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| BULL PRODUCTS LTD  Cygnus SmartNet  detector PROTOCOL  test report  January 2019 | | | | | |
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# introduction

This report details the test results of the detector protocol tests with reference to “Detectors Detailed Specification” Document, no, 1000-SPC-0003. Detectors tested were from the batch 1808-30.

Detector samples tested as per Table 1.

|  |  |
| --- | --- |
| **Detector Model** (Functions) | **Serial Number** |
| **SD01** (Smoke) | 1808-30-00017 |
| **HD11** (Heat, B) | 1808-30-00001 |
| **HD01** (Heat, A1R) | 1808-30-00003 |
| **MS01** (Smoke & Heat, A1R) | 1808-30-00018 |
| **MS11** (Smoke & PIR) | 1808-30-00023 |

Table 1

# Executive Summary

**This summary gives the overall result of this testing and is recommended to be used as the basis for any follow-up actions, since the test results section below is known to contain some omissions, errors and potentially confusing incomplete entries.**

A number of issues were identified during testing. Some of these issues are not clear-cut failures, rather they raise questions over the intended functionality, where the spec is unclear. This list includes issues identified through previous testing, which were not formally recorded at the time.

## Digit Count Discrepancies

An example of this is the “get” command DETY? Command (to return a number representing the type of device), which is specified with a return value of 0 to 2017, with the example 9 given. However, it was found that the returned value was a two-digit number, e.g. 03. This *implies* that the full range of values which will be returned is 00 to 99. Note the types of devices covered by these tests all fell in the device type range 0 to 9.

This *may* not be a critical issue, provided it is known by developers of code communicating with the detectors. Table 11 in the specification[1] shows that device types <10 and greater than two-digits are possible, though do not apply to our current detector range.

As well as reported values, a similar issue exists for values in “set” commands being issued to the detector. An example command would be STH1=<Value> (to set the smoke upper threshold), where <Value> is specified as a decimal value 0 to 99, yet it was found that values 0 to 9 cause an ERROR response, whereas two-digit values 00 to 09 are accepted. Note this issue may appear to overlap the subject of Error Values, discussed below, but as specified, it is still a valid issue.

Commands to which digit-count discrepancies apply are listed below:

1. DETY
2. STH1/STH0/HTH1/HTH0
3. DECL
4. DTAC
5. STAT
6. HVAL (and presumably, theoretically SVAL, though as SVAL returns around 23 in smoke-free conditions, it’s probably not practical to ever induce a value <10 from the device).

## Error Values

Sections 2.5.1 and 2.5.2 of the specification[1] refer to “error values”, which supposedly occupy the range 0-8 (and possibly 91) of values reported by the detectors in response to HVAL? and SVAL? commands. The concept of these error values is not subsequently referred to in section 7[1] – the Detector Protocol Specification, and it is not clear, from the details in Figure 2 and Table 5 of the specification[1], the exact circumstances which would give rise to the error values being reported.

Given the lack of clarity surrounding the error values and their absence from the protocol definition, they were not specifically tested for during these protocol tests. Furthermore, it is not known whether the error value functionality has even been implemented at all, in the detector protocol.

## Disable Communications

From the details available in section 7.9.22 of the specification[1], it is assumed that following the issue of a CXTO+ command to the detector, the detector will no longer respond to subsequent commands issued over the serial interface (until, presumably the power to the device is recycled). However, whilst the device responds positively (“OK”) to the command, it appears to have no effect on the performance or communication abilities of the detector. The detector continues to respond to serial commands issued following the disable-communications command.

It is possible that the command is intended to disable communications until a 20ms “wake-up” pulse is received from the base-unit. However, such a pulse is required if there has been no comms for a period of 20ms anyway, so it hardly seems necessary to implement a command to put the unit into a state which it would naturally enter after 20ms of inactivity. At time of testing, the software tools were not available to test this theory (the BPL in-house test software provided always preceded every command issued to the detector with the 20ms wake-up sequence).

Clarification of intended functionality of this command is required, if further testing is to be carried out.

## Non-Linear HVAL Range for A1R Detectors

This issue is known from other tests, but should be mentioned here – particularly since the protocol specification (and, indeed, the broader detector specification[1]) makes no mention of the behaviour.

The issue is that A1R class heat detectors do not report analogue heat values (as queried by the HVAL? command) on a linear scale, as do the class B heat detectors. Instead the reported values are quantized to a very limited set of values (most commonly 23, 45 and 55), regardless of the actual temperature. Despite having queried this issue with Numens, in the past, this behaviour (and the reasons for it being implemented as such) are not fully understood.

## Commands accepted by devices to which they don’t apply

It was noted that detectors will issue positive responses to commands which don’t apply to that detector type. The protocol doesn’t specify what should happen in these scenarios, so it is not a failure, and is noted here to raise awareness.

As an example, an SD01 smoke-only detector will report a value of 23 (°C) to an HVAL? command, querying its analogue heat value. The same detector will also permit setting of heat thresholds, via HTH1 and HTH0 commands, without issuing an ERROR response. Similarly, non-PIR detectors will respond to PIR related commands without error.

## Error Handling

*The details of this issue are copied from a previous email, following some informal testing – the issue is assumed to still stand, as no change in this functionality has been requested from Numens.*

Error handling isn’t quite as robust as it’s made out to be. It is specified that ;SENI? will return an error, as it’s not a recognised command. This is true; however, ;SENU (i.e. valid but no “?”) could potentially cause problems for the calling device (the RBU). It seems that *any* string of 4 characters or fewer, with no “?” will fail to elicit any response from the detector. This, despite the messages terminating with <CR><LF>, so the detector *knows* the message is complete, and must know it was invalid, but it doesn’t respond ERROR, causing the calling device to hang (if no suitable timeout coded).

## PIR Duplicate Functionality

*The details of this issue are copied from a previous email, following some informal testing – the issue is assumed to still stand, as no change in this functionality has been requested from Numens.*

The PIR functionality may be enabled/disabled by both the ED04 and PIRE commands, however they store separate values, it would seem. The outcome of this is that the PIR will only function if PIRE = 1 *and* ED04 = 1. If either is 0 (and they *can* be different), functionality is disabled. This may be as intended but is noteworthy as potentially confusing behaviour.

