

a guide to the interpretation of
EN50136-1-1 & EN50136-2-1
for alarm transmission systems & equipment



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1. Introduction

The EN50136 family: Alarm systems – Alarm transmission systems and equipment - has been in force for some years.

In the process of developing products to this family of standards following the introduction of European standards for the intruder alarm industry through the implementation of the PD6662:2004 scheme, it has become clear that some clarification and guidance is needed in relation to these standards.

It is intended this guideline can be used by manufacturers to self-certify their products to conform to the European standards, or be offered to a test house to clarify relevant tests and results.

This guidance document may change as other product specifications (Technical Specifications) are published and adopted in the UK or changes are made to the PD 6662 scheme.

Only those items in the EN50136 family that give concern are listed. All other clauses or parts of the European standards are believed to be self-explanatory and already in line with the requirements of PD 6662.

2. Scope

The EN50136 family of standards is relevant to alarm transmission systems designed for and used in all types of alarm system – including fire and social alarms.

This document is relevant specifically to the use of such systems in intruder alarm systems installed to the EN50131 family of standards (UK PD6662 scheme).

Notes:

- (i) References to EN50131-1 are taken from prEN50131-1:2004, unless otherwise stated.
- (ii) The EN50136 family of standards includes requirements for availability that are not called up by EN50131-1 for I&HAS and hence are not mandatory for ATS used with such systems. However, where the ATS is shared with fire and/or social alarm systems, the requirements of EN54-21 and/or EN50134-5 become relevant, making the “availability” requirement mandatory. This should be taken into account in the implementation of this guide.

3. Abbreviations

SPT Supervised premises transceiver

RCT Receiving centre transceiver

These terms (as defined in EN50136) are more specific than the generic “alarm transmission equipment” (ATE) and are therefore preferred where relevant.

4. References in EN50131-1 relevant to the ATS

Clause 6 – Security Grading

This clause identifies the various security grades that may be used. The specific requirements for these grades are identified in Tables 10 and 11.

Clause 7 – Environmental Classification

This clause details the conditions for the environmental classes permitted for components falling within the EN50131 family, with associated test procedures to verify equipment suitability detailed in EN50130-5.

Environmental requirements and tests for ATE are found in EN50136-2-1.

Clause 8.1.4 – Recognition of Faults

Table 1 identifies the types of fault that must be identified within the I&HAS. The requirement for “ATS fault” does not require the identification of the specific type of fault or of the specific path affected where multiple paths are provided.

Details of information requiring transmission via the ATS are in Table 7.

Note 1: PD6662:2004 Clause E.1.1 confirms that I&HAS fitted with dual path ATS should respond to an ATS fault affecting one path only, without requiring identification of which path.

Note 2: Certain requirements (eg clause 8.6 paragraph 6) require that the CIE be able to distinguish between faults affecting all paths and faults affecting only one path.

Note 3: “Fault” signals may be notified globally or be individually identified.

Clause 8.3.1 and 8.3.2 – Access Levels

These access levels are for the I&HAS. EN50136-2-1 identifies the specific recommendations for ATE. It is not mandatory for all levels to be provided if not relevant.

Clause 8.3.3 and 8.3.4 – Setting and Unsetting

For UK purposes, DD243:2004 details acceptable methods of setting and unsetting – including remote execution from the ARC.

Clause 8.3.9 – Restoring

Restoration is dealt with as a SYSTEM function – not being specific to the SPT or any other individual piece of equipment.

Remote restoration – whether electronic or by “anticode” is permitted, provided the requirements of clause 8.3.2 are met.

TABLE 7 – Processing of Signals

This table identifies the information that must be transmitted to the ARC. For the UK, additional information is mandatory, as defined in DD243:2004.

Note: The reference to “zone” in note ** to this table must be understood in the context of the definition at 3.1.85. It does NOT refer to the individual device generating the alarm, but to the “zone” (ie geographical area, etc) in which the device is located. Table 22 illustrates this difference.

Clause 8.4.5 and 6 – Masking and Reduction of Range

The required response to these conditions is EITHER intruder OR fault. It is NOT specified that this should be separately identified to the ARC.

Note: UK insurers have requested “intruder” response for “masking” events.

