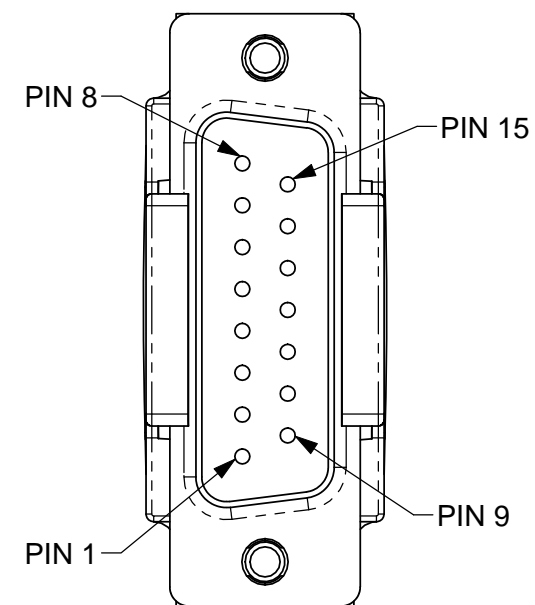
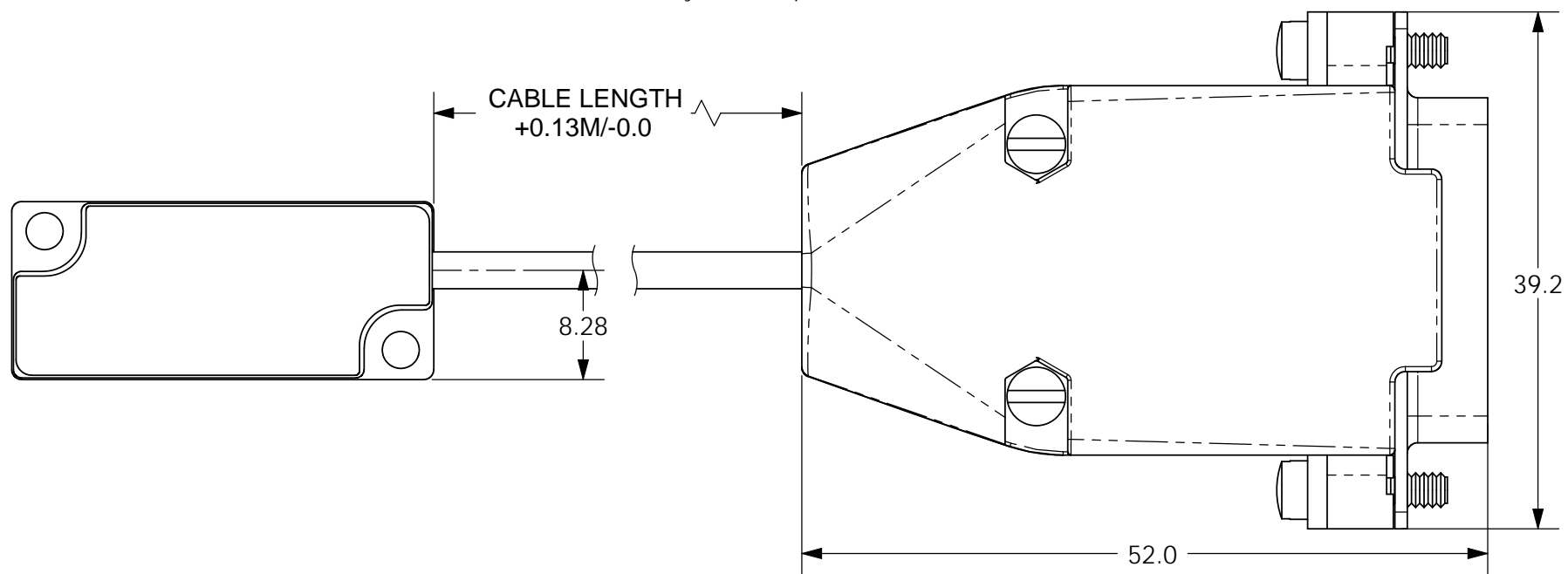


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SEE TABLE 2. FOR PIN FUNCTIONS

TABLE 2.

Mercury II 1900 15-Plug		
Pin	Wire color	Function
1	Yellow	SIN-
2	Blue	COS-
3	Orange	IW+
4	Red	5V
5	Red	5V
6	-	Do Not Connect
7	-	Do Not Connect
8	-	Do Not Connect
9	Green	SIN+
10	Violet	COS+
11	Brown	IW-
12	Black	GND
13	Black	GND
14	-	Do Not Connect
15	-	Do Not Connect

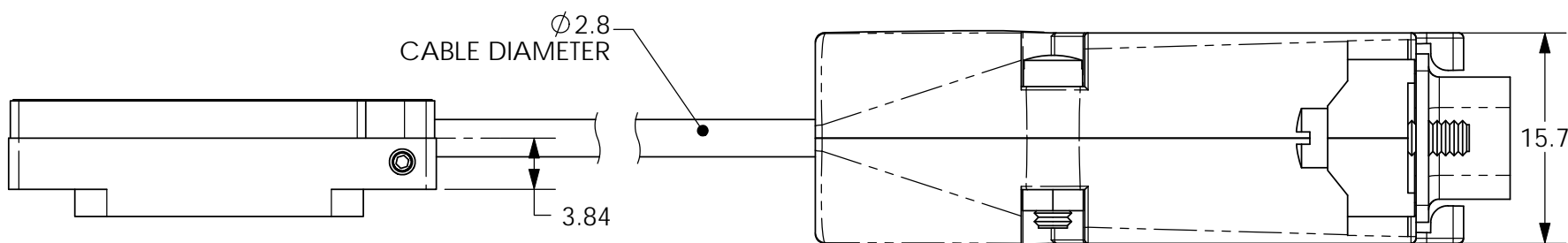



TABLE 1.

Cable Lengths	
1 Meter	
3 Meter	
5 Meter	
Custom	

NOTES:


- HIGHLIGHTED PINS ARE INTERNALLY CONNECTED INSIDE D-SUB WITH JUMPER WIRES.

UNITS: mm

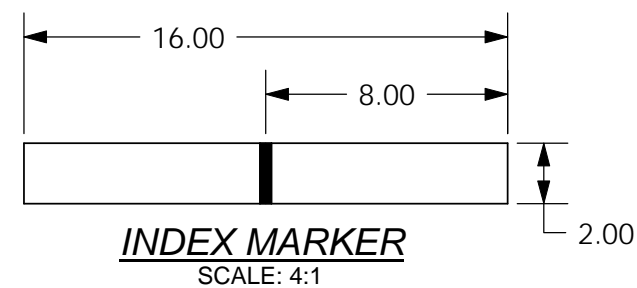
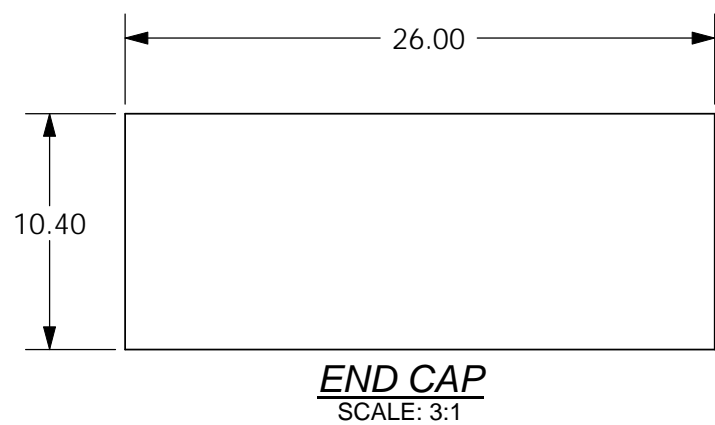
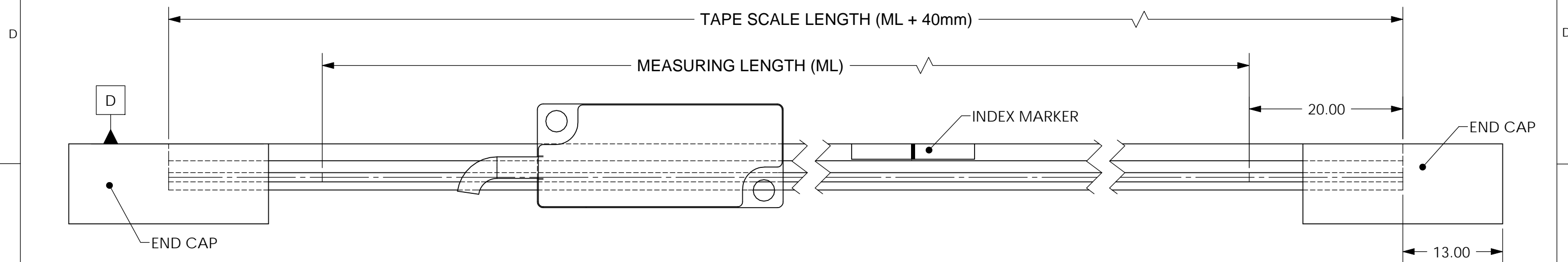
GSI  **MicroE Systems**
 Division of GSI Group
 125 Middlesex Tpk.
 Bedford, MA 01730