# test method

## Protocol Test Method

Direct communication with the Numens detector heads, from a PC, is not possible by simply using an FDTI UART interface, due to the specific wake-up routine required to initiate comms with the detector. An oscilloscope with a programmable pattern generator was found to be a convenient means of communicating with the detector head.

The oscilloscope was setup to output a bit pattern from terminal P0, at a baud rate of 19,200 bps. PC control software (in-house) was then used to set the required bit pattern to be output by the scope, for an ASCII character string input to the PC (using the SCPI command interface, over ethernet). The oscilloscope’s P0 terminal was connected to the detector’s RX terminal (B), in order that a bit pattern can be sent from the oscilloscope to the detector. This bit pattern was monitored via the scope’s logic channel D0 (with the UART decoding option on the scope allowing on-screen conversion of the bit pattern to ASCII). The scope’s logic channel D1 was connected to the detector’s TX terminal (A/O), to monitor the detector’s response to any messages received.

Commands entered into the PC Scope Control software were issued to the detector (via the oscilloscope’s pattern generator), and the detector response monitored via the ASCII decoded display on the scope (the PC control software was able to also extract the decoded response from the oscilloscope, where the response was too long to fit on the oscilloscope display).

Figure 1 shows the detector’s connections to the oscilloscope and power supply.  
Figure 2 shows scope control pattern generator GUI.

## Commands Overview

### Overview

Commands in this test report are extracted & explained in more detail from the Specification Document 1000-SPC-0003.

What follows is a brief explanation of the commands used to test & validate the values stored in the EEPROM of the detector samples.

### Command Syntax

Command sequence has the format:

<Prefix><Command><Type/Action><Data><CR><LF>

Where;

**<Prefix>**  is the character “;”

**<Command>**  is a 4 character long command as listed in the test results of this document

**<Type/Action>** “=” for Write, “?” for Read or “+” when special command

**<Data>** is only needed when the command type is “=” (Write)

**<CR>** is the carriage return character

**<LF>** is the line feed character

Once a command is received it will be processed & a response will be generated in the following format:

<Response><CR><LF>

Where;

**<Response>** is the command specific response or one of the following strings:

**“OK”,** if the command is recognised & executed successfully

**“ERROR”,**  if it was an unrecognised command or after an unsuccessful execution

**<CR>** is the carriage return character

**<LF>** is the line feed character

### Command Example

**SENU?** Returns the unique ID number as 12-digit number in format: YYMM-BB-SSSS

Where:

**YY:** year of manufacture, range 17-99

**MM:** Month of manufacture, range 01 to 12

**BB:** Manufacturing batch number of detector range 01 to 31

**SSSS:** Serial number range 00001 to 65535

Figure 3 shows a typical command entry & response seen on the oscilloscope.

Figure 4 shows serial number response from DUT.

