Electrical and Communication Connections:

The DSE425 includes a 4 pole DF13 connector. Depending on the DSE425 model the DF13 connector provides UART, RS232, or USB communications and power. The DSE425x-MD-TL needs to be powered with 5V DC. The pin outs and voltages are listed below.

DSE425U-MD-TL

Pin	Function
1	GND
2	D-, Data -
3	D+, Data +
4	VBUS+, 5V

DSE425S-MD-TL, DSE425R-MD-TL

Pin	Function
1	GND
2	RX
3	TX
4	VIN +5V

Current Use: Operating (Typical): <150mA, Standby/Idle (Typical): 12mA

Accessory interface cables can be purchased from Diamond Technologies.

CAB-DSE-004 - DF13 to USB A 1M, **CAB-DSE-005** - DF13 to RS232/UART DB9 1M

The default RS232 and UART communication parameters are 9600 Baud, No Parity, 8 Data Bits, 1 Stop bit.

Models:

DSE425S-MD-TL RS232 Model
DSE425U-MD-TL USB Model
DSE425R-MD-TL UART Model

Integrated HW features:

The DSE425 includes several integrated hardware features including audible good read beeper, trigger button, and good read green spot LED indicator.

USB Host Communication Interface:

For USB versions of the DSE425 it is important to install the USB device driver before plugging the DSE425 into your system.

The USB DSE425 supports several interface modes. The most common interfaces are USB Serial where the scanner operates as a USB serial interface and USB keyboard where the scanner operates as a keyboard input device. The following programming barcodes can be used to set these interfaces.

USB Serial

USB Keyboard

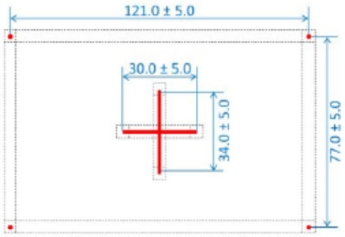
Illumination and Scanning:

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. 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 DSE425x-MD-TL your particular application may require changes to the scanners default operation.

The DSE425x-MD-TL supports several standard operating modes. These include:

Object Sense: (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 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 pressed, scanning is activated until one of the following occurs:

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

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 pressed, 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 DSE425 is Object Sense and for USB models the USB interface is USB Serial. This allows the USB model scanner to interface to a host as a USB Serial COM port. The scanners operating mode and other parameters can be programmed using either programming barcodes, or programmatically using Service Port Programming commands. 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 DSE425 see the "DSE Software Programming Guide" which is available at www.diamondt.com. Also note for USB models a USB host driver is required this is also available at 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.

Enter/Exit Programming

Scan Mode = Trigger Single

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 DSE425x-MD-TL reader from a terminal emulation program or from the Datalogic Aladdin utility over the Bluetooth interface. 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

DSE425 Ultra Compact 2D Embedded Barcode Scan module

Quick Reference Guide

Models: DSE425S-MD-TL, DSE425U-MD-TL, DSE425R-MD-TL

Manual Version 1.20

DIAMOND TECHNOLOGIES
Getting data where it needs to be.

The Diamond Technologies DSE425x-MD-TL is an embedded barcode scan module designed for integration into OEM equipment including Lab Instrumentation, Medical Devices, Kiosks, Automated machines, and customer facing applications. This ultra compact, reliable, bar-code module is an omni directional reader that will read all standard 1D and 2D barcodes with high accuracy regardless of code orientation. The reader includes integrated user feedback in the form of patented good read green spot and loud audible beep.

The DSE425x-MD-TL reader includes patented, highly accurate, decode software libraries. The reader provides decoded output through its' Serial, USB, or UART interface depending on model. The readers hardware and software has been designed for the user to easily integrate the module into a host system. This guide provides the basic instructions for that integration.

Physical Mounting:

The DSE425x-MD-TL provides (4) M2X.04 thread mounting holes in the rear of the enclosure.