Clause 8.5 – Indications

This clause and associated tables prohibit indications at level 1 that are permitted by EN50136-2-1 clause 5.1.1

Clause 8.6 – Notification

See note to clause 8.1.4, above.

This clause also identifies I&HAS responses to ATS faults, including different responses applicable if an ATS fault affects ALL paths.

Note: A means of differentiating whether ATS faults affect one path only or all paths is detailed in BSIA Form 175.

TABLE 10 – Notification requirements

- a) Where two ATS are specified to meet the requirements of table 10, this should be understood as a standard dual-path system, with the two paths meeting the separate requirements (see Form 171; 8.6 d).
- b) It has been agreed that equipment used for purposes other than compliance with Table 10 (eg for Up/Down-Loading) is NOT required to comply with the requirements of EN50131-1 table 11, provided that it does not interfere with the mandatory ATS (see Form 171; 8.6 e).
- c) This table identifies the MINIMUM notification requirements for each I&HAS grade and notification sub-grade. Additional requirements may be imposed by insurers, including the specification of ATS of a superior grade to the I&HAS.

TABLE 11 – ATS Performance criteria

This table identifies how the performance criteria identified in EN50136-1-1 are used to identify the suitability of an ATS for a specific grade and notification sub-grade of I&HAS.

Clause 8.7 – Tamper Security

Where the SPT is individually housed, it must, as a minimum, meet the tamper security requirements for the associated CIE.

Clause 8.7.3 – Monitoring of Substitution

Note that this requirement (grade 4 only) is relevant however the equipment is housed, but would not appear to be relevant if the ATE is integrated into CIE.

Clause 8.8 – Interconnections

Note that this requirement is specific to interconnections between components of the I&HAS – and thus includes the connection between CIE and SPT. It is NOT relevant to the communication between SPT and RCT.

Clause 8.8.4.1 – Verification integrity – periodic communication

For interconnections between CIE and SPT using simplex communication (eg parallel communication), the requirement of this clause may be considered to be satisfied by the SPT initiating a message to the ARC in accordance with EN50136-1-1 clause 6.3.3. Where duplex communication exists (eg serial communication), the fault shall be detected by the CIE.

Clause 8.8.5 – Security of Communication

This requirement includes the communication between CIE and SPT. Note that it is applicable to grade 4 I&HAS only (PD6662:2004 E.5).

Clause 8.10 – Table 22 Event Logging

Note that log events may be stored at the CIE or at the ARC. If the latter, measures must be in place to deal with interruptions to communications.

Clause 9 – Power Supply

The requirements for PSU included as part of SPT are specified in EN50131-6.

Clauses 14 and 15 – Documentation and Marking

Documentation and marking for SPT intended for use in an I&HAS must comply with these requirements in addition to those shown in EN50136-2-1.

5. Clarification of requirements of EN50136-1-1

Clause 1 – Scope

The concept of Up- & Down-Loading to / from the I&HAS is not mentioned in this family of standards. This does NOT preclude its use (see reference to EN50131-1 Table 10, above).

Clause 4.5 – Alarm transmission equipment and clause 4.24 Transmission networks

Comparison of prEN50136-1-5 clause 5 with the notes to these two definitions identify that equipment that is part of the ATS and located at the supervised premises (eg an IP modem or router) may be considered to be part of the transmission network, and is therefore NOT subject to the requirements of EN50136-2-1. Hence, it is also not subject to the requirements of EN50131-1. See also clause 5.2.

The point of decision as to which path is used must be part of the CIE or SPT.

Clause 4.16 – Monitoring Centre

The use of this term includes any manned location that monitors, modifies, stores and/or forwards intentionally the alarm information.

Clause 5.2 – Alarm transmission system configuration

The use of a second transmission path as described in this clause is specifically to enable the ATS to meet the availability requirements of EN50136-1-1. As EN50131-1 table 11 currently excludes availability requirements, the reference here – and at clause 6.3.4 - is not relevant to ATS for I&HAS.

The general requirements for a second path when used with an I&HAS are identified by EN50131-1 tables 10 and 11.

Clause 5.4 – Alarm transmission system classification

As EN50131-1 table 11 currently excludes availability requirements, the classification of ATS for I&HAS is independent of this requirement.

