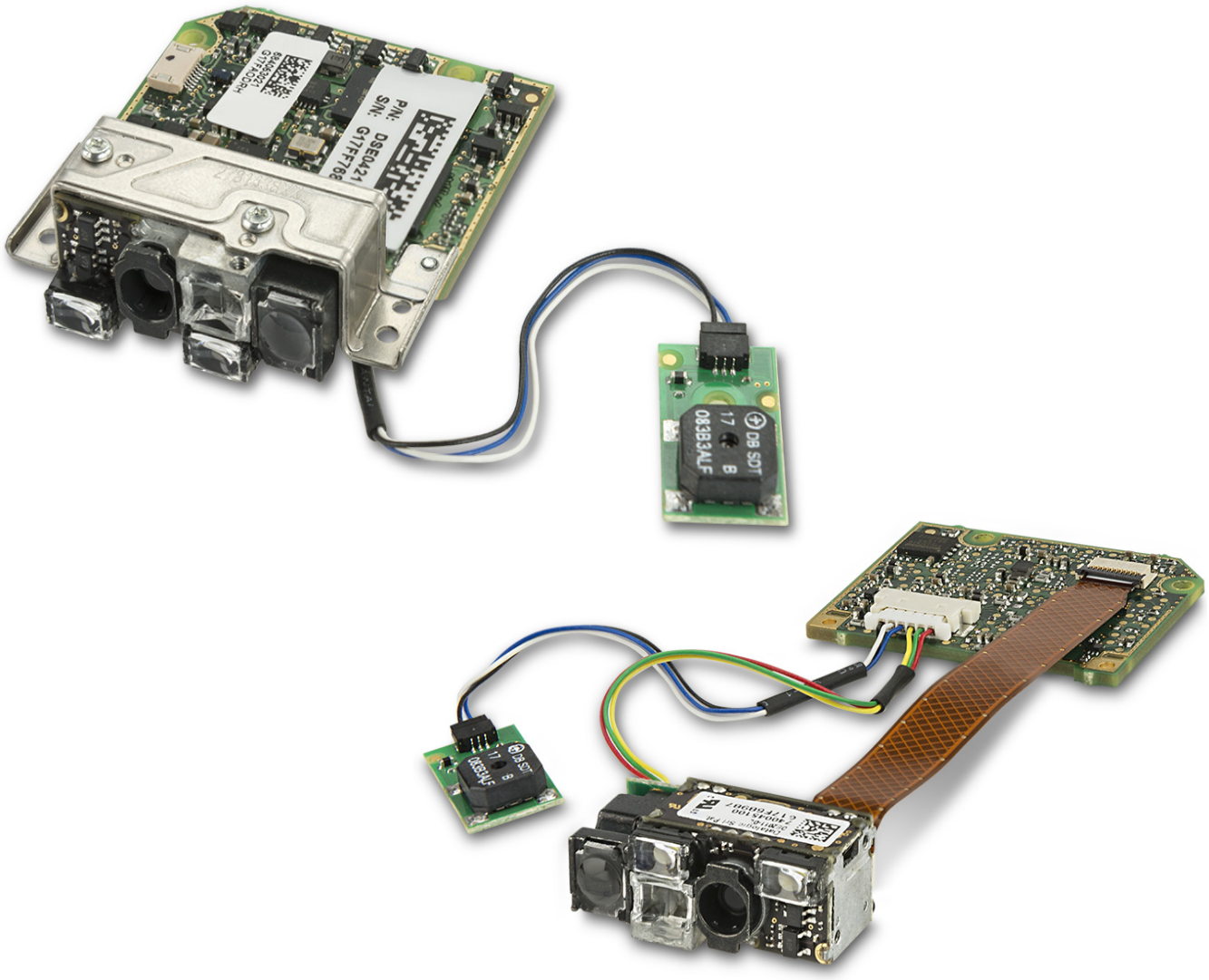
DATALOGIC

DSE0421, DSE0451

OEM Area Imager Decoded Scan Engine



Integration Guide

Datalogic USA, Inc.
959 Terry Street
Eugene, OR 97402
USA
Telephone: (541) 683-5700
Fax: (541) 345-7140

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- END -

NOTES

Preface

About this Manual

This Integration Guide is provided to give instruction, opto-mechanical details, and design considerations to integrate the DSE0421 and DSE0451 (designated as “scan engine” or “OEM scan engine” in this manual) specifically into equipment-integrated scanning applications.

Manual Conventions

The following conventions are used in this document:

The symbols listed below are used in this manual to notify the reader of key issues or procedures that must be observed when using the reader:

Notes contain information necessary for properly diagnosing, repairing and operating the reader.


CAUTION

The CAUTION symbol advises you of actions that could damage equipment or property.

Outline

Preface (this chapter) presents information about manual conventions and contact data.

Chapter 1. Introduction provides information about physical and performance characteristics.

Chapter 2. Optical Characteristics.

Chapter 3. Electrical Integration offers information about electrical components.

Chapter 4. Software Features describes software commands.

Chapter 5. Quality and Reliability.

Chapter 6. Regulatory & Safety environmental and regulatory specifications.

Appendix A, MTBF Prediction (Calculated) lists as well as environmental and regulatory specifications.

Appendix B, Mechanical Drawings.

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Chapter 1
Introduction

Thanks to the Datalogic Scan Engine family products 04X1, the host system, assisted by the integrator, can read either 1D and 2D barcodes by an omni-directional WVGA grey-scale camera.

The decoder board is built around an ARM926 32bit RISC processor which is equipped with general purpose decoding libraries, with a configuration manager to change the internal parameters and/or the reading modes, and with several interfaces based on the standard USB (model DSE0421) or on a full UART interface (model DSE0451).

The DSE04X1 products have also the possibility to place the reading head (camera + illuminator + aimer) in a different location with respect to the decoder board (-R models). In this case, the scan engine can be embedded into the integrator in order to change the position / inclination of the reading head depending on specific requirements.

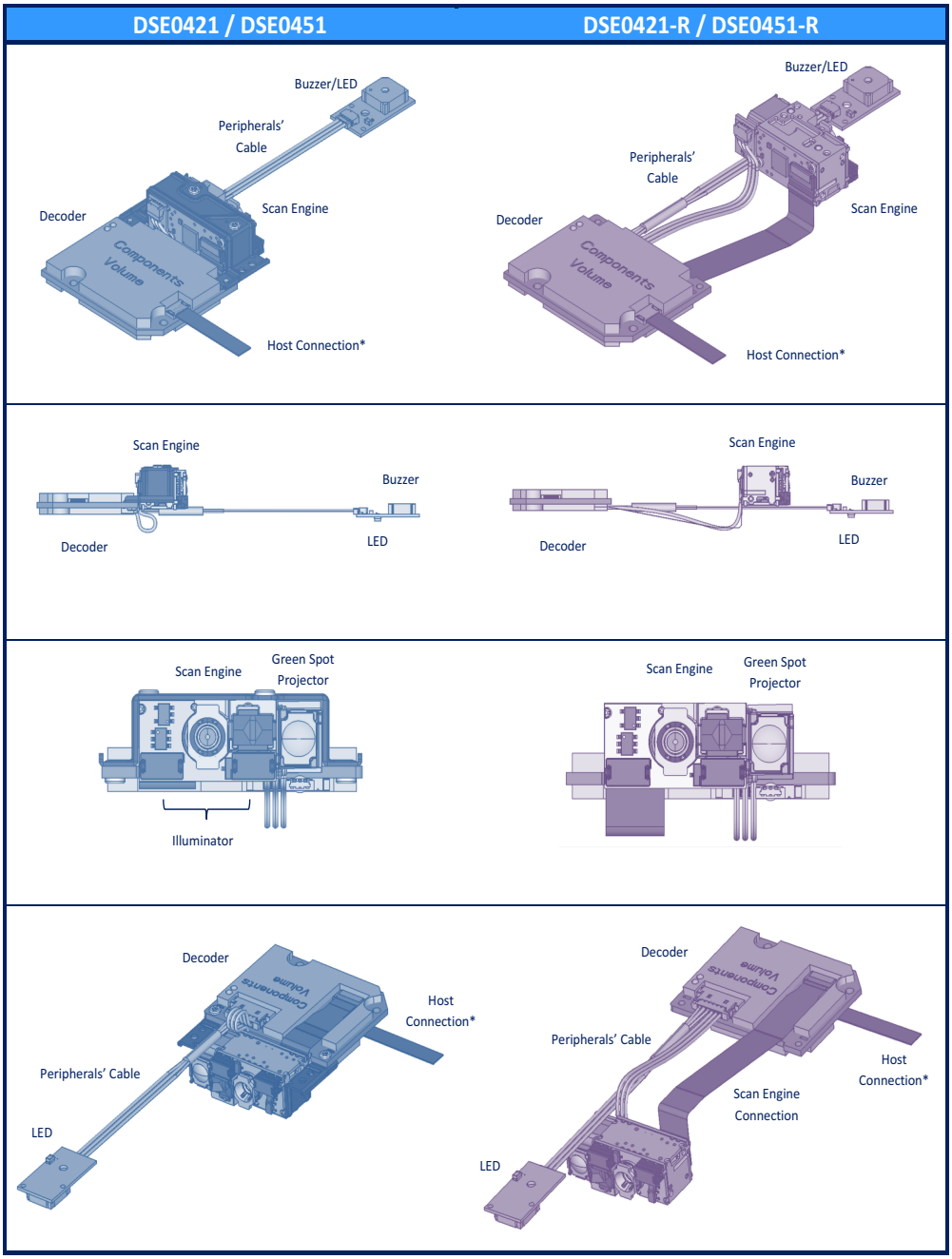
The host interface connector's pinout allows a hardware trigger to be sent, managed directly by a push button or by an external IC. Additionally, it is possible to send a software trigger event to the decoder board by specific commands sent by the communication interface (USB or UART).

A laser aiming system indicates the pointing area where the barcode is supposed to be placed.

Like all Datalogic products, the DSE04X1 is provided with a Green Spot light beam that gives the user an immediate feed-back of barcode decoding success.

Mechanical Characteristics

Overview



(*) cable is shown for reference only, it is not included in the assembly.

Key Parameters

Parameter	Value
Weight	20 g
Max Height (Beeper board not included)	13.65 mm
Max Width (Beeper board not included)	40.10 mm
Max Length (Beeper board not included)	47.86 mm

Dimensions

See Mechanical Drawings, starting on page 29 for further details on mechanical features.

NOTES

Chapter 2
Optical Characteristics

Key Parameters

Parameter	Value
Optical Format	1/3-inch
Active Imager Size	4.51mm(H) x 2.88mm(V) 5.35mm diagonal
Active Pixels	752H x 480V
Illumination System	LED source White emission (wavelength = 400–750 nm) IEC 62471 – EXEMPT RISK GROUP
Aiming System	Laser source Red emission (wavelength = 630–680 nm) Pulsed source: maximum lamp duration 15ms, repetition rate 16.6 ms Maximum emitted power: 1 mW IEC 60825 – CLASS 2 LASER PRODUCT
Tilt Tolerance	• Up to ± 180°
Pitch Tolerance	± 65°
Skew Tolerance	± 60°
Field of View	40° H x 26° V

Illumination System

The 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)

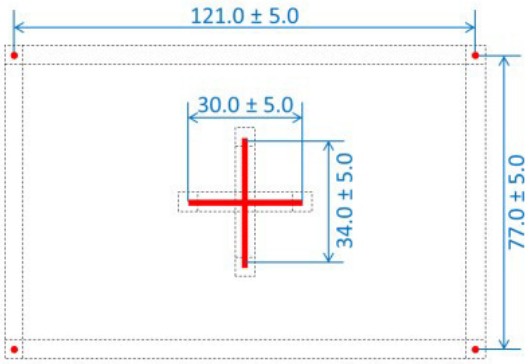
Aiming System

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.

