# Model 400 Raster Scanner

## Technical Specifications

## Long Range Raster Scanner Designed for Industrial Applications

Adjustable raster and scan area via oscillating mirror/stepper motor allows various positioning of bar code to be captured with the same orientation.

Rugged aluminum case for NEMA 12 environmental protection in harsh environments and maximum EMI and RFI suppression (upgradable to NEMA 4).

Programmable match code instructions for up to twenty codes with variable time-outs and beam tracking.

System status and/or drive peripheral equipment with two inputs and four outputs through simple open user programmable firmware for maximum system adaptability.

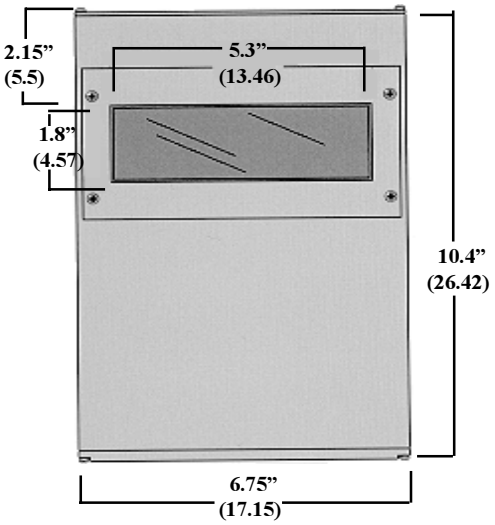
Programmable firmware via RS232, RS422 and RS485 communication protocols.

Industrial Scan, Inc.
Optimizing Bar Code Scanning Solutions

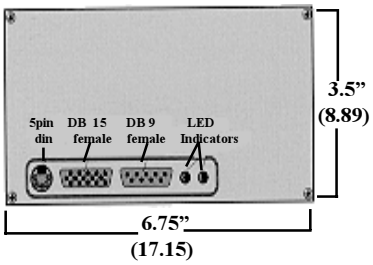
## MECHANICAL ENVELOPE/MOUNTING

Measurements in inches (centimeters)

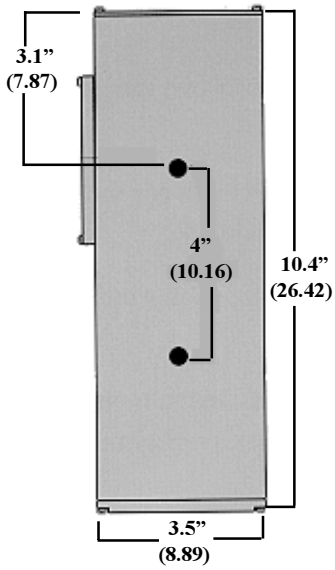
Front:




Back:




Side:

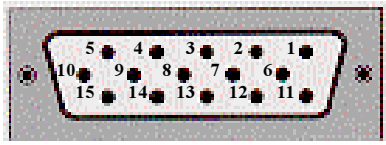



Enclosure:
Extruded aluminum, painted

Weight:
7.5 lbs.

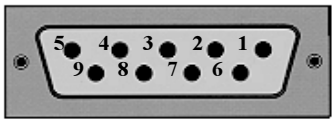
## ELECTRICAL TERMINATION

DB-15 Connector (Female)



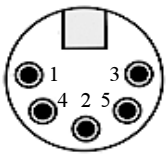

| | |
|---|---|
| 1 | Input 1 (spare) |
| 2 | Input 2 (spare) |
| 3 | Good Read Output (open collector 48ma) |
| 4 | No Read Output (open collector 48ma) |
| 5 | Good Compare Output (open collector 48ma) |
| 6 | No Compare Output (open collector 48ma) |
| 7 | Input 3 (spare) |
| 8 | Gate Input (photoeye input) |
| 9 | 5v DC Out |
| 10 | 12v DC Out |
| 11 | Open collector output (spare) |
| 12 | Open collector output (spare) |
| 13 | Sync |
| 14 | Open collector (spare) |
| 15 | Ground |

DB-9 Connector (Female)




| | |
|---|---|
| 1 | -TX (RS422) |
| 2 | RD |
| 3 | TD |
| 4 | -RX (RS422) |
| 5 | Ground |
| 6 | TX (RS422) |
| 7 | RTS |
| 8 | CTS |
| 9 | RX (RS422) |

5 Pin DIN Connector




| | |
|---|---|
| 1 | Ground |
| 2 | NC |
| 3 | +5v DC |
| 4 | -12v DC |
| 5 | +12v DC |

## POWER REQUIREMENTS

+5v DC@400ma
+12v DC@250ma
-12v DC@250ma

## ENVIRONMENTAL

Enclosure:
Aluminum extrusion,
NEMA 12 rating

Operating Temperature:
32½° to 104½° Fahrenheit

Relative Humidity:
0 - 95% noncondensing

## OPTICAL CHARACTERISTICS

Illumination:
5mw solid state laser diode or
10mw solid state laser diode

Wavelength:
670nm (nominal)

Sweep Speed:
3-24 sweeps per second

Sweep Angle:
30½ max.

