

# Electronic Fire & Security Systems – Technical Handbook 2025

*Nineteen*<sup>™</sup>

 CSL

**Texecom**



**skills for security**

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## Overview

With constant innovations in technology, a greater demand for life safety measures, and a change with how we all want to protect our property and information, the Fire and Security industry has had to quickly adapt and evolve.

Working within the Fire and Security industry requires a wide range of skills, critical thinking and process application, problem solving and working to multiple industry standards to satisfy the needs of not only the customer, but building regulations, Fire Authorities and Police Forces.

This guide will provide you with a clear path to follow, from initial registration to the national finals and beyond.

## Career Pathway

### What is the job role?

The most common systems found in the sector are Access Control, Intrusion Alarm, Fire Detection, Life Safety Systems and Video Surveillance. Each of these systems cover a broad spectrum of applications and may require to be integrated with each other to serve a specific purpose.

A technician within the sector could be expected to carry out the Installation of a number of systems, requiring them to follow agreed system specifications, drawings and timelines. The Installation technician would be responsible for laying the system infrastructure, installing all devices and system component, making interconnection between equipment and initiating power up.

Some technicians will take on a more specialised role as a Commissioning Engineer where they will be responsible for programming and the set-up of each system to ensure it meets both the customer requirements and complies with industry standards. This role can be very technical based and require the technician to have good planning, a good eye for detail, good IT skills and a good understanding for process.

Others may take on the role as a Maintenance technician, responsible for both the preventative maintenance of a system checking system diagnostics and operation, and the corrective maintenance of a system requiring fault finding and component replacement. A maintenance technician will require to have great communication skills, the ability to use specialist testing equipment, the ability to follow written and verbal instructions, and be able to work well under pressure.

## Qualifications

- Fire Emergency & Security Systems Technician level 3 Apprenticeship - **England**
- Electronic Fire and Security Modern Apprenticeship (Level 3) – **Scotland**
  - PDA SCQF Level 6 – electronic fire and security
  - SVQ Level 3 – electronic fire and security
- Electronic Fire and Security Modern Apprenticeship (Level 3) – **Northern Ireland and Wales**
  - Diploma Level 3 – electronic fire and security
  - NVQ Level 3 – electronic fire and security

## Working Hours and Salary

You will normally work from 9am to 5pm Monday to Friday; however, some requirements of the sector may require working unsociable hours, night working, and additional travelling. But the opportunity to work overtime in the evenings and weekends is very likely to be available.

The working environment may vary depending of the job. For the Installation of a system you may be required to work on a building site and will be expected to wear safety clothing for the duration of the installation works. But for the commissioning and maintenance of a system you will most likely be working in an indoor environment.

As an apprentice technician you may earn between **£12,480 - £24,000 per year** – depending on age and duration into your apprenticeship.

As a qualified technician the average salary for a Fire and Security Engineer in the UK is **£31,500 per year**.

With entry level positions starting at **£29,000**.

(average salary's taken from  
<https://uk.talent.com/salary?job=fire+and+security+engineer>)

There are several progression opportunities after the apprenticeship:

- Lead/Senior Engineer
- Surveyor
- Design Engineer
- Installation/Maintenance Manager
- Project Manager

However, many qualified fire and security engineers go onto own their own business or work as consultants too.

## Competition Registration:

For helpful information and resources, including registration, competition rules, and entry criteria visit: <https://www.worldskillsuk.org/competitions/electronic-fire-security-systems/>

Registration opens on the **3<sup>rd</sup> of March 2025** to all candidates wishing to participate in this year's WorldSkills UK competition, lead up events and qualifiers. This process will be streamlined by involving Colleges and Training Providers to make recommendation for which students they believe have both the practical ability and knowledge & understanding to progress throughout the competition.

It is advised that all suitable candidates who participate in the Entry stages must be registered with WorldSkills UK before registration closing date of the **28th March 2025**.

Prior to the registration opening date, the colleges and training providers will be provided with links taking them to a variety of online forms to obtain agreement and commitment from both the candidate and the candidates employer to ensure that, if successful, the candidate will be available and willing to progress through each stage to the final if successful.