Aiming Pattern

The central cross represents the center of the field of view, while the four dots show the boundaries of the field of view.

Figure 1. Projected pattern at 200 mm



Aiming System Parameters

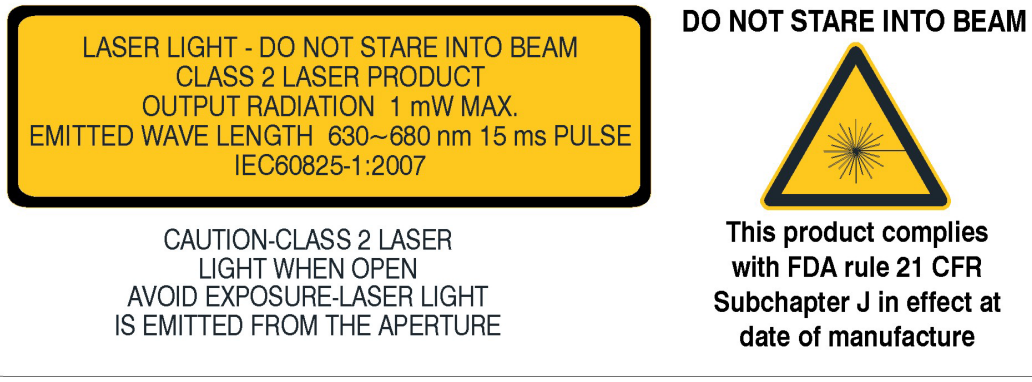
Parameter	Value
Wavelength	630-680 nm
Beam Divergence	35° (horizontal) x 25° (vertical) – see drawings on page 31
Maximum pulse duration	15ms
Repetition rate	16.6ms
Maximum output power	1mW
Laser aperture	See drawings on page 31

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.

Figure 2. Regulatory label



WARNING	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. Use of controls or adjustments or performance of procedures other than those specified herein may result in exposure to hazardous visible laser light. The product utilizes a low-power laser diode. Although staring directly at the laser beam momentarily causes no known biological damage, avoid staring at the beam as one would with any very strong light source, such as the sun. Avoid that the laser beam hits the eye of an observer, even through reflective surfaces such as mirrors, etc.
ATTENTION	NORMES DE SECURITE LASER Ce produit est conforme aux normes de sécurité laser en vigueur à sa date de fabrication: CDRH 21 CFR 1040 et EN60825-1. Il n'est pas nécessaire d'ouvrir l'appareil pour l'installation, l'utilisation ou l'entretien. L'utilisation de procédures ou réglages différents de ceux donnés ici peut entraîner une dangereuse exposition à lumière laser visible. Le produit utilise une diode laser. Aucun dommage aux yeux humains n'a été constaté à la suite d'une exposition au rayon laser. Eviter de regarder fixement le rayon, comme toute autre source lumineuse intense telle que le soleil. Eviter aussi de diriger le rayon vers les yeux d'un observateur, même à travers des surfaces réfléchissantes (miroirs, par exemple).

Reading Performances

Symbology	Resolution [mils]	Distance			
		Guaranteed		Typical	
		min [mm]	max [mm]	min [mm]	max [mm]
Code 39	3	Maximum resolution (test at 105 mm)			
Code 39	5	70	190	65	210
EAN13	13	55	360	55	390
Datamatrix	15	45	230	40	250
Code 39	20	FOV limited	470	FOV limited	500

Note 1: see Test Conditions below

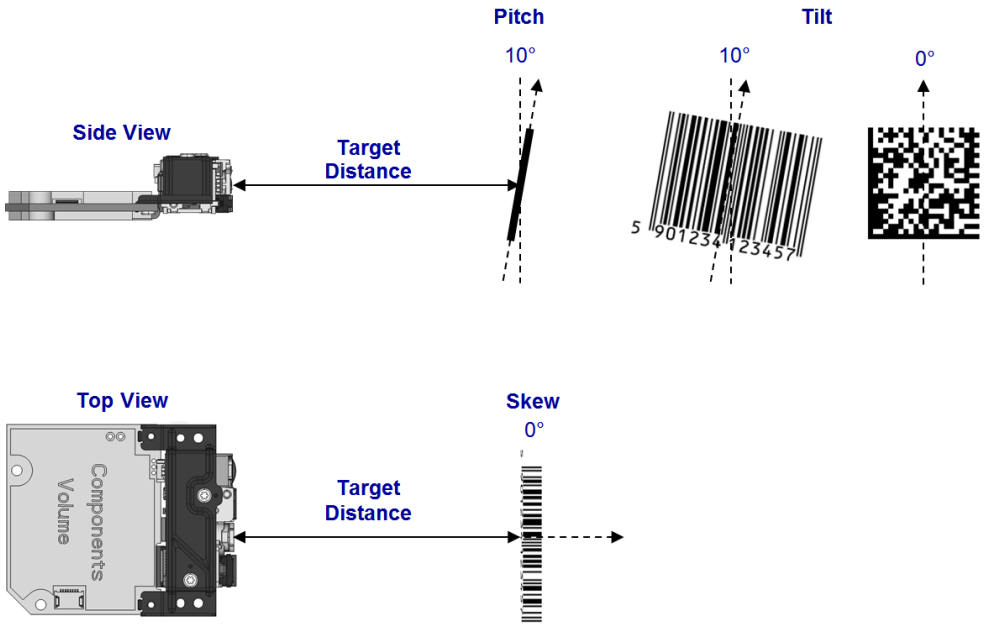
Note 2: for additional information on exit window disposal, see Appendix B of this document.

Test Conditions

All distances are taken on axis from the illumination lenses at the following typical conditions:

- "in open air" means without any interposed transparent or semi-transparent material
- environmental light = 300 lux
- Pitch angle = 10°
- Skew angle = 0°
- Tilt angle = 10° (1D labels) - 0° (2D labels)

Figure 3. Performance Test Conditions



Exit Window Recommendations

The use of a double-sided AR coated exit window is strongly recommended.

Avoiding scratched windows

Scratches on the exit window can strongly affect the reading performance. It is recommended to use an exit window having a scratch-resistant coating and to position the engine window in a recessed position.

Window material

The exit window is an integral part of the imaging system and should be designed and selected to preserve the optical quality of the system. It is recommended to use only cell-cast plastics or optical glass.

Common materials and their characteristics are shown in Table 1 below.

Table 1. Exit window materials

Properties	PMMA (cell cast acrylic or polymethyl methacrylic)	CR39 (Allyl Diglycol Carbonate)
Optical Quality	Very good	Very good
Surface Hardness	Hard coating required	Hard coating required
Impact Resistance	Good	Good
Chemical / UV Resistance	Susceptible	Susceptible
Ultrasonically Welding	Compatible	Compatible

Exit window properties

Recommended properties/performance of the exit window are reported in Table 2.

Table 2. Exit Window Properties

Characteristics	Requirement
Material	PMMA or CR39 or equivalent
Thickness	1.5mm
Wavefront distortion	0.2 wavelengths peak-to-valley maximum and 0,04λ maximum rms over any 2.0mm diameter within the clear aperture
Clear aperture	To extend to within 1.0mm of edges all around
Surface quality	60/20 scratch/dig
AR coating	• double sided • transmittance > 97% minimum within spectrum range 400nm-750nm. • reflections max 0,4% per side in the range 620nm-640nm

NOTES

Chapter 3
Electrical Integration

Overview

T_A = 25° C (unless otherwise noted)

PARA-METER	TEST CONDITIONS		MIN	TYP	MAX	UNIT
V_{IN}	Input Voltage		4.5	5.0	5.5	V
I_{IN}	V_{IN} = 5 V	Shut down V_{POWER_ON} = 0 V		240	400	µA
		In-rush current at Start-up First peak after plug-in		3.25		A
		Duration of In-rush current at Start-up		20		µs
		In-rush charge at Start-up Measured at first cold plug-in		35		µC
		Stand-by Scan Mode = Trigger Single		12		mA
		Operative - Acquiring w/o Beeping Scan Mode = Trigger Single / Flashing	80	150	200	mA
		Operative - Object Detection Scan Mode = Stand Mode	70	90	110	mA
		Operative - Acquiring w/o Beeping Scan Mode = Stand Mode	60	150	230	mA
		Operative - while Beeping Scan Mode = Trigger Single	40	150	260	mA
		Operative - while Beeping Scan Mode = Flashing / Stand Mode	90	255	415	mA
		USB Suspend		5.5		mA
T_{SDN}	V_{IN} = 5 V	Shut-Down Time Measured from V_{POWER_ON} negative edge to I_{IN} = 0 mA		300		ms

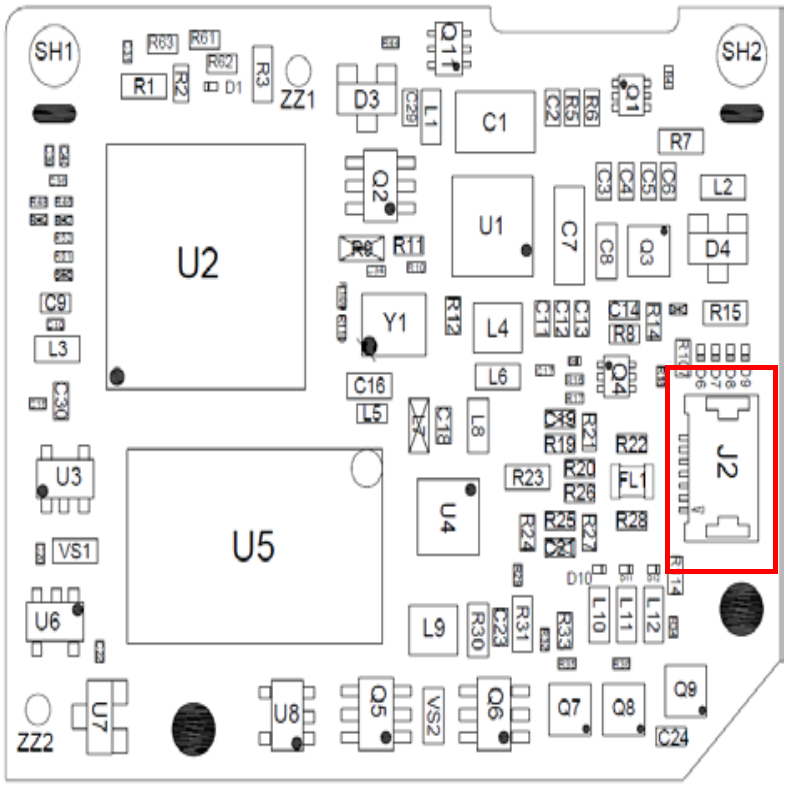
Host Connector (8 pins)

The connector is used to interface the Decoded Scan Engine to the Host and has the following p/n: MOLEX 51281-0894.