Clause 6.3.3 – Monitoring of the interconnection with the alarm system

It should be noted that this clause deals only with the requirements for the ATS. Requirements for indication of a failure of this interconnection at the I&HAS is dealt with by EN50131-1.

See reference to EN50131-1 clause 8.8.4.1, above.

Clause 6.3.4 – Monitoring of the alarm transmission system

The requirement of paragraphs 2 and 3 are specific to meeting availability requirements, as noted at 5.2 (above).

Clause 6.4 – Alarm transmission system availability including clauses 6.4.3, 6.4.4 and 6.4.5

At present this requirement is NOT called up by EN50131-1 table 11, so that these requirements are not applicable to ATS used with I&HAS.

Clause 6.4.2 – Alarm transmission assurance

This clause requires that “means be provided” without mandating that it actually be used. It is expected that it will always be used.

Clause 6.5.2 – Information security

The description of encryption algorithms in this clause has been deemed unworkable by the CENELEC Working Group reviewing this standard. The replacement proposed in prEN50136-1-5 (clause 6.1) should be used.

Clause 7.4 – Transmission time

The last paragraph of this clause appears to require complex fault logging at the ATE/CIE, which an optional ATE function according to EN50136-2-1 (clause 5.8) and is grade dependant at the CIE. Whilst this function may be carried out at the supervised premises, records at the ARC should always be analysed.

Clause 7.5.1 – Records

At present availability is NOT called up by EN50131-1 table 11, so records specific to this requirement are not required.

Clause 7.5.3 Analysis

Note 2 suggests that there will be a single organisation with overall responsibility for the entire ATS (ie SPT, transmission path, and RCT). This is impossible. The note is informative (and in any case relates to “availability” which is not required by EN50131-1) and may therefore be disregarded.

6. Clarification of requirements of EN50136-2-1

Clause 5.1.1 – Access Level 1

Certain indications permitted at level 1 by EN50136-2-1 are permitted only at level 2 by EN50131-1 (Tables 8 and 9).

Clause 5.1.2 – Access level 2

Modification of the operating status at access level 2 is restricted to functions permitted by EN50131-1 (eg inhibit) when accessed through the CIE.

Clause 5.1.3 Access level 3

This clause requires that level 3 access at the supervised premises be annunciated to the ARC before any ATS parameters are changed. This may be impossible with current equipment where extended format reporting is not in use and reporting channels are limited. Where this is so, the requirement of EN50131-1 Table 22 to log site parameter changes made at site should be applied at all grades.

Clause 5.2.3 – Parameter read-out

The combination of “possible,” “required” and “allowed” in this clause is confusing. It should be taken to read: “Read-out of the parameter settings shall be possible at level 3.”

Clause 5.11 – Transmission time

Where timings are based on the operation of a switch connected to an input to the CIE, it should be remembered that EN50131-1 allows up to 10.4 seconds for the CIE to detect and process such an action – and longer in the case of certain system faults.

Clause 6.2 – Interface test

This test is not required where the SPT is integrated with the CIE.

Clause 6.2.1 – General interfaces

- a) This clause includes the requirement for PSUs to be “tested to their limits.” Test requirements for PSUs used with I&HAS are as specified in EN50131-6.
- b) In the case of systems using extended format reporting or a serial interface, the requirement for the interface to be tested for “transmission of all different alarm conditions” should be taken to mean “all different types of alarm condition” – not to alarm conditions from every possible source.

Clause 6.2.3 – Serial interfaces

“Each possible alarm message” in paragraph 2 should be taken to mean “each possible type of alarm message,” as in comment re 6.2.1 (above).

Clause 6.5 – Equipment for monitored systems

- a) Paragraph 2 applies to messages generated to the ARC – NOT to the CIE (see comment re clause 6.3.3 of EN50136-1-1, above).
- b) Item b does not refer to fuses / PSUs that are being used for purposes other than powering the ATE.
- c) Item b does not apply if loss of power is immediate (see clause 5.4).

Clause 7 – EMC testing and requirements

The current standard for emission requirements is EN61000-6-3 and for susceptibility is EN50130-4.

7.1.2 Supply voltage dips and interruptions (operational).

The tests in this section are specific to PSUs, so apply only to SPT supplied with integral PSU.