# LUDLUM MODEL 2350-1
# DATA LOGGER
# COMMAND DESCRIPTIONS


**August 2016**

**Serial Number 126167 and Succeeding**

**Serial Numbers**


**CPU Firmware 37122N32**

**I/O Firmware 37123N05**

# LUDLUM MODEL 2350-1 DATA LOGGER COMMAND DESCRIPTIONS

**August 2016**

**Serial Number 126167 and Succeeding**

**Serial Numbers**

**CPU Firmware 37122N32**

**I/O Firmware 37123N05**

**LUDLUM MEASUREMENTS, INC**
501 OAK STREET, P.O. BOX 810
SWEETWATER, TEXAS 79556
325-235-5494, FAX: 325-235-4672

# STATEMENT OF WARRANTY

Ludlum Measurements, Inc. warrants the products covered in this manual to be free of defects due to workmanship, material, and design for a period of twelve months from the date of delivery. The calibration of a product is warranted to be within its specified accuracy limits at the time of shipment. In the event of instrument failure, notify Ludlum Measurements to determine if repair, recalibration, or replacement is required.

This warranty excludes the replacement of photomultiplier tubes, G-M and proportional tubes, and scintillation crystals which are broken due to excessive physical abuse or used for purposes other than intended.

There are no warranties, express or implied, including without limitation any implied warranty of merchantability or fitness, which extend beyond the description of the face there of.  If the product does not perform as warranted herein, purchaser's sole remedy shall be repair or replacement, at the option of Ludlum Measurements.  In no event will Ludlum Measurements be liable for damages, lost revenue, lost wages, or any other incidental or consequential damages, arising from the purchase, use, or inability to use product.

# RETURN OF GOODS TO MANUFACTURER

If equipment needs to be returned to Ludlum Measurements, Inc. for repair or calibration, please send to the address below.  All shipments should include documentation containing return shipping address, customer name, telephone number, description of service requested, and all other necessary information.  Your cooperation will expedite the return of your equipment.

**LUDLUM MEASUREMENTS, INC.**
**ATTN: REPAIR DEPARTMENT**
**501 OAK STREET**
**SWEETWATER, TX 79556**


**800-622-0828    325-235-5494**
**FAX 325-235-4672**

# TABLE OF CONTENTS

# TABLE OF CONTENTS

## 2. COMMANDS (cont.)

# TABLE OF CONTENTS

## 2. COMMANDS (cont.)

# SET COMMANDS AND THEIR
# RELATED READ COMMANDS

| Set Command | Page No. | Read Command | Page No. |
|:---:|:---:|:---:|:---:|
| D | 7 | RD | 17 |
| F | 8 | RF | 24 |
| G | 9 | RG | 24 |
| H | 9 | RH | 25 |
| I | 10 | RI | 25 |
| J | 10 | RJ | 26 |
| K | 11 | RK | 26 |
| L | 11 | RL | 27 |
| M | 12 | RM | 27 |
| N | 12 | RN | 27 |
| O | 13 | RO | 28 |
| P | 13 | RP | 29 |
| SAL | 41 | RCA | 15 |
| SB | 41 | RSB | 29 |
| SC | 42 | RSC | 30 |
| SD | 42 | RSD | 30 |
| SE | 43 | RSE | 30 |
| SID | 44 | RID | 25 |
| SL | 45 | RSL | 31 |
| SM | 46 | RSM | 31 |
| SNE | 46 | REN | 21 |
| SNI | 46 | RNI | 28 |
| SR | 48 | RSR | 33 |
| SSP | 51 | RSP | 32 |
| ST | 53 | RST | 35 |
| SU | 53 | RSU | 35 |
| SVC | 54 | RVC | 36 |
| SVM | 55 | RVM | 37 |
| SXG | 56 | RXG | 38 |
| SY | 56 | RSY | 36 |
| T | 57 | RT | 36 |
| W | 57 | RW | 38 |

# COMMANDS BY ACCESS LEVEL

| Level 1 | Pg No. | Level 1 | Pg No. | Level 2 | Pg No. |
|---|---|---|---|---|---|
| C | 7 | RSM | 31 | G | 9 |
| D | 7 | RSN | 32 | H | 9 |
| E | 8 | RSP | 32 | N | 12 |
| F | 8 | RSQ | 33 | SAD | 40 |
| I | 10 | RSR | 33 | SD | 42 |
| J | 10 | RSS | 34 | SE | 43 |
| K | 11 | RST | 35 | SIZ | 44 |
| L | 11 | RSU | 35 | SR | 48 |
| P | 13 | RSY | 36 | ST | 53 |
| Q | 14 | RT | 36 | **Level 3** | |
| RBV | 14 | RVC | 36 | M | 12 |
| RCA | 15 | RVM | 37 | O | 13 |
| RCB | 15 | RVR | 37 | REC | 18 |
| RCD | 16 | RVS | 37 | RED | 19 |
| RCI | 16 | RW | 38 | REF | 19 |
| RCR | 16 | RXG | 38 | REL | 20 |
| RCS | 17 | SAA | 39 | REM | 20 |
| RCT | 17 | SAL | 41 | REO | 21 |
| RD | 17 | SID | 44 | REP | 21 |
| REN | 21 | SNI | 46 | REQ | 22 |
| RF | 24 | SP | 47 | RES | 23 |
| RG | 24 | SQ | 47 | RET | 23 |
| RH | 25 | SSC | 49 | SAC | 39 |
| RI | 26 | SSE | 50 | SB | 41 |
| RID | 25 | SSF | 50 | SC | 42 |
| RIO | 26 | SSG | 50 | SHR | 43 |
| RJ | 26 | SSK | 50 | SKB | 44 |
| RK | 26 | SSP | 51 | SKD | 45 |
| RL | 27 | SSQ | 51 | SL | 45 |
| RM | 27 | SVC | 54 | SM | 46 |
| RN | 27 | SVD | 54 | SNE | 46 |
| RNI | 28 | SVL | 55 | SSB | 48 |
| RO | 28 | SVM | 55 | SSD | 49 |
| RP | 29 | SY | 56 | SSR | 52 |
| RR | 29 | X | 58 | SSS | 52 |
| RSB | 29 | Y | 58 | SU | 53 |
| RSC | 30 | Z | 58 | SXG | 56 |
| RSD | 30 | | | T | 57 |
| RSE | 30 | | | W | 57 |
| RSL | 31 | | | | |