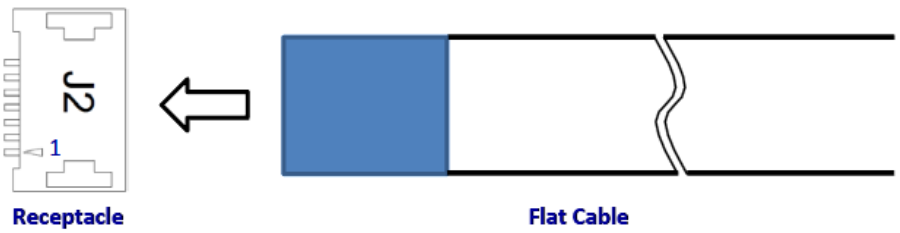
- http://www.molex.com/molex/products/datasheet.jsp?part=active/0512810894_FFC_FPC_CONNECTORS.xml

The Host connector (J2) is placed on the Decoder board. See the following layout diagram for reference, the J2 connector is indicated by the red box:

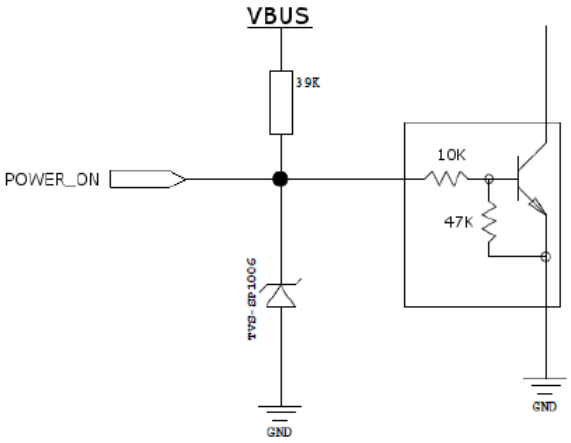
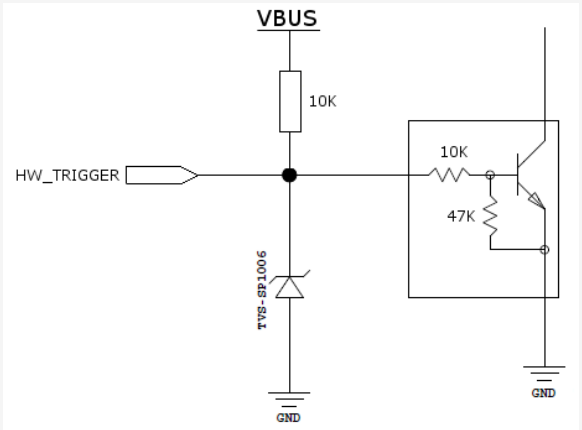
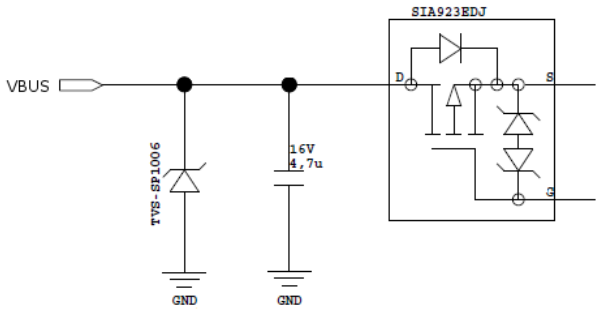
Figure 4 - Top View

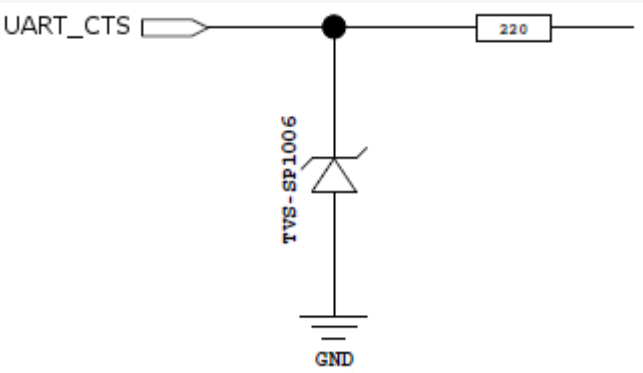
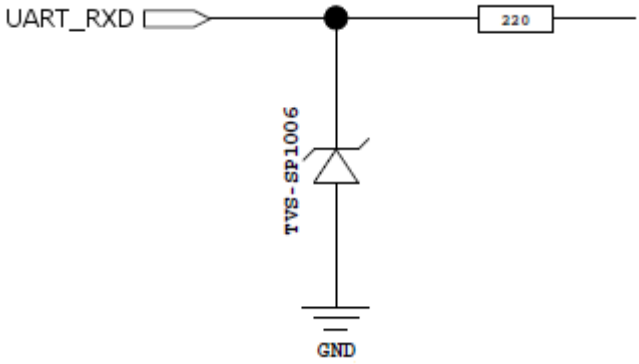
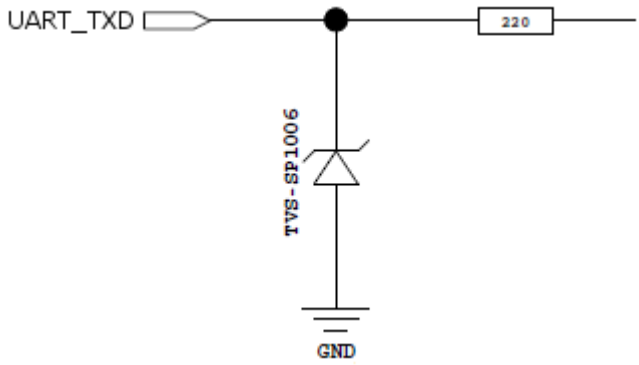


The following drawing illustrates the way to insert the flat cable (not included in the assembly) into the ZIF connector (Host Port):



Here the list of pins with related functions explained follows:

Pin	Signal Name	Dir.	Description	Notes
8	POWER_ON	IN	Used to power up the system: a High logical level allows the system to boot up	Connected to BJT-Base with the following net:  ☞ Leave unconnected if not used
7	HW_TRIGGER	IN	Used to signal a Trigger pressure event: a Low logical level means "trigger pressed"	Connected to BJT-Base with the following net:  ☞ Leave unconnected if not used
6	VBUS	IN	External Power supply line	External power supply: 5V +/- 5%  ☞ Shorted to pin #5 in USB models only
5	VBUS or UART CTS	IN	External Power supply line	External power supply: 5V +/- 5% ☞ shorted to pin #6 in USB models only

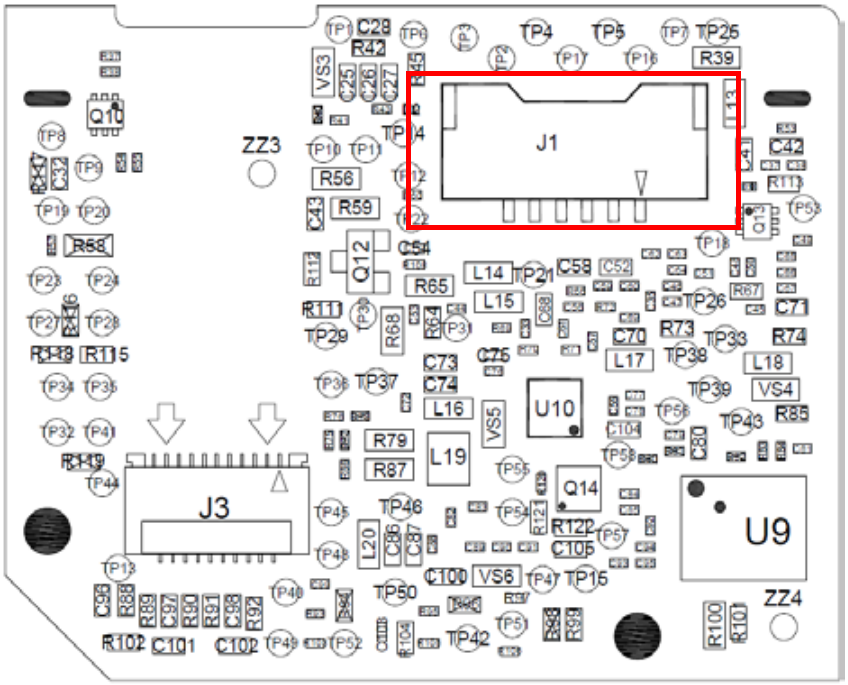
Pin	Signal Name	Dir.	Description	Notes
		IN	UART CTS	Clear To Send (CTS) signal for UART's hardware flow control, TTL logic.  A 220 Ohm series resistor is mounted
4	GND	---	0V ground reference	☞ in USB models only, shorted to pin #1
3	USB D or RXD	IN/OUT	Data N, USB differential pair	Standard USB DN line
		IN	UART RXD	Receive Data line for UART, TTL logic  A 220 Ohm series resistor is mounted
2	USB D+ or TXD	IN/OUT	Data P, USB differential pair	Standard USB DP line
		OUT	UART TXD	Transmit Data line for UART, TTL logic  A 220 Ohm series resistor is mounted
1	GND or RTS	---	0V reference	☞ in USB models only, shorted to pin #4

Peripherals' Connector (6 Pins)

The Peripherals' port is used to drive the buzzer (if present) and/or the Green Spot LED (if present). The buzzer and/or the Green Spot LED send a feed-back after a good decoding, after the issuing of a command, or for general signaling.

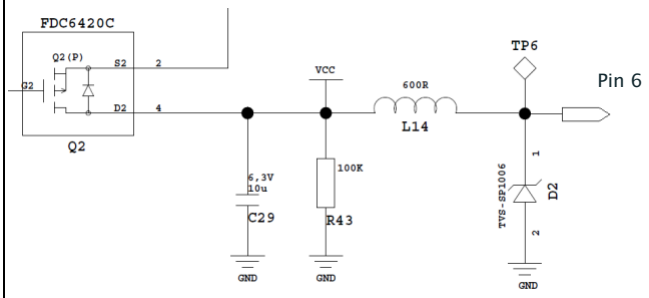
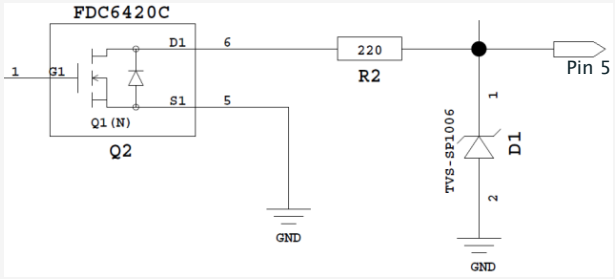
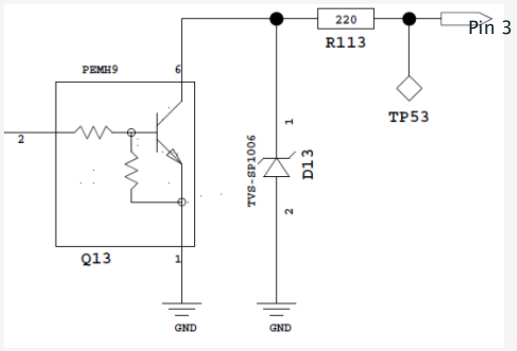
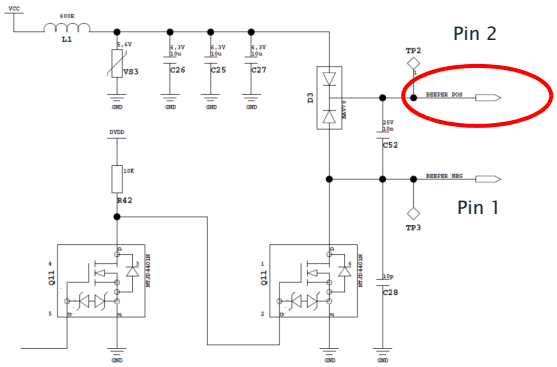
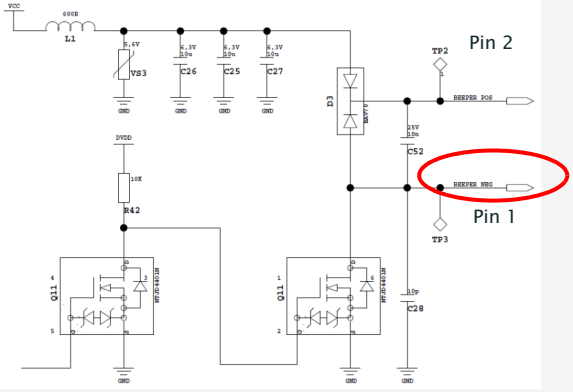
The connector is located on the bottom side of the Decoder board (see the red box in the figure below):

