

# Technical Manual

MB/9730/TM/04/E/020618



# MicroBar 9730 Decoder

**Intermecc**

A **UNOVA** Company

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# 1. Overview

## 1.1. References

Product	MicroBar 9730
Reference of this document	MB/9730/TM/04/E/020618
Version	4.0

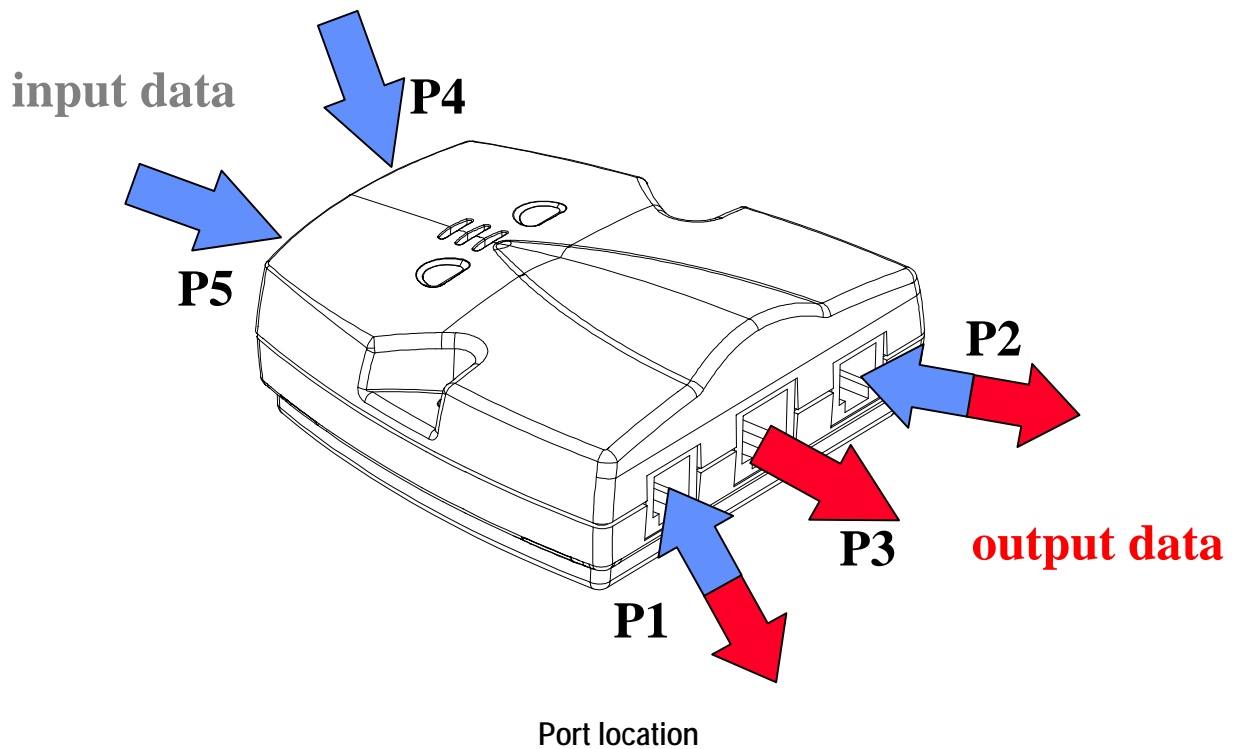
## 2. I/O interfaces

### 2.1. General description

Port 4, and Port 5 are used to connect input devices to the MicroBar.

Port 1, Port 2 and Port 3 are used to connect the MicroBar to the host system.

*Note: Port 1 and Port 2 can also be used as input ports when available. No specific setup is required.*



## 2.2. Ports

2.2.1. Five ports are available. Using the dual pen adapter virtual port 6 can be added to port 4.

### 2.2.2. Function

Port	Direction	Connector	Devices	Comments
1	Output	6 pin female modular socket	to system for standard wedge (except WYSE & DEC 220/320/420)	passive cable - UBI 0-601xxx-00 compatible
	Input		5V power supply input	old UBI power supply cable end style (available if not already used for standard wedge transmission)
	Input		external analog/digital pen	UBI wand compatible (available if not already used for standard wedge transmission)
2	Output	6 pin female modular socket	to keyboard for standard wedge (except WYSE & DEC 220/320/420)	passive cable - UBI 0-601xxx-00 compatible
	Input		5V power supply input	old UBI power supply cable end style (available if not already used for standard wedge transmission)
	Input		external analog/digital pen	UBI wand compatible available if not already used for standard wedge transmission and if the port 3 is not used with a smart cable (P/N x-xx5xxx-xx) or a USB cable
3	Output	10 pin female modular socket	host system output cable: <ul style="list-style-type: none"> <li>• single passive type for RS-232 TTL</li> <li>• single active type for RS-232C</li> <li>• single smart type for all cash registers &amp; USB (when available)</li> <li>• Y active type for dual RS-232C</li> <li>• Y active type for standard Wedge</li> <li>• Y smart type for special wedges (WYSE, DEC, ...)</li> <li>• single passive type for wand emulation</li> </ul>	All SCANPLUS 1800 cables are compatible except the energy saver cables (different boot)
	Input		1 analog/digital pen	specific wand pin-out (available only if standard wedge transmission on Port 1, 2)
4	Input	9 pin subD male	undecoded laser gun CCD scanner as wand emulation analog/digital pen	PSC/SYMBOL compatible  HHP/DL compatible
	Input		2 analog/digital pens	using the UBI dual pen adaptor cable option
	Input		RS-232C input	electronic scales or any RS-232C input device