# COMMANDS BY FUNCTION

| Set Commands | Page No. | Control Commands | Page No. |
|---|---|---|---|
| F | 8 | E | 8 |
| G | 9 | Q | 14 |
| H | 9 | SID | 44 |
| I | 10 | SIZ | 44 |
| J | 10 | SP | 47 |
| K | 11 | SSC | 49 |
| L | 11 | SSE | 50 |
| M | 12 | SSF | 50 |
| N | 12 | SSG | 50 |
| O | 13 | SSQ | 51 |
| P | 13 | SVD | 54 |
| SAA | 39 | SVL | 55 |
| SAC | 39 | X | 58 |
| SAD | 40 | Y | 58 |
| SAL | 41 | Z | 58 |
| SB | 41 | **Sub-Routine Commands** | |
| SC | 42 | SHR | 43 |
| SD | 42 | SKB | 44 |
| SE | 43 | SSB | 48 |
| SKD | 45 | SSD | 49 |
| SL | 45 | SSK | 50 |
| SM | 46 | SSS | 52 |
| SNE | 46 | **Read Commands** | |
| SNI | 46 | RBV | 14 |
| SQ | 47 | RCA | 15 |
| SR | 48 | RCB | 15 |
| SSP | 51 | RCD | 16 |
| SSR | 52 | RCI | 16 |
| ST | 53 | RCR | 16 |
| SU | 53 | RCS | 17 |
| SVC | 54 | RCT | 17 |
| SVM | 55 | RD | 17 |
| SXG | 56 | REC | 18 |
| SY | 56 | RED | 19 |
| T | 57 | REF | 19 |
| W | 57 | REL | 20 |
| **Control Commands** | | REM | 20 |
| C | 7 | REN | 21 |
| D | 7 | REO | 21 |

3

# COMMANDS BY FUNCTION

| Read Commands | Page No. | Read Commands | Page No. |
|---|---|---|---|
| REP | 21 | RSC | 30 |
| REQ | 22 | RSD | 30 |
| RES | 23 | RSE | 30 |
| RET | 23 | RSL | 31 |
| RF | 24 | RSM | 31 |
| RG | 24 | RSN | 32 |
| RH | 25 | RSP | 32 |
| RI | 25 | RSQ | 33 |
| RID | 25 | RSR | 33 |
| RIO | 26 | RSS | 34 |
| RJ | 26 | RST | 35 |
| RK | 26 | RSU | 35 |
| RL | 27 | RSY | 36 |
| RM | 27 | RT | 36 |
| RN | 27 | RVC | 36 |
| RNI | 28 | RVM | 37 |
| RO | 28 | RVR | 37 |
| RP | 29 | RVS | 37 |
| RR | 29 | RW | 38 |
| RSB | 29 | RXG | 38 |

# COMMANDS BY APPLICATION GROUP

# COMMANDS BY APPLICATION GROUP

# C

**FUNCTION:** Starts a scaler count

**SYNTAX:** C[ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** The scaler can be viewed on the Main Display (SVD0), Parameters Display (SVD1), Recycle Data Display (SVD5), or the Maximum Values Display (SVD7). When a scaler count is started, the scaler reading will go to zero and then the count will begin.

---

# D

**FUNCTION:** Recalls a stored detector setup as the active detector.

**SYNTAX:** D(x)[ENTER]
Where (x) equals some whole number from 0 - 15.

> **NOTE: When using this command the detector should be disconnected from the instrument to prevent possible damage due to the possible change in the high voltage setting**

**ACCESS LEVEL:** 1

**COMMENTS:** There is capacity for sixteen different detector setups. The primary detector number is shown on the Main Display (SVD0), Detector Display (SVD2), Alarm Display (SVD3), Recycle Data Display (SVD5), or the Maximum Values Display (SVD7).

# E

**FUNCTION:** Stops a scaler count in progress.

**SYNTAX:** E ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When executed this command will stop the scaler count in progress and the timer will reset to its original setting.

---

# F

**FUNCTION:** Sets the scaler count time.

**SYNTAX:** F(x) ENTER

Where (x) equals some whole number from 1 - 65,535 seconds.

**ACCESS LEVEL:** 1

**COMMENTS:** The scaler count time can be set at any point from 1 - 65,535 seconds in one second intervals. The scaler timer is shown on the Main Display (SVD0), Parameters Display (SVD1), Detector Display (SVD2), Recycle Data Display (SVD5), or the Maximum Values Display (SVD7).

# G

**FUNCTION:** Sets the ratemeter response time.

**SYNTAX:** G(x) [ENTER]
> Where (x) equals some whole number from 0 - 2.
>> 0 = Slow response
>> 1 = Fast response
>> 2 = Fixed response

**ACCESS LEVEL:** 2

**COMMENTS:** The Slow and Fast response times use a variable time constant that fluctuates based on the number of incoming counts. The fixed time constant is adjustable from 1 - 127 seconds in one second intervals. See related command SXG.

---

# H

**FUNCTION:** Sets the detector high voltage.

**SYNTAX:** H(x) [ENTER]
> Where (x) equals some whole number from 0 - 2500 volts.

**ACCESS LEVEL:** 2

**COMMENTS:** The voltage can be adjusted in one volt increments by using the "+" or "-" signs for the (x) value in place of a number. Each of the sixteen detector setups has its own high voltage setting. The current high voltage setting can be seen on the Parameters Display (SVD1), or the Detector Display (SVD2).

# I

**FUNCTION:** Sets the user identification code.

**SYNTAX:** I(x) ENTER

Where (x) equals some alphanumeric character string of up to 15 characters.

**ACCESS LEVEL:** 1

**COMMENTS:** The user ID is downloaded with the logged data. The current user ID is shown on the Parameters Display (SVD1), or the Logged Data Display (SVD4).

---

# J

**FUNCTION:** Sets the ratemeter alarm.

**SYNTAX:** J(x) ENTER

Where (x) equals some number from $10^{-30}$ - $10^{30}$ .

**ACCESS LEVEL:** 1

**COMMENTS:** The ratemeter alarm can be entered as a whole number or in exponential format. Each detector setup has its own ratemeter alarm setting. The alarm setting is shown or the Alarm Display (SVD3).

# K

**FUNCTION:** Sets the scaler alarm.

**SYNTAX:** K(x) [ENTER]
> Where (x) equals some number from 1 - 4294967295 counts.

**ACCESS LEVEL:** 1

**COMMENTS:** The scaler alarm can be entered as a whole number or in exponential format. Each detector setup has its own scaler alarm setting. The alarm setting is shown on the Alarm Display (SVD3).