Figure 5 - Bottom View



For the related cable's mechanical dimensions, please refer to the mechanical drawings starting at page 29.

In the table at the following page the connector's pins with the related functions are listed and illustrated:

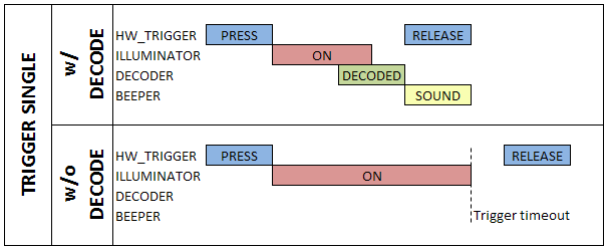
Pin	Signal Name	Dir.	Description	Notes
6	VCC	OUT	Gated power supply 5V, derived from input power supply provided by host to J2 LIF connector to be connected to the Green Spot LED's anode pin	Provides: 5VDC ±5% @ 15 mA MAX 
5	GREEN_SPOT	IN	To be connected to the Green Spot LED's cathode pin	15 mA MAX drained current 
4	GND	---	0V ground reference	250 mA MAX return current
3	TOP_LED_K	IN	To be connected to the White LED's cathode pin	15 mA MAX drained current 
2	BEEPER_POS	OUT	Gated power supply 5V, derived from input power supply provided by host to J2 LIF connector to be connected to the Beeper positive pin and to the White LED's anode pin	Provides: 5VDC ±5% @ 150 mA MAX (not continuous) 
1	BEEPER_NEG	IN	Negative pin of the beeper used to inject the sound wave	150 mA MAX drained current (not continuous) 

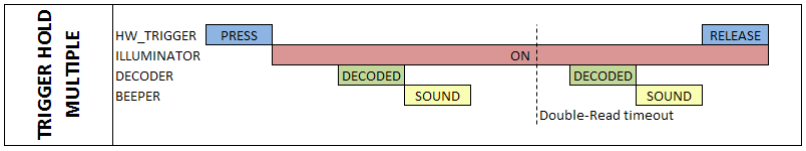
HW_TRIGGER Signal

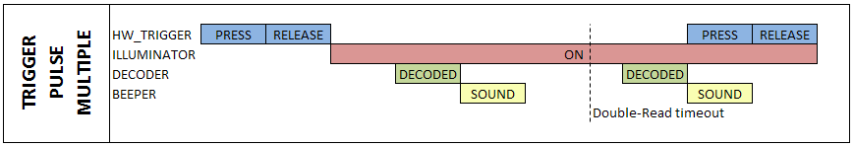
This paragraph describes different ways to drive the HW_TRIGGER signal in order to instruct the Decoder to start acquisition & decode process. Each of these Scan Modes must be first issued (programmed) to the Decoder before to use it. The current default configuration is “Trigger Single”.

In the following pictures, “PRESS” and “RELEASE” words refer to the common meaning of pressing a push button and releasing it in order to obtain a specific behavior. The current release of the Decoder board has the HW_TRIGGER signal with the following level meaning:

Level	Meaning
n/c or ‘0’ = GND	PRESS
‘1’ = VBUS	RELEASE







Software TRIGGER Commands

The “PRESS” and “RELEASE” events can be issued also by the USB communication port (COM emulation only) and the corresponding commands are listed here below:

Command	ASCII Code	Meaning
X	88 (58h)	PRESS
T	84 (54h)	RELEASE

The behavioral description of the Scan Engine is the same as shown above for HW_TRIGGER Signal.

Interface Adapters

The Decoder board can be integrated as a stand-alone module directly connecting it to the host system by means of a commercial FPC to the onboard Interface Port.

Alternatively, two specific Interface Adapters are provided to get connected to standard host PC ports:

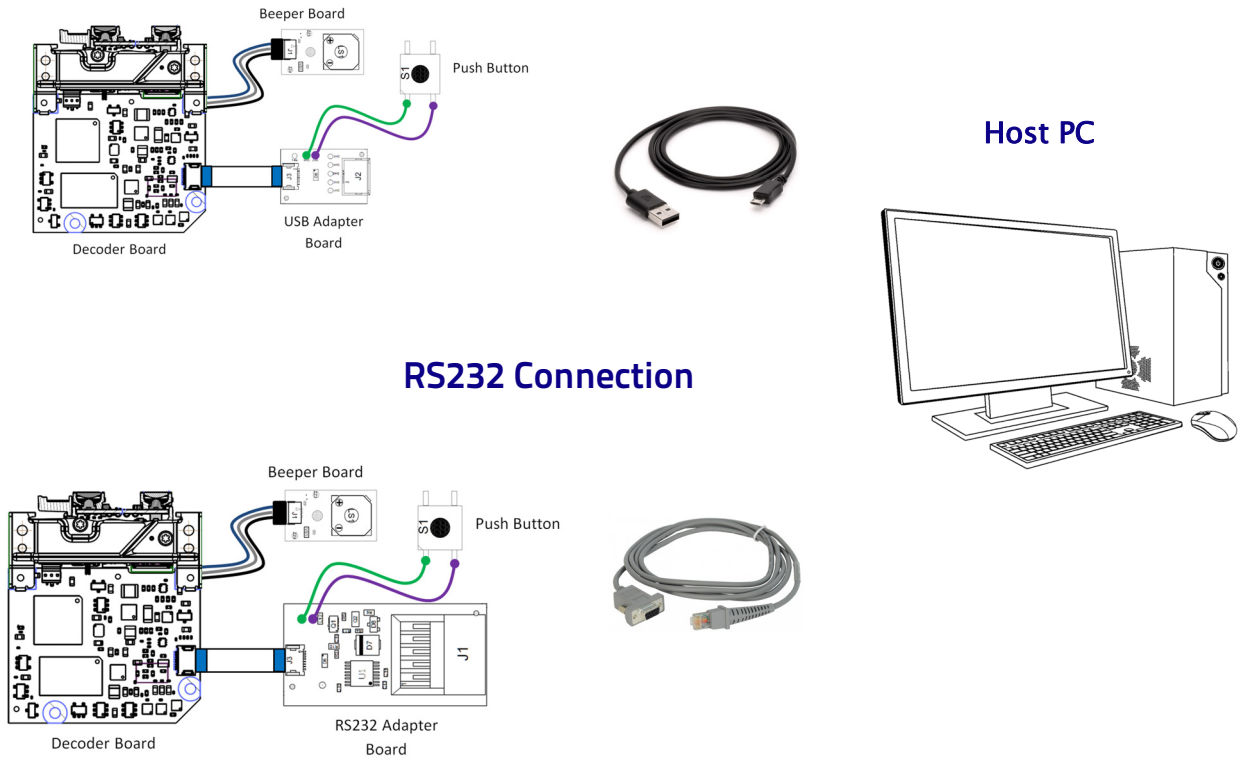
- DBC0421 with micro-USB port (any micro-USB/Type A cable can be used);
- DBC0451 with Datalogic's standard RJ45 connector (standard Datalogic's RS232 cable must be used).

The mechanical drawings of the Adapters are available at page 36.

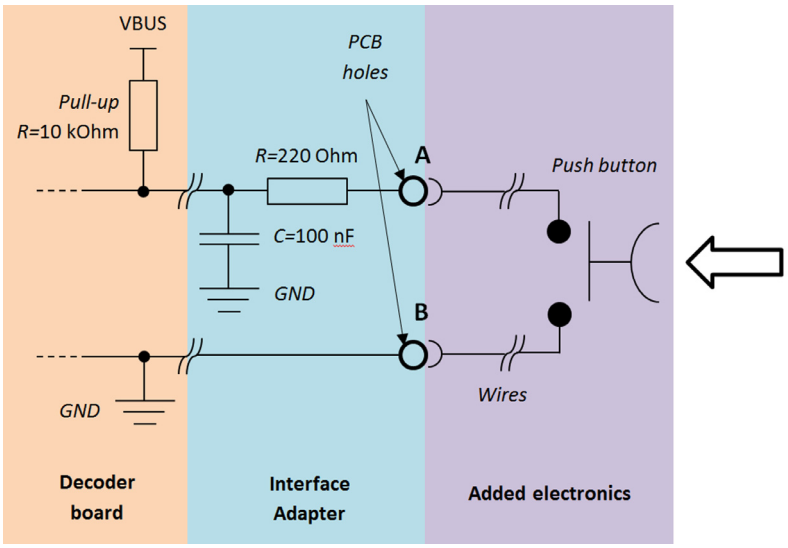
Interface Adapters cannot be mixed with any Decoder model and must be carefully selected and mounted depending on the specific chosen interface (USB or UART).

The figure below shows an example of how to connect the Decoder board (in this case DSE0421 and DSE0451) to a host PC:

Figure 6 - USB/RS232 Connections

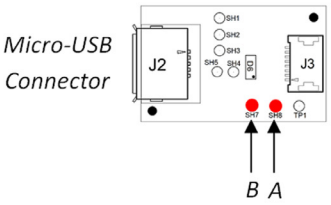


As illustrated in the Figure 6, it is possible to connect a push button to the Interface Adapter to allow an external trigger signal to be sent to the Decoder board. Such a connection must be carefully designed to avoid ESD (electrical discharges) to reach the Interface Adapter and/or the Decoder board. The following figure shows a diagram with a typical connection for an external trigger:

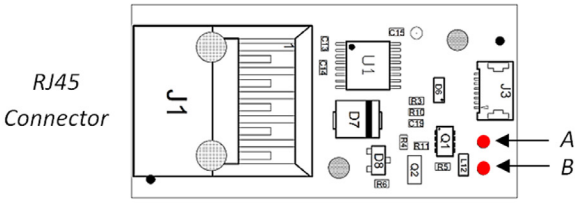


With reference to the following layout, the soldering points (PCB metallic holes) are indicated by A and B:

DBC0421



DBC0451



The external trigger signal must respect the following truth table:

TRIGGER STATUS	EQUIVALENT ELECTRICAL LEVEL PIN A
Pushed	Tied to GND (0V)
Released	Pulled up to 3.3V through ~10kOhm resistor

NOTES

Chapter 4
Software Features

The DSE04X1 supports the following set of host interfaces:

- USB-KBD
- USB keyboard emulation
- USB-COM
- USB serial port emulation
- USB-Composite (Default)
- USB-KBD + USB-COM

Please refer to the Product Reference Guide for all configuration labels.