5	Input	10 pin modular socket (LH key)	Intermec Wands undecoded laser gun CCD scanner as wand emulation analog/digital pen undecoded magnetic stripe reader dual tracks TTL RS-232 input	INTERMEC input device compatible including left hand key connectors
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*Note: All connectors are non-shielded.*

2.2.3. Pin-outs

**Signals**

**Port 1**

Pin	pen	Wedge system	Power supply
1	data	clock	-
2	-	data	-
3	-	-	-
4	-	-	-
5	VCC	VCC	+5 VDC
6	GND	GND	GND

**Port 2**

Pin	Pen (*)	Wedge keyboard	Power supply
1	data	clock	-
2	-	data	-
3	-	-	-
4	-	-	-
5	VCC	VCC	+5 VDC
6	GND	GND	GND

*Note: Available if the port 3 is not used with a smart cable (P/N x-xx5xxx-xx) or a USB cable.*

**Port 3**

The wand emulation output is available from firmware version 2-02C2 and higher.

Pin	Pen input	Pen output	RS-232/dual RS-232	wedge RS (DEC, ..)	Standard wedge	smart cables
1	+5v	+5v	+5v	+5v	+5v	+5v
2	-	-	-	-	-	-
3	-	-	-	-	reset	reset
4	-	data	TXD (MicroBar 9730 output)	TXD (MicroBar 9730 output)	data	TXD (MicroBar 9730 output)
5	-	-	RTS (MicroBar 9730 output)	-	clock	RTS (MicroBar 9730 output)
6	data	-	RXD (MicroBar 9730 input)	RXD (MicroBar 9730 input)	-	RXD (MicroBar 9730 input)
7	-	cable detection (=p8)	CTS (MicroBar 9730 input)	-	cable detection (=pin8)	CTS (MicroBar 9730 input)
8	-	cable detection (p=7)	cable detection (=+5v)	cable detection (=GND)	cable detection (=pin9)	cable detection (=GND)
9	-	cable detection (=GND)	cable detection (=GND)	cable detection (=+5v)	cable detection (=pin7)	cable detection (=GND)
10	GND	GND	GND	GND	GND	GND

**Port 4**

pin	RS-232 C	laser	pen port 4	Virtual pen port 6 using dual pen adapter	power supply
1	GND (Detection)	SOS	data	do not connect	do not connect
2	GND (Detection)	data	do not connect	data	do not connect
3	TXD (Output)	ACK/beep	do not connect	do not connect	do not connect
4	CTS (Input)	CTRL	do not connect	do not connect	do not connect
5	GND (Detection)	trigger	do not connect	do not connect	do not connect
6	RTS (Output)	enable	do not connect	do not connect	do not connect
7	GND	GND	GND	GND	power GND
8	RXD (Input)	do not connect	do not connect	do not connect	do not connect
9	VDC	VDC	VDC	VDC	power +5 VDC

**Notes about RS-232C detection on Port 4:**

- RS-232C cable with recognition keys (pins 1,2 and 5 to GND):

RS-232C mode on Port 4 is automatically enabled. It is not necessary to read the bar code “RS-232 Input devices on port 4 - enable” (see bar code below). This solution allows you to change the input device (Pen or Laser) on port 4 after the RS-232 cable is disconnected and after a new system power on.

- RS-232C cable without recognition keys (pins 1,2 and 5 are free):

When using an RS-232 cable without recognition keys, you must read the “RS-232 Input devices on port 4 – enable” bar code (see bar code below). In this case, pins 1 and 2 can be used for pen input at the same time. However you must disable the RS-232 input mode on port 4 before connecting a laser device.

**Default settings are indicated by (\*)**

RS-232 input devices on port 4 - disable (\*)



14A\46\02\04\00\60

RS-232 input devices on port 4 - enable



14A\46\02\04\01\60



**Port 5**

Depending on the software revision of your MicroBar, the input/output port pin definitions are slightly different.