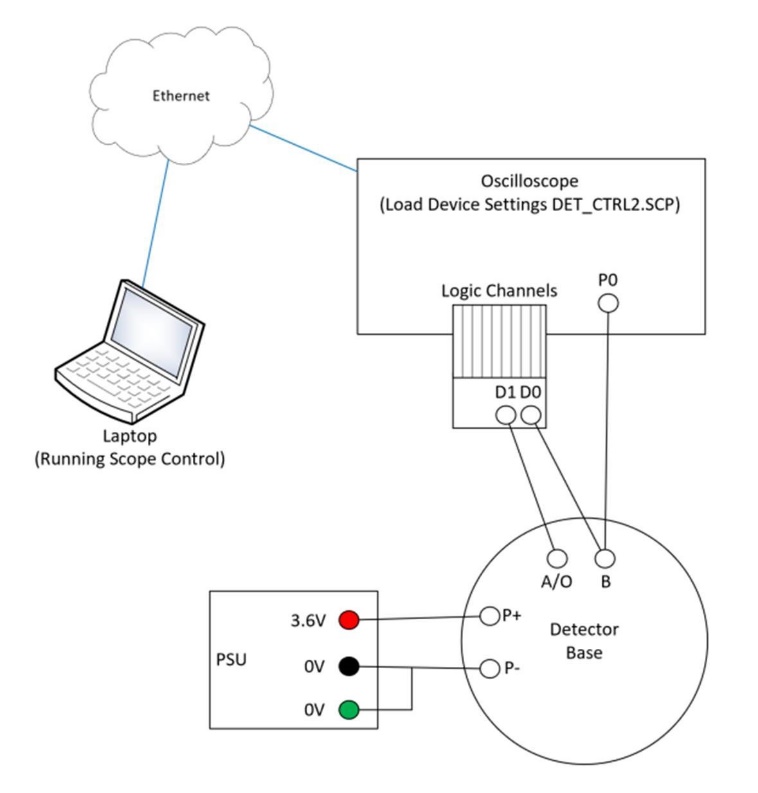


Figure 1 Test Connection Setup

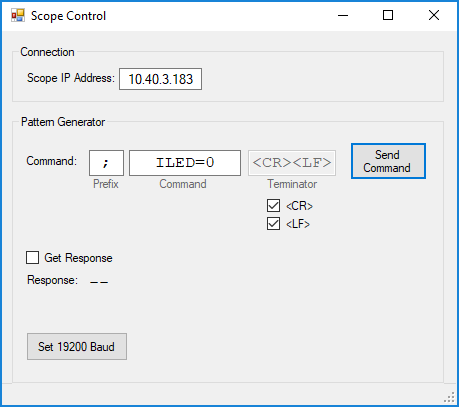


Figure 2 Scope Control Pattern Generator GUI

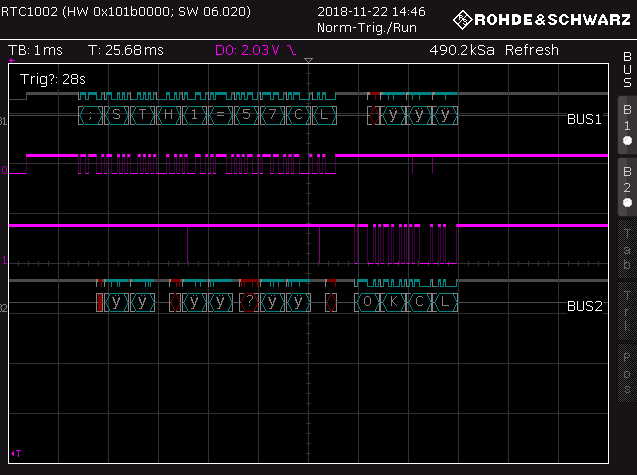


Figure 3 Typical Command Entry & Response Screen

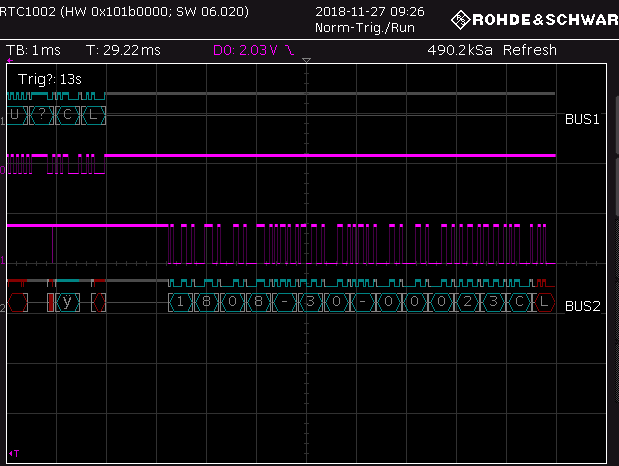


Figure 4 Serial Number Response

# test results

“Spec Ref No.” refers to “Detectors Detailed Specification 1000-SPC-0002-03”.  
Deviations to the specification indicated by a “D” in the Notes box for each command.

The commands in these tables have been abbreviated for clarity, by not including the ; or <CR><LF>.

### SD01 Smoke Detector (S/No. 1808-30-00017)

#### Serial Number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.1 | Serial Number | **SENU?** | 12 digit number in format: YYMM-BB-SSSSS | 1808-30-00017 | Test Pass. |

#### Software Information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.2 | Software Information | **I9SI?** | 01.00.00,29/06/18 | 01.00.00,29/06/18 | Test Pass. |

#### Type Of Device

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.3 | Type of Device | **DETY?** | 1 | 01 | 2 digit number response not single digit response. (D) |

#### Class Of Device

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.4 | Class of Device | **DECL?** | 1 | 01 | 2 digit number response not single digit response. (D) |

#### Type Of Device & Class

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.5 | Type of Device & Class | **DTAC?** | 1,1 | 01,1 | 2 digit number response not single digit response. (D) |

#### Enable / Disable Sensor

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.6 | Enable / Disable Sensor | **ED01?** | 1 | 1 | Test Pass. |
|  |  | **ED01=0** | OK | OK | Disable sensor. Test Pass. |
|  |  | **ED01?** | 0 | 0 | Test Pass. |
|  |  | **ED01=1** | OK | OK | Enable sensor. Test Pass. |
|  |  | **ED01?** | 1 | 1 | Test Pass. |
|  |  | **ED02?** | ERROR | ERROR | Command for heat so expected ERROR response as this a smoke detector |

#### Smoke Upper Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.7 | Smoke Upper Threshold | **STH1?** | 45 | 45 | Test Pass. |
|  |  | **STH1=60** | OK | OK | Test Pass. |
|  |  | **STH1?** | 60 | 60 | Test Pass. |
|  |  | **STH1=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **STH1=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **STH1=45** | 45 | 45 | Test Pass. |
|  |  | **STH1?** | 45 | 45 | Test Pass. |

#### Smoke Lower Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.8 | Smoke Lower Threshold | **STH0?** | 0 | 0 | Test Pass. |
|  |  | **STH0=5** | ERROR | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **STH0=05** | ERROR | OK | <Value> 00-09 returns OK |
|  |  | **STH0?** | 05 | 05 | Test Pass. |
|  |  | **STH0=10** | OK | OK | Test Pass. |

#### Heat Upper Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.9 | Heat Upper Threshold | **HTH1?** | 65 | 65 | Test Pass. |
|  |  | **HTH1=50** | OK | 50 | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1?** | 50 | 50 | Test Pass. |
|  |  | **HTH1=5** | 5 | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1=05** | OK | OK | <Value> 00-09 returns OK |

#### Heat Lower Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.10 | Heat Lower Threshold | **HTH0?** | 0 | 0 | Test Pass. |
|  |  | **HTH0=10** | OK | 10 | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |

#### Smoke Analogue Value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.11 | Smoke Analogue Value | **SVAL?** | 0-99 | 25 | Test Pass. |

#### Heat Analogue Value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.12 | Heat Analogue Value | **HVAL?** | 0-99 | 23 | Smoke detector reporting a heat analogue value **(D)** |

#### PIR Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.13 | PIR Status | **PIRS?** | 0 | 0 | Test Pass. |

#### PIR Enable Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.14 | PIR Enable Operation | **PIRE?** | 0 | 0 | Test Pass. |
|  |  | **PIRE=1** | ERROR | OK | Smoke detector only no PIR fitted **(D)** |

#### PIR Reset Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.15 | PIR Reset Operation | **PIRC+** | 0 | 0 | Test Pass. |

#### Indicator Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.16 | Indicator Control | **ILED?** | 0 | 0 | Test Pass. |
|  |  | **ILED=1** | OK | OK | LED on. Test Pass. |
|  |  | **ILED=0** | OK | OK | LED off. Test Pass. |

#### Detector Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.17 | Detector Status | **STAT?** | 0,0 | 0,00 | Spec <Value> single digit response i.e. 0 to 2047 (D) |

#### Optical Chamber Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.18 | Optical Chamber Status | **OCS1?** | 0 | 0 | Test Pass. |