Scan Element:
Rotating polygon
(8 or 12 sided) mirror

Scan Speed:
500 scans/second typical

Read Range:
2 to 60 inches - label dependent

Depth of Field:
Dependent of focal point, spot size
and narrow element bar width

## LABEL ORIENTATION

Scan Angle: 60 degrees

Scan Pitch: 45 degrees

Scan Skew: 45 degrees

## READ RANGE AND SCAN WIDTH

| | Narrow Bar Width | Depth of Field | Max. Scan Width |
|---|---|---|---|
| 5mw Laser: | .012 | 8-20 | 20 |
| | .020 | 6-22 | 24 |
| 10mw Laser: | .012 | 6-24 | 28 |
| | .020 | 6-34 | 28 |

This chart is based on a standard focal point with a 14 mil. spot size using grade A type labels. Actual depth of field, scan widths and focal points will be label dependent based on label quality and focal points set to customer requirements by the factory. Auto-Focus will increase range approximately 2.5 - 3 times.

## OPERATING PARAMETERS USER DEFINED:

Code Types:
- Codabar
- Code 3 of 9
- Interleaved 2 of 5
- EAN/UPC
- Code 128
- Code 93
- Pharmacode

Features Supported:
- Symbology - On/Off
- Compare Mode - On/Off
- Xmit Start/Stop Character - On/Off
- Check Character Required - On/Off
- Xmit Check Character - On/Off
- Read Count - 1 to 32
- Fixed Field Length - up to 5 different lengths

Gate Parameters:
- Reader; Mode of Operation - Continuous, Gate, Host, Change, Autogate
- Laser Beam Tracking - On/Off
- Transmit to Host - Read/Close
- Autogate/Change Mode Time - 5mSec Increments
- Start/Stop Character - Any ASCII Character
- Number of Bar Codes - up to 5 max.

Communications:
- RS 232
- RS 422 - 4 wire
- RS 485 - Multi-Drop
- Baud Rate - 300 to 19.2k
- Data - 7 or 8 bits
- Parity - None, Even, Odd
- Stop - 1 or 2
- Transmission Protocol - None, RTS/CTS, XON/XOFF
- RTS - Low, High, Active
- CTS - Ignore, Active

Programmable Transmission Format:
- Transmit No-Read - Yes/No
- Transmit Symbol ID - Yes/No
- Transmit Direction - Yes/No
- Start Text - Codes or Commands
- Identify Text - Identifier
- No Read Text - 10 Characters Max.
- Good Compare Text - 10 Characters
- No Compare Text - 10 Characters
- End Text - 10 Characters
- End of Message Character - None, LF, CR, CRLF, ETX, TAB
- Multiple Bar Code Delimiter - 1 Digit

Compare Buffer:
- Entries Allowed - 20 (127 digits/characters max.)
- Insert into Compare Buffer-Code type and Characters
- Insert Last Read - Yes/No
- Show Compare Buffer - Yes/No
- Delete Buffer Entry - Yes/No
- Four Open Output Collectors;
  - Good Read - 5mSec Increments
  - No-Read - 5mSec Increments
  - Good-Compare - 5mSec Increments
  - No Compare - 5mSec Increments
  - Active High/Low
- No Compare On No-Read - Yes/No

## CERTIFICATIONS

Laser Classification:
- DHHS Class II
- UL and CE marks submitted

## WARRANTY

Parts and Labor: One year

## STANDARD FEATURES

Motor:
Long life brushless motor

Mirror:
Diamond machined, gold plated aluminum

Coaxial Optics:
Maximum ease of set-up

Detector Board:
Oversized precision optics, ambient light & polarizing filters

Aluminum Case:
Max EMI/RFI protection

Firmware:
User programmable

## FACTORY OPTIONS

Scan Speed:
Adjustable from 250 to 1000 scans/second

Focal Point:
Adjustable for spot size and narrow element


Raster Pattern:
Standard .1" at 10", or machined to specific application

Electrical Termination:
Cabling as required

Light Source:
Standard 670nm, optional 780nm 5mw or 10mw laser diode

Symbologies:
Specials available depending on qty.

Firmware:
Custom configurations

Environmental:
Standard NEMA 12, upgradable to NEMA 4

Auto focus:
Three variable focal points with 50m Sec. response time