DESCRIPTION:
**INTERFACE, ENCODER, 20um,
 TAPE SCALE w/INDEX MARKERS,
 MERCURY II 1900 SENSOR**

SIZE	DWG. NO.	REV.
B	ID-00349	D


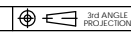
SCALE: NONE CAD FILE:  SHEET 2 OF 4

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- NOTES:
1. BEFORE PLACING INDEX MARKERS AND END CAPS, REMOVE BLUE PROTECTIVE FILM FROM TAPE SCALE.
 2. NOTE DATUM EDGE OF TAPE SCALE AND INDEX MARKER REGION BEFORE APPLYING MARKERS.
 3. END CAPS AND INDEX MARKERS ARE OPTIONAL (SEE INSTALLATION MANUAL).
 4. END CAPS AND INDEX MARKERS SHALL NOT OVERLAP (MAY CAUSE INTERFERENCE WITH SENSOR).
 5. FOR LONGER OR SHORTER LENGTHS OF INDEX MARKERS CALL MICROE SYSTEMS FOR DETAILS.

UNITS: mm

		MicroE Systems Division of GSI Group	
		125 Middlesex Tpk. Bedford, MA 01730	
DESCRIPTION: INTERFACE, ENCODER, 20um, TAPE SCALE w/INDEX MARKERS, MERCURY II 1900 SENSOR			
SIZE B	DWG. NO. ID-00349	REV. D	
SCALE: 2:1	CAD FILE:	 3RD ANGLE PROJECTION SHEET 3 OF 4	