#### Switch Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.19 | Switch Control | **OPEC?** | 1 | 1 | Test Pass. |
|  |  | **OPEC=0** | OK | OK | Test Pass. |
|  |  | **OPEC=1** | OK | OK | Test Pass. |

#### Identification Number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.20 | Identification Number | **IDNU?** | 0000 | 0000 | Test Pass. |
|  |  | **IDNU=2CBE** | OK | OK | Test Pass. |
|  |  | **IDNU?** | 2CBE | 2CBE | Test Pass. |
|  |  | **IDNU?** | 0000 | 0000 | Power cycled to DUT. Test pass. |

#### Reset Source

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.21 | Reset Source | **DRSO?** | 1 | 1 | 1 = Power on reset. Test Pass |
|  |  | **DRSO=1** | OK | OK | Test Pass. |
|  |  | **DRSO=0** | OK | OK | Test Pass. |
|  |  | **DRSO?** | 0 | 0 | Test Pass. |
|  |  | **DRSO=3** | OK | OK | Test Pass. |
|  |  | **DRSO?** | 3 | 3 | Test Pass. |
|  |  | **DRSO=1** | OK | OK | Test Pass. |
|  |  | **DRSO?** | 1 | 1 | Test Pass. |

#### Disable Communications

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.22 | Disable Communications | **CXTO+** | OK | OK | Detector accepts the command but comms are still active. (D) |

#### Detector Branding ID

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.23 | Detector Branding ID | **DBID?** | 001 | 001 | Test Pass. |
|  |  | **DBID = 006** | OK | OK | Test Pass. |
|  |  | **DBID?** | 006 | 006 | Test Pass. |
|  |  | **DBID?** | 006 | 006 | Power cycled. Test Pass. |
|  |  | **DBID = 001** | OK | OK | Test Pass. |
|  |  | **DBID?** | 001 | 001 | Test Pass. |

### HD11 Heat Detector, B (S/No. 1808-30-00001)

#### Serial Number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.1 | Serial Number | **SENU?** | 1808-30-00001 | 1808-30-00001 | Test Pass. |

#### Software Information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.2 | Software Information | **I9SI?** | 01.00.00,29/06/18 | 01.00.00,29/06/18 | SW V.01, Date 29/06/18. Test Pass. |

#### Type Of Device

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.3 | Type Of Device | **DETY?** | 02 | 02 | Device type = 02 = Heat (ref. Table 11) Test Pass. |

#### Class Of Device

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.4 | Class Of Device | **DECL?** | 02 | 02 | Test Pass. |

#### Type Of Device & Class

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.5 | Type Of Device & Class | **DTAC?** | 02,2 | 02,2 | Test Pass. |

#### Enable / Disable Sensor

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.6 | Enable / Disable Sensor | **ED02?** | 1 | 1 | Test Pass. |
|  |  | **ED02=0** | OK | OK | Test Pass. |
|  |  | **ED02?** | 0 | 0 | Test Pass. |
|  |  | **ED02=1** | OK | OK | Test Pass. |
|  |  | **ED02?** | 1 | 1 | Test Pass. |
|  |  | **ED01?** | ERROR | ERROR | Command for smoke so expected ERROR response as this a heat detector |

#### Smoke Upper Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.7 | Smoke Upper Threshold | **STH1?** | 45 | 45 | Test Pass. |
|  |  | **STH1=60** | OK | OK | Test Pass. |
|  |  | **STH1?** | 60 | 60 | Test Pass. |
|  |  | **STH1=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **STH1=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **STH1=45** | OK | OK | Test Pass. |
|  |  | **STH1?** | 45 | 45 | Test Pass. |

#### Smoke Lower Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.8 | Smoke Lower Threshold | **STH0?** | 10 | 10 | Test Pass. |
|  |  | **STH0=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **STH0=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **STH0=10** | 10 | 10 | Test Pass. |

#### Heat Upper Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.9 | Heat Upper Threshold | **HTH1?** | 65 | 65 | Test Pass. |
|  |  | **HTH1=50** | OK | 50 | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1?** | 50 | 50 | Test Pass. |
|  |  | **HTH0=05** | OK | OK | <Value> 00-09 returns OK |
|  |  | **HTH0=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1=65** | OK | OK | Test Pass. |
|  |  | **HTH1?** | 65 | 65 | Test Pass. |

#### Heat Lower Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.10 | Heat Lower Threshold | **HTH0?** | 0 | 0 | Test Pass. |
|  |  | **HTH0=10** | OK | 10 | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |

#### Smoke Analogue Value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.11 | Smoke Analogue Value | **SVAL?** | 23 | 23 | Test Pass. |

#### Heat Analogue Value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.12 | Heat Analogue Value | **HVAL?** | 22 | 22 | Ambient temp measured at 22°C.  Test Pass. |
|  |  | **HVAL?** | 18 | 18 | Freezer spray cooled sensor to 18°C.  Test Pass. |
|  |  | **HVAL?** | 0-10 | 07 | Freezer spray cooled sensor to 0°C.  Test Pass. |
|  |  | **HVAL?** | 00 | 00 | Freezer spray cooled sensor to <0°C.  Test Pass |
|  |  | **HVAL?** | 22 | 22 | Detector left to warm back up to room temperature |

#### PIR Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.13 | PIR Status | **PIRS?** | 0 | 0 | Test Pass. |

#### PIR Enable Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.14 | PIR Enable Operation | **PIRE?** | 0 | 0 | No PIR fitted. Test Pass. |

#### PIR Reset Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.15 | PIR Reset Operation | **PIRC+** | 0 | 0 | No PIR fitted. Test Pass. |

#### Indicator Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.16 | Indicator Control | **ILED?** | 0 | 0 | Test Pass. |
|  |  | **ILED=1** | OK | OK | LED on. Test Pass. |
|  |  | **ILED=0** | OK | OK | LED off. Test Pass. |

#### Detector Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.17 | Detector Status | **STAT?** | 0,00 | 0,00 | Test Pass. |
|  |  | **STAT?** | 1,02 | 1,02 | Applied heat, measured at 73°C requested status; heat sensor has crossed threshold & raised the event.  Test Pass. |