---

# L

**FUNCTION:** Sets the location codes.

**SYNTAX:** L(a)(x) [ENTER]
> Where (a) = a whole number from 1 - 8
> For L1 - L7 (x) equals any alphanumeric string with up to 5 characters.
> For L8 (x) equals any number from 0 - 65535

**ACCESS LEVEL:** 1

**COMMENTS:** The location codes allow for up to 8 different location identifiers for each set of logged data. L1 - L7 can have a string of up to five alphanumeric characters to identify each point and L8 is a location coordinate.

# M

**FUNCTION:** Sets the detector model number.

**SYNTAX:** M(x) ENTER

Where (x) equals any alphanumeric string with up to 9 characters.

**ACCESS LEVEL:** 3

**COMMENTS:** Each detector setup has its own model number. The detector model number is shown on the Detector Display (SVD2).

---

# N

**FUNCTION:** Sets the detector serial number.

**SYNTAX:** N(x) ENTER

Where (x) equals any alphanumeric string with up to 9 characters.

**ACCESS LEVEL:** 2

**COMMENTS:** Each detector setup has its own detector serial number. The detector serial number is shown on the Detector Display (SVD2).

# O

**FUNCTION:** Sets the overload alarm.

**SYNTAX:** O(x) ENTER
  Where (x) equals any number from 0 - 400.

**ACCESS LEVEL:** 3

**COMMENTS:** The 0 - 400 range represents a current from 0 - 40 microamperes. To turn the overload on replace the number (x) with ON, to turn the overload off replace the number (x) with OFF. The overload can also be increased or decreased in increments of 0.1 by using a "+" or "-" for (x).

**EXAMPLES:**
  OON ENTER - Turns the overload alarm on
  OOFF ENTER - Turns the alarm off
  O+ ENTER - increases the alarm setting by 0.1 (29.0 to 29.1)
  O- ENTER - Decreases the alarm setting by 0.1 (29.0 to 28.9)

---

# P

**FUNCTION:** Sets the integrated dose alarm.

**SYNTAX:** P(x) ENTER
  Where (x) equals some number from $10^{-30}$ - $10^{30}$ .

**ACCESS LEVEL:** 1

**COMMENTS:** The integrated dose alarm can be entered as a whole number or in exponential format. Each detector setup has its own integrated dose alarm setting. The alarm setting is shown or the Alarm Display (SVD3).

# Q

**FUNCTION:** Logs a ratemeter, scaler, or integrated dose count.

**SYNTAX:** Q(x) |ENTER|
Where (x) equals a number from 0 - 2 .
0 = ratemeter
1 = scaler
2 = integrated dose

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is given the appropriate count is logged and the instrument automatically increments to the next sample number. If the data logging memory is full the message FULL will display in place of the sample number.

# RBV

**FUNCTION:** Reads the instrument battery voltage.

**SYNTAX:** RBV |ENTER|

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed, a number from 0 - 6.2 will display on the keypad display or computer screen. This number represents the actual battery voltage in volts. A reading of 4.4 volts or less indicates the endpoint of the batteries and they should be changed.

# RCA

**FUNCTION:** Reads the Current access level setting.

**SYNTAX:** RCA [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 3 will display on the keypad display or computer screen.
      1 - Allows access to user commands only
      2 - Allows control of some intermediate commands (date, time, etc.)
      3 - Allows for full control of the instrument

---

# RCB

**FUNCTION:** Reads the ratemeter bar graph count.

**SYNTAX:** RCB [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - $10e^{-30}$ cps will display on the keypad display or computer screen.

# RCD

**FUNCTION:** Reads the integrated dose elapsed time.

**SYNTAX:** RCD ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 64768 minutes will display on the keypad display or computer screen.

---

# RCI

**FUNCTION:** Reads the integrated dose counter.

**SYNTAX:** RCI ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from $10^{-30}$ - $10^{30}$ will display on the keypad display or computer screen. The unit of measure is the same as the ratemeter.

---

# RCR

**FUNCTION:** Reads the ratemeter.

**SYNTAX:** RCR ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed the ratemeter reading will display on the keypad display or computer screen. The number displayed may be different from the one on the instrument display because the instrument display is updated every two seconds, while a reading is taken twice a second.

# RCS

**FUNCTION:** Reads the scaler count.

**SYNTAX:** RCS [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed the scaler count displays on the keypad display or computer screen. The instrument display has a maximum display of 999999 counts but the actual count, accurate to ten digits will display on the keypad display or computer screen.

# RCT

**FUNCTION:** Reads the remaining scaler count time.

**SYNTAX:** RCT [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 65535 seconds is displayed on the keypad display or computer screen.

# RD

**FUNCTION:** Reads the detector number of the active detector setup.

**SYNTAX:** RD [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 15 will display on the keypad display or computer screen.

# REC

**FUNCTION:** Reads all of the detector setups in binary format.

**SYNTAX:** REC ENTER

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed a binary string of 848 bytes is dumped. The keypad will not read this correctly so the instrument should be connected to a computer or other device that is capable of reading 8 bit binary data with values ranging from 0 - 255. The data represents the detector setups in the following order:

| # OF STRINGS | STRING | STRING LENGTH |
|---|---|---|
| 16 | Model number | 10 (characters) |
| 16 | Serial number | 10 (characters) |
| 16 | Display units | 2 (integer) |
| 16 | Range multiplier | 2 (integer) |
| 16 | Time base | 2 (integer) |
| 16 | High voltage | 2 (integer) |
| 16 | Window | 2 (integer) |
| 16 | Scaler count time | 2 (integer) |
| 16 | Threshold | 2 (integer) |
| 16 | Calibration constant | 4 (float) |
| 16 | Dead time | 4 (float) |
| 16 | Ratemeter alarm | 4 (float) |
| 16 | Low ratemeter alarm | 4 (float) |
| 16 | Scaler alarm | 4 (float) |
| 16 | Integrated dose alarm | 4 (float) |
| 16 | Overload alarm | 2 (integers) |

# RED

**FUNCTION:** Reads the active detector setup parameters.

**SYNTAX:** RED ENTER

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed, all parameters of the current detector setup are displayed in ASCII format in the following order:

| | |
|---|---|
| Detector setup number | Model number |
| Serial number | Units |
| Range | Time base |
| High voltage | Window |
| Count time | Threshold |
| Calibration constant | Dead time |
| Ratemeter alarm | Low ratemeter alarm |
| Scaler alarm | Integrated dose alarm |
| Overload alarm | |

---

# REF

**FUNCTION:** Reads all of the detectors parameters .

**SYNTAX:** REF ENTER

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed all sixteen detector setups are displayed in fixed length ASCII format.