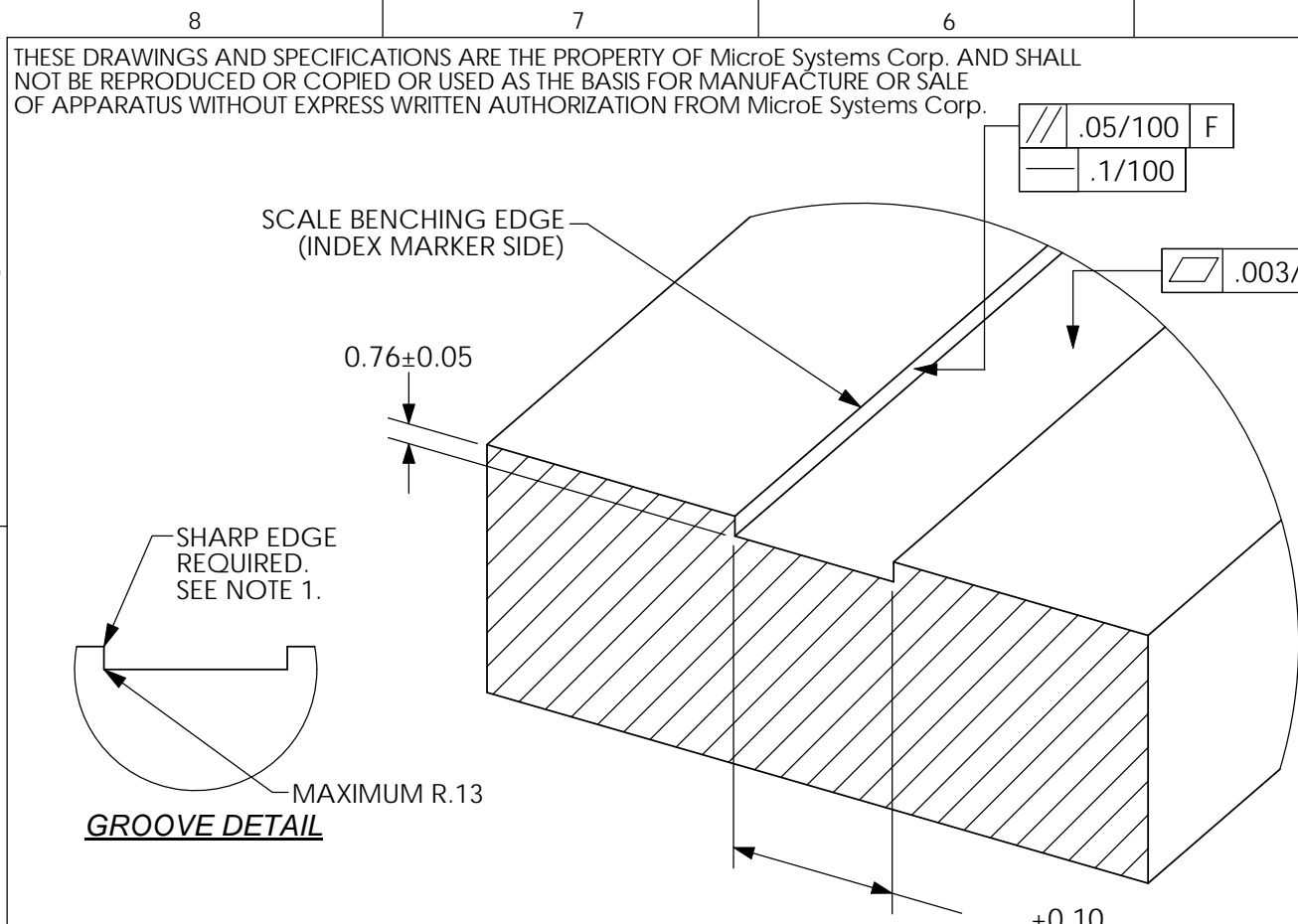


FIGURE 1: INSTALLATION GROOVE
HAND APPLICATION ONLY
F = MACHINE GUIDEWAY

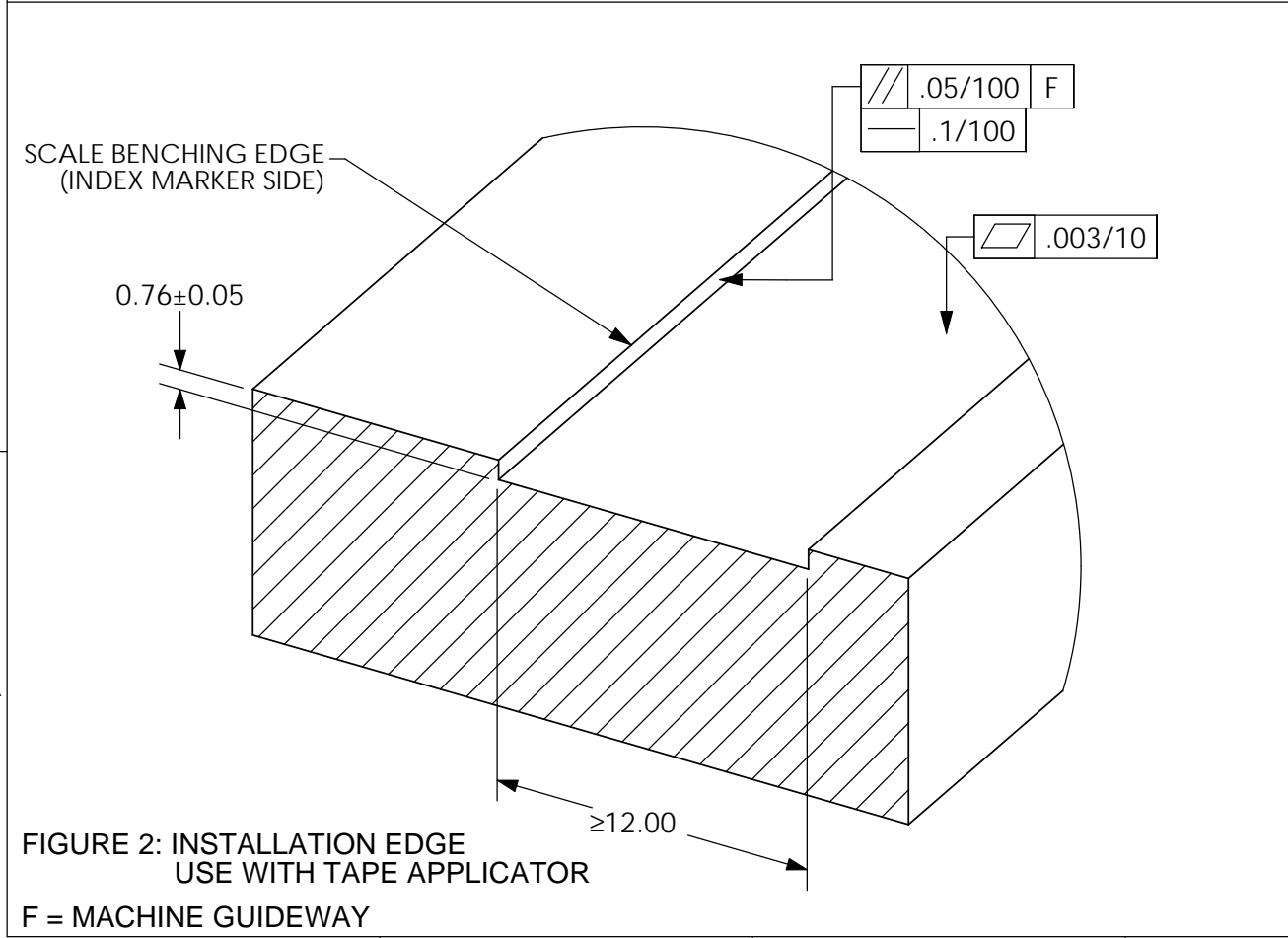


FIGURE 2: INSTALLATION EDGE
USE WITH TAPE APPLICATOR
F = MACHINE GUIDEWAY

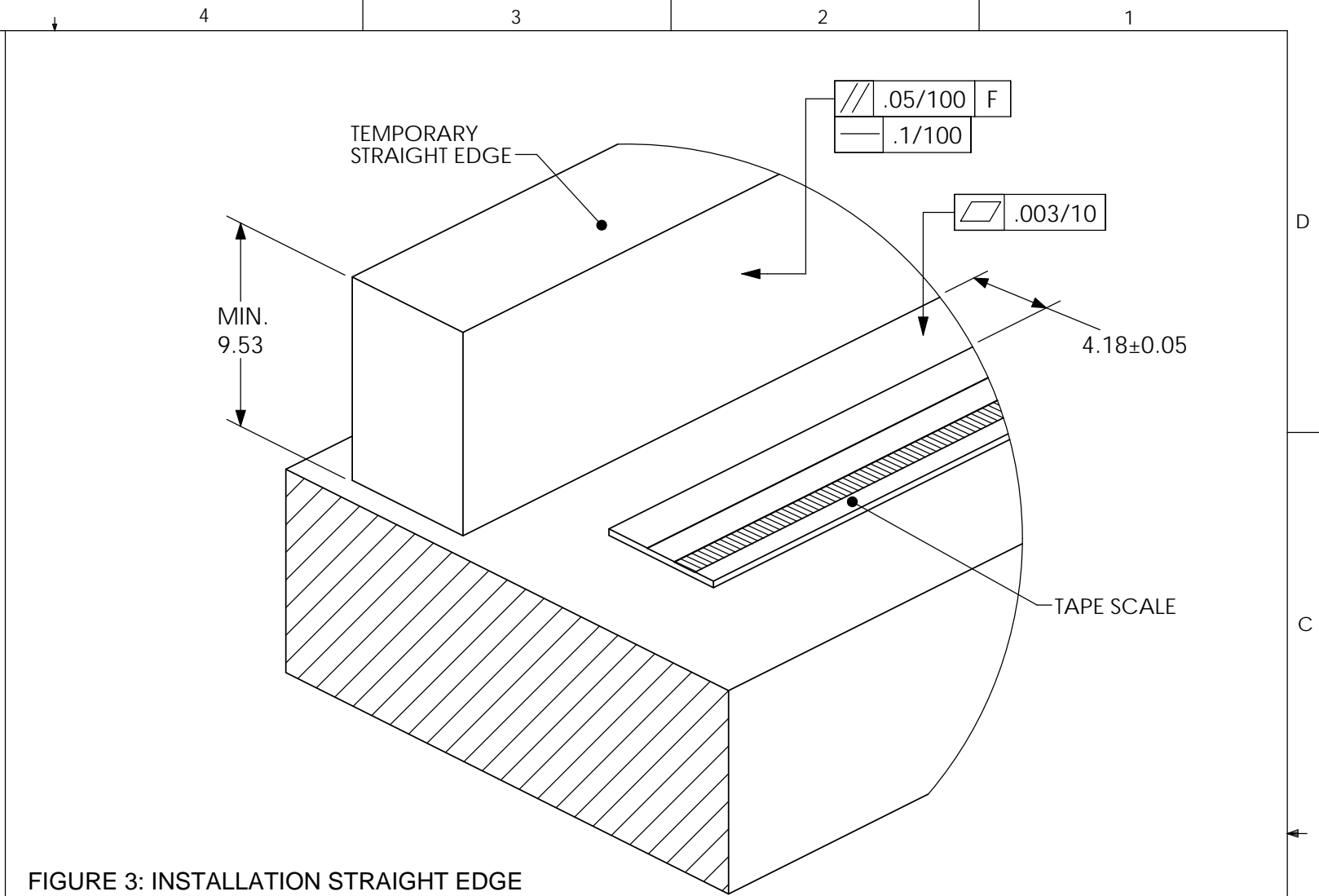


FIGURE 3: INSTALLATION STRAIGHT EDGE
USE WITH TAPE APPLICATOR
F = MACHINE GUIDEWAY

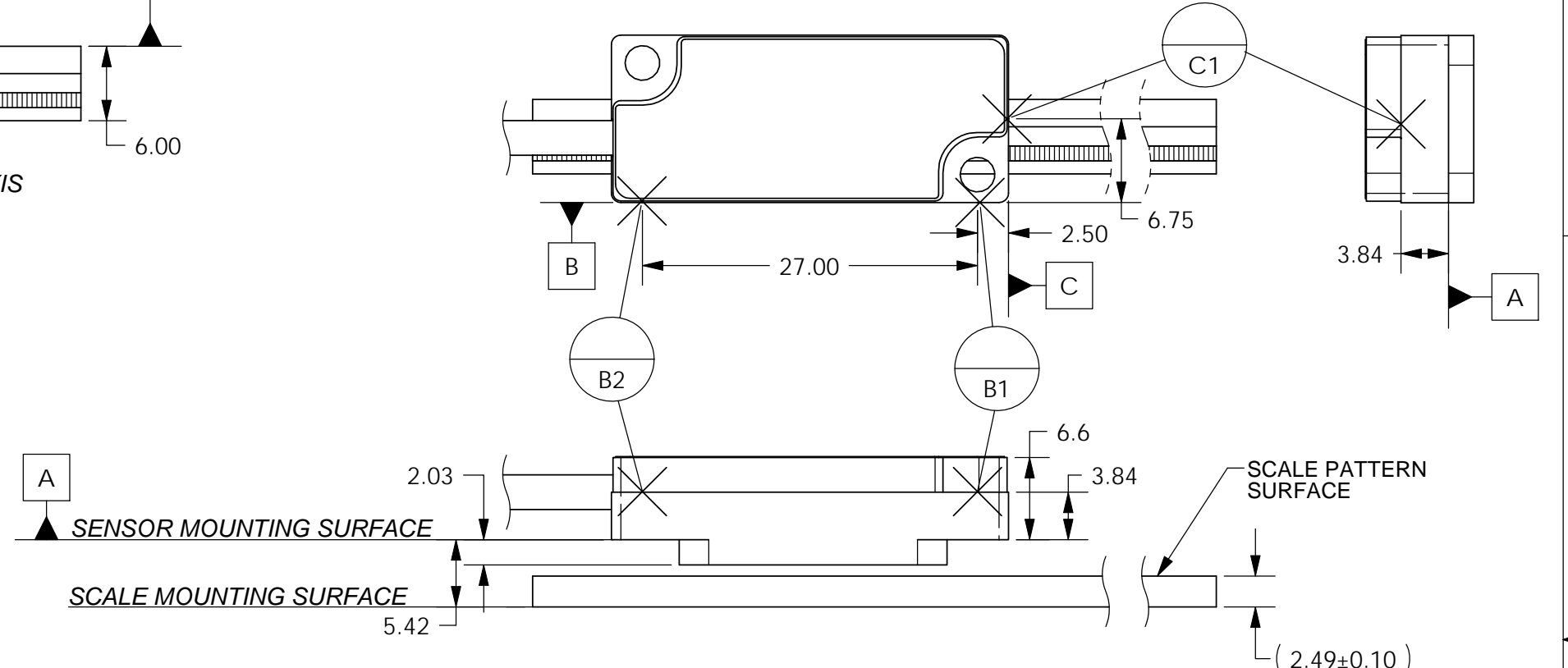
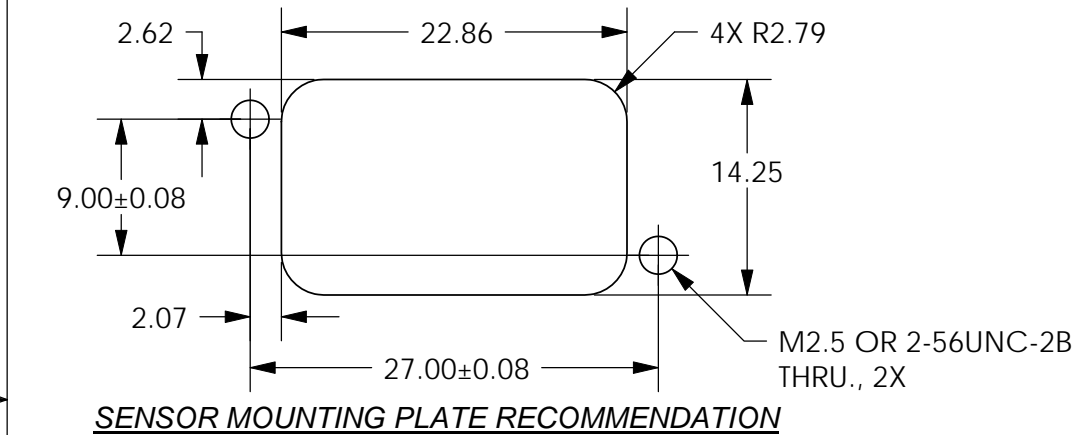
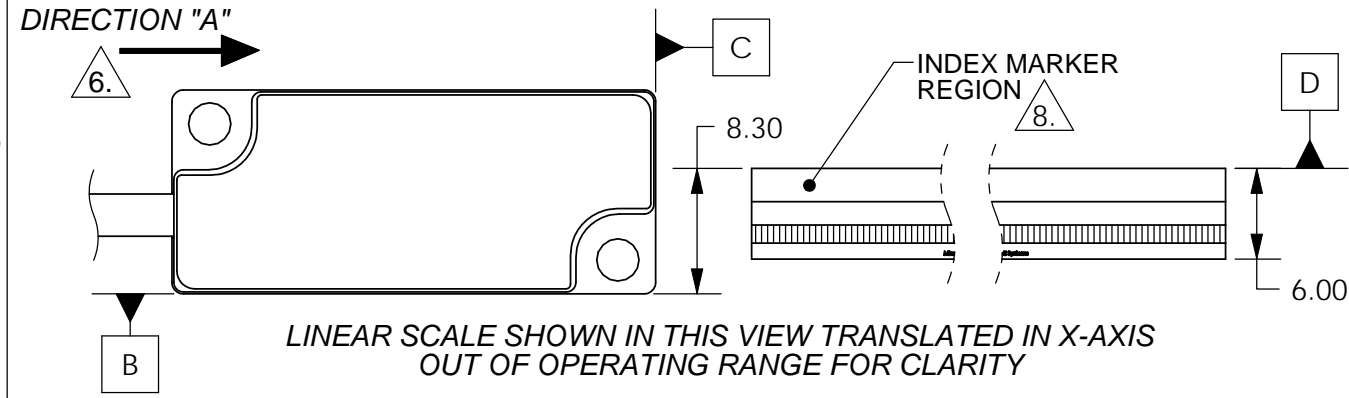
NOTES:

1. MICROE SYSTEMS RECOMMENDS UTILIZING AN EDGE AS A GUIDE IN ORDER TO MAINTAIN STRAIGHTNESS OF THE SCALE DURING MOUNTING. THIS EDGE MAY BE TEMPORARY OR PERMANENT AND SHOULD FOLLOW THE APPLICATION GUIDELINES IN FIGURES 1-3.
2. THE TAPE SCALE APPLICATOR TOOL IS RECOMMENDED FOR INSTALLATION OF SCALES AND, IN PARTICULAR, THOSE LONGER THAN 250 MILLIMETERS. SHORTER SCALES MAY BE APPLIED EITHER BY HAND OR WITH APPLICATOR TOOL. PLEASE SEE INSTRUCTION MANUAL FOR DETAILS.
3. THE INSTALLATION METHOD SHOWN IN FIGURE 1 SHOULD INVOLVE HAND INSTALLATIONS ONLY. THE APPLICATOR TOOL IS NOT COMPATIBLE WITH THIS METHOD. IN ADDITION END CAPS CANNOT BE USED WITH THIS METHOD.