#### Optical Chamber Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.18 | Optical Chamber Status | **OCS1?** | 0 | 0 | Test Pass. |

#### Switch Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.19 | Switch Control | **OPEC?** | 1 | 1 | 1 = DETECTOR IS SWITCHED ON |
|  |  | **OPEC=0** | OK | OK | 0 = DETECTOR IS SWITCHED ON |
|  |  | **OPEC=1** | OK | OK |  |

#### Identification Number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.20 | Identification Number | **IDNU?** | 0000 | 0000 | Test Pass. |
|  |  | **IDNU=2CBE** | OK | OK | Test Pass. |
|  |  | **IDNU?** | 2CBE | 2CBE | Test Pass. |
|  |  | **IDNU=0000** | OK | OK | Power cycled the DUT |
|  |  | **IDNU?** | 0000 | 0000 | Test Pass. |

#### Reset Source

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.21 | Reset Source | **DRSO?** | 1 | 1 | Test Pass. |
|  |  | **DRSO=1** | 1 | 1 | Test Pass. |
|  |  | **DRSO=2** | 2 | 2 | Test Pass. |
|  |  | **DRSO=3** | 3 | 3 | Test Pass. |
|  |  | **DRSO=1** | 1 | 1 | Power cycled the DUT |
|  |  | **DRSO?** | 1 | 1 | Test Pass. |

#### Disable Communications

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.22 | Disable Communications | **CXTO+** | ? | OK | Detector accepts the command but comms are still active. (D) |

#### Detector Branding ID

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.23 | Detector Branding ID | **DBID?** | 001 | 001 | Test Pass. |
|  |  | **DBID = 006** | OK | OK | Test Pass. |
|  |  | **DBID?** | 006 | 006 | Test Pass. |
|  |  | **DBID?** | 006 | 006 | Power cycled. Test Pass. |
|  |  | **DBID = 001** | OK | OK | Test Pass. |
|  |  | **DBID?** | 001 | 001 | Test Pass. |

### HD01 Heat Detector, A1R (S/No. 1808-30-00003)

#### Serial Number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.1 | Serial Number | **SENU?** | 1808-30-00003 | 1808-30-00003 | Test Pass. |

#### Software Information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.2 | Software Information | **I9SI?** | 01.00.00,29/06/18 | 01.00.00,29/06/18 | SW V.01, Date 29/06/18  Test Pass. |

#### Type Of Device

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.3 | Type of Device | **DETY?** | 02 | 02 | Device type = 02 = Heat Test Pass. |

#### Class Of Device

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.4 | Class of Device | **DECL?** | 1 | 1 | Device Class = 1 = Type A1R, Heat (ref. table 14) Test Pass. |

#### Type Of Device & Class

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.5 | Type of Device & Class | **DTAC?** | 02,1 | 02,1 | Test Pass. |

#### Enable / Disable Sensor

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.6 | Enable / Disable Sensor | **ED02?** | 1 | 1 | Test Pass. |
|  |  | **ED02=0** | OK | OK | Test Pass. |
|  |  | **ED02?** | 0 | 0 | Test Pass. |
|  |  | **ED02=1** | OK | OK | Test Pass. |
|  |  | **ED02?** | 1 | 1 | Test Pass. |
|  |  | **ED01?** | ERROR | ERROR | Command for smoke so expected ERROR response as this a heat detector |

#### Smoke Upper Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.7 | Smoke Upper Threshold | **STH1?** | 45 | 45 | Test Pass. |
|  |  | **STH1=60** | OK | OK | Test Pass. |
|  |  | **STH1?** | 60 | 60 | Test Pass. |
|  |  | **STH1=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **STH1=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **STH1=45** | OK | OK | Test Pass. |
|  |  | **STH1?** | 45 | 45 | Test Pass. |

#### Smoke Lower Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.8 | Smoke Lower Threshold | **STH0?** | 0 | 0 | Test Pass. |
|  |  | **STH0=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **STH0=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **STH0=10** | 10 | 10 | Test Pass. |

#### Heat Upper Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.9 | Heat Upper Threshold | **HTH1?** | 65 | 65 | Test Pass. |
|  |  | **HTH1=50** | OK | 50 | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1?** | 50 | 50 | Test Pass. |
|  |  | **HTH1=05** | OK | OK | <Value> 00-09 returns OK |
|  |  | **HTH1=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1=45** | OK | OK | A1R default value. Test Pass. |
|  |  | **HTH1?** | 45 | 65 | Test Pass. |

#### Heat Lower Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.10 | Heat Lower Threshold | **HTH0?** | 0 | 0 | Test Pass. |
|  |  | **HTH0=10** | OK | 10 | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH0=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH0=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **HTH0=10** | OK | 10 | Test Pass. |
|  |  | **HTH0?** | 10 | 10 | Test Pass. |

#### Smoke Analogue Value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.11 | Smoke Analogue Value | **SVAL?** | 23 | 23 | Test Pass. |

#### Heat Analogue Value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.12 | Heat Analogue Value | **HVAL?** | 23 | 23 | Default value   Test Pass. |
|  |  | **HVAL?** | 18 | 23 | Freezer spray cooled sensor to 18°C.  **(D)** |
|  |  | **HVAL?** | 28 | 45 | Sensor heated to approx. 28°C.  **(D)** |
|  |  | **HVAL?** | 75 | 56 | Sensor heated to > 75°C.  **(D)** |

#### PIR Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.13 | PIR Status | **PIRS?** | 0 | 0 | No PIR fitted. Test Pass. |

#### PIR Enable Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.14 | PIR Enable Operation | **PIRE?** | 0 | 0 | No PIR fitted. Test Pass. |

#### PIR Reset Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.15 | PIR Reset Operation | **PIRC+** | OK | OK | No PIR fitted. Test Pass. |

#### Indicator Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.16 | Indicator Control | **ILED?** | 0 | 0 | Test Pass. |
|  |  | **ILED=1** | OK | OK | LED on. Test Pass. |
|  |  | **ILED=0** | OK | OK | LED off. Test Pass. |

