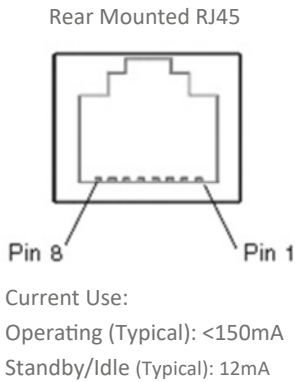


Electrical and Communication Connections:

The DSE starter kit needs to be powered with 5V DC, through the serial adapter boards’ RJ45 connection. This connection also provides RS232 communications. The default communication parameters are 9600 Baud, No Parity, 8 Data Bits, 1 Stop bit. Please follow the below diagram if making your own cable:

DSE STK RJ45 Cable connection

| PIN | Connection |
|-----|------------|
| 1   | RTS        |
| 2   | HW_TRIGGER |
| 3   | GND        |
| 4   | RXD        |
| 5   | TXD        |
| 6   | +5VDC      |
| 7   | POWER_ON   |
| 8   | CTS        |



A recommended accessory power and communications cable [PN# CAB-DSE-002](#) can be purchased from Diamond Technologies.

Description:

POWER\_ON signal can be used by host to switch-on/off the whole Scan Engine: leave it unconnected if not used

HW\_TRIGGER signal can be used to physically issue a “trigger pressure” event to the Scan Engine: leave it unconnected if not used

Models:

DSE-SU-STK-01                      DSE UART/Serial Embedded scan module starter kit

Illumination and Scanning:

The integrated Illumination System is comprised of two white LEDs and non-imaging optics designed to provide first-class reading performances, even in total darkness.

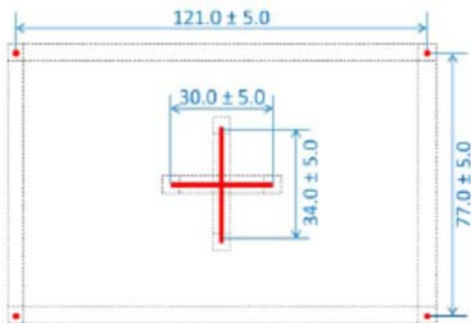
Regulatory

EN/IEC 62471 (exempt)

Aiming System

The aiming system is based on a 650nm laser diode and related optics. It projects a highly visible 4-Dot aimer with center-cross for targeted scanning. The central cross represents the center of the field of view, while the four dots show the boundaries of the field of view.

Below is the scanners scanning aimer at 200mm:



Regulatory

EN/IEC 60825-1:2007 (class 2)  
21 CFR 1040 (CDRH) (class II)

**WARNING**

**Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100mm may pose an eye hazard.**

**STANDARD LASER SAFETY REGULATIONS**

**This product conforms to the applicable requirements of both CDRH 21 CFR 1040 and EN 60825-1 at the date of manufacture. For installation, use and maintenance, it is not necessary to open the device.**

Programming

While no programming is needed to utilize the DSE Starter kit your particular application may require changes to the scanners default operation.

The DSE Starter kit supports several standard operating modes. These include:

**Stand Mode: (DEFAULT)** No trigger pull is required to read a barcode. Scanning is turned on automatically when an item is placed in the reader’s field of view. If the trigger button on the UART to Serial interface board is pressed, the reader acts as if it is in single read mode. Double Read Timeout prevents undesired multiple reads while in this mode.

**Trigger Single:** When the trigger is pulled, scanning is activated until one of the following occurs:

- Scanning Active Time has elapsed
- a label has been read
- the trigger is released

(\*Note a hardware trigger is located on the UART to Serial interface board)

**Trigger Hold Multiple:** When the trigger is pressed, scanning starts and the product scans until the trigger is released or Scanning Active Time has elapsed. Reading a label does not disable scanning. Double Read Timeout prevents undesired multiple reads of the same label while in this mode.

**Trigger Pulse Multiple:** When the trigger is pressed, continuous scanning is activated until Scanning Active Time has elapsed or the trigger has been released and pressed again. Double Read Timeout prevents undesired multiple reads of the same label while in this mode.