# REL

**FUNCTION:** Reads the logged memory (ASCII).

**SYNTAX:** REL ENTER

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed all of the logged data is dumped as a series of strings. Each sample is separated by a $ sign. At 9600 baud all 1000 samples will be dumped in about three minutes.

| | |
|---|---|
| I.D. Number | Sample Number |
| Location Code | Month |
| Day | Year |
| Hour | Minute |
| Detector Number | Logged Count |
| Scaler Count Time | Logging Mode |
| Instrument Status | |

# REM

**FUNCTION:** Reads the logged memory (formatted).

**SYNTAX:** REM ENTER

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed all of the logged data is dumped in a formatted series of strings with commas separating each variable in the string. This command is useful when data is being dumped to a printer. Data is presented in the following format:

Logged data from Model 2350-1 serial number 123456
User I.D:

| | | | |
|---|---|---|---|
| Sample # | ,Location Code | , Month | , Day , |
| Year | , Hours | , Minutes | ,Detector Setup#, |
| Logged Reading | , Count time | , Logging Mode | , M2350-1 status |

# REN

**FUNCTION:** Reads the instrument serial number.

**SYNTAX:** REN [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 999999 will show on the keypad display or computer screen.

---

# REO

**FUNCTION:** Reads the logged data with all location code identifiers.

**SYNTAX:** REO [ENTER]

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed the logged data is dumped to the serial port with all eight location code identifiers, and the time down to a 2 second interval.

---

# REP

**FUNCTION:** Reads the logged data with all location code identifiers.

**SYNTAX:** REP [ENTER]

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed the logged data is dumped to the serial port with all eight location code identifiers.

# REQ

**FUNCTION:** Reads the logged memory (binary).

**SYNTAX:** REQ ENTER

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed all of the logged data is dumped in a binary string. The keypad will not read this correctly so the instrument should be connected to a computer or other device that is capable of reading 8 bit binary data with values ranging from 0 - 255.

| # OF STRINGS | STRING | STRING LENGTH |
|---|---|---|
| 1 - 1000 | Location code | 10 characters |
| 1 - 1000 | Log time | 2 integer |
| 1 - 1000 | Log count data | 4 float |
| 1 - 1000 | Scaler count time | 2 integer |
| 1 - 1000 | Logging mode & detector number | 1 character |
| 1 - 1000 | Instrument status | 1 character |
| 1 - 10 | Sample no. of date change | 2 integer |
| 1 - 10 | Month | 1 character |
| 1 - 10 | Day | 1 character |
| 1 - 10 | Year | 1 character |

# RES

**FUNCTION:** Reads the logged memory (ASCII).

**SYNTAX:** RES ENTER

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed all of the logged data is dumped in a formatted series of strings with commas separating each variable in the string. This command differs from REL in that the time stamp is to the nearest 2 seconds instead of the nearest minute. This command is useful when data is being dumped to a printer. Each sample is separated by a carriage return and a line feed. The strings are formatted as follows:

> I.D. Number, Sample Number, Location Code, Month, Day, Year, Hour, Minute, Second, Detector Number, Logged Count, Scaler Count Time, Logging Mode, Instrument Status

---

# RET

**FUNCTION:** Reads the logged memory (formatted).

**SYNTAX:** RET ENTER

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed all of the logged data is dumped in a formatted series of strings with commas separating each variable in the string. This command is useful when data is being dumped to a printer. Data is presented in the following format:

## 2. COMMANDS

Logged data from Model 2350-1 serial number 123456
User I.D:

| Sample # | ,Location Code | , Month | , Day | , |
| Year | , Hours | , Minutes | ,Seconds | , |
| Detector Setup# | ,Logged Reading | , Count time | , Logging Mode | , |
| M2350-1 status | , | | | |

# RF

**FUNCTION:** Reads the scaler count time.

**SYNTAX:** RF ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 65535 seconds will show on the keypad display or computer screen. The scaler count time is shown on the Main Display (SVD0), Parameters Display (SVD1), Detector Display (SVD2), Recycle Data Display (SVD5), and the Maximum Values Display (SVD7).

# RG

**FUNCTION:** Reads the ratemeter response time.

**SYNTAX:** RG ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 2 will show on the keypad display or computer screen.

        0 = Slow response
        1 = Fast response
        2 = Fixed response

The ratemeter response time is shown on the Detector Display (SVD2).

# RH

**FUNCTION:** Reads the detector high voltage setting.

**SYNTAX:** RH ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 2500 volts will show on the keypad display or computer screen. The detector high voltage is shown on the Parameters Display (SVD1), and Detector Display (SVD2).

---

# RI

**FUNCTION:** Reads the user identification code.

**SYNTAX:** RI ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed an alphanumeric string of up to 15 characters will show on the keypad display or computer screen. The user I.D. is shown on the Parameters Display (SVD1), and the Logged Data Display (SVD4).

---

# RID

**FUNCTION:** Reads the integrated dose on/off status.

**SYNTAX:** RID ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 1 will show on the keypad display or computer screen.
0 = Off        1 = ON

# RIO

**FUNCTION:** Reads the I/O board firmware number.

**SYNTAX:** RIO ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed the number of the firmware is shown on the keypad display or computer screen.

---

# RJ

**FUNCTION:** Reads the ratemeter alarm setting.

**SYNTAX:** RJ ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from $10e^{-30}$ - $10e^{30}$ shows on the keypad display or computer screen. Each detector setup has its own ratemeter alarm setting.

---

# RK

**FUNCTION:** Reads the scaler alarm setting.

**SYNTAX:** RK ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 1 - 4294967295 shows on the keypad display or computer screen. Each detector setup has its own scaler alarm setting.

# RL

**FUNCTION:** Reads the location code.

**SYNTAX:** RL [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed an alphanumeric string of up to ten characters will be displayed on the keypad display or computer screen.

---

# RM

**FUNCTION:** Reads the detector model number.

**SYNTAX:** RM [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed an alphanumeric string of up to nine characters is displayed on the keypad display or computer screen.