Firmware revision 1-xxC2 and 2-xxC2

Input devices must be connected as follows:

Pin	Laser	Pen	Magnetic stripe	RS-232 TTL
1	do not connect	do not connect	Clis (input)	GND
2	good read (output)	do not connect	data iso2 (input)	GND
3	SOS (input)	do not connect	clk iso2 (input)	TXD (output)
4	data (input)	data (input)	clk iso1 (input)	RXD (input)
5	do not connect	do not connect	do not connect	do not connect
6	do not connect	do not connect	data iso1 (input)	RTS (output)
7	enable (output )	do not connect	do not connect	do not connect
8	trigger (input)	do not connect	do not connect	CTS (input)
9	GND	GND	GND	GND
10	+5v output power	+5v output power	+5v output power	+5v output power

Firmware revision 3-xxC2 and higher (released after April 2000)

Input devices must be connected as follows:

Pin	Laser	Pen	Magnetic stripe	RS-232 TTL
	"RS232 Input device on port 5" DISABLE	"RS232 Input device on port 5" DISABLE	"RS232 Input device on port 5" DISABLE	"RS232 Input device on port 5" ENABLE
1	do not connect	do not connect	Clis (input)	do not connect
2	good read (output)	do not connect	data iso2 (input)	TXD (output)
3	SOS (input)	do not connect	clk iso2 (input)	CTS (input)
4	data (input)	data (input)	clk iso1 (input)	RXD (input)
5	do not connect	do not connect	do not connect	do not connect
6	do not connect	do not connect	data iso1 (input)	do not connect
7	enable (output)	do not connect	do not connect	RTS (output)
8	trigger (input)	do not connect	do not connect	do not connect
9	GND	GND	GND	GND
10	+5v output power	+5v output power	+5v output power	+5v output power

RS-232 input devices on port 5 - disable (\*)



\4A\46\02\05\00\60

RS-232 input devices on port 5 - enable



\4A\46\02\05\01\60

FOR INTERNAL USE ONLY		
Pin	RS TTL STC Compatible	RS TTL 1802 Compatible
	"RS232 Input device on port 5" ENABLE	"RS232 Input device on port 5" DISABLE
1	GND	GND
2	GND	GND
3	TXD (Output)	TXD (Output)
4	RXD (Input)	RXD (Input)
5	do not connect	do not connect
6	RTS (Output)	do not connect
7	do not connect	do not connect
8	CTS (Input)	do not connect
9	GND	GND
10	+5v output power	+5v output power

## 2.3. Output interface

Port 1, Port 2 and Port 3 are used as output ports (see section 2.1 for locations).

Port 1 and 2 also accept cables used for CMM.

### 2.3.1. Electrical

TTL levels on Port 1, Port 2 and Port 3

### 2.3.2. Port function

Port	Output interfaces	Cable	Comments
1 & 2	wedge (standards)	Single passive set	Cxx compatibles (601xxx-xx)
3	wedge (standards)	Y active	ScanPlus 1800 compatible
3	wedge WYSE/HP	Y Smart	ScanPlus 1800 compatible
3	wedge DEC VT 220,320,420/RS based	Y active	ScanPlus 1800 compatible
3	dual RS-232C	Y active	ScanPlus 1800 compatible
3	RS-232 C	Single active	ScanPlus 1800 compatible
3	RS-232 TTL	Single passive	ScanPlus 1800 compatible
3	Cash registers (OCIA, IBM)	Single Smart	ScanPlus 1800 compatible
3	wand emulation	Single passive	ScanPlus 1800 compatible

**Notes:**

*All wedge connections can be made through port 3 and SCANPLUS 1800 cable compatibles.*