Once initial registration is complete, the colleges and training providers will then be able to send out the online assessment link to all participating candidates to log in and complete.

*Online assessments should be submitted no later than **23.59pm – 28th March 2025**, with announcements of those successful being communicated no later than the **31st March 2025** to allow for preparations.*

Note: **All competitors registered will receive notification by email that they need to complete registration by agreeing to the Terms and Conditions. This is mandatory and part of the GDPR and Data Protection rules. If the competitor does not agree, then registration is not completed as their details cannot be shared with the competition organising partner.**

### **Pre-competition Activity:**

During Pre-competition registration, competitors should try to familiarise themselves with competition style activities, for example you could have a fellow student to judge a completed work task during a practical session at college/training provider.

Candidates should familiarise themselves with current industry standards and Code of Practice relating to:

- Fire Detection and Alarm Systems for non-domestic buildings
- Intruder Alarm Systems covering all grades and applications
- UK Wiring Regulation for all systems – BS 7671 and manufacturer recommendations

### **Entry Stage Competition – Online Knowledge and Understanding Assessment:**

The "Entry" stage of this competition consists of a knowledge-based assessment that aims to evaluate each candidate's knowledge of Industry Standards, Design, Installation, and System Commissioning directed towards Fire detection & Alarm Systems, and Intruder & Hold-up Alarm Systems.

The assessment will be conducted in an online medium using "Microsoft Forms" under CLOSED BOOK conditions with a time limit set at 90 minutes to allow entrants to complete a 50 question assessment.

***\*note, Students will be able to complete the online assessment after the 90 minute time limit has lapsed but this will show as a late submission and will not be valid.***

Candidates will be provided the assessment link via their registered email address on completion of registration – ***note that the first submission will be the only one accepted, will all access to the assessment being tracked.***

All results will be automatically collated within Microsoft Forms and these are only accessible by approved assessing staff appointed to mark the assessments before redistribution of scores.

All candidates carrying out this assessment must either:

1. Be in attendance at an approved Training Provider or College with prior notice of attendance being provided, or
2. Be in attendance at their place of work. This may change as government guidelines develop.

***\*note, Training provider or college to schedule set dates for candidates for online invigilation. These details will be communicated to you in advance through your college/training provider.***

Any candidate found to be in breach of any of the above will face disqualification.

## Entry Stage Competition - Assessment Breakdown:

Assessment Criteria:

A	Survey and Design (Fire and Intruder)	14 points
B	System Installation (Fire and Intruder)	12 points
C	System Commissioning (Fire Only)	2 points
D	Industry Standards and Compliance (Fire and Intruder)	21 points
E	Case Study (Intruder Only)	1 points
Total score		50

## National Qualifying Heats – The Security Event (NEC Birmingham)

This competition is generously sponsored by the following industry partners; Texecom, CSL, The nineteen group, & Skills for Security – Supported by Eaton, CQR and Yuasa.

The top 36 scoring candidates in the entry stage will be selected to compete at the **National Qualifiers** during **The Security Event – NEC Birmingham**, on a provided date between the **8<sup>th</sup> and 10<sup>th</sup> of April 2025**.

The competitors will be asked to select 2 out of the 3 days that is preferable for them to compete in, with the top 8 highest scoring candidates will progress through to the WorldSkills UK event in November 2025 (**Final venue not yet confirmed**) for the WorldSkills UK National Final.

The National Qualifiers will be a live practical installation designed to test the following:

- Reading and interoperating Project Specifications, Drawings and System Operational Requirements
- Following correct procedures
- Working efficiently whilst minimising waste (time and materials)
- Organisational and preparation skills
- The below will pertain to all noted disciplines across: **Grade 2 Intruder Alarm (Texecom Premier Elite) and Fire Detection Systems (Eaton Conventional / Bi-wire Flexi).**
  - Installation of wiring and infrastructure in accordance with BS 7671 and manufacturers recommendations.
  - Interconnections of devices, maintaining; serviceability, clearly identifiable cables, correct termination methods, and cable management.
  - Correct and safe power-up procedures, maintaining electrical safety at all times.
  - Programming and testing devices & functions, and testing communications to the ARC.
  - Identification of adequate stand-by times for all systems.