4. FOR APPLICATIONS WHERE MACHINING THE MOUNTING SURFACE IS NOT DESIRED, A TEMPORARY STRAIGHTEDGE CAN BE USED. A STAINLESS STEEL RULE MAY BE USED AS IN FIGURE 2 IF THE RULE MEETS THE THICKNESS REQUIREMENT. OTHERWISE, THE TEMPORARY STRAIGHTEDGE MAY BE USED AS SHOWN IN FIGURE 3.
5. IN FIGURE 3, THE OUTSIDE REFERENCE SURFACE OF THE TOOL SLIDES AGAINST THE TEMPORARY STRAIGHT EDGE, AND THE TAPE SCALE IS THEREFORE OFFSET FROM THE EDGE AS SHOWN. IF THIS OFFSET IS TOO SMALL FOR THE APPLICATION, THE CUSTOMER MAY DESIRE TO CREATE A SPACER THAT CAN ATTACH TO THE OUTSIDE SURFACE OF THE TOOL. PLEASE SEE INSTRUCTION MANUAL FOR DETAILS.
6. IN FIGURES 1 AND 2, THE SCALE BENCHING EDGE IS INTENDED TO AID THE INSTALLATION OF INDEX MARKERS. FOR APPLICATIONS SUCH AS IN FIGURE 3, THE CUSTOMER MAY USE A TEMPORARY BENCHING SURFACE TO INSURE THE PROPER INSTALLATION OF THE INDEX MARKERS. PLEASE SEE INSTRUCTION MANUAL FOR DETAILS. THE EDGE OF THE GROOVE OR STRAIGHTEDGE MUST BE SHARP ON BENCHING SIDE IN ORDER FOR APPLICATOR TO USE AS A GUIDE. IN ORDER FOR THE TAPE SCALE TO MOUNT CLOSE TO THIS EDGE, A MAXIMUM RADIUS OF .13 SHOULD BE USED WHERE THE EDGE MEETS THE BOTTOM OF THE MOUNTING SURFACE.