USB KB interface:

1. Basic operation – In the USB KB interface (the default interface for the Beta version), the scanner emulates a USB Keyboard. The device enumerates as a keyboard, and subsequently delivers all barcode data to the PC as if it were actually a keyboard. This means that data is delivered to the application which has the “focus” on the PC.
2. Limitations:
   - No host command support – Keyboard devices are “uni-directional”; that is they send data to the PC, but do not accept commands from the PC. This limits the ability to control the module from any application running on the PC.
   - No ability for module updates – given the uni-directional interface, the USB KB interface provides no capability to upgrade firmware or configuration through the host interface.

USB-COM driver and how it relates to the two interfaces:

The DL USB-COM driver is supplied by Datalogic, and provides legacy applications the ability to connect to a ‘virtual’ COM port enumerated by the device during connection to the PC. The driver also provides certain configuration capabilities when used with other Datalogic software. When used with the Composite USB interface, where the device enumerates a ‘virtual’ COM port along with the USB KB interface, the USB-COM driver provides the connection between special configuration applications and the device. Driver selection upon enumeration is controlled by the USB-COM driver’s “.inf” file, which contains a list of accepted VID/PID values. The .inf file is NOT user-mutable; the USB-COM driver has been certified through the Microsoft HCK process and cannot be altered by a user.

1. USB-COM interface (interface 47) – When this interface is selected, the device communicates through a ‘virtual’ COM port via the DL USB-COM driver. All barcodes are passed to applications through this interface. The applications must thus handle COM port communication. This may be an approach used for any legacy applications that were originally developed for use with RS232 Communication ports.
2. Composite USB interface (interface 4D) – When this interface is selected, the device enumerates a ‘virtual’ COM port along with the USB KB interface. Barcode data is sent to the PC through the USB KB interface, while the USB-COM interface will automatically connect through the DL USB-COM driver. This port is then available for any configuration or updates to F/W that may be required for specific customers, or for the general

case of providing new firmware with enhanced capabilities. This process is further described below.

3. VID/PID table for both – the following table contains the Vendor ID (VID) and Product ID (PID) for each interface:

Interface	I/F number	VID	PID
USB OEM	45h	05F9h	121Fh
USB HID Keyboard	35h	05F9h	221Fh
USB-COM (Microsoft)	47h	05F9h	4204h
USB COM / USB HID Keyboard Composite	4Dh	05F9h	4005h
USB HID Firmware Update with Aladdin	4Bh	05F9h	5204h

4. The Datalogic USB-COM driver will be provided for inclusion in the host's image; there will be no need for users to install the driver on the host. Any subsequent updates that may become available will be handled through the software update process, if needed.

Firmware and configuration updates:

Firmware and configuration files can be updated on the scanner module when the module is in the USB-COM or Composite interface. Updating firmware or configuration is not a common operation and will only be performed upon occasions where new firmware is required, or a specific customer requires special configuration of the module.

When an update is needed, the new firmware image is provided by the Datalogic Technical Support team and a specific communication protocol must be used in order to accomplish the task. Please ask the Technical Support for further information.

1. Brief description of the software stack – The update of either firmware or configuration for the module uses the same process. The update itself is performed by Datalogic's Remote Management software layer, which provides an interface to the device through the USB-COM driver. The remote management software is always resident on the host but is only executed when an update is invoked.
2. Instructions for invoking the update(s) – To perform an update, the following instruction is executed from the command line:

   C:\<path> cfirmwareupdate <scanner_name> <"path:filename">

   Where:

   <path> = the location on the tablet where the Datalogic utilities are installed
   <scanner_name> = IntegratedImagingBarcodeScanner
   <"path:filename"> = the path to the update file+update file name
3. Limitations
   - The module must be in USB-COM or Composite interface; updates are not possible when the module is in the USB KB interface.
   - The module should not be in use by any application. Performing an update to the scan module should only be done when the module is not actively being used by an application.
   - The module should be in an idle state.

Chapter 5
Quality and Reliability

Test ID	Test	Description
1	Shock	**Dynamic Shock**: 2000 G ± 5% applied to the Scan Engine surface at -30° C and 70° C for a period of 0.85 ± 0.05 msec. 2500 G ± 5% applied to the Scan Engine surface at 23° C for a period of 0.85 ± 0.05 msec. **Vibration**: 20 to 80 Hz Ramp up at 0.04 G^2/Hz at 3 dB/octave 80 to 350 Hz 0.4 G^2/Hz 350 Hz to 2 kHz Ramp down at 0.04 G^2/Hz at 3 dB/octave
2	Environmental	Storage Temperature: -40° C to +70° C Operating Temperature: -20° C to +55° C Humidity (non-condensing) ≤ 95%
4	ESD	The Scan Engine must be shielded from ESD strikes up to ±15KV with the enclosure. Testing on the Imager Module has been performed at level of 2,5KV on the connector. The module was tested inside another host product up to 4Kv direct and 8KV air.
5	MTBF	An MTBF calculation has been completed and is shown in Appendix A.

NOTES

Chapter 6
Regulatory & Safety

Item	Description
Laser Classification	IEC 60825 – CLASS 2 LASER PRODUCT Maximum emitted power: 1 mW, Emitted wavelength 630–680 nm Pulsed source: maximum lamp duration 15ms, repetition rate 16.6 ms
Lamp Standard	IEC 62471 Exempt
Radiated Emissions	EN 55022 / 2010
Support Documentation	Support documentation is available on request to assist the ODM in their system submittal to Regulatory and Safety Agencies. Some examples of support documentation are: Laser Safety Classification Calculation Lamp Standard Calculation RoHS documentation

NOTES

Appendix A
MTBF Prediction (Calculated)

Product: DSE04X1

DSE0421-R MTBF		
Duty Cycle	Operating Temperature 25°C	Operating Temperature 55°C
100%	147,926	39,085
50%	276,286	73,172

System RAMM:

DSE0421-R RAMM		
Duty Cycle	Operating Temperature 25°C	Operating Temperature 55°C
100%	0.00493	0.01868
50%	0.00264	0.00998

Calculation Method:

- Relex Reliability Studio 2008 (Telcordia Method II Case L1)
- Operating Environment: G_M – Ground Mobile
- Dormant Environment: Ground
- Maximum Operating Temperature: 55 °C
- Temperature Rise 7 °C
- Compponent Quality Level: II

System Model:

- All assemblies in serial mode. All assemblies must function for the system to work.

Assembly Calculation Criteria:

- All Electronic assembly failure rates calculated from BOM listing using Telcordia model.

DATALOGIC HAS DEMONSTRATED A 99% SUCCESS RATE OF MEETING OR EXCEEDING OUR PREDICTION BASED ON ACTUAL PRODUCT DEMONSTRATED LIFE TEST RESULTS AND ACTUAL FIELD DATA.

Any requests for reliability information on our products are granted with a clear understanding that MTBF/RAMM numbers are design targets. They are based on all available reliability data from preceding product demonstrated life testing and calculated semiconductor failure rates. They do not represent an implied warranty. As with all reliability numbers, infant mortality, early wear-out failures and variations in operating environment are not included.

Date: 5-June-2013

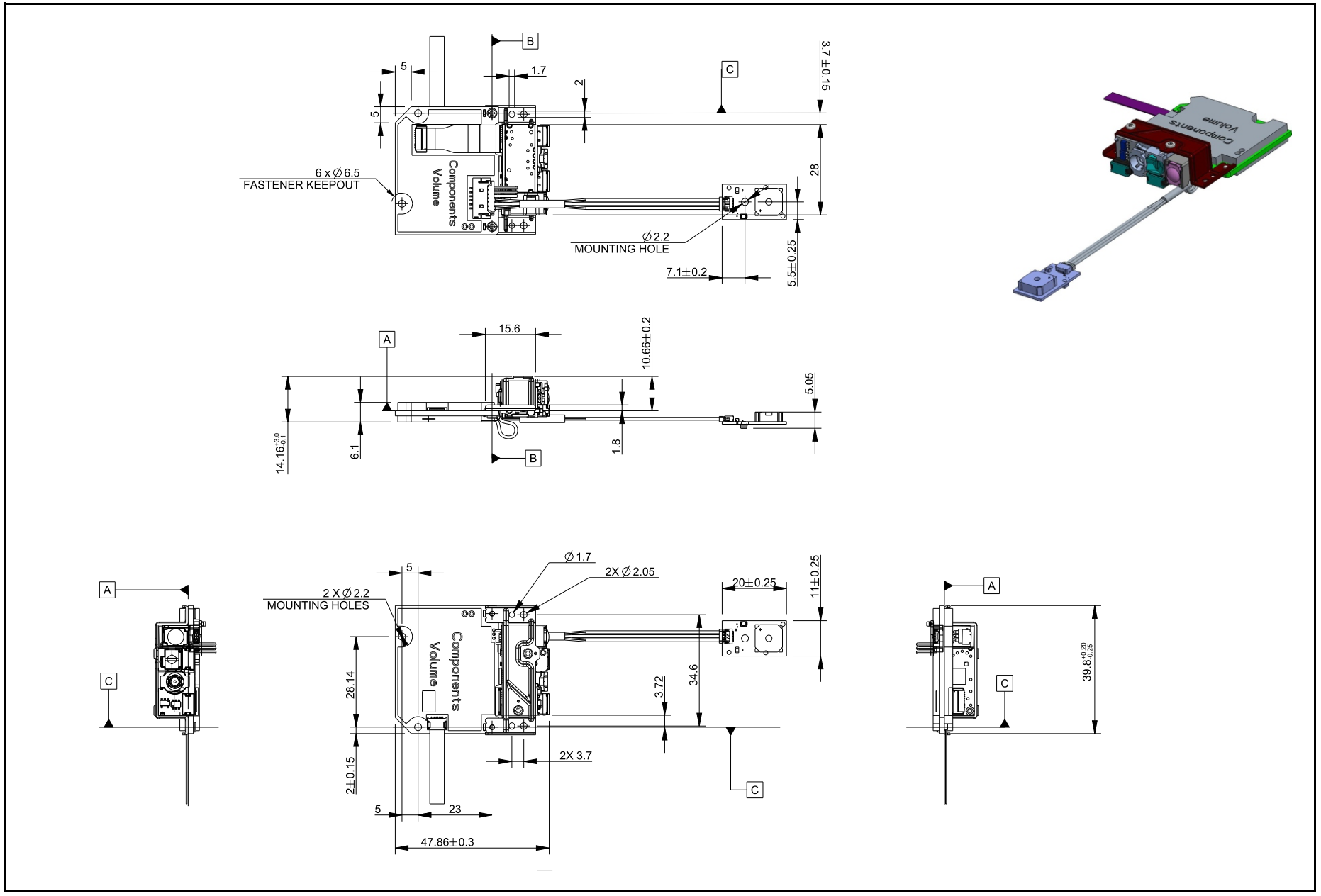
Reliability Engineer: D.A. Hershberger

Appendix B
Mechanical Drawings

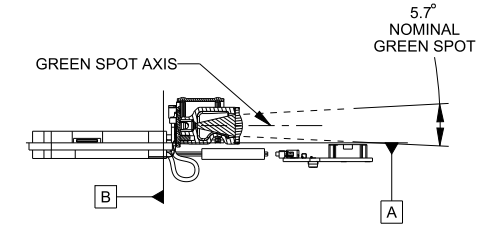
This section describes the main mechanical features related to the following key points:

- DSE0421-DSE0451 Overall Dimensions
- DSE0421-DSE0451 Optical features
- DSE0421-DSE0451 Interface Connectors Characteristics and Requirements
- DSE0421-DSE0451_R Overall Dimensions
- DSE0421-DSE0451_R Optical features
- DSE0421-DSE0451_R Interface Connector Characteristics and Requirements
- DBC0421-DBC0451Interface Adapters
- Exit Window Positioning
- Six Positions Cable with Connector

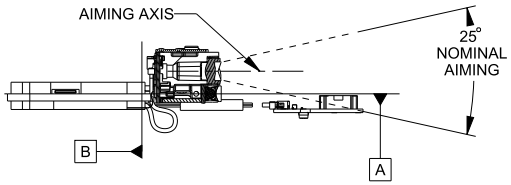
DSE0421-DSE0451 Overall Dimensions



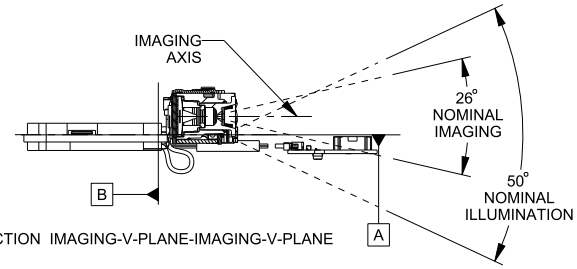
DSE0421-DSE0451 Optical features



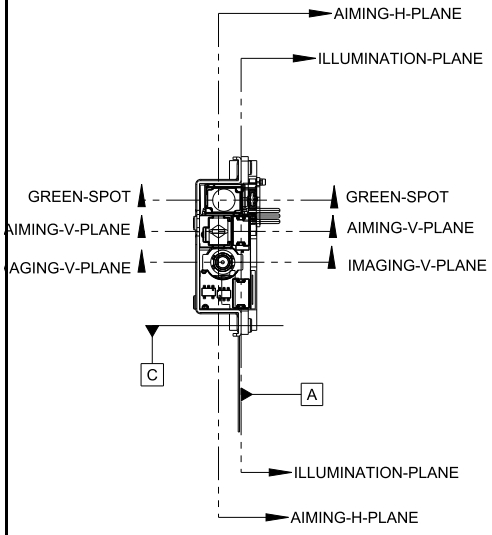
SECTION GREEN-SPOT-GREEN-SPOT

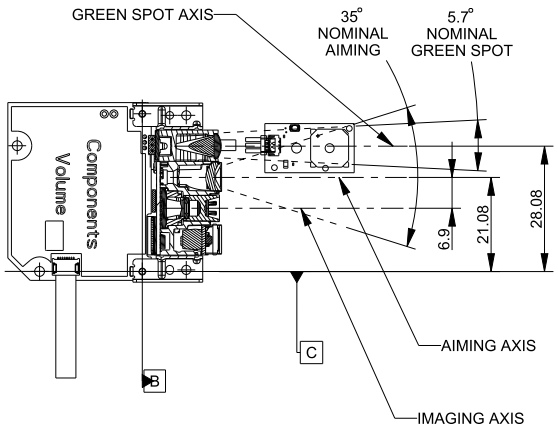


SECTION AIMING-V-PLANE-AIMING-V-PLANE

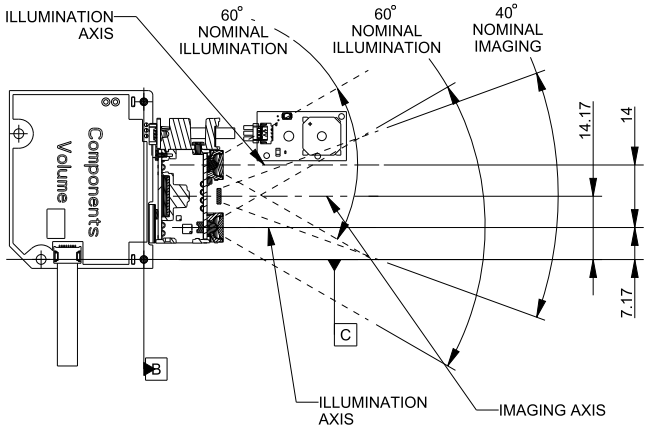


SECTION IMAGING-V-PLANE-IMAGING-V-PLANE

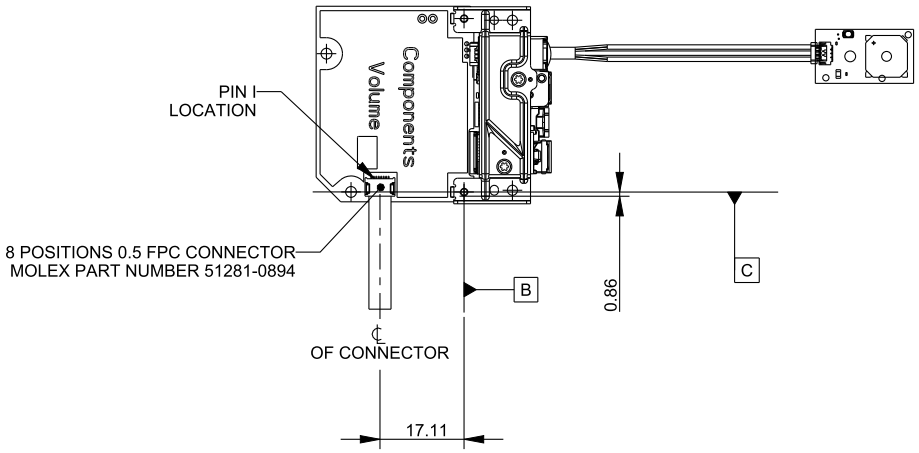




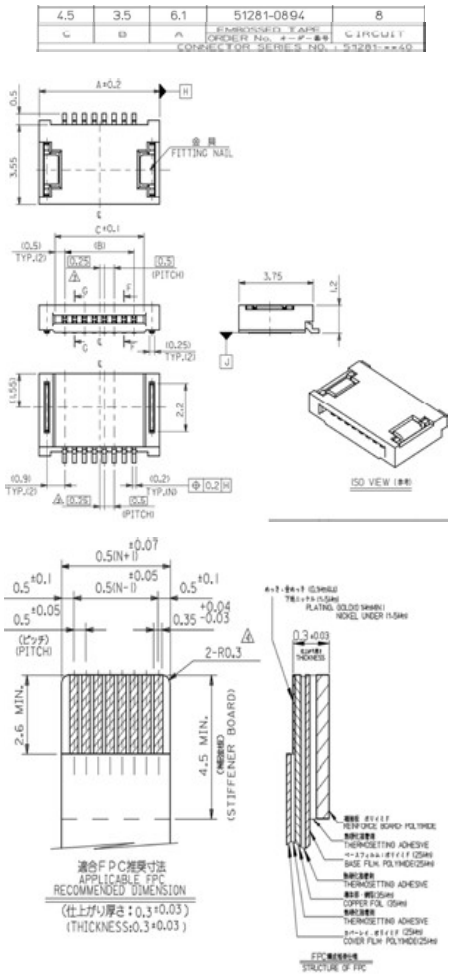
SECTION AIMING-H-PLANE-AIMING-H-PLANE



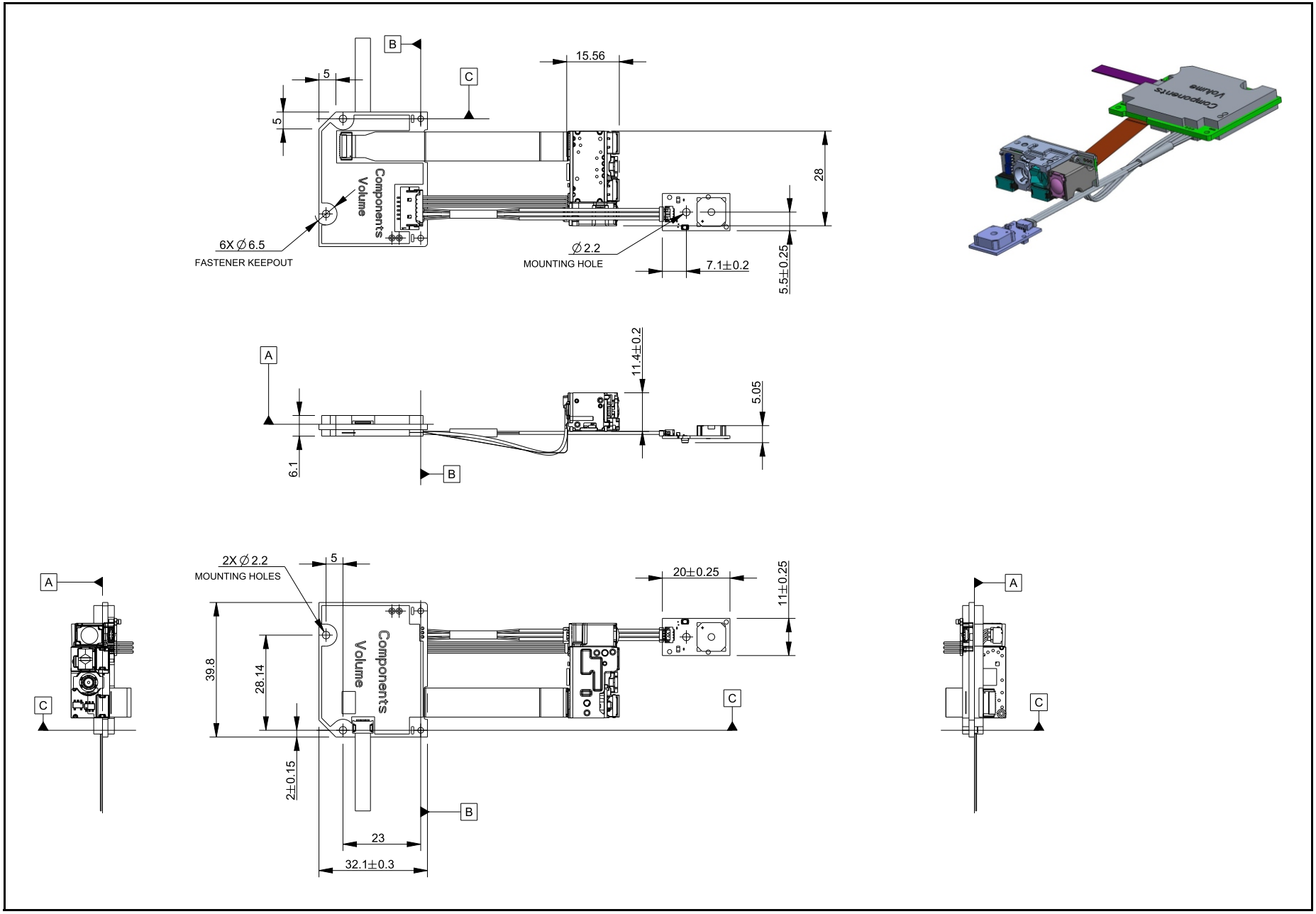
SECTION ILLUMINATION-PLANE-ILLUMINATION-PLANE