---

# RN

**FUNCTION:** Reads the detector serial number.

**SYNTAX:** RN [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed an alphanumeric string of up to nine characters is displayed on the keypad display or computer screen.

# RNI

**FUNCTION:** Reads the L8 location code auto-increment value.

**SYNTAX:** RNI ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 2500 will display on the keypad display or computer screen. This number represents the value by which the L8 number will change when set up to increment automatically when data is logged.

---

# RO

**FUNCTION:** Reads the overload alarm setting.

**SYNTAX:** RO ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 400 is displayed on the keypad display or computer screen. Along with this number there is another number from 0 - 1. This number identifies if the alarm is on or off.

<div align="center">

0 = Off

1 - On

</div>

The number from 0 - 400 is a representation of the alarm setting in microamperes from 0 - 40. The alarm can be adjusted in tenths of a microampere.

# RP

**FUNCTION:** Reads the integrated dose alarm setting.

**SYNTAX:** RP $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from $10e^{-30}$ - $10e^{30}$ counts shows on the keypad display or computer screen. Each detector setup has its own integrated dose alarm setting.

---

# RR

**FUNCTION:** Reads the raw counts from the detector.

**SYNTAX:** RR $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed the detector count rate is displayed on the keypad display or computer screen.

---

# RSB

**FUNCTION:** Reads the ratemeter time base setting.

**SYNTAX:** RSB $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 2 will display on the keypad display or computer screen. Each detector setup has its own ratemeter time base setting.

$$0 = \text{seconds}$$
$$1 = \text{minutes}$$
$$2 = \text{hours}$$

# RSC

**FUNCTION:** Reads the calibration constant.

**SYNTAX:** RSC ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from $10^{-30}$ - $10^{30}$ shows on the keypad display or computer screen. Each detector setup has its own calibration constant.

# RSD

**FUNCTION:** Reads the date.

**SYNTAX:** RSD ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed the date is displayed on the keypad display or computer screen.

# RSE

**FUNCTION:** Reads which counters are being displayed.

**SYNTAX:** RSE ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 7 is displayed on the keypad display or computer screen.

    0 = All counters off
    1 = Ratemeter only
    2 = Scaler only
    3 = Ratemeter and scaler
    4 = Integrated dose only
    5 = Ratemeter and integrated dose
    6 = Scaler and integrated dose
    7 = All counters on

# RSL

**FUNCTION:** Reads the dead time constant.

**SYNTAX:** RSL ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from $10^{-12}$ - 1 seconds shows on the keypad display or computer screen. Each detector setup has its own dead time constant setting.

# RSM

**FUNCTION:** Reads the ratemeter multiplier setting.

**SYNTAX:** RSM ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 7 displays on the keypad display or computer screen. Each detector setup has its own ratemeter multiplier setting.

0 = Auto ranging
1 = micro
2 = (m)illi
3 = None
4 = (k)ilo
5 = (M)ega
6 = (G)iga
7 = (T)era

# RSN

**FUNCTION:** Reads the central processor (CP) firmware number.

**SYNTAX:** RSN ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed the firmware number for the CP board is displayed on the keypad display or computer screen.

---

# RSP

**FUNCTION:** Reads the optional pushbutton logging operation.

**SYNTAX:** RSP ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 2 will display on the keypad display or computer screen.

    0 - Logs a ratemeter count
    1 - Logs a scaler count
    2 - Logs a integrated dose count

# RSQ

**FUNCTION:** Reads a count from a recycle.

**SYNTAX:** RSQ [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a series of numbers formatted in the following manner display on the keypad display or computer screen.

$$w, x, y, z$$

$w$ = Cycle number (1 - 6)
$x$ = Detector number (0 - 15)
$y$ = Delay in seconds (0 - 65535)
$z$ = Logging mode (0 - 2)
    0 = Logs a ratemeter count
    1 = Logs a scaler count
    2 = Logs a integrated dose count

# RSR

**FUNCTION:** Reads the number of active sub-cycles in a recycle.

**SYNTAX:** RSR [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 1 - 6 will display on the keypad display or computer screen.

# RSS

**FUNCTION:** Reads a instrument alarm status.

**SYNTAX:** RSS(x) |ENTER|
Where (x) is a number from 0 - 1
0 = status byte 1
1 = status byte 2

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 255 is displayed on the keypad display or computer screen. To interpret the value returned the user must convert the number to its 8 bit binary format with bit 0 being the least significant digit.

| (x) = 0 | (x) = 1 |
|---|---|
| Bit 0 = Ratemeter alarm | Bit 0 = Ratemeter alarm |
| Bit 1 = Scaler alarm | Bit 1 = Scaler Alarm |
| Bit 2 = Integrated dose alarm | Bit 2 = Integrated dose alarm |
| Bit 3 = Scaler overflow alarm | Bit 3 = Low ratemeter alarm |
| Bit 4 = ID overflow alarm | Bit 4 = ID overflow alarm |
| Bit 5 = Low battery alarm | Bit 5 = Low battery alarm |
| Bit 6 = Overrange alarm | Bit 6 = Overrange alarm |
| Bit 7 = Overload alarm | Bit 7 = Overload alarm |

**EXAMPLE:** The user executes the command RSS and the number 154 is displayed. The binary equivalent of the number 154 is 10011010. When compared to the chart where (x) = 0 and starting with the least significant digit the alarm status is as follows:

| | |
|---|---|
| Ratemeter alarm - | No |
| Scaler alarm - | Yes |
| ID alarm - | No |
| Scaler overflow alarm - | Yes |
| ID overflow alarm - | Yes |
| Low battery alarm - | No |
| Overrange alarm - | No |
| Overload alarm - | Yes |

# RST

**FUNCTION:** Reads the time.

**SYNTAX:** RST [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed the time is displayed on the keypad display or computer screen in twenty-four hour format.

---

# RSU

**FUNCTION:** Reads the ratemeter and integrated dose units.

**SYNTAX:** RSU [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 9 is displayed on the keypad display or computer screen.

$$0 = (r)ad$$
$$1 = (G)ray$$
$$2 = rem$$
$$3 = Sv$$
$$4 = R$$
$$5 = C/kg$$
$$6 = (d)isintegrations$$
$$7 = (c)ounts$$
$$8 = Ci/cm^2$$
$$9 = Bq/cm^2$$

# RSY

**FUNCTION:** Reads the number of recycles setpoint.

**SYNTAX:** RSY $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 999 is displayed on the keypad display or computer screen.