### National Qualifying Heats - Assessment Breakdown:

Assessment Criteria:

A	Health and Safety for Competition	10.00
B	Planning and Preparation	5.00
C	Installation; Intruder Alarm System and Fire Detection & Alarm System	45.00
D	System Testing and Programming; Intruder Alarm System and Fire Detection & Alarm System	20.00
E	Signalling; Intruder Alarm System and Fire Detection & Alarm System	20.00
Total score		100.00



## WorldSkills UK National Final – Electronic Fire & Security Systems

This competition is generously sponsored by the following industry partners; Texecom, CSL, The nineteen group, & Skills for Security – Supported by Honeywell, CQR, Yuasa and Dahua Technologies.

The over the two days of competition, activities will include:

- Completion of a part-installed Texecom intruder alarm system including Commissioning and Handover.
- Installation, Commissioning and Handover of a Dahua IP video surveillance system
- Installation, Commissioning and Handover of an Access control system
- Completion of a part-installed Addressable Honeywell Morley fire alarm system including Commissioning and Handover.
- Work within the requirements of **BS7671**, **PD6662:BS8243**, **BS9263**, **BS5839-1**, **BS7273-4**, **BS EN 62676-4**, and **BS EN 60839-11** across all installation, programming, Integration and commissioning activities.
- Integrate aspects of all systems to create a larger safety and security solution to meet the needs of the system design proposal.
- Indicate non-conformities and provide corrective actions.
- Complete associated Commissioning and Handover documentation, variation sheets, checklists and electrical readings.
- Carry out system handovers to the “customer”, detailing end user responsibilities and aftercare requirements.

All systems will require programming to relevant industry standards and specification and then fully tested, commissioned and handed over with all results recorded on documentation provided in the specification.

The intruder alarm and fire detection system, as per specification, will be connected to a CSL Dualcom with all signals being tested and recorded through to a simulated alarm receiving centre.

8 winners from the National Qualifiers will be selected to compete at WorldSkills UK National Finals in November 2025 (*date to be confirmed*), In a host venue in Cardiff (*or surrounding areas*) – with an award ceremony taking place on the Friday evening following the event in November 2025.

There will be 2 reserves to cover any potential dropouts who will continue with the other 8 competitors to the Boot Camp stage and any other scheduled prior training events. The 2 reserves will be given as much prior notification as possible in the event that they are required to compete at WorldSkills UK National Finals.

## National Finals - Assessment Breakdown:

Assessment Criteria:

Aspect	Description	Max. marks
A	Health and Safety for Competition	5.00
B	Planning and Preparation	5.00
C	Takeover of Existing & Installation of – Intruder Alarm, Fire Detection System, IP Video Surveillance, and Access Control	20.00
D	Commissioning – All Systems	30.00
E	Signalling – Intruder Alarm & Fire Alarm System	10.00
F	Cloud Based Services and Integration	20.00
G	System Handover – All Systems	10.00
		100

A panel of judges have been drawn from industry, colleges and training providers.

## Boot Camp

Further details on the bootcamp will be announced at the competition cycle progresses. However, at present the suggested delivery of the boot camp will take place in a remote setting so as not to disadvantage those that are not able to travel.

The bootcamp will give each competitor the opportunity to undergo manufacturer specific training relevant to the national final's. This training will be built around the requirements set out in the provisional specification that will be distributed to all relevant competitors and training providers following the national qualifiers at The Security Event (NEC Birmingham).

This one-day training will cover manufacture training specific to the competition as well as a run through of WSUK rules and requirements.