GSI		MicroE Systems Division of GSI Group	
125 Middlesex Tpk. Bedford, MA 01730			
DESCRIPTION: INTERFACE, ENCODER, 20um, TAPE SCALE w/INDEX MARKERS, MERCURY II 1900 SENSOR			
SIZE B	DWG. NO. ID-00349	REV. D	
SCALE: 4:1	CAD FILE:	3RD ANGLE PROJECTION SHEET 4 OF 4	

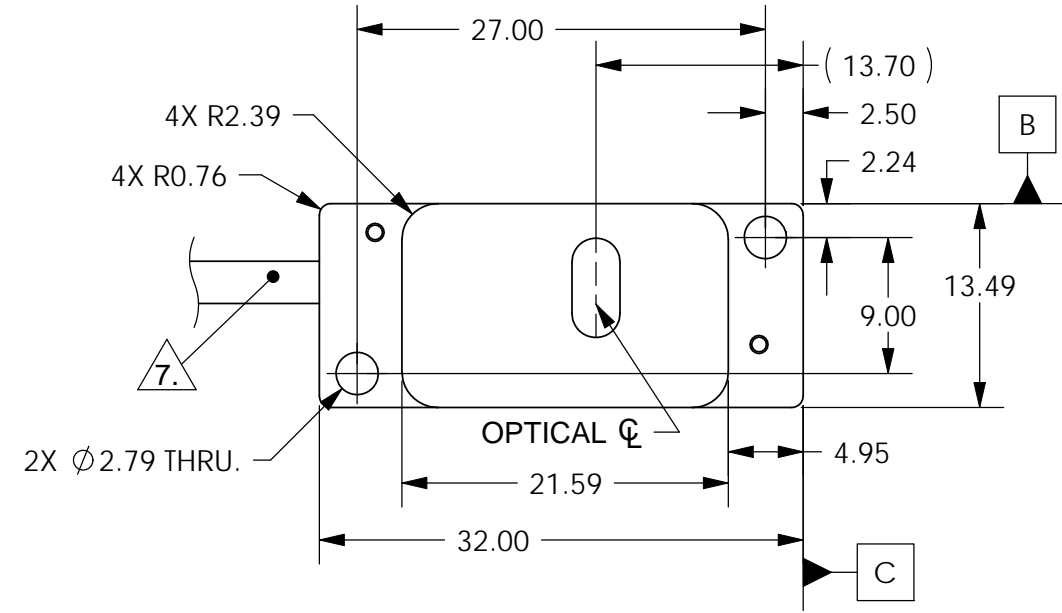
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REVISIONS				
LTR	ECO	DESCRIPTION	DATE	APPROVED
1	----		1/17/08	MF
2	1969	INDEX LIMIT MARKER LENGTH WAS 20mm. SEE ECO	2/11/08	MF
3	1979	STANDARD TOLERANCES IN TITLE BLOCK MISPRINTED. CORRECT DECIMALS	3/11/08	VB
4	1985	SENSOR HEIGHT 6.6 WAS 6.63. CABLE LENGTH 37.1 WAS 26.0. REMOVED TOLERANCES FROM SLEEVE.	3/14/08	VB
A	2034	NO CHANGES. RELEASE TO PRODUCTION	9/24/08	VB
B	2064	ADDED 3 METER CABLE LENGTH. SEE ECO	12/15/08	VB
C	2121	ADDED WIRE COLORS TO TABLES 2, 3. UPDATED ADDRESS. SEE ECO	7/7/09	VB
D	2197	REMOVE "H" VERSION OF PRODUCT FROM INTERFACE DRAWINGS	2/16/10	VB



- NOTES:**
1. RECOMMENDED MOUNTING HARDWARE: 2-56 OR M2.5 SCREWS.
 2. IF BENCHING PINS ARE TO BE USED, PINS MUST BE PLACED ALONG DATUM EDGES OF SENSOR FOR PROPER ALIGNMENT. (REFERENCE DATUMS B1, B2, AND C1).
 3. HEIGHT OF SENSOR BENCHING PINS MUST BE A MINIMUM OF 4.06mm IN HEIGHT FROM DATUM A.
 4. HEIGHT OF SCALE BENCHING PINS NOT TO EXCEED THE THICKNESS OF THE SCALE.
 5. RECOMMENDED SENSOR MOUNTING PLATE THICKNESS:
MINIMUM: 4 SCREW THREADS
MAXIMUM: ALLOW CLEARANCE TO SCALE AND SCALE MOUNTING HARDWARE (BENCHING SURFACES, TRENCHES, ETC.)

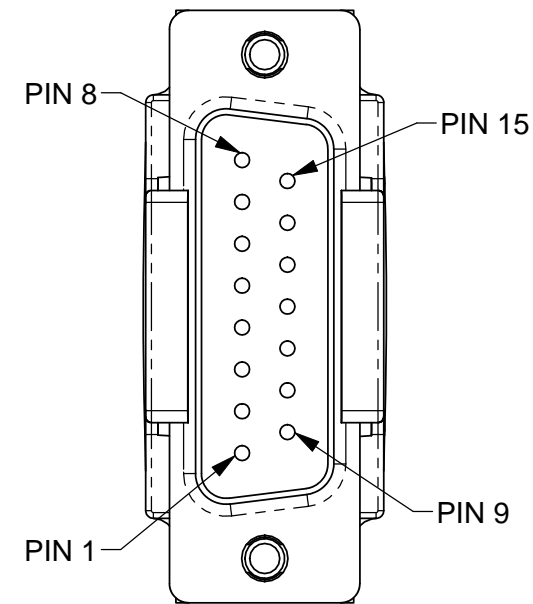
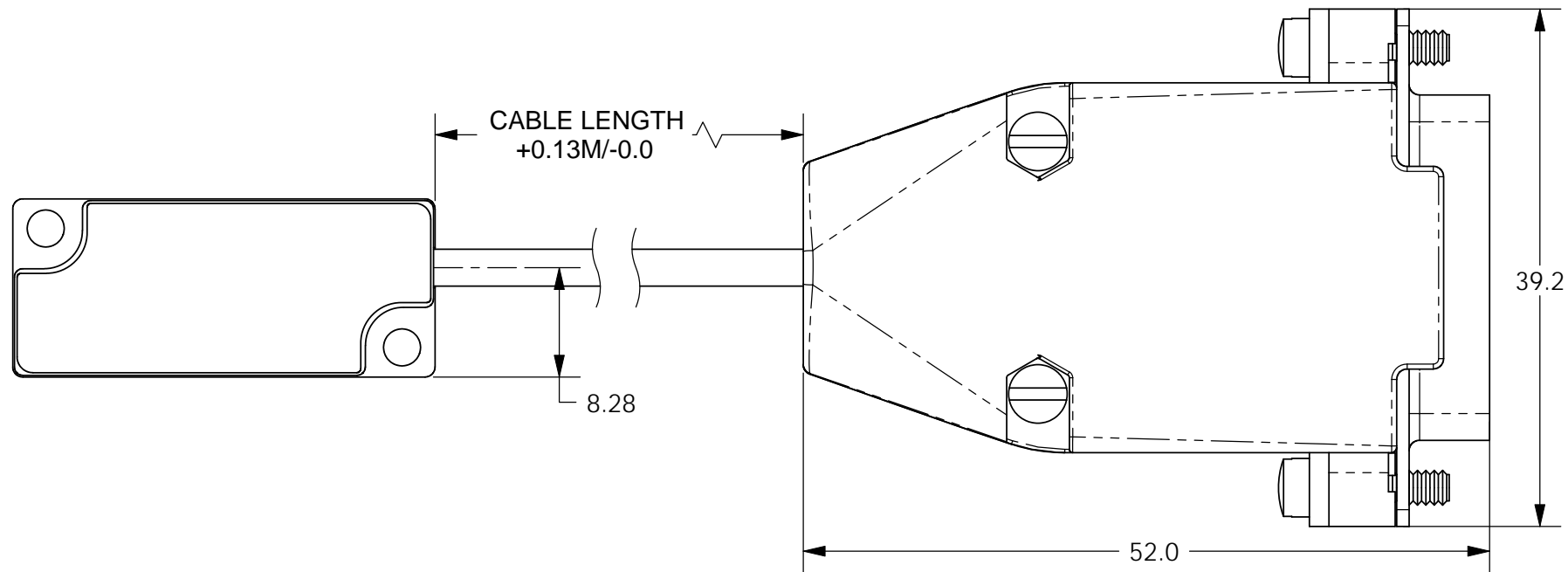
6. WHEN SCALES MOVES IN DIRECTION "A" WITH RESPECT TO A STATIONARY SENSOR, OUTPUT SIGNAL SIN+ (PIN 9) LEADS OUTPUT SIGNAL COS+ (PIN 10).
7. SEE PAGE 2 FOR CABLE CONNECTORS, PIN FUNCTIONS AND LENGTHS.
8. SEE PAGE 3 FOR DIMENSIONS FOR LOCATIONS OF INDEX MARKERS.



UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS DIM. APPLY AFTER PROCESSING INTERPRET ALL GEOMETRIC TOLS. PER ANSI Y14.5M-1994 TOLERANCES ARE: DECIMALS: .X ± 0.25 .XX ± 0.13 ANGULAR: ±30 MIN.	APPROVALS	DATE	 MicroE Systems Division of GSI Group 125 Middlesex Tpk. Bedford, MA 01730 DESCRIPTION: INTERFACE, ENCODER, 20um, SHORT LINEAR SCALE w/INDEX MARKERS, MERCURY II 1900 SENSOR
	DRAWN S.BUTURLIA	12/28/07	
	CHECKED DES	1/17/08	
	ENGRG. A.GOLDMAN	9/22/08	
MFG ENG D.McLOUGHLIN	9/23/08		
QA A.VILLARROEL	9/23/08		
SIZE B	DWG. NO. ID-00350	REV. D	
SCALE:	CAD FILE:	3RD ANGLE PROJECTION	SHEET 1 OF 3

UNITS: mm

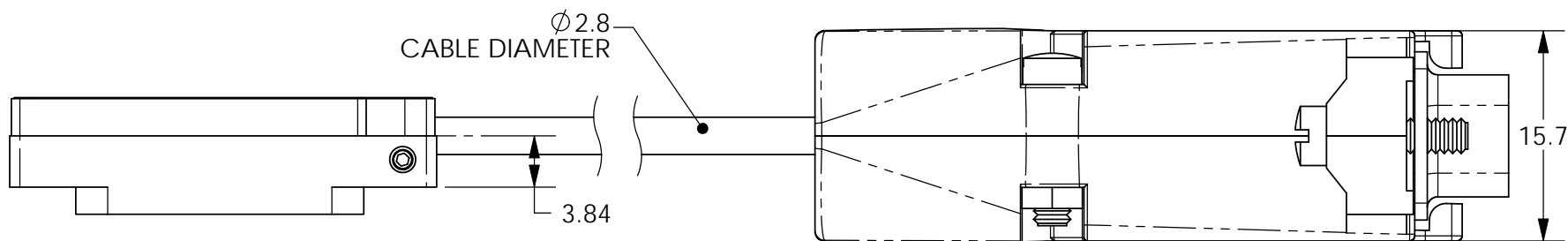
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SEE TABLE 2. FOR PIN FUNCTIONS

TABLE 2.

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12	Black	GND
13	Black	GND
14	-	Do Not Connect
15	-	Do Not Connect



NOTES:

- HIGHLIGHTED PINS ARE INTERNALLY CONNECTED INSIDE D-SUB WITH JUMPER WIRES.

TABLE 1.
Cable Lengths

1 Meter
3 Meter
5 Meter
Custom

UNITS: mm

GSI MicroE Systems
MicroE Systems
Division of GSI Group

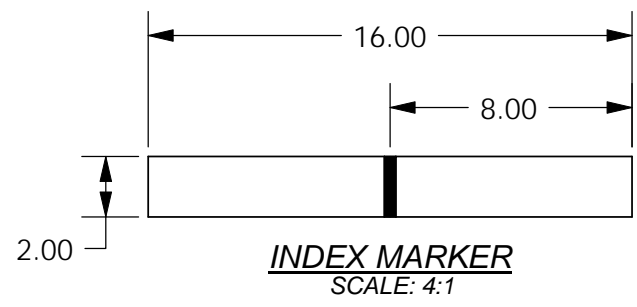
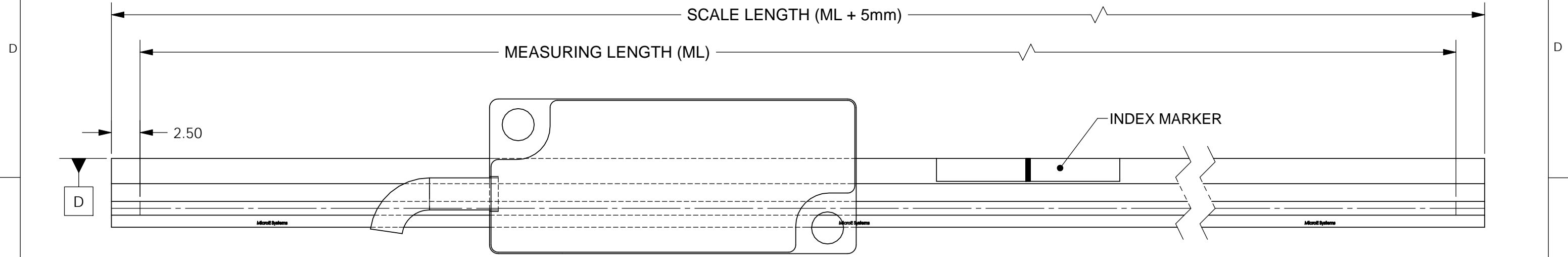
125 Middlesex Tpk.
Bedford, MA 01730

DESCRIPTION: INTERFACE, ENCODER, 20um,
SHORT LINEAR SCALE
w/INDEX MARKERS,
MERCURY II 1900 SENSOR

SIZE	DWG. NO.	REV.
B	ID-00350	D

SCALE: CAD FILE: 3RD ANGLE PROJECTION SHEET 2 OF 3

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 - FOR SHORTER LENGTHS OF LINEAR GLASS THAN 70mm CONTACT MICROE SYSTEMS FOR REQUIREMENTS.