---

# RT

**FUNCTION:** Reads the detector threshold setting.

**SYNTAX:** RT $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 1000 is displayed on the keypad display or computer screen. The threshold setting is shown on the Parameters Display (SVD1), and the detector Display (SVD2).

---

# RVC

**FUNCTION:** Reads the low ratemeter alarm setting.

**SYNTAX:** RVC $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from $10^{-30}$ - $10^{30}$ is displayed on the keypad display or computer screen.

# RVM

**FUNCTION:** Reads the Maximum values latching mode.

**SYNTAX:** RVM [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 0 - 1 is displayed on the keypad display or computer screen.
0 = Latching mode off
1 = Latching mode on

---

# RVR

**FUNCTION:** Reads the maximum ratemeter value.

**SYNTAX:** RVR [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from $10^{-30}$ - $10^{30}$ is displayed on the keypad display or computer screen representing the maximum ratemeter reading.

---

# RVS

**FUNCTION:** Reads the maximum scaler reading.

**SYNTAX:** RVS [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a number from 1 - 4294967295 counts is displayed on the keypad display or computer screen representing the maximum scaler reading.

# RW

**FUNCTION:** Reads the detector window setting.

**SYNTAX:** RW ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a set of numbers (x,y) are displayed on the keypad display or computer screen.
x = Window setting; any number from 0 - 1000
y = 0; Window is OFF
y = 1; Window is ON

# RXG

**FUNCTION:** Reads the ratemeter response time.

**SYNTAX:** RXG ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed one of the following responses will be displayed on the keypad display or computer screen.

If the response time is set to FAST or SLOW the response to the command is "VARIABLE"

If the response time is fixed the response to the command will be a number from 1 - 127 seconds

# SAA

**FUNCTION:** Sets the access level and security codes to their default values.

**SYNTAX:** SAA(x) |ENTER|
Where (x) is the current security code
x = Any number from 0 - 65535

**ACCESS LEVEL:** 1

**COMMENTS:** The security code is set to 0 and the access level is set to 3. The current security code must be entered for the command to be executed.

---

# SAC

**FUNCTION:** Sets the security code.

**SYNTAX:** SAC(x) |ENTER|
Where (x) = any number from 0 - 65535

**ACCESS LEVEL:** 3

**COMMENTS:** The security code is available to prevent unauthorized access level changes. When the security code is changed the command verification display will appear.

# SAD

**FUNCTION:** Sets and starts an auto dump.

**SYNTAX:** SAD(x, y, z) [ENTER]
Where:
        (x) = any number from 0 - 1
                0 = Auto dump model off
                1 = Auto dump mode on
        (y) = any number from 1 - 10
            1 = Ratemeter dump
            2 = Scaler dump
            3 = Ratemeter & scaler dump
            4 = Integrated dose dump
            5 = Ratemeter & integrated dose dump
            6 = Scaler & integrated dose dump
            7 = Ratemeter, scaler, & integrated dose dump
            8 = Raw cps dump
            9 = Ratemeter & raw cps dump
            10 = Scaler
        (z) = Any number from 1 - 65535 seconds

**ACCESS LEVEL:** 2

**COMMENTS:** The numbers x y and z are separated by a space. There is no space between the command and the number x. Scaler dump # 2 differs from scaler dump #10 in that it is set so that a reading is dumped according to the time z. Scaler dump #10 is set to dump only after a scaler count is complete and the time z has expired.

# SAL

**FUNCTION:** Sets the access level.

**SYNTAX:** SAL(x) ( y) ENTER
Where (x) = any number from 1 - 3
(y) = the user security code

**ACCESS LEVEL:** 1

**COMMENTS:** When entering the command there is no space between the command and the access level number. There is, however, a space between the access level and the security code.

# SB

**FUNCTION:** Sets the ratemeter time base.

**SYNTAX:** SB(x) ENTER
Where (x) = any number from 0 - 2
0 = seconds
1 = minutes
2 = hours

**ACCESS LEVEL:** 3

**COMMENTS:** When executed this command sets the ratemeter time base to seconds, minutes, or hours.

# SC

**FUNCTION:** Sets the calibration constant.

**SYNTAX:** SC(x) [ENTER]
Where (x) = any number from $10^{-30}$ - $10^{30}$

**ACCESS LEVEL:** 3

**COMMENTS:** A separate calibration constant is stored with each detector setup. Calibration constant settings are shown on the Detector Display (SVD2).

---

# SD

**FUNCTION:** Sets the date.

**SYNTAX:** SD(x) [ENTER]
Where (x) = the date in mm/dd/yy or mm-dd-yy format.

**ACCESS LEVEL:** 2

# SE

**FUNCTION:** Sets which counters are displayed.

**SYNTAX:** SE(x) | ENTER |
        Where (x) = a number from 0 - 7
                0 = All counters off
                1 = Ratemeter only
                2 = Scaler only
                3 = Ratemeter and scaler
                4 = Integrated dose only
                5 = Ratemeter and integrated dose
                6 = Scaler and integrated dose
                7 = All counters on

**ACCESS LEVEL:** 2

**COMMENTS:** All counters are displayed on the Main Display (SVD0). All counters are still active regardless of whether they are displayed or not.

---

# SHR

**FUNCTION:** Starts the high voltage ramp routine.

**SYNTAX:** SHR(x) | ENTER |
        Where (x) = any number from 0 - 1
                0 = Results will not dump to serial port
                1 = Results will dump to serial port

**ACCESS LEVEL:** 3

**COMMENTS:** This routine is ideal for running plateaus or peaking a detector for a particular isotope. For detailed instructions on operating the routine please look in the Calibration Routines section of the Routines, Parts List, and Schematic Manual.

# SID

**FUNCTION:** Turns the integrated dose counter on or off.

**SYNTAX:** SID(x) |ENTER|
   Where (x) = a number from 0 - 1
      0 = Integrated dose counter off
      1 = Integrated dose counter on

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed it will either enable or disable the counter completely. When turned off the integrated dose counter will not accumulate counts or time.

---

# SIZ

**FUNCTION:** Resets the integrated dose counter to zero.

**SYNTAX:** SIZ |ENTER|

**ACCESS LEVEL:** 2

**COMMENTS:** When this command is executed the integrated dose counter and timer is reset to zero. All integrated dose alarms are set to zero as well.