#### Detector Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.17 | Detector Status | **STAT?** | 0,00 | 0,00 | Test Pass. |
|  |  | **STAT?** | 1,02 | 1,02 | Applied heat, requested status; 1,1 smoke sensor has crossed threshold & raised the event.  Test Pass. |

#### Optical Chamber Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.18 | Optical Chamber Status | **OCS1?** | 0 | 0 | Test Pass. |

#### Switch Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.19 | Switch Control | **OPEC?** | 1 | 1 | 1 = DETECTOR IS SWITCHED ON |
|  |  | **OPEC=0** | OK | OK | 0 = DETECTOR IS SWITCHED OFF |
|  |  | **OPEC?** |  |  |  |
|  |  | **OPEC=1** | OK | OK | 1 = DETECTOR IS SWITCHED ON |

#### Identification Number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.20 | Identification Number | **IDNU?** | 0000 | 0000 | Test Pass. |
|  |  | **IDNU=2CBE** | OK | OK | Test Pass. |
|  |  | **IDNU?** | 2CBE | 2CBE | Test Pass. |
|  |  | **IDNU=0000** | OK | OK | Power cycled the DUT |
|  |  | **IDNU?** | 0000 | 0000 | Test Pass. |

#### Reset Source

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.21 | Reset Source | **DRSO?** | 1 | 1 | Test Pass. |
|  |  | **DRSO=1** | 1 | 1 | Test Pass. |
|  |  | **DRSO=2** | 2 | 2 | Test Pass. |
|  |  | **DRSO=3** | 3 | 3 | Test Pass. |
|  |  | **DRSO=1** | 1 | 1 | Power cycled the DUT |
|  |  | **DRSO?** | 1 | 1 | Test Pass. |

#### Disable Communications

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.22 | Disable Communications | **CXTO+** | ? | OK | Detector accepts the command but comms are still active. (D) |

#### Detector Branding ID

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.23 | Detector Branding ID | **DBID?** | 0 | 0 | Test Pass. |
|  |  | **DBID = 006** | OK | OK | Power cycled the DUT |
|  |  | **DBID?** | 006 | 006 | Test Pass. |
|  |  | **DBID = 234** | OK | OK | Power cycled the DUT |
|  |  | **DBID?** | 234 | 234 | Test Pass. |
|  |  | **DBID = 175** | OK | OK | Power cycled the DUT |
|  |  | **DBID?** | 175 | 175 | Test Pass. |
|  |  | **DBID = 001** | OK | OK | Power cycled the DUT |
|  |  | **DBID?** | 001 | 001 | Test Pass. |

### MS01 Smoke & Heat Detector, A1R (S/No. 1808-30-00018)

#### Serial Number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.1 | Serial Number | **SENU?** | 1808-30-00018 | 1808-30-00018 | Test Pass. |

#### Software Information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.2 | Software Information | **I9SI?** | 01.00.00,29/06/18 | 01.00.00,29/06/18 | SW V.01, Date 29/06/18  Test Pass. |

#### Type Of Device

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.3 | Type of Device | **DETY?** | 03 | 03 | Device type = 03 = Smoke & Heat. Test Pass. |

#### Class Of Device

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.4 | Class of Device | **DECL?** | 1 | 1 | Device Class = 1 = Type A1R, Heat (ref. table 14) Test Pass. |

#### Type Of Device & Class

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.5 | Type of Device & Class | **DTAC?** | 03,1 | 02,1 | Test Pass. |

#### Enable / Disable Sensor

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.6 | Enable / Disable Sensor | **ED01?** | 1 | 1 | Test Pass. |
|  |  | **ED02?** | 1 | 1 | Test Pass. |
|  |  | **ED04?** | ERROR | ERROR | Command for PIR so expected ERROR response as this a smoke / heat detector.  Test Pass. |
|  |  | **ED02=0** | OK | OK | Test Pass. |
|  |  | **ED02?** | 0 | 0 | Test Pass. |
|  |  | **ED02=1** | OK | OK | Test Pass. |
|  |  | **ED02?** | 1 | 1 | Test Pass. |

#### Smoke Upper Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.7 | Smoke Upper Threshold | **STH1?** | 45 | 45 | Test Pass. |
|  |  | **STH1=60** | OK | OK | Test Pass. |
|  |  | **STH1?** | 60 | 60 | Test Pass. |
|  |  | **STH1=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **STH1=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **STH1=45** | OK | OK | Test Pass. |
|  |  | **STH1?** | 45 | 45 | Test Pass. |

#### Smoke Lower Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.8 | Smoke Lower Threshold | **STH0?** | 0 | 0 | Test Pass. |
|  |  | **STH0=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **STH0=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **STH0=10** | 10 | 10 | Test Pass. |

#### Heat Upper Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.9 | Heat Upper Threshold | **HTH1?** | 65 | 65 | Test Pass. |
|  |  | **HTH1=50** | OK | 50 | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1?** | 50 | 50 | Test Pass. |
|  |  | **HTH1=05** | OK | OK | <Value> 00-09 returns OK |
|  |  | **HTH1=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1=45** | OK | OK | Test Pass. |
|  |  | **HTH1?** | 45 | 65 | Test Pass. |

#### Heat Lower Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.10 | Heat Lower Threshold | **HTH0?** | 0 | 0 | Test Pass. |
|  |  | **HTH0=10** | OK | OK | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH0=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH0=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **HTH0=10** | OK | OK | Test Pass. |
|  |  | **HTH0?** | 10 | 10 | Test Pass. |

#### Smoke Analogue Value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.11 | Smoke Analogue Value | **SVAL?** | 0-99 | 23 | Test Pass. |

#### Heat Analogue Value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.12 | Heat Analogue Value | **HVAL?** | 23 | 23 | Default value   Test Pass. |
|  |  | **HVAL?** | 18 | 23 | Freezer spray cooled sensor to 18°C.  **(D)** |
|  |  | **HVAL?** | 28 | 45 | Sensor heated to approx. 28°C.  **(D)** |
|  |  | **HVAL?** | 35 | 55 | Sensor heated to > 35°C.  **(D)** |