*DEC VT 510,520 can be connected as standard wedge.*

*Some WYSE terminals are PC-compatible and are considered as standard PC.*

*Laser and wand emulation outputs are not available as standard.*

### 2.3.3. Connection principles

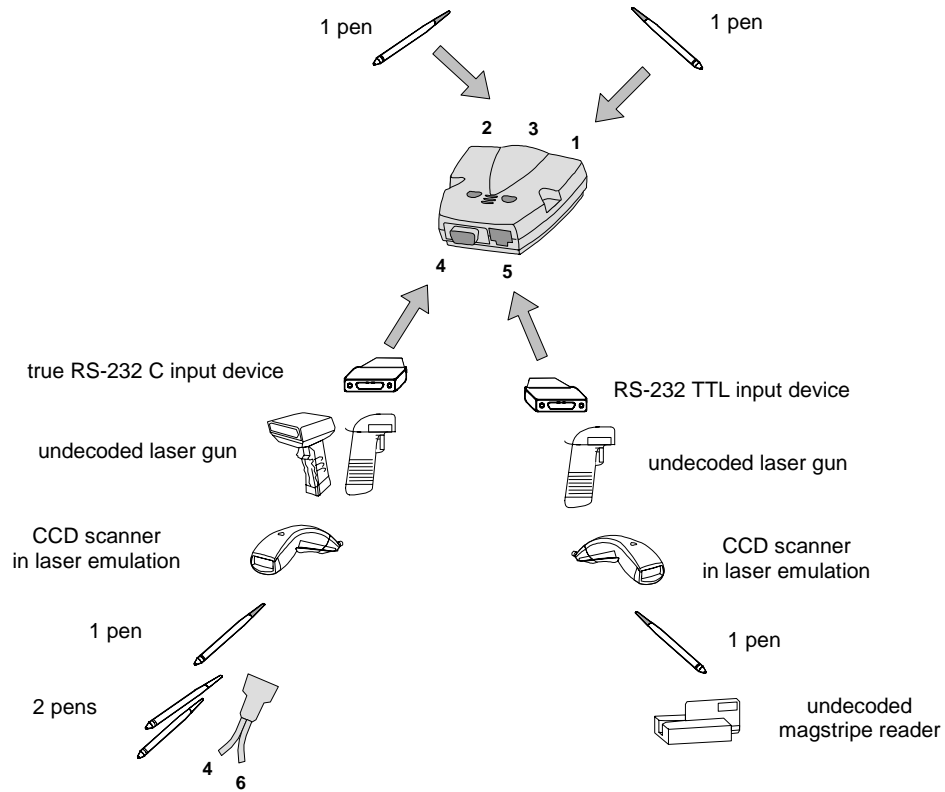
Refer to the Getting Started Guide or Installation Manual for complete information.

## 2.4. Inputs

Port 4 and Port 5 are used as input ports.

Port 5 is Intermec input device compatible.

Ports 1 and 2 can be used as input ports when free (depending on the output interface).



### 2.4.1. Input device management

#### Input data memory buffers

4Kb of memory are available for input data storage before transmission.

#### Input device priority order management

The priority given to the input devices does not depend on the port they are physically attached to but on their type (e.g. : RS-232, wand, laser, magstripe).

Input devices are divided into two priority groups as shown below:

priority 1 (highest)	RS-232 inputs - Ports 4,5
priority 2	wand, laser, magstripe inputs - Ports 1,3,4,5

**Possible cases**

For simultaneous input events from devices with different priority levels, the highest priority event (RS-232) will receive enough processor resources (full priority) to ensure successful recording. The lowest priority events will be lost.

For simultaneous input events from devices with a high priority level (RS-232), the first event is processed first (top priority). Depending on speed and protocol the other events may be lost or successfully processed.

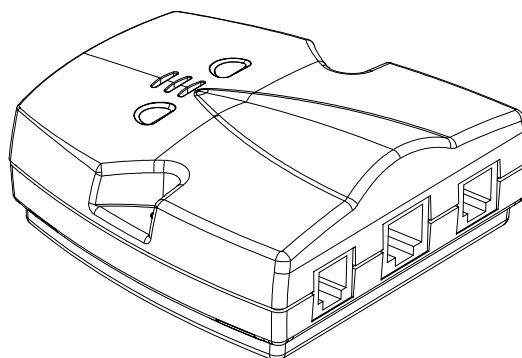
For simultaneous input events from devices with a low priority level, the first event is processed first (top priority). The second event is lost.

## 2.5. Cables

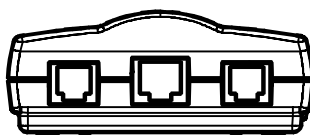
All cables for the MicroBar 9730 are available on the web site at <http://datacapture.intermec.com/>

## 3. Mechanical specification

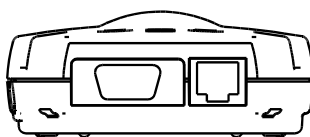
### 3.1. External shape



overall view



host side (output)



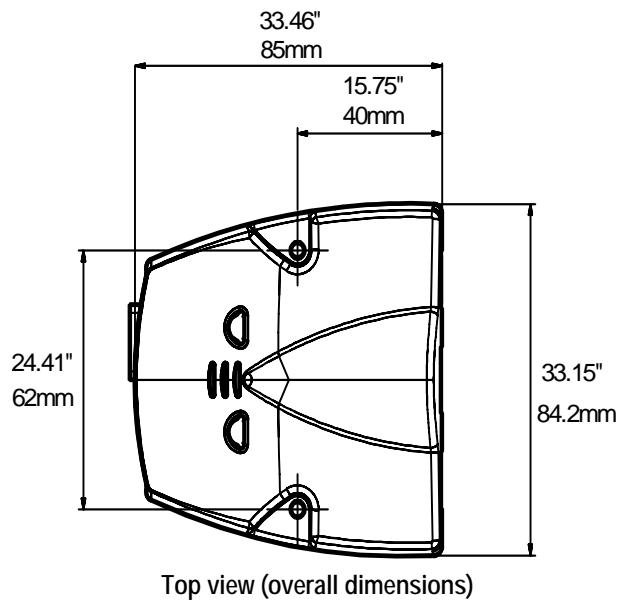
input device side

- Snap closure (no screws)
- Color: light gray (same as ScanPlus 1800 series)
- Port numbers printed on the identification label (bottom shell)
- Two mounting holes
- Space on lower shell to mount using double pads or Velcro