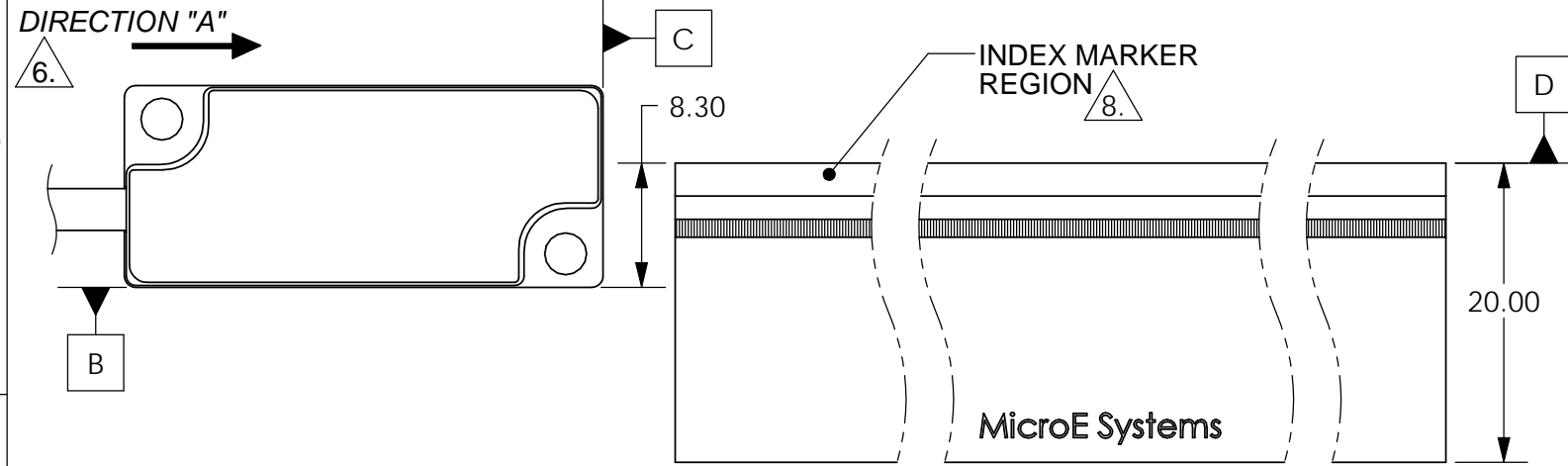
SCALE IDENTIFICATION AND SIZE

Scale Identification	Measuring Length (ML)	Scale Length
MII XXX	$XXX\text{mm} - 5\text{mm}$	$XXX\text{mm}$
(Min.) MIIL70	$70\text{mm} - 5\text{mm} = 65\text{mm}$	70mm
(Max.) MIIL130	$130\text{mm} - 5\text{mm} = 125\text{mm}$	130mm

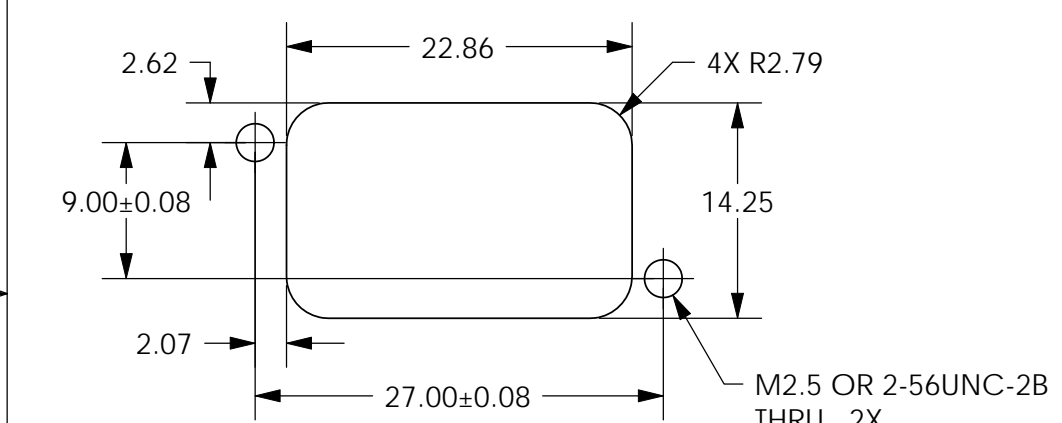
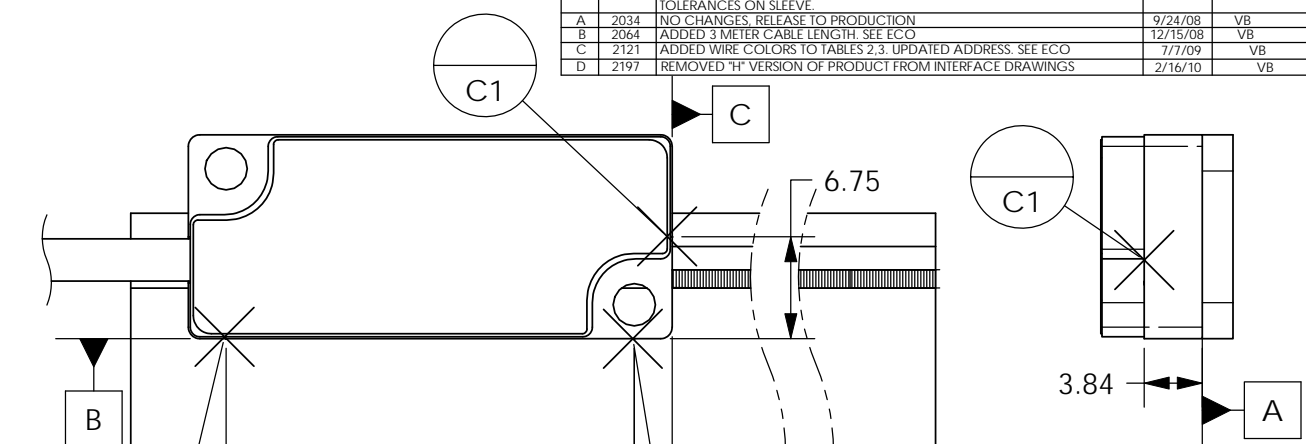
		MicroE Systems Division of GSI Group	
		125 Middlesex Tpk. Bedford, MA 01730	
DESCRIPTION: INTERFACE, ENCODER, 20um, SHORT LINEAR SCALE w/INDEX MARKERS, MERCURY II 1900 SENSOR			
SIZE	DWG. NO.	REV.	
B	ID-00350	D	
SCALE: 3:1	CAD FILE:	3rd ANGLE PROJECTION	SHEET 3 OF 3

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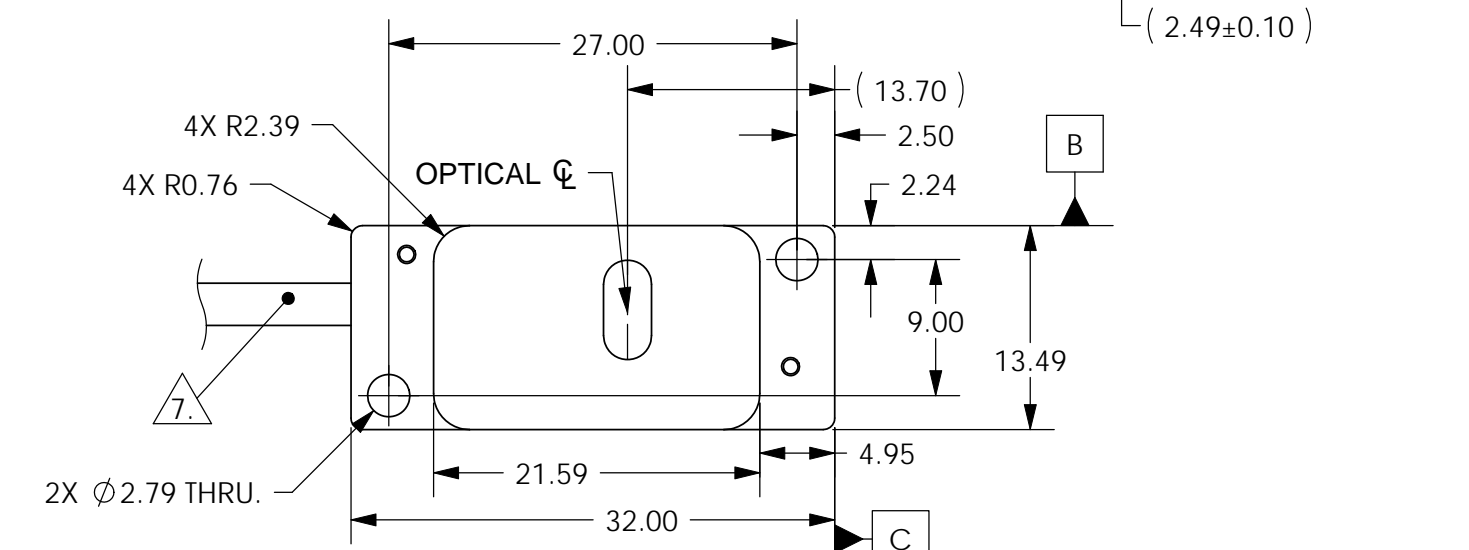
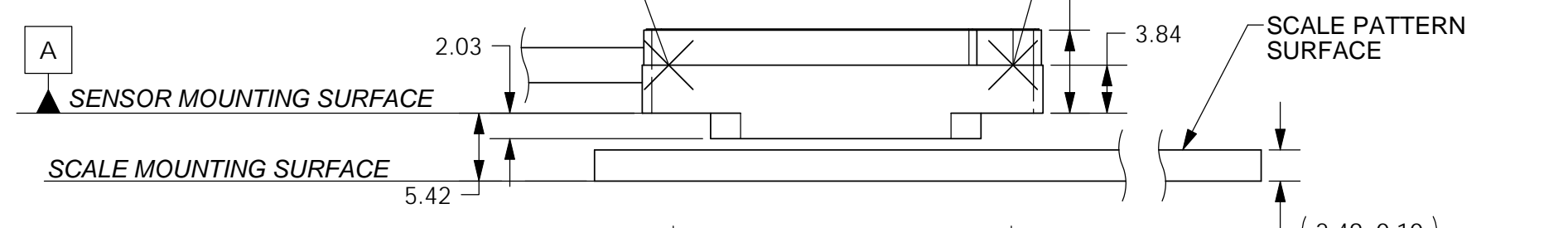
REVISIONS				
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D	2197	REMOVED "H" VERSION OF PRODUCT FROM INTERFACE DRAWINGS	2/16/10	VB