---

# SKB

**FUNCTION:** Starts the cal constant and dead time routines with background subtract.

**SYNTAX:** SKB |ENTER|

**ACCESS LEVEL:** 3

**COMMENTS:** This routine uses the hi-lo method. For more information on this routine please see the calibration routines section of the Routines, Parts List, and Schematics Manual.

# SKD

**FUNCTION:** Sets the current detector setup to default values.

**SYNTAX:** SKD [ENTER]

**ACCESS LEVEL:** 3

**COMMENTS:** All detector parameters for the active detector setup are reset to their default values. These values are as follows:

| | |
|---|---|
| Model = (blank) | Threshold = 100 |
| Serial number = (blank) | Cal. constant = 1.000000e+00 |
| Display units = 7 | Dead time = 0.000000e+00 |
| Display multiplier = 0 | Ratemeter Alarm = $10^9$ |
| Display time base = 0 | Low ratemeter alarm = 0 |
| High voltage = 0 | Scaler alarm = $10^6$ |
| Window = 1000, OFF | Integrated dose alarm = $10^9$ |
| Scaler count time = 10 | Overload alarm = 400, OFF |

# SL

**FUNCTION:** Sets the detector dead time.

**SYNTAX:** SL(x) [ENTER]
Where (x) = any number from $10^{-12}$ - 1

**ACCESS LEVEL:** 3

**COMMENTS:** To turn the dead time correction off, set the value to zero. Each detector setup has its own dead time correction factor. The dead time setting is shown on the Detector Display (SVD2).

# SM

**FUNCTION:** Sets the ratemeter multiplier.

**SYNTAX:** SM(x) ENTER
Where (x) = A number from 0 - 7
      0 = Auto ranging     1 = micro
      2 = (m)illi         3 = None
      4 = (k)ilo         5 = (M)ega
      6 = (G)iga        7 = (T)era

**ACCESS LEVEL:** 3

**COMMENTS:** A separate ratemeter multiplier stores with each detector setup. If a fixed range is selected and the rate goes above that range then the ratemeter display will read 999 and EEEE will alternate with it at one second intervals.

---

# SNE

**FUNCTION:** Enters the instrument serial number into memory.

**SYNTAX:** SNE(x) ENTER
Where (x) = any number from 0 - 999999

**ACCESS LEVEL:** 3

---

# SNI

**FUNCTION:** Sets the L8 location code auto-increment value.

**SYNTAX:** SNI(x) ENTER
Where (x) = any number from 0 - 2500

**ACCESS LEVEL:** 1

**COMMENTS:** This number sets the amount that the L8 coordinate increases after a data point is logged.

# SP

**FUNCTION:** Saves a detector setup.

**SYNTAX:** SP(x) | ENTER |
    Where (x) = a number from 0 - 15

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a new or altered detector setup is saved to battery backed memory.

---

# SQ

**FUNCTION:** Sets up a recycle configuration.

**SYNTAX:** SQ(w x y z) | ENTER |
    Where (w) = cycle number; any number from 1 - 6
        (x) = detector number; any number from 0 - 15
        (y) = delay between recycles; any number from
            0 - 65535 seconds.
        (z) = logging mode; any number from 0 - 2
            0 = log ratemeter
            1 = log scaler
            2 = log integrated dose
    Syntax Example:  SQ1 1 3300 1
                   (w)(x) (y)  (z)

**ACCESS LEVEL:** 1

**COMMENTS:** There are six different count routines available in a recycle setup. This command is used in conjunction with SR to setup the proper number of routines. There is no space between the variable (w) and the command however there are spaces between the (w x y z) variables. The Recycle Setup Display is (SVD6).

# SR

**FUNCTION:** Sets the number of count routines in a recycle mode.

**SYNTAX:** SR(x) $\boxed{\text{ENTER}}$
   Where (x) = a number from 1 - 6.

**ACCESS LEVEL:** 2

**COMMENTS:** This command is used in conjunction with SQ to set up a recycle routine. A recycle routine can perform from one to six different count subroutines.

---

# SSB

**FUNCTION:** Starts a single point cal routine w/background subtract.

**SYNTAX:** SSB $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed a single point routine will be performed to determine the calibration constant of a detector. Execution and operation of this routine is explained further in the Calibration routines section of the Routines, Parts List, and Schematics Manual.

# SSC

**FUNCTION:** Clears all logged data memory.

**SYNTAX:** SSC $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 1

**COMMENTS:** This command will erase all logged data from the memory. Before this command is executed a verification screen will display requiring the user to answer yes or no to executing the command.

---

### WARNING
When this command is executed all logged data will be erased.

---

# SSD

**FUNCTION:** Initiates a dead time calibration routine with background subtract.

**SYNTAX:** SSD $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed a dead time calibration routine will be performed to determine the dead time of a detector. Execution and operation of this routine is explained further in the Calibration routines section of the Routines, Parts List, and Schematics Manual.

# SSE

**FUNCTION:** Stops a recycle routine in progress.

**SYNTAX:** SSE [ENTER]

**ACCESS LEVEL:** 1

# SSF

**FUNCTION:** Activates a recycle routine.

**SYNTAX:** SSF [ENTER]

**ACCESS LEVEL:** 1

# SSG

**FUNCTION:** Restarts a stopped recycle routine.

**SYNTAX:** SSG [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** This command will resume a recycle routine at the point it was stopped.

# SSK

**FUNCTION:** Initiates a cal constant / dead time calibration routine.

**SYNTAX:** SSK [ENTER]

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed a cal constant / dead time calibration routine will be performed to determine the calibration constant and dead time of a detector. This routine does not use background subtract. Execution and operation of this routine is explained further in the Calibration routines section of the Routines, Parts List, and Schematics Manual.

# SSP

**FUNCTION:** Sets up the logging operation of the optional pushbutton.

**SYNTAX:** SSP(x) ENTER
Where (x) = a number from 0 - 2
0 = logs a ratemeter count
1 = logs a scaler count
2 = logs an integrated dose count

**ACCESS LEVEL:** 1

**COMMENTS:** This command sets up the logging operation of an optional pushbutton that is connected to the serial port of the instrument once the instrument is setup.