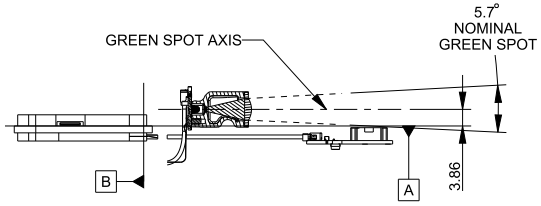
MOLEX CONNECTOR SPECIFICATION - DOCUMENT NUMBER SD - 51281- 011
(FOR DETAILED CONNECTOR INFORMATION, REFER TO THE MANUFACTURERS SPECIFICATIONS)



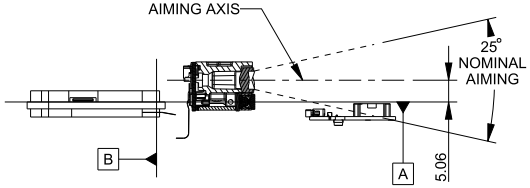
DSE0421-DSE0451_R Overall Dimensions



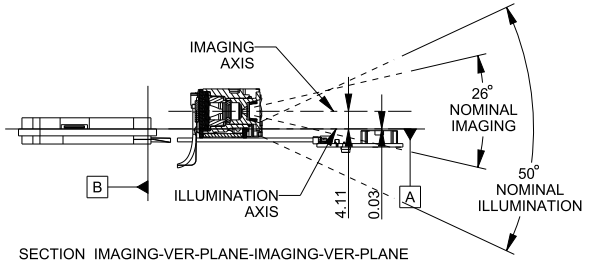
DSE0421-DSE0451_R Optical features



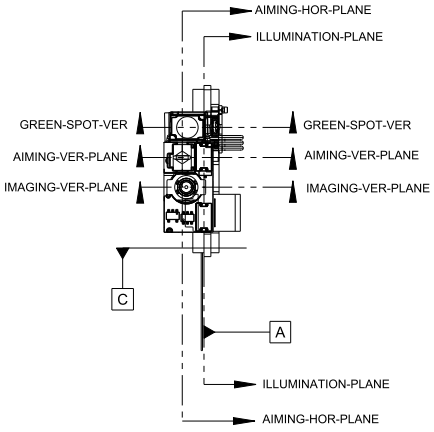
SECTION GREEN-SPOT-VER-GREEN-SPOT-VER

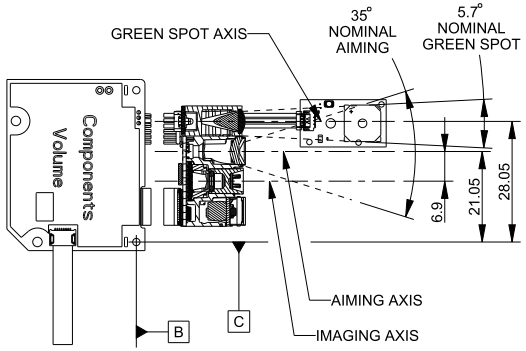


SECTION AIMING-VER-PLANE-AIMING-VER-PLANE

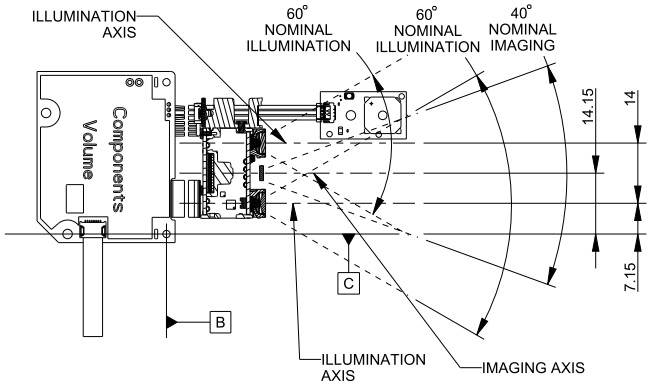


SECTION IMAGING-VER-PLANE-IMAGING-VER-PLANE



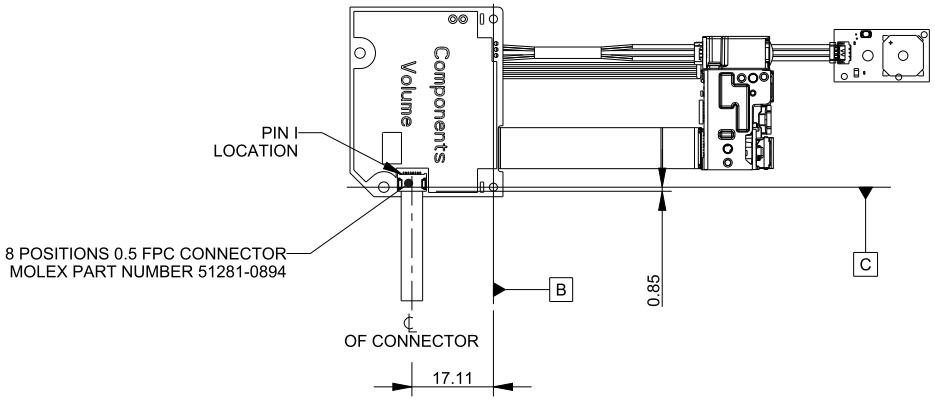


SECTION AIMING-HOR-PLANE-AIMING-HOR-PLANE

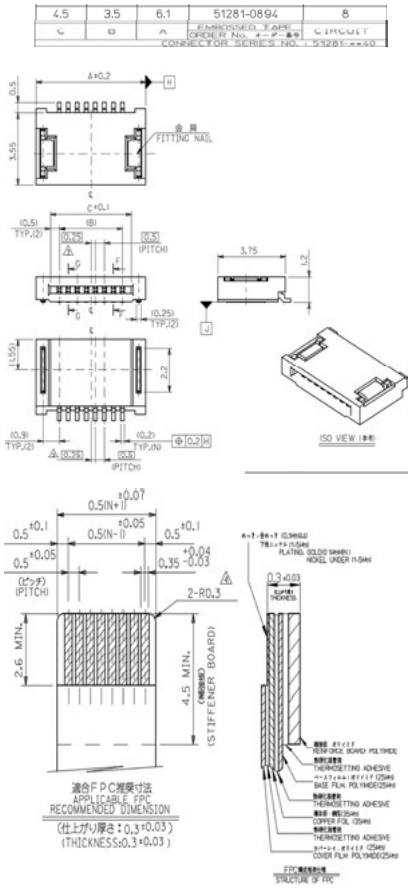


SECTION ILLUMINATION-PLANE-ILLUMINATION-PLANE

DSE0421-DSE0451_R Interface Connector Characteristics and Requirements



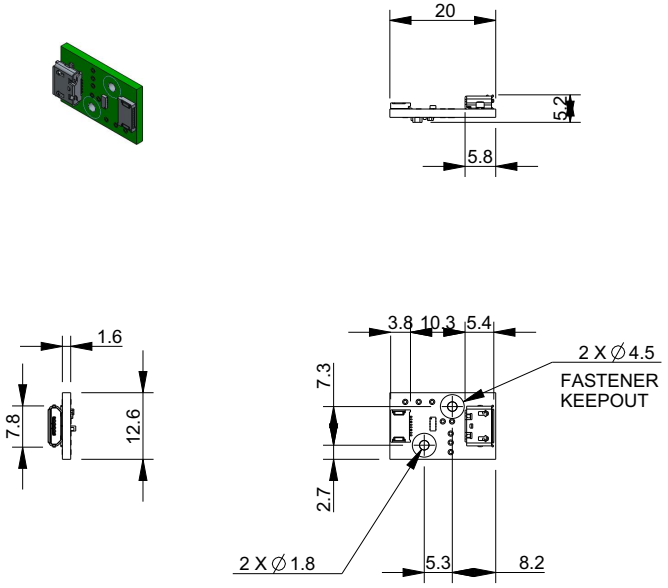
MOLEX CONNECTOR SPECIFICATION - DOCUMENT NUMBER SD - 51281- 011
(FOR DETAILED CONNECTOR INFORMATION, REFER TO THE MANUFACTURERS SPECIFICATIONS)