#### PIR Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.13 | PIR Status | **PIRS?** | 0 | 0 | No PIR fitted. Test Pass. |

#### PIR Enable Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.14 | PIR Enable Operation | **PIRE?** | 0 | 0 | No PIR fitted. Test Pass. |

#### PIR Reset Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.15 | PIR Reset Operation | **PIRC+** | OK | OK | No PIR fitted. Test Pass. |

#### Indicator Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.16 | Indicator Control | **ILED?** | 0 | 0 | Test Pass. |
|  |  | **ILED=1** | OK | OK | LED on. Test Pass. |
|  |  | **ILED=0** | OK | OK | LED off. Test Pass. |

#### Detector Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.17 | Detector Status | **STAT?** | 0,0 | 0,00 | NOTE spec states 0,0 & not 0,00 (D) |
|  |  | **STAT?** | 1,3 | 1,01 | Applied smoke, requested status; smoke sensor has crossed threshold & raised the event.  NOTE spec states 1,3 & not 1,01 (D) |
|  |  | **STAT?** | 1,3 | 1,02 | Applied heat, requested status; heat sensor has crossed threshold & raised the event. NOTE spec states 1,3 & not 1,02 (D) |

#### Optical Chamber Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.18 | Optical Chamber Status | **OCS1?** | 0 | 0 | Test Pass. |

#### Switch Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.19 | Switch Control | **OPEC?** | 1 | 1 | 1 = DETECTOR IS SWITCHED ON |
|  |  | **OPEC=0** | OK | OK | 0 = DETECTOR IS SWITCHED ON |
|  |  | **OPEC=1** | OK | OK |  |

#### Identification Number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.20 | Identification Number | **IDNU?** | 0000 | 0000 | Test Pass. |
|  |  | **IDNU=2CBE** | OK | OK | Test Pass. |
|  |  | **IDNU?** | 2CBE | 2CBE | Test Pass. |
|  |  | **IDNU=0000** | OK | OK | Power cycled the DUT |
|  |  | **IDNU?** | 0000 | 0000 |  |

#### Reset Source

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.21 | Reset Source | **DRSO?** | 1 | 1 | Test Pass. |
|  |  | **DRSO=1** | 1 | 1 | Test Pass. |
|  |  | **DRSO=2** | 2 | 2 | Test Pass. |
|  |  | **DRSO=3** | 3 | 3 | Test Pass. |
|  |  | **DRSO=1** | 1 | 1 | Power cycled the DUT |
|  |  | **DRSO?** | 1 | 1 | Test Pass. |

#### Disable Communications

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.22 | Disable Communications | **CXTO+** | ? | OK | Detector accepts the command but comms are still active. (D) |

#### Detector Branding ID

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.23 | Detector Branding ID | **DBID?** | 000 | OK | Test Pass. |
|  |  | **DBID = 006** | OK | OK | Power cycled the DUT |
|  |  | **DBID?** | 006 | 006 | Test Pass. |
|  |  | **DBID = 234** | OK | OK | Power cycled the DUT |
|  |  | **DBID?** | 234 | 234 | Test Pass. |
|  |  | **DBID = 175** | OK | OK | Power cycled the DUT |
|  |  | **DBID?** | 175 | 175 | Test Pass. |
|  |  | **DBID = 001** | OK | OK | Power cycled the DUT |
|  |  | **DBID?** | 001 | 001 | Test Pass. |

### MS11 Smoke & PIR Detector (S/No. 1808-30-00023)

#### Serial Number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.1 | Serial Number | **SENU?** | 1808-30-00023 | 1808-30-00023 | Test Pass. |

#### Software Information

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.2 | Software Information | **I9SI?** | 01.00.00,29/06/18 | 01.00.00,29/06/18 | SW V.01, Date 29/06/18  Test Pass. |

#### Type Of Device

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.3 | Type of Device | **DETY?** | 09 | 09 | Device type = 09 = Smoke+PIR. Test Pass. |

#### Class Of Device

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.4 | Class of Device | **DECL?** | 1 | 1 | Device Class = 1 = Type Single IR + PIR, (ref. table 13) |

#### Type Of Device & Class

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.5 | Type of Device & Class | **DTAC?** | 09,1 | 09,1 | Test Pass. |

#### Enable / Disable Sensor

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.6 | Enable / Disable Sensor | **ED01?** | 1 | 1 | Test Pass. |
|  |  | **ED02=0** | ERROR | ERROR | Test Pass. |
|  |  | **ED04?** | 1 | 1 | Command for heat so expected ERROR response as this a smoke / PIR detector.  Test Pass. |

#### Smoke Upper Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.7 | Smoke Upper Threshold | **STH1?** | 45 | 45 | Test Pass. |
|  |  | **STH1=60** | OK | OK | Test Pass. |
|  |  | **STH1?** | 60 | 60 | Test Pass. |
|  |  | **STH1=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **STH1=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **STH1=45** | OK | OK | Test Pass. |
|  |  | **STH1?** | 45 | 45 | Test Pass. |

#### Smoke Lower Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.8 | Smoke Lower Threshold | **STH0?** | 0 | 0 | Test Pass. |
|  |  | **STH0=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **STH0=05** | ERROR | OK | Spec <Value> quotes 0-99 05 should return ERROR (D) |
|  |  | **STH0=10** | 10 | 10 | Test Pass. |

#### Heat Upper Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.9 | Heat Upper Threshold | **HTH1?** | 65 | 65 | Test Pass. |
|  |  | **HTH1=50** | OK | OK | Test Pass. |
|  |  | **HTH1?** | 50 | 50 | Test Pass. |
|  |  | **HTH1=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH1=05** | OK | OK | <Value> 00-09 returns OK |
|  |  | **HTH1=65** | OK | OK | Test Pass. |
|  |  | **HTH1?** | 65 | 65 | Test Pass. |