# SSQ

**FUNCTION:** Simulates the optional pushbutton logging operation.

**SYNTAX:** SSQ ENTER

**ACCESS LEVEL:** 1

**COMMENTS:** When this command is executed the instrument will log a count based on the setting of the command SSP(x).

# SSR

**FUNCTION:** Initiates a cold start of the instrument.

**SYNTAX:** SSR $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed the instrument memory is cleared and all parameters are set at their default values. The security code is set to 0 and the access level is set to 1. A verification screen will appear prompting a user to make sure that this command is to be executed.

---

> # WARNING
> When this command is executed all detector parameters and logged data will be erased.

---

# SSS

**FUNCTION:** Initiates a single point calibration routine.

**SYNTAX:** SSS $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 3

**COMMENTS:** When this command is executed a single point calibration routine will be performed to determine the calibration constant of a detector. This routine does not use background subtract. Execution and operation of this routine is explained further in the Calibration routines section of the Routines, Parts List, and Schematics Manual.

# ST

**FUNCTION:** Sets the time.

**SYNTAX:** ST(hh:mm) ENTER

**ACCESS LEVEL:** 2

**COMMENTS:** The time is set in twenty four hour format.

---

# SU

**FUNCTION:** Sets the ratemeter and integrated dose display units.

**SYNTAX:** SU(x) ENTER
Where (x) = a number from 0 - 9
- 0 = rad (r)
- 1 = Gray (G)
- 2 = rem
- 3 = Sv
- 4 = R
- 5 = C/kg
- 6 = disintegrations (d)
- 7 = counts (c)
- 8 = Ci/cm²
- 9 = Bq/cm²

**ACCESS LEVEL:** 3

**COMMENTS:** The display units setting is shown on the Detector Display (SVD2). Each detector setup has its own display units setting.

## 2. COMMANDS

# SVC

**FUNCTION:** Sets the low ratemeter alarm. (used as a detector fail alarm)

**SYNTAX:** SVC(x) [ENTER]
Where (x) = any number from $10^{-30}$ - $10^{30}$

**ACCESS LEVEL:** 1

**COMMENTS:** To turn the alarm off, set it to 0. Each detector setup has its own alarm setting. The low ratemeter alarm is shown on the Alarm Display (SVD3). This alarm is activated when the ratemeter count drops below the alarm setting. The low ratemeter alarm is useful, for example when using gas proportional detectors to identify when the counts drop off due to gas flow or detector failure. When the ratemeter is reset this alarm is disabled for 30 seconds to help prevent a false alarm.

---

# SVD

**FUNCTION:** Selects the display to be viewed.

**SYNTAX:** SVD(x) [ENTER]
Where (x) = a number from 0 - 7
- 0 = Normal display
- 1 = Parameters display
- 2 = Detector display
- 3 = Alarm display
- 4 = Logged data display
- 5 = Recycle data display
- 6 = Recycle setup display
- 7 = Maximum values display

**ACCESS LEVEL:** 3

# SVL

**FUNCTION:** Selects a logged sample to be viewed.

**SYNTAX:** SVL(x) $\boxed{\text{ENTER}}$
Where (x) = a number from 0 - 999

**ACCESS LEVEL:** 1

**COMMENTS:** This command is used to view the various logged samples. If several samples in a row are going to be viewed the sample number (x) can be replaced with a "+" or "-". This will allow the user to scroll forward or backward through the samples. When scrolling through samples the display will return to sample "0" after the last sample stored is viewed. Logged data is shown on the Logged Data Display (SVD4).

---

# SVM

**FUNCTION:** Activated or deactivates the maximum value latching mode.

**SYNTAX:** SVM(x) $\boxed{\text{ENTER}}$
Where (x) = a number from 0 - 6
        0 = Latching mode off
        1 = Latching mode on
        2 = Zeros ratemeter$^{max}$ and scaler$^{max}$ readings
        3 = Zeros ratemeter$^{max}$ reading
        4 = Zeros scaler$^{max}$ reading
        5 = Zeros scaler$^{max}$ and scaler readings
        6 = Zeros ratemeter$^{max}$, scaler$^{max}$, and scaler readings

**ACCESS LEVEL:** 1

**COMMENTS:** The maximum values are shown on the Maximum Values Display (SVD7). If the latching mode is on the words "LATCHING VALUES" replace the maximum values identifier.

# SXG

**FUNCTION:** Sets the fixed response time constant.

**SYNTAX:** SXG(x) ENTER
Where (x) = a number from 1 - 127 seconds

**ACCESS LEVEL:** 3

**COMMENTS:** This command is used when the response time set by command G is fixed; i.e. G(2).

---

# SY

**FUNCTION:** Sets the number of recycles in a recycle routine.

**SYNTAX:** SY(x) ENTER
Where (x) = a number from 0 - 999

**ACCESS LEVEL:** 1

**COMMENTS:** This maximum allowed setting will depend on how many count subroutines there are in a recycle routine. If there is only one count being taken then the number of recycles can be as many as 999. If there is more that one count subroutine then the maximum number of recycles is 999 divided by the number of subroutines being done.

# T

**FUNCTION:** Sets the detector threshold.

**SYNTAX:** T(x) [ENTER]
      Where (x) = a number from 0 - 1000

**ACCESS LEVEL:** 3

**COMMENTS:** The threshold setting can be increased or decreased from its current setting in increments of "1" by replacing the (x) value with a "+" or "-" instead of a number. The threshold setting is shown on the Parameters Display (SVD1), and the Detector Display (SVD2). Each detector setup has its own threshold setting.

# W

**FUNCTION:** Sets the detector window setting.

**SYNTAX:** W(x) [ENTER]
      Where (x) = a number from 0 - 1000

**ACCESS LEVEL:** 3

**COMMENTS:** The window setting can be increased or decreased from its current setting in increments of "1" by replacing the (x) value with a "+" or "-" instead of a number. It can also be turned on or off by replacing the number (x) with "ON" or "OFF". The window setting is shown on the Parameters Display (SVD1), and the Detector Display (SVD2). Each detector setup has its own window setting.

# X

**FUNCTION:** Resets  an active alarm.

**SYNTAX:** X $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 1

---

# Y

**FUNCTION:** Resets the audio only after an alarm.

**SYNTAX:** Y $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 1

**COMMENTS:** There is also an alarm acknowledge pushbutton on the front panel of the instrument that does the same thing as this command.

---

# Z

**FUNCTION:** Zeros the ratemeter.

**SYNTAX:** Z $\boxed{\text{ENTER}}$

**ACCESS LEVEL:** 1

COMMENTS: This command also resets the ratemeter alarm, and the ratemeter$^{max}$ reading.