DBC0421-DBC0451Interface Adapters

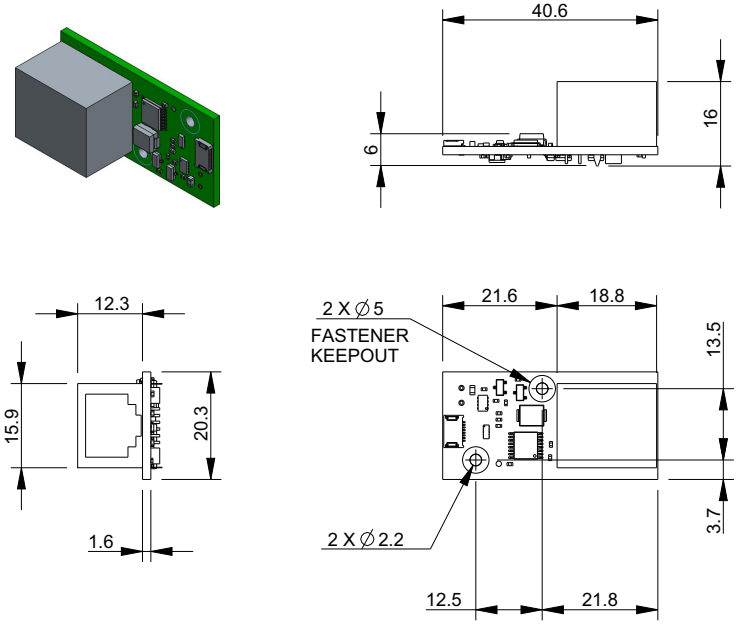
DBC0421

USB Interface Adapter for micro-USB



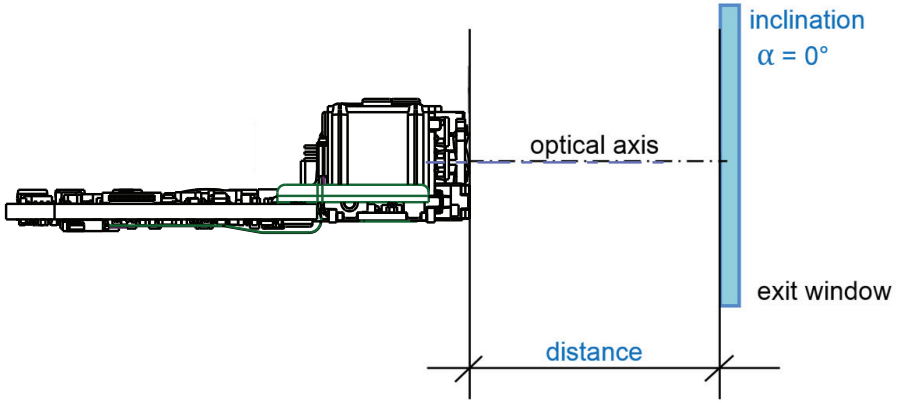
DBC0451

RS232 Interface Adapter for EIA<->TTL converison*

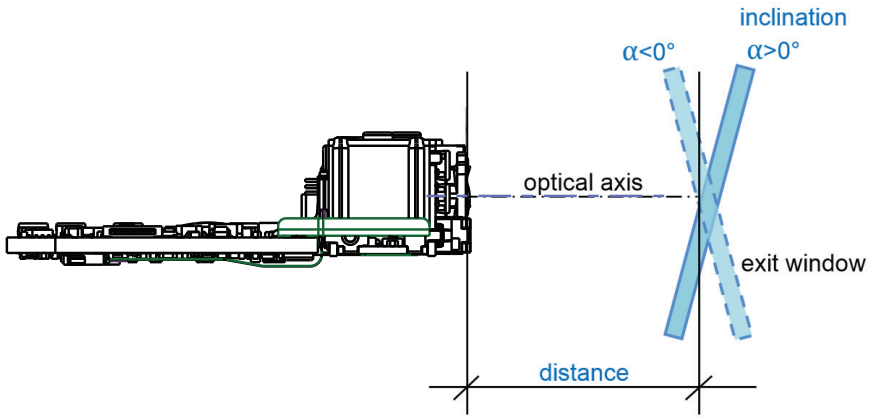


(*) a standard Datalogic RS232 cable must be used to connect to host PC

Exit Window Positioning



	Distance [mm]
No Coating	< 1 mm
AR coating (2 sides)	< 1 mm



		Distance [mm]					
		5	10	15	20	25	30
No Coating	+α	42°	42°	40°	35°	30°	25°
	−α	30°	30°	30°	30°	30°	30°
AR coating (2 sides)	+α	42°	32°	26°	24°	22°	22°
	−α	20°	24°	24°	24°	24°	24°

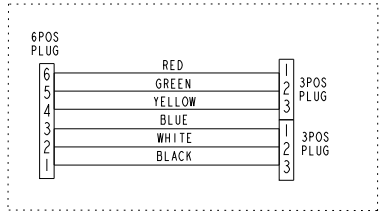
For additional information about the Scan Engine, please refer to the DE2011-DL Integration Guide

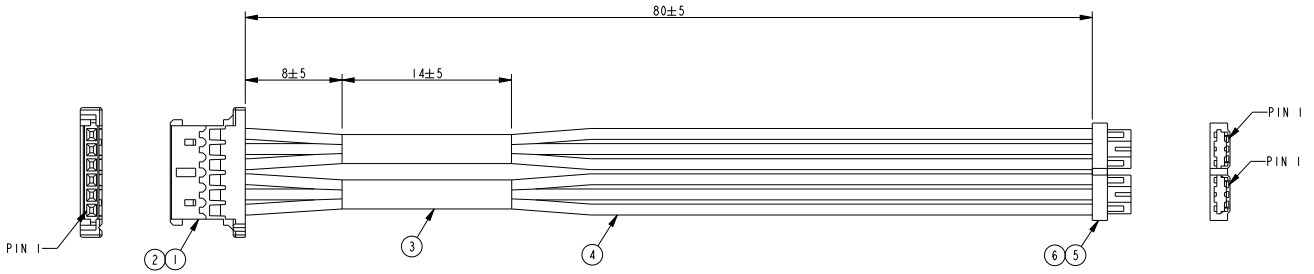
Six Positions Cable with Connector

NOTES: UNLESS OTHERWISE SPECIFIED

1. THIS PART WAS GENERATED FROM Pro/ENGINEER. PART MODEL (770254901) EXISTS IN WINDCHILL.
2. REFER TO SPECIFICATION DR6600045 FOR ADDITIONAL CABLE REQUIREMENTS.
3. CABLE ASSEMBLY MUST BE TESTED FOR CONTINUITY (MAX RESISTANCE 3 OHMS)
4. 25 CABLES MUST BE PUT IN A MINIGRIP PLASTIC BAG.
5. ALL MATERIALS MUST MEET REGULATORY HAZARDOUS SUBSTANCES REQUIREMENTS PER DATALOGIC SPEC DR760011 2.
6. ALL MATERIALS MUST BE UL RECOGNIZED. CABLE MUST BE COMMNPLIANT WITH AND MARKED VW-1.
7. SUPPLIER MUST SUBMIT DIMENSIONAL REPORT EACH FURNITURE LOT; REPORT MUST INCLUDE AT LEAST DIMENSIONS # 1 AND 2 OF FIVE PARTS.

REV	BRIEF DESCRIPTION OF CHANGE	DFTR	ECO	DATE	CHKD	ENGR
A	RELEASE TO PRODUCTION	FR	22575	02/09 17		FR





ITEM	QTY	PART NUMBER	DESCRIPTION
6	6	PER VENDOR	CRIMP CONTACT HIROSE DF52-2832PCF
5	2	PER VENDOR	HIROSE DF52-3P-0.8C
4	6	PER VENDOR	SPEC,UL1551 OR UL1605 30AWG WIRE,0.7A
3	2	019900109	UL SHRINK TUBING
2	1	PER VENDOR	HOUSING,HEADER,MOLEX 51146-0600
1	6	PER VENDOR	TERMINAL,CRIMP,28-30AWG,MOLEX 50641-8041

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	NAME	DATE
DFTR	RIZZA	10/21 16
PROC		
ENG	RIZZA	
MFG		
MODEL	TAHITI	
TOOL#		

DIMENSIONING AND TOLERANCING PER ISO 2768-1. ALL DIMENSIONS ARE MILLIMETERS AND INCLUDE APPLIED FINISH.

TOLERANCE TABLE

	OVER —	6	30	120	400	ANGLES	UNSPECIFIED DIMENSION TOLERANCE
UP TO	6	30	120	400	—		
FINE	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5°	
MEDIUM	±0.1	±0.2	±0.3	±0.5	±0.8	±1.0°	MEDIUM
COARSE	±0.3	±0.5	±0.8	±1.2	±2.0	±2.0°	

VIEW PERSPECTIVE

TAH 6 POSITIONS CABLE WITH CONNECTOR

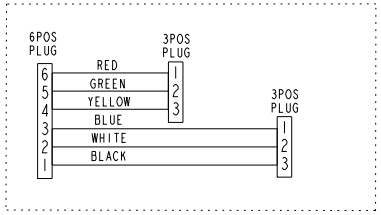
SCALE	SIZE	SHEET	BASE/DRAWING NUMBER	REV
4.000	A2	1 OF 1	770254901	A

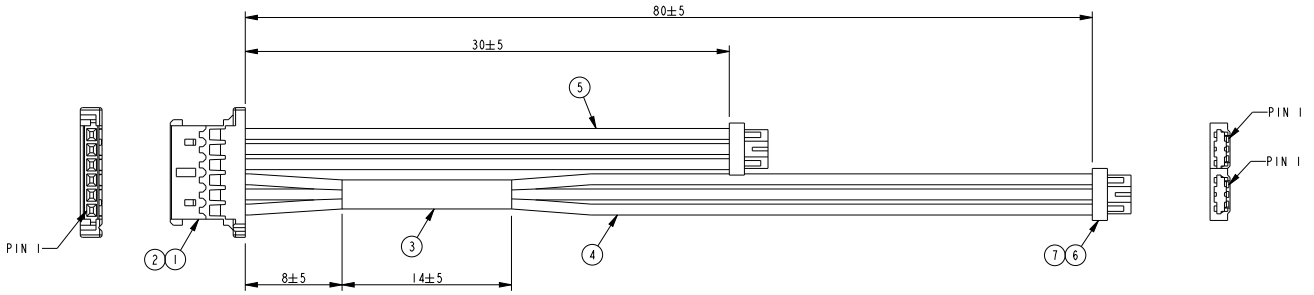
Six Positions Cable with Connector

NOTES: UNLESS OTHERWISE SPECIFIED

1. THIS PART WAS GENERATED FROM Pro/ENGINEER. PART MODEL (770254902) EXISTS IN WINDCHILL.
2. REFER TO SPECIFICATION DR6600045 FOR ADDITIONAL CABLE REQUIREMENTS.
3. CABLE ASSEMBLY MUST BE TESTED FOR CONTINUITY (MAX RESISTANCE 3 OHMS)
4. 25 CABLES MUST BE PUT IN A MINIGRIP PLASTIC BAG.
5. ALL MATERIALS MUST MEET REGULATORY HAZARDOUS SUBSTANCES REQUIREMENTS PER DATALOGIC SPEC DR7600112.
6. ALL MATERIALS MUST BE UL RECOGNIZED. CABLE MUST BE COMMNPLIANT WITH AND MARKED VW-1.
7. SUPPLIER MUST SUBMIT DIMENSIONAL REPORT EACH FURNITURE LOT; REPORT MUST INCLUDE AT LEAST DIMENSIONS # 1 AND 2 OF FIVE PARTS.

REV	BRIEF DESCRIPTION OF CHANGE	DFTR	ECO	DATE	CHKD	ENGR
A	RELEASE TO PRODUCTION	FR	22575	02/09 17		FR





ITEM	QTY	PART NUMBER	DESCRIPTION
7	6	PER VENDOR	CRIMP CONTACT HIROSE DF52-2832PCF
6	2	PER VENDOR	HIROSE DF52-3P-0.8C
5	3	PER VENDOR	SPEC,UL1551 OR UL1605 30AWG WIRE,0.7A
4	3	PER VENDOR	SPEC,UL1551 OR UL1605 30AWG WIRE,0.7A
3	1	019900109	UL SHRINK TUBING
2	1	PER VENDOR	HOUSING,HEADER,MOLEX 51146-0600
1	6	PER VENDOR	TERMINAL,CRIMP,28-30AWG,MOLEX 50641-8041

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	NAME	DATE
DFTR	RIZZA	10/21 16
PROC		
ENG	RIZZA	
MFG		
MODEL	TAHITI	
TOOL#		

DIMENSIONING AND TOLERANCING PER ISO 2768-1. ALL DIMENSIONS ARE MILLIMETERS AND INCLUDE APPLIED FINISH.

TOLERANCE TABLE

	OVER UP TO —	6	6 30	30 120	120 400	400 —	ANGLES	UNSPECIFIED DIMENSION TOLERANCE
FINE	±0.05	±0.1	±0.15	±0.2	±0.3	±0.5°		
MEDIUM	±0.1	±0.2	±0.3	±0.5	±0.8	±1.0°	MEDIUM	
COARSE	±0.3	±0.5	±0.8	±1.2	±2.0	±2.0°		

VIEW PERSPECTIVE

TAH 6 POSITIONS CABLE WITH CONNECTOR

SCALE	SIZE	SHEET	BASE/DRAWING NUMBER	REV
4.000	A2	1 OF 1	770254902	A

NOTES

www.datalogic.com

Datalogic USA, Inc.
959 Terry Street | Eugene, OR 97402 | USA
Telephone: (541) 683-5700 | Fax: (541) 345-7140

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