LINEAR SCALE SHOWN IN THIS VIEW TRANSLATED IN X-AXIS OUT OF OPERATING RANGE FOR CLARITY



SENSOR MOUNTING PLATE RECOMMENDATION



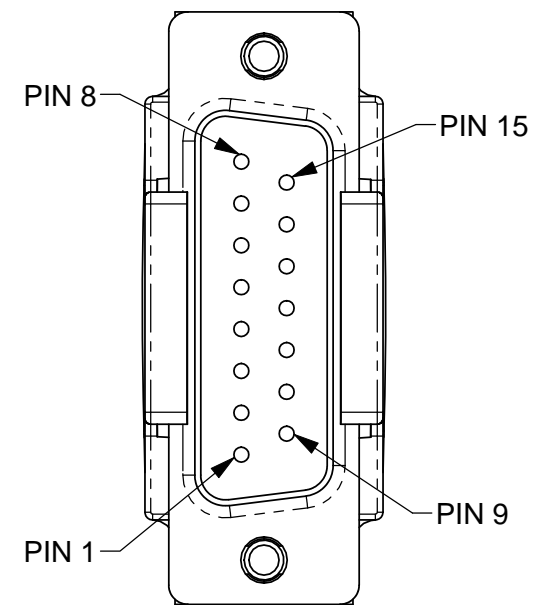
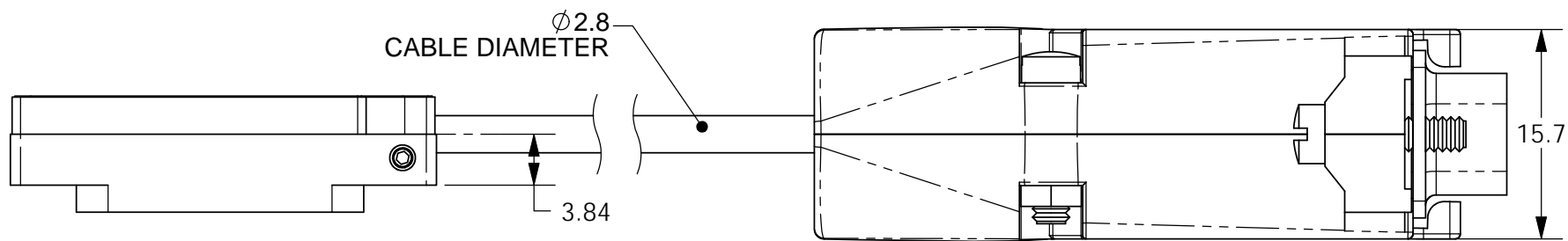
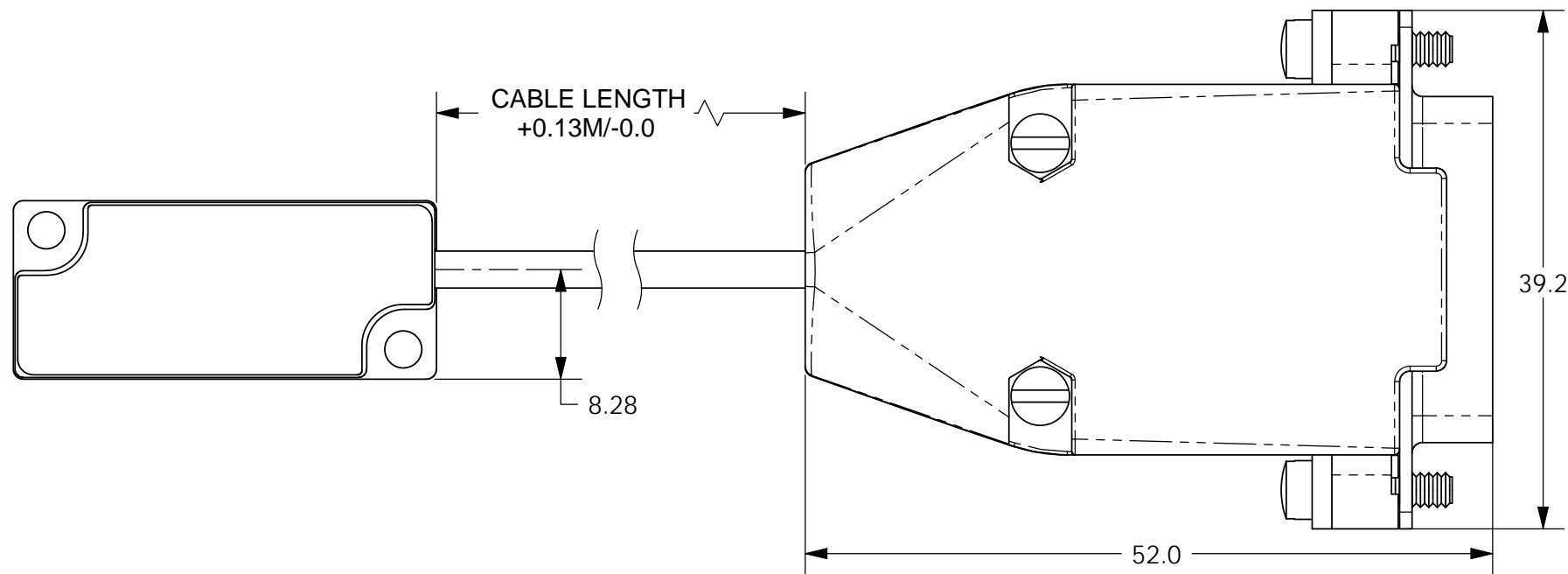
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MFG ENG D.McLOUGHLIN	9/23/08		
QA A.VILLARROEL	9/23/08		
SIZE B	DWG. NO. ID-00351	REV. D	SCALE: 3rd ANGLE PROJECTION SHEET 1 OF 3

UNITS: mm

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SEE TABLE 2. FOR PIN FUNCTIONS

TABLE 2.

<i>Mercury II 1900 15-Plug</i>		
Pin	Wire color	Function
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9	Green	SIN+
10	Violet	COS+
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NOTES:

- HIGHLIGHTED PINS ARE INTERNALLY CONNECTED INSIDE D-SUB WITH JUMPER WIRES.