- Competition brief
- WSUK Rules
- H&S

### Bootcamp Training:

- Texecom specific training around the use of the system in a Grade 3 setup.
- Dahua IP video surveillance training around the connection of surveillance equipment, setup, 3<sup>rd</sup> party connections and parameter programming.
- CSL specific training aimed at the connection and setup of advanced SIA / Bus-line connections for the Texecom integration, and EN 54 fire signalling requirements.
- Access control training around the use and setup of the access control system including consideration for interconnection with a local fire detection system.
- Honeywell specific training around the setup, programming, interconnections and functionality – including the requirements for interconnections with other 3<sup>rd</sup> party devices/systems.

### **WSUK Medal Ceremony**

Following the week of competitions, all participants will be invited to the medal ceremony held on Friday 28th November 2025 at the International Convention Centre Wales (ICC) in Newport.

This event will invite all successful finalists across all competitions to celebrate a great achievement, offering 2 additional tickets to the finalists to invite family members, friends or colleagues to participate in the celebrations.

The dress code for this event will be “Smart-Casual”, but may take this opportunity to breakout the glad-rags.

## Judges Top Tips

- **Preparation and Practice**

A successful competitor you need to be confident, calm and self-assured when competing.  
Prepare by practicing your skills and techniques to ensure you get the required standard/results you want without any surprises.
- **Time Management**

Learn to manage your time effectively when completing tasks by working smart not fast!  
The tasks have allocated times, so practice working to time and under pressure to perfect your timing. If you run out of time in the competition you will lose marks.
- **Planning**

Make your own plans for how to complete each task, work methodically and even write it down to help you prepare.
- **Organisation**

Make sure you are organised, make sure all stages of a task are completed. Organise all of your equipment and materials for the task.
- **Health & Safety**

Health & Safety is very important in any environment, make sure you use the appropriate PPE for the task and work safely.
- **Clean and Tidy**

Keep your working area tidy as you can be more efficient in a tidy work area. Make sure that when you present your work to the judges it is clean and ready for final judging.
- **Understanding**

Read the task brief thoroughly and make sure you understand what you need to do.  
Do not be afraid to ask questions, remember there is only one silly question.....the one you don't ask!
- **Don't Worry**

If a part of a task hasn't gone as well as you might have wanted don't worry or dwell on it, just draw a line under that and get on with the next task. Always focus on the marks you can gain not what you might have lost.
- **Enjoy**

To get to the WorldSkills UK National Qualifiers or the WorldSkillsUK National Finals is in its self a massive achievement that you should be extremely proud of! Make the most of the whole WorldSkillsUK Skills Competitions process and enjoy it!

## Competition Rules, Travel and Accommodation throughout the Cycle:

Conduct for competitors during live competitions:

- It is the competitor's responsibility to arrive on time at the event each day, late arrivals may be excluded from the competition.
- **Skills for Security will provide accommodation for each competitor for the National Finals**, any accommodation requirements and travel needs throughout the rest of the competition cycle is the responsibility of the competitor to arrange through employer and training provider.
  - **There will be a competition support fund available to all competitors throughout the competition cycle – this will be emailed to those successfully making it through to the national qualifier stage.**
- Competitors will start and finish tasks as instructed by the judges or Competition team.
- Tools and PPE will not be supplied at any stage of the competition – competitors are expected to bring their own tools and equipment. However, Specialist testing equipment and some specialist tools will be made available.
- Competitors are required to wear their company's uniforms. Please bring own safety shoes. (Without your safety shoes you may not be able to take part in the competition due to health and safety regulations).
- Any competitor who wishes to leave the area during the competition must seek the permission of the competition organisers or lead judge.
- If there is a power stoppage, expected fault with any of the equipment, or an accident the competitors must act according to the instructions of the competition organisers.
- Competitors are expected to comply with the host venue rules and regulations.
- During the competition, if any competitor has a suspected issue or question, they should seek out the competition organisers or lead judge.

### Useful training links:

<https://www.worldskillsuk.org/>

### Contact Information:

#### Skills For Security:

Competition Queries [Worldskills@skillsforsecurity.org.uk](mailto:Worldskills@skillsforsecurity.org.uk)