requirements. These requirements must be discussed with the company's representatives and the results of the negotiations documented.

The changes in this case validate and approve the same features that the Standard has verified and approved.

## 5.3 Suppliers and Manufacturers

Preferred suppliers of control systems and components for these systems. Exceptions must be discussed with representatives of the company and the results of the negotiations documented.

### 5.3.1 EFAS equipment manufacturers

LITES

Siemens

### 5.3.2 EFAS suppliers and service organizations

T-Technology s.r.o.

Siemens

### 5.3.3 Supplier of AS200 graphic superstructure

A2D