



Chapter 4 Maintenance & Specifications

Maintenance

Cleaning the exit window is the only maintenance required.

- Do not allow any abrasive material to touch the window.
- Remove any dirt particles with a damp cloth.
- Wipe the window using a damp cloth, and if necessary, a non-ammonia based detergent.
- Do not spray water or other cleaning liquids directly into the window.

Accessories

Required Accessories

LS 400X scanners are sent as a package with required accessories, listed in the *Product Ordering Guide*. Optional accessories are available at extra cost.

Optional Accessories

Optional accessories, listed in the *Product Ordering Guide*, include various stands and holders, which are supplied at extra cost. Additional units of standard accessories may also be purchased at extra cost.

Technical Specifications

Table 4-1. Technical Specifications

Item	Description
Power Requirements*	
Undecoded	4.5 to 14 VDC (max) 80 mA @ 5V typical
IBM 46XX/Synapse	4.8 to 14 VDC (max) 200 mA @ 5V typical
RS-232C/Synapse	4.8 to 14 VDC (max) 180 mA @ 5V typical
Low Power	4.8 to 14 VDC (max) 2 mA @ 5V typical
Decode Capability	The LS 400X can be programmed to decode the following code types: UPC/EAN, Bookland EAN, Code 39, Code 39 Full ASCII, Trioptic Code 39, Code 93, Codabar, Interleaved 2 of 5, Code 128, EAN 128, Discrete 2 of 5, and MSI Plessey. Set code length(s) for any linear code type. The LS 400X can auto-discriminate between all of the above code types except for Code 39 and Code 39 Full ASCII. Transmission of decoded information will depend on the capabilities of the attached terminal.
Beeper Operation	User-selectable: Enabled, Disabled
Scan Repetition Rate	36 (\pm 3) scans/sec (bidirectional)
Roll (Skew) Tolerance	\pm 10° from normal
Pitch	\pm 65° from normal
Yaw	\pm 60° from normal
Decode Depth of Field	See <i>LS 400X Decode Zone</i>
Print Contrast Minimum	20% absolute dark/light differential, measured at 675 nm.
Ambient Light Immunity	
Artificial Lighting	200 ft. candles 2153 lux
Sunlight	8000 ft. candles 86112 lux (@8 in. (20 cm) on low density bar codes)
*For direct host power connection, make sure the host terminal supplies sufficient power for the specified operation. Symbol is not responsible for damage to host equipment or system mis-operation due to an insufficient power condition.	

Table 4-1. Technical Specifications

Item	Description	
Operating Temperature	32° to 104°F	0° to 40°C
Storage Temperature	-40° to 140°F	-40° to 60°C
Humidity	5% to 95% (non-condensing)	
Coil Cable Length	9-12 ft.	274-365 cm (depending on host)
Durability	4-ft. drop to concrete	1.2 m
Dimensions		
Height	6.3 in.	16 cm
Length	5 in.	12.7 cm
Width	2.8 in.	7.1 cm
Laser Classifications	CDRH Class II IEC Class 1 IEC 825 Class 2	

Pin-outs

Table 4-2. Pin-outs

Pin	LS 4000	LS 4004	LS 4005	LS 4005 with EAS
1	Not Used	Reserved	Reserved	Reserved
2	Power	Power	Power	Power
3	Ground	Ground	Ground	Ground
4	Enable	Synapse Data	Synapse Data	Synapse Data
5	SOS	Synapse Clock	Synapse Clock	Synapse Clock
6	TRIGGER*	RxD	B IBM SERIAL	B IBM SERIAL
7	Decode	TxD	A IBM SERIAL	A IBM SERIAL
8	DBP	DTR	Not used	Shield
9	Not Used	CTS	Not used	EAS 1
10	Not Used	RTS	Not used	EAS 2

Beeper Indications

Table 4-3. Beeper Indications

Standard Use Beeper Sequence	Indication
Short high tone	A bar code symbol was decoded (if decode beeper is enabled).
4 Beeps - long low tone	A transmission error has been detected in a scanned symbol. The data is ignored. This will occur if a unit is not properly configured. Check option settings.
5 Beeps - low tone	Convert or format error
Lo/hi/lo tone	ADF transmit error
Hi/hi/hi/lo tone	RS-232 receive error
Parameter Menu Scanning	
Short high tone	Correct entry scanned or correct menu sequence performed.
Lo/hi tone	Input error, incorrect bar code or "Cancel" scanned, wrong entry, incorrect bar code programming sequence; remain in program mode.
Hi/lo tone	Keyboard parameter selected. Enter value using bar code keypad.
Hi/lo/hi/lo tone	Successful program exit with change in the parameter setting.
Code 39 Buffering	
Hi/lo tone	New Code 39 data was entered into the buffer.
3 Beeps - long high tone	Code 39 buffer is full.
Lo/hi/lo tone	The buffer was erased, or there was an attempt to transmit an empty buffer. When the Code 39 buffer was empty, the scanner read a command to clear or to transmit a Code 39 buffer.
4 Beeps - long low tone	Error in data transmission.
Lo/hi tone	A successful transmission of buffered data.