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Table 1: Scale Identification and Size

<table>
<thead>
<tr>
<th>Scale Identification</th>
<th>Dim A</th>
<th>Measured Length</th>
<th>Dim B</th>
<th>Scale Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>LXX</td>
<td>Xx-mm</td>
<td>30mm ± 5mm</td>
<td>Xx-mm</td>
<td>25mm</td>
</tr>
<tr>
<td>(max) L130</td>
<td></td>
<td>130mm ± 5mm</td>
<td></td>
<td>120mm</td>
</tr>
</tbody>
</table>

Table 2: Cable Length

<table>
<thead>
<tr>
<th>Cable Length</th>
<th>(1500H)</th>
<th>(2000H)</th>
<th>(3000H)</th>
<th>(3500H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Meter</td>
<td>2 Meter</td>
<td>1 Meter</td>
<td>2 Meter</td>
<td></td>
</tr>
<tr>
<td>.072</td>
<td>.325</td>
<td>.391</td>
<td>.93</td>
<td></td>
</tr>
</tbody>
</table>

Note:
1. Recommended Mounting Hardware: 2-56 or M2 Screws w/ 4 Flat Washers (2 on each Screw) (OD of WASHER NOT TO EXCEED 0.150 [3.81]), Max. Torque: 3.3 in. lbs.
2. For Applications Using the SmartPrecision Electronics, this connector (FCI p/n 85701-605 or SAMTEC p/n SMT-105-03-S-D) is inside the enclosure (see Interface drawings). Additional strain relief must be provided if MicroE supplied electronics is not used.
3. If benching pins are to be used, pins must be placed along datums of both the sensor and the scale for proper alignment. (Reference datums B1, B2 and C1 for sensor benching pins)
4. Height of sensor benching pins must be a minimum of 0.170 [4.32] in height from datum a.
5. Height of scale benching pins not to exceed the thickness of the scale.
6. Recommended sensor mounting plate thickness: minimum 4 screw threads.

When scale moves in direction "A" with respect to a stationary readhead, output signal COS+/B+ (pin 5/pin 9) leads output signal SIN+/A+ (pin 1/pin 5). For scales attached with adhesive tape (LXX-T), the scale mounting surface must be .006" further away from sensor mounting surface for nominal .193 [4.90] height.

Scale Oriented for Center Index.

1. Recommended Mounting Hardware: 2-56 or M2 Screws w/ 4 Flat Washers (2 on each Screw) (OD of WASHER NOT TO EXCEED 0.150 [3.81]), Max. Torque: 3.3 in. lbs.
2. For Applications Using the SmartPrecision Electronics, this connector (FCI p/n 85701-605 or SAMTEC p/n SMT-105-03-S-D) is inside the enclosure (see Interface drawings). Additional strain relief must be provided if MicroE supplied electronics is not used.
3. If benching pins are to be used, pins must be placed along datums of both the sensor and the scale for proper alignment. (Reference datums B1, B2 and C1 for sensor benching pins)
4. Height of sensor benching pins must be a minimum of 0.170 [4.32] in height from datum a.
5. Height of scale benching pins not to exceed the thickness of the scale.
6. Recommended sensor mounting plate thickness: minimum 4 screw threads.

Mercury 2000, 3000 & 3500 Encoder System
Interface Drawing: Long Linear Scales

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**Notes:**
1. Recommended mounting hardware: 2-5/6 UNC-2B screws with 4 flat washers (2 on each screw) (од of washer not to exceed .150 [3.81]). Max. torque: 3.3 in. lbs.

2. For applications using the SmartPrecision Electronics this connector (FCI p/n 87012-605 or SAMTEC p/n SFM-105-03-S-D) is inside the enclosure (see Interface drawings). Additional strain relief must be provided if MicroE supplied electronics is not used.

3. If benching pins are to be used, pins must be placed along datum edges of both the sensor and the scale for proper alignment (reference datums B1, B2 and C1 for sensor benching pins).

4. Height of sensor benching pins must be a minimum of .170 [4.32] in height from datum A.

5. Height of scale benching pins not to exceed the thickness of the scale.

6. Recommended sensor mounting plate thickness: minimum - 4 screw threads maximum - allow clearance to scale and scale mounting surface (benchening surfaces, clamps, hubs, etc.)

When scale moves in direction "A" with respect to a stationary readhead, output signal Sin+/B+ (pin 5 pin 9) leads output signal Sin+/A+ (pin 1 pin 5).

Scale identification and size

<table>
<thead>
<tr>
<th>Scale Identification</th>
<th>Measured Length (inch)</th>
<th>Scale Length (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LXX</td>
<td>X15.5mm-55mm X15mm</td>
<td>L155</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(max) L2025</td>
</tr>
<tr>
<td></td>
<td>155mm-55mm-15mm-15mm</td>
<td></td>
</tr>
</tbody>
</table>

These are examples:

- Table 1.
- Table 2.
- Table 3.

**Scale and cable not shown for clarity**

**Units:**
- Length: mm
- Height: mm

**Scale and cable not shown for clarity**

**Model:**
- Mercury 2000, 3000, 3500

**Interface, Encoder, 20mm, Long Linear, Cable Out, Mercury 1500H/2000/3000/3500 Sensor**

**Revision History:**
- 6/6/02: Initial release.
- 6/27/02: Updated cable lengths, added Table 2.
- 8/14/02: Updated note 1, added max. torque note.
- 9/24/02: Added M3500, snout dims reference.
- 11/19/02: Updated table 1, pin 3 (Cos+) was GND.
- 4/13/04: Fixed scale dimensions, reversed "A" and "B". See ECO.
- 11/28/05: Updated table 2.
- 5/31/05: Updated note 2.
- 11/30/07: Updated with shrunk hybrid.

**Scale Pattern:**
- Scale: 1:1
- Scale orientation for center index
- Scale orientation for end index

**Sensor Mtg Surface:**
- Scale Mtg Surface
- Scale Mtg Surface

**Sensor Mtg Surface Pattern:**
- Scale pattern
- Keyway

**Figure:**
- Details A
- Details B
- Details C

**Diagram:**
- Diagram of Mercury 2000, 3000, 3500 Encoder System Interface Drawing: Long Linear Scales
Mercury 2000, 3000 & 3500 Encoder System
Interface Drawing: SmartPrecision Electronics Module (Interpolator)

- PIN 1 is a "Reserved" pin that should be grounded for proper system performance. The ground connection should be made to PIN 13 in the mating connector.

- Dimensions are in [mm].

- The mating connector.

- Notes:
  - DIMENSIONS ARE IN MILLIMETERS.
  - UNLESS OTHERWISE SPECIFIED, ALL MEASUREMENTS ARE TO BE TAKEN AT ROOM TEMPERATURE.
  - TOLERANCES ARE:
    - 0.10 MILLIMETERS (.004"") FOR DIMENSIONS
    - 0.25 MILLIMETERS (.01"") FOR ANGULAR TOLERANCES

- Unit:
  - UNITS: in [mm]

- Table 1.

- DBC1-HD PINOUTS

- Table of pin functions.