#### Heat Lower Threshold

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.10 | Heat Lower Threshold | **HTH0?** | 00 | 0 | Test Pass. |
|  |  | **HTH0=10** | OK | OK | Test Pass. |
|  |  | **HTH0?** | 10 |  | Test Pass. |
|  |  | **HTH0=5** | OK | ERROR | Spec <Value> quotes 0-99 (D) |
|  |  | **HTH0=05** | OK | OK | <Value> 00-09 returns OK |

#### Smoke Analogue Value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.11 | Smoke Analogue Value | **SVAL?** | 25 | 25 | Test Pass. |
|  |  | **SVAL?** | >55 | 83 | Applied smoke, 83 >55 = alarm range, test pass. |

#### Heat Analogue Value

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.12 | Heat Analogue Value | **HVAL?** | 23 | 23 | Test Pass. |

#### PIR Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.13 | PIR Status | **PIRS?** | 0 | 0 | Test Pass. |

#### PIR Enable Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.14 | PIR Enable Operation | **PIRE?** | 0 | 0 | PIR not enabled |
|  |  | **PIRE=1** | OK | OK | PIR enabled |
|  |  | **PIRS?** | 1 | 1 | Hand moved across movement sensor, PIR activated |

#### PIR Reset Operation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.15 | PIR Reset Operation | **PIRC+** | OK | OK | Test Pass. |
|  |  | **PIRS?** | 0 | 0 | PIR reset |

#### Indicator Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.16 | Indicator Control | **ILED?** | 0 | 0 | Test Pass. |
|  |  | **ILED=1** | OK | OK | LED on. Test Pass. |
|  |  | **ILED=0** | OK | OK | LED off. Test Pass. |

#### Detector Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.17 | Detector Status | **STAT?** | 0,00 | 0,00 | Test Pass. |
|  |  | **STAT?** | 1,08 | 1,08 | Hand placed over sensor, PIR movement activated. NOTE spec states 1,8 & not 1,08 (D) |

#### Optical Chamber Status

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.18 | Optical Chamber Status | **OCS1?** | 0 | 0 | Test Pass. |

#### Switch Control

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.19 | Switch Control | **OPEC?** | 1 | 1 | 1 = DETECTOR IS SWITCHED ON |
|  |  | **OPEC=0** | OK | OK | 0 = DETECTOR IS SWITCHED ON |
|  |  | **OPEC?** | 0 | 0 | Test Pass. |
|  |  | **OPEC=1** | OK | OK | Test Pass. |
|  |  | **OPEC?** | 1 | 1 | Test Pass. |

#### Identification Number

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.20 | Identification Number | **IDNU?** | 0000 | 0000 | Test Pass. |
|  |  | **IDNU=2CBE** | OK | OK | Test Pass. |
|  |  | **IDNU?** | 2CBE | 2CBE | Test Pass. |
|  |  | **IDNU=0000** | OK | OK | Power cycled the DUT. Test Pass. |
|  |  | **IDNU?** | 0000 | 0000 | Test Pass. |

#### Reset Source

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.21 | Reset Source | **DRSO?** | 1 | 1 | Test Pass. |
|  |  | **DRSO=1** | OK | OK | Test Pass. |
|  |  | **DRSO=2** | OK | OK | Test Pass. |
|  |  | **DRSO?** | 2 | 2 | Test Pass. |
|  |  | **DRSO=3** | OK | OK | Test Pass. |
|  |  | **DRSO=1** | 1 | 1 | Power cycled the DUT. Test Pass. |
|  |  | **DRSO?** | 1 | 1 | Test Pass. |

#### Disable Communications

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.22 | Disable Communications | **CXTO+** | ? | OK | Unable to prove communications is disabled **(D)** |

#### Detector Branding ID

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Spec Ref No.** | **Test Title** | **COMMAND** | **EXPECTED RESPONSE** | **ACTUAL RESPONSE** | **Notes / Deviations (D)** |
| 7.9.23 | Detector Branding ID | **DBID?** | 001 | 001 | Test Pass. |
|  |  | **DBID = 006** | OK | OK | Power cycled the DUT. Test Pass. |
|  |  | **DBID?** | 006 | 006 | Test Pass. |
|  |  | **DBID = 234** | OK | OK | Power cycled the DUT. Test Pass. |
|  |  | **DBID?** | 234 | 234 | Test Pass. |
|  |  | **DBID = 175** | OK | OK | Power cycled the DUT. Test Pass. |
|  |  | **DBID?** | 175 | 175 | Test Pass. |
|  |  | **DBID = 001** | OK | OK | Power cycled the DUT. Test Pass. |
|  |  | **DBID?** | 001 | 001 | Test Pass. |

# conclusion (Nigel Dunn)

As can be seen from the test results, the detectors pass the protocol tests with the following deviations from Specification 1000-SPC-0002-03: -

1. The command to Disable Communications CXTO+ does nothing. It’s accepted by the device OK, but the detector subsequently responds to all commands (which, presumably, it shouldn’t, as comms are disabled).
2. Smoke & heat settings value for Commands STH0, STH1, HTH0 and HTH1 return ERROR when attempting to set <10 using single digit values. Require 2 digit values in the command to return OK. e.g. “STH0=02” returns OK whereas “STH0=2” returns ERROR.
3. The command “OCS1” (ref. 7.9.18) to report the dirt contamination status of the sensor has 4 values as follows: -
4. = Optical chamber “Normal
5. = Dirt low level
6. = Dirt Med Level
7. = Faulty

Only status “0” was verified as unable to verify statuses 1 – 3.

1. Heat detector model HD11 performs differently to model HD01 using Heat Analogue Value command (HVAL?). HD11 temperature value responses roughly correlate to the temperature read by the thermocouple, whereas HD01 failed to record temperatures below 23°C and only responded 2 analogue values (45 & 55) when heated above 70°C.
2. Heat Upper & Lower Threshold commands (refs. 7.9.8 & 7.9.9) function on smoke detectors (read/write). Unable to establish from the spec if this is the design intent.

Note: Some of the “deviations” to the specification listed above could be perceived as typographical errors in the document and could be easily corrected.

# references

* 1000-SPC-0002-03 FIRE DETECTOR SPECIFICATION