

BS EN 62676 SERIES – GUIDANCE FOR CUSTOMERS ABOUT GRADING AND OTHER IMPORTANT MATTERS

Introduction

This guide is intended to help purchasers of CCTV systems understand the implications of the BS EN 62676 series of standards introduced for CCTV from 2014. This guide does not describe all of the requirements of a CCTV system. The introduction of the standards will not fundamentally alter how a CCTV system works but they do affect which features need to be considered in order for a claim of compliance to the standards to be allowed.

The BS EN 62676 series of standards are new to the industry and introduce some new concepts including, for the first time, encouragement to use security grading. It is important to understand that the majority of requirements given by the BS EN 62676 series of standards are not grade dependent but, as this is a new concept, this guide pays particular attention to the subject. It explains the benefits of grading and how it would be expected that an installer will describe this to the customer and document the grade or grades that have been chosen.

What are the Benefits of using the BS EN 62676 standards?

These standards were developed using best practice guidelines from a number of organisations including BSIA and the UK Government's Centre for Applied Science and Technology. These international standards also incorporate ideas from British Standards. So for the first time a single set of standards includes a wide range of best practice ideas to improve the quality of CCTV systems.

These standards have been embraced within the standards framework developed by the Surveillance Camera Commissioner's team.

In summary the new standards:

- Define best practice - The use of the standards will ensure:
 - that the needs of the customer are properly specified and understood
 - that the system is designed, installed, operated and maintained to meet the needs of the customer
- Enable comparison between suppliers' proposals
- Enable consistent application of features
- Give a simplified method of specifying a system.

What is an Operational Requirement?

In recent times there has been increasing use of a form of documentation called an Operational Requirement (OR). BS EN 62676 encourages this use.

The OR is intended to document the purpose of the CCTV system starting with the wishes of the system owner/operator. The OR should state what threats the system should address and how the system is to be used. This means it is clearer to all parties what is desired and to check whether the design will meet the needs of the owner.

What are the Benefits of the Grading System?

It simplifies the specification process and helps to ensure consistency of design and proposals.

Grading – Key Points

A summary of the key points about grading are:

- There are four Grades. Grade 1 has the lowest requirements (and introduces very little above the common requirements, see table). *Note grading of CCTV systems is not the same as the EN 50131 series of standards for intruder alarms and confusion may arise if the differences are not understood.*
- The standards allow for flexibility but it is recommended that system designers should choose the simplest approach that will work. This could be one grade applied throughout the system.
- Grading will affect the protection level and restriction of access to the system and should be assigned according to the risks and their possible effect on the CCTV system.
- Grading of a system does not determine the quality of the images captured by the system. Elements such as image quality, screen occupation and similar are specified separately under BS EN 62676-4.
- The chosen grade(s) should be recorded in the Operational Requirement (OR), see above, or System Design Proposal (SDP).
- Rather than each component (e.g. camera, DVR) it is the functions of the CCTV system that are graded.
- Where use of a single grade for all system functions is not practical the standard permits the grading to be divided up by function. The standard describes 18 functions (see table).
- Additional flexibility can be obtained by documenting specific requirements in the Operational Requirements or System Design Proposal.
- Typically each function will have a consistent grade throughout the system. One exception to this is the Tamper Detection and Protection where different parts of the system may have different levels of exposure or vulnerability to attack.

The following table shows the effect of choosing a different grade for each of the 18 separately graded functions.

FUNCTION	GRADE 1	GRADE 2	GRADE 3	GRADE 4
Shaded areas mean no extra requirement specific to this grade. Each Grade lists extra features compared to lower grade except where indicated.				
 Common interconnections <i>(e.g. sharing of several cameras to multiple operators)</i>				System design should show how the bandwidth will cope with multiple simultaneous streams of images
 Storage <i>(i.e. short term - e.g. overwritten after 30 days)</i>		<ul style="list-style-type: none"> Fast reaction time 	<ul style="list-style-type: none"> Data backup Faster reaction time Fast live replay 	<ul style="list-style-type: none"> Fastest reaction time Faster live replay
 Archiving and backup <i>(i.e. long term - e.g. needed after 30 days)</i>			<ul style="list-style-type: none"> Manual backup Verification of backup 	<ul style="list-style-type: none"> Auto backup Image authentication
 Alarm related information				Display of alarm information with origin, type, time and date
 System logs – to include...		<ul style="list-style-type: none"> Alarms Power Loss System Reset Export & hardcopy User log-in & out 	<ul style="list-style-type: none"> Tampers Video Loss Essential function failure Authorization code changes Search & replay of images Changes to recording parameters Alarm Acknowledge System config change Date & Time change 	<ul style="list-style-type: none"> Fault messages Diagnostic actions Control of functional cameras (PTZ)
 Backup and restore of system data <i>(i.e. configuration)</i>				Capable of backup and restore of all system configuration
 Repetitive failure notification				Detection and handling of repetitive failures
 System power supply monitoring				Monitoring and handling of power supply failures
 Image buffer holding time <i>(i.e. time before images are written to storage media)</i>				Images not held in buffer for > 5 seconds
 Essential function device failure notification time				Indication of failure of an essential function within 100s
 Monitoring of interconnections <i>(between equipment on site)</i>			<ul style="list-style-type: none"> Verify Interconnection < 30s Retries before notifying user: 5 Max time before notifying user: 180s 	<ul style="list-style-type: none"> Verify Interconnection <10s Retries before notifying user: 2 Max time before notifying user: 180s
 Authorisation code requirements <i>(e.g. password)</i>		<ul style="list-style-type: none"> Min 10,000 codes, or Min 3,000 keys 	<ul style="list-style-type: none"> Min 100,000 codes, or Min 15,000 keys 	<ul style="list-style-type: none"> Min 1,000,000 codes, or Min 50,000 keys
 Time synchronisation				Time automatically corrected to UTC (GMT) (display time can show local time, e.g. BST)

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 Data authentication <i>(e.g. watermarking)</i>				Authentication of images and alterations to video stream reported to user
 Export/copy authentication <i>(e.g. verifying watermarks)</i>				Method of verifying authenticity of exported images
 Data labelling – to include...	• Date and time	• Location (Site) • Source (Camera)		• Labelled with UTC (GMT) + local time offset
 Data (manipulation) protection <i>(e.g. encryption)</i>				• Provide method to prevent unauthorized viewing and copying • Encryption
 Tamper detection <i>(can be applied according to risks associated with individual cameras or other system parts)</i>		• Video loss • Detection of loss: 8s	• Detection of loss: 4s • Check of field of view • Detect obscuring and blinding • Camera have tamper protection	• Detection of loss: 2s • Detect substitute video data • Detect significant Contrast reduction

Summary

Making use of the 62676 series of standards will be of great benefit to customers and enable a clear understanding of the requirements of a system to be developed by all interested parties. This is assisted by creation of the Operational Requirement. Customers should ensure they discuss the application of grading to simplify the documentation and comparison of systems but should note that a higher grade does not imply better video quality.

Further Detail

The BSIA have published a guide giving more detailed information about the grading of CCTV systems. This has been written for CCTV installers, specifiers and specialists. It includes details about how to document the grading applied to a system. This guide is **Form 218** – “Graded requirements under BS EN 62676 Standards for CCTV” and can be found on the BSIA website: www.bsia.co.uk/publications

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