**Flashing:** The reader flashes on and off regardless of the trigger status. Flash rate is controlled by Flash On Time and Flash Off Time. When Flash is ON the imager reads continuously; when Flash is OFF scanning is deactivated.

**Always On:** No trigger pull is required to read a barcode. Scanning is continually on. If the trigger is pulled, the reader acts as if it is in Trigger Single Mode. Double Read Timeout prevents undesired multiple reads of the same label while in this mode.

The default operating mode for the DSE Starter kit is Stand mode and the interface is RS232. The scanners operating mode and other parameters can be programmed using either programming barcodes, using the Datalogic Aladdin software utility found at [www.diamondt.com](http://www.diamondt.com), or using Service Port Programming. The Service Port Programming commands allow for programmatic changes to the scanners operations. For a list of the available Service Port Programming commands for the DSE Starter kit see the “DSE SW Programming Manual” which is available at [www.diamondt.com](http://www.diamondt.com).

## Operating Mode Programming Barcodes

The following barcodes can be used to change the operating mode:

Prior to scanning the specific operating mode code you must scan the enter/exit programming command. After scanning the operating mode code re-scan the enter/exit programming command.



Scan Mode = Trigger Single



Enter/Exit Programming



Scan Mode = Trigger Hold Multiple



Scan Mode = Trigger Pulse Multiple



Scan Mode = Flashing



Scan Mode = Always On



Scan Mode = Stand Mode

There are also several Host Commands which can be sent directly to the DSE reader from a terminal emulation program or from the Data-logic Aladdin utility. These commands are accepted directly from the reader and do not require scanning an enter programming code and do not require placing the DSE in program mode. Examples of these commands include:

E = Enable Scanner

D = Disable Scanner

X = Software trigger Press, simulates trigger press

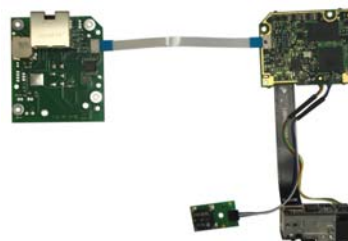
T = Software trigger Release, simulates trigger release

### READING PERFORMANCE

|                            |  |
|----------------------------|--|
| IMAGER SENSOR              | WVGA: 752 x 480 pixels                                       |
| LIGHT SOURCE               | Aiming: 650 nm VLD Illumination: Internal White LEDs         |
| PRINT CONTRAST RATIO (MIN) | 25%  |
| FIELD OF VIEW              | 40° H x 26° V  |
| READING ANGLE              | Pitch: +/- 60°; Roll (Tilt): +/-180°;Skew (Yaw): +/- 60°     |
| READING INDICATORS         | Green Spot good read confirmation (optional), Audible Beeper |
| RESOLUTION (MAXIMUM)       | 1D Linear: 3 mils; DataMatrix: 7.5 mils; PDF417: 5 mils      |

## DSE Serial/UART Embedded Barcode Scan Module Starter Kit

### Quick Reference Guide



Model: DSE-SU-STK-01

Manual Version 1.01



The Diamond Technologies DSE family of embedded barcode scan modules are designed for integration into OEM equipment such as Lab instrumentation, Medical Devices, Kiosks, Automated machines, and customer facing applications. These ultra compact, reliable, barcode modules are omni directional readers that will read all standard 1D and 2D barcodes with high accuracy regardless of code orientation. Based on the model being used the reader includes integrated user feedback in the form of patented Good Read Green spot and loud audible beep.

The reader includes patented, highly accurate, decode software libraries. The reader provides decoded output through its' RS232 interface. The readers hardware and software has been designed for the user to easily integrate the module into a host system. This guide provides basic instructions for evaluation and testing of the embedded UART/Serial versions of the DSE Barcode Module.

### Physical Components:

The DSE-SU-STK-01 includes 4 major components. These include:



UART to Serial interface board with RJ45 connection for power and communications



Scanner decode board



1D/2D Scan module



Beeper board