#### 3.1.1. Color specification

PMS 427

### 3.2. Overall dimensions

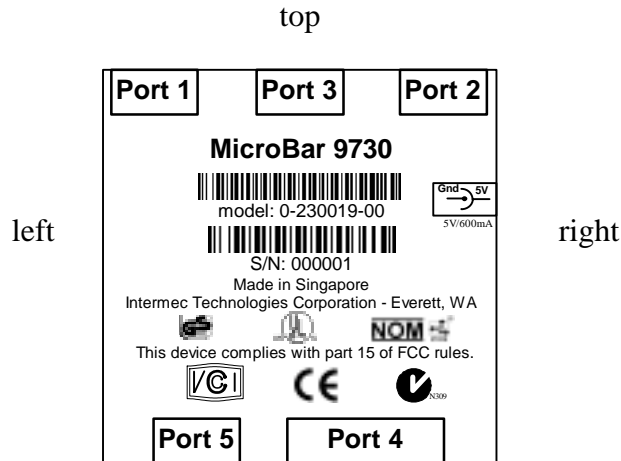




### 3.3. Label specification

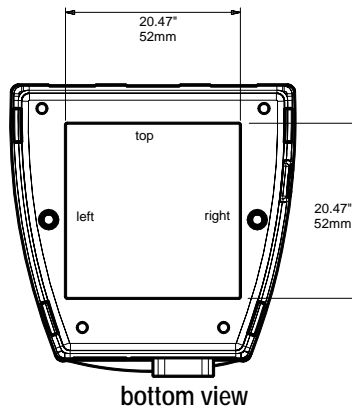
Label recessed in lower shell

#### 3.3.1. Contents



*Note: Barcode data is encoded using symbology 128*

#### 3.3.2. Dimensions

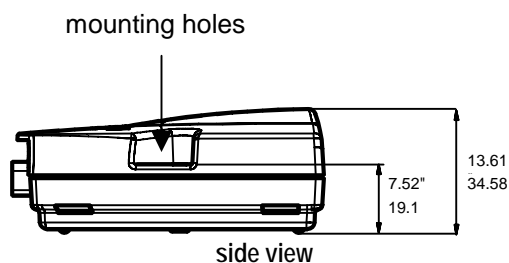


### 3.4. Mounting holes

Two mounting holes (hidden under a thin plastic film) can be used to secure the MicroBar to any surface with 2 appropriate screws.

#### 3.4.1. Dimensions

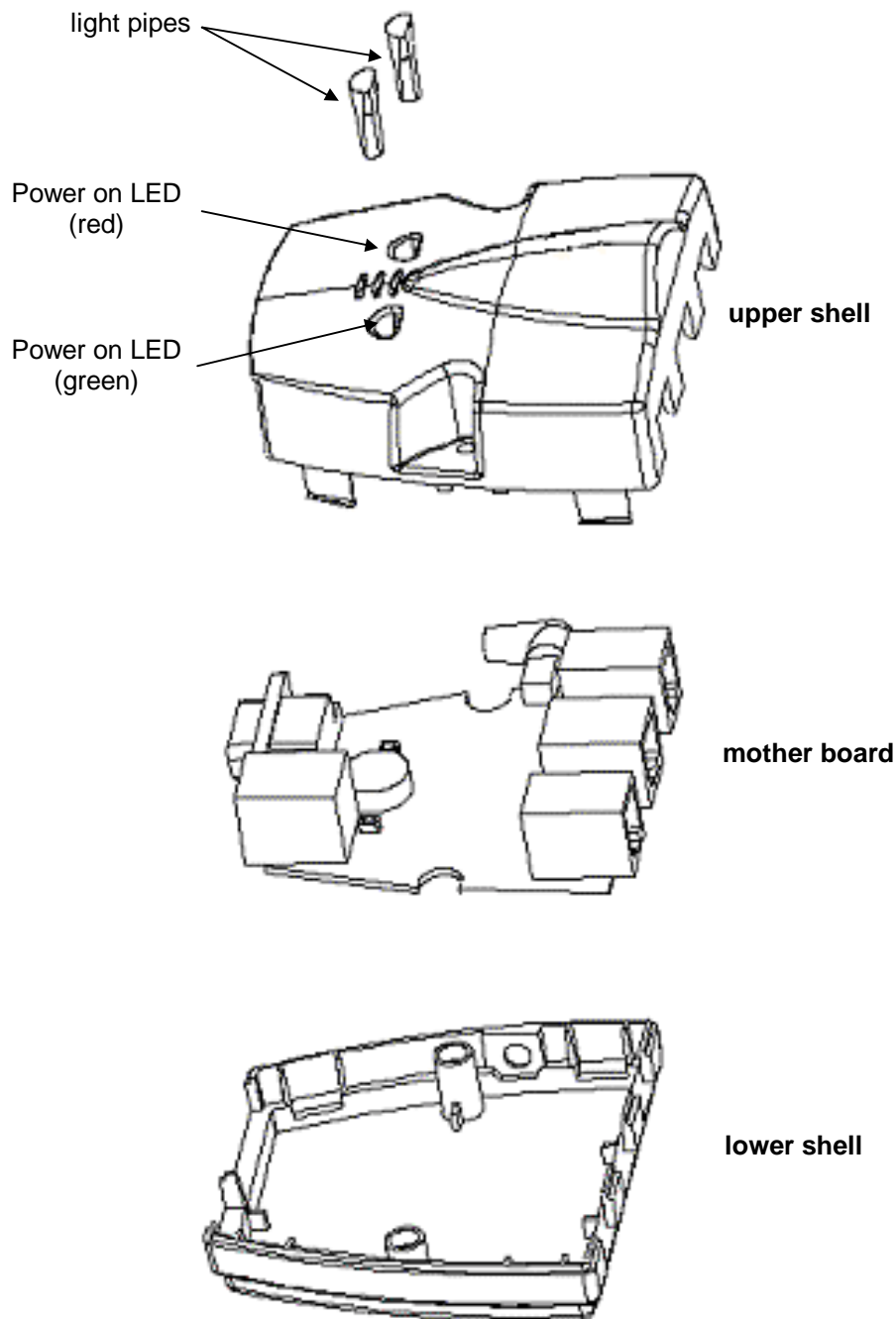
hole	recess for the screw head	2.56"
		6.5mm
	Length	7.48"
		19mm
	Diameter	1.18"
		3mm



#### 3.4.2. Position

Refer to the illustration "Top view" on page 16.

### 3.5. Mechanical components

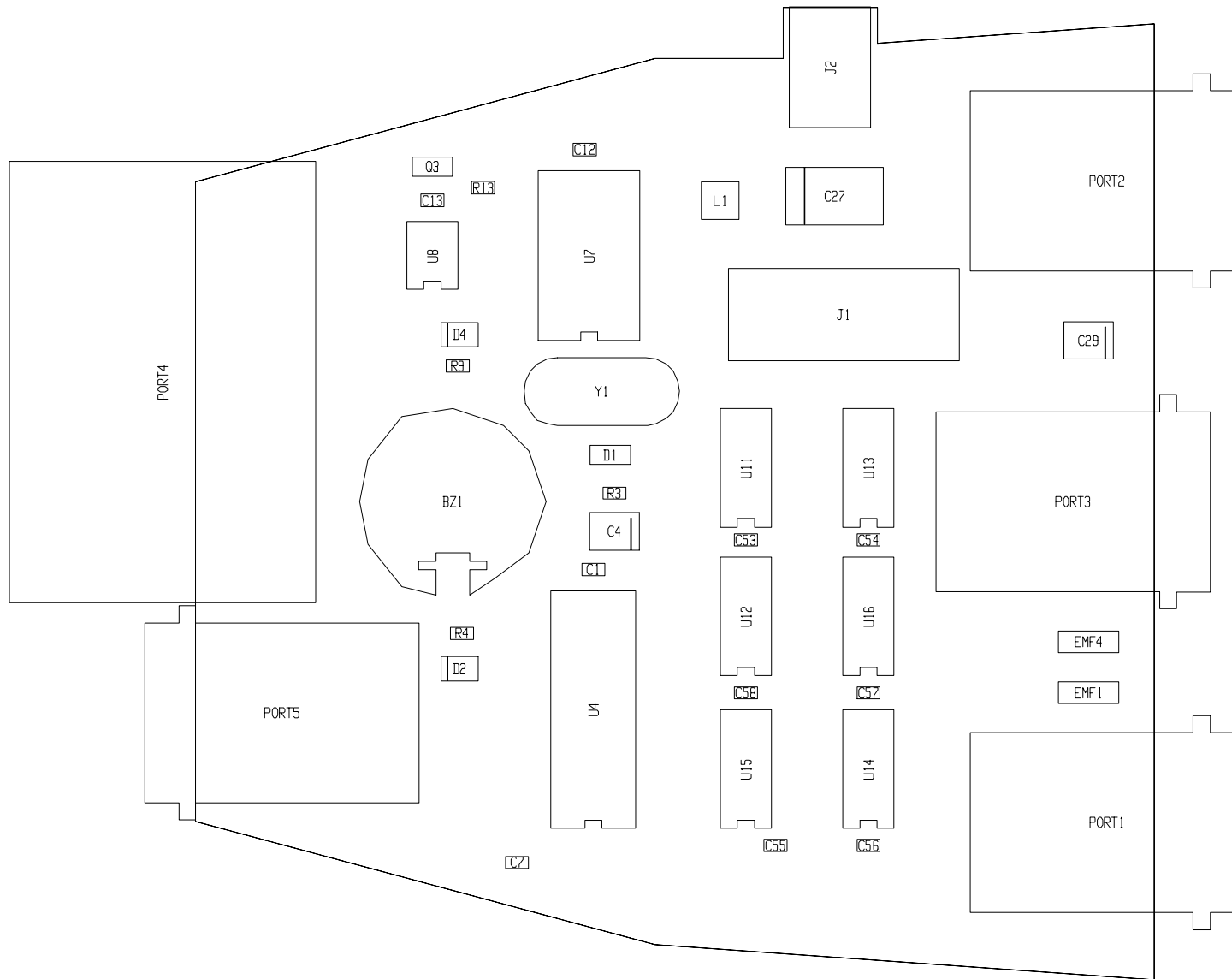


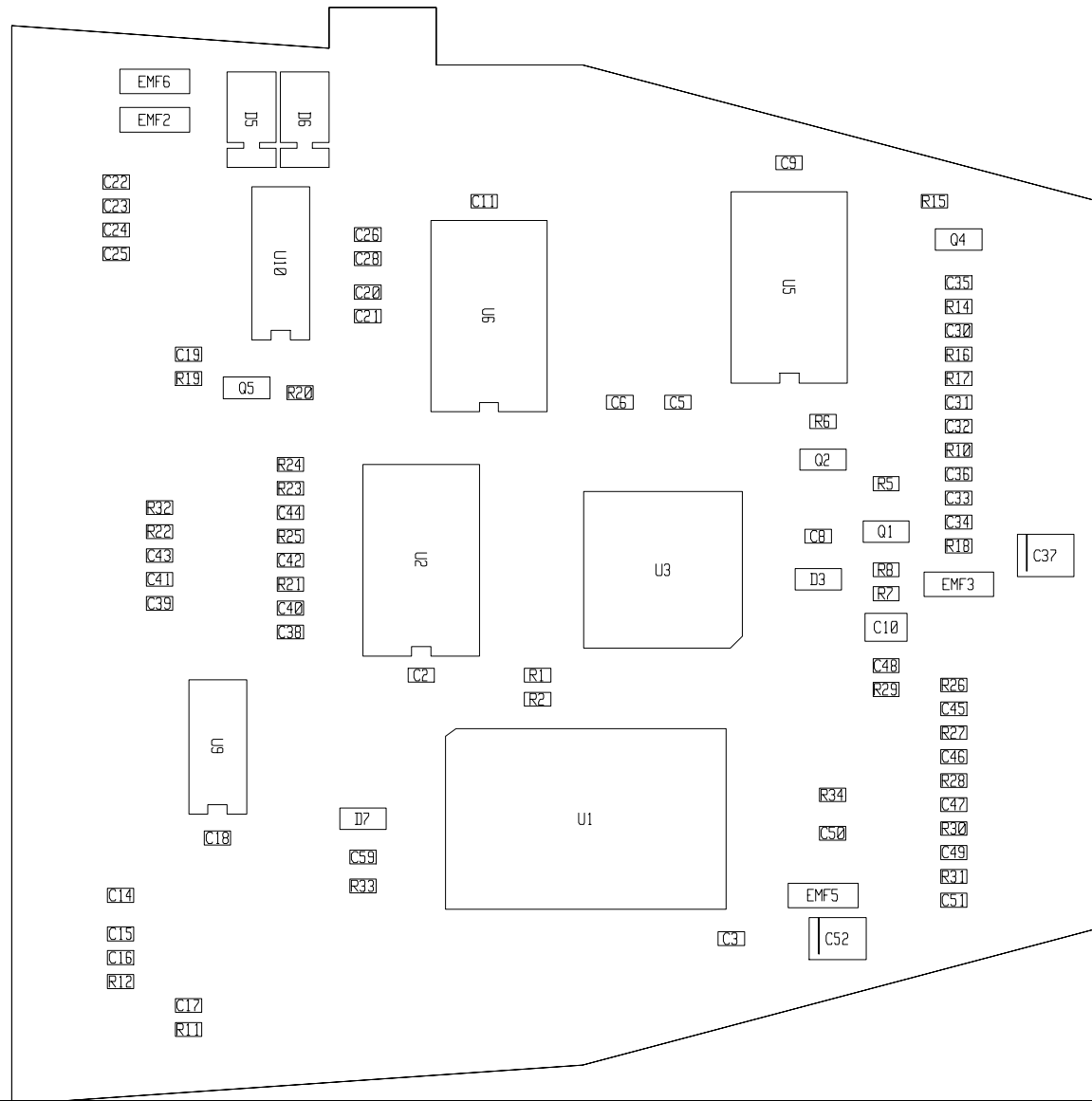
## 4. Electrical specification

### 4.1. PCB boards

A single PCB is used for all configurations. The same PCB using the same components and jumper settings is applicable whatever the input/output interfaces.

### 4.2. Component location





## 4.3. Power supply

The power supply is available with two different connector ends; either a DC jack connector, or a modular 6-pin plug. Different power supplies are available for different countries (USA, Europe, etc ...).

The power supply with a DC jack is recommended as it is suitable for all input devices and all possible host system connections.

### 4.3.1. External power supply unit characteristics

Voltage	5.2 volts DC +/- 1%
Current	500 mA for standard use
Connector	jack connector 5v external (standard power supply port) modular 6-pin plug (port 1,2)

*The power supply is identical to the standard power unit used for the ScanPlus 1800*

### 4.3.2. MicroBar unit power consumption

#### Normal operating mode

Voltage	5 volts DC +/- 5%
Current	35 mA (*) average
Power	182 mW (*) average

*Note: (\*) no input devices connected*

#### Power on

Voltage curve during power on	tbd
Current peak at power on	tbd

4.3.3. Connectors

**DC jack**

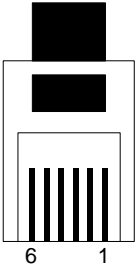
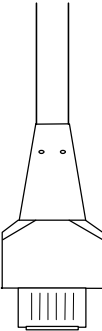
P/N type: 0-30x029-01



*Note: +5v is external*

**Modular plug**

P/N type: 0-30x029-00



Contact view

6-position modular plug

Pin 5	+5V
Pin 6	GND



## 5. Firmware specification

### 5.1. Firmware reference

*x - yy C2 z*

<b>x-yy</b>	<b>C2</b>	<b>z</b>
x indicates the version level, yy indicates the revision level	product identifier	_ indicates a standard version A-Z indicates a special version

Examples

- 3-02C2\_ indicates the standard version 3.2
- 1-03C2A indicates special version A of the standard version 1.3

### 5.2. Firmware releases

Binary files are available in the “Software database” at <http://datacapture2.intermec.com/>.

Beta versions are not approved but can be used to correct a recent problem.

### 5.3. Memory components

<b>Program code (downloadable)</b>	512K x 8 - 1 Mb flash eeprom  (2 Mbits available after the first production batch of 2000 units)
<b>Data RAM</b>	32K x 8
<b>Non volatile parameters</b>	8K x 8 – flash eeprom

### 5.4. Firmware upgrade

Go to the Data Capture intranet web site at <http://datacapture2.intermec.com/>

## 6. User environment

Operating temperature	-20° to 55°C
Storage temperature	-25° to 70°C
Relative humidity	5 to 95% non condensing
MTBF	50 000 hours at 25°C (to be checked) statistic method of calculation
Drop tests	withstands 5 drops from 1.5m onto a concrete floor on any face
User interface	<ul style="list-style-type: none"><li>• aural and visual indications (beeps and flashing green indicator LED) during power-up</li><li>• power-on LED - red</li><li>• good-read LED - green flashing</li><li>• good read beep</li></ul>

## 7. Standards

### 7.1. General

CE light industry domain Emission <ul style="list-style-type: none"> <li>• EN 50081-1</li> <li>• EN 55022 Class B</li> </ul> Immunity <ul style="list-style-type: none"> <li>• EN 50082-1</li> <li>• IEC 801-2</li> <li>• IEC 801-3</li> <li>• IEC 801-4</li> </ul>	passed
FCC Class B (emission)	passed
Canadian CES-003 Class B (emission)	passed
IP level	50

### 7.2. Safety

UL Listed to US & Canadian requirements of UL 1950/CSA C22.2 #950	passed
TUV GS Licensed to EN 60950	passed
NYCE Certified to NOM	passed

## 8. Part numbers

This chapter lists the main P/Ns. These lists are not exhaustive.

### 8.1. Single unit

Description	P/N
MicroBar unit	0-230019-00

### 8.2. Power supplies

Description	P/N
Europe power unit (except UK) - with Jack connector	0-301029-01
US power unit - with Jack connector	0-302029-01
UK power unit - with Jack connector	0-303029-01

### 8.3. Setup/downloading kit

The kit can be used to:

1. upgrade MicroBar firmware
2. setup online with EasySet
3. upgrade Smart cable firmware

*Note: Actions 1 and 2 can also be performed using a standard PC RS-232 cable.*

Includes:

- CD ROM (0-900029-01-000-00)
- Download cable (0-605032-00)
- Power supply (P/N depends on country)

## 8.4. Documentation

### 8.4.1. User manuals

Description	P/N	Comments
Getting Started Guide	0-230049-01	
Installation Manual	0-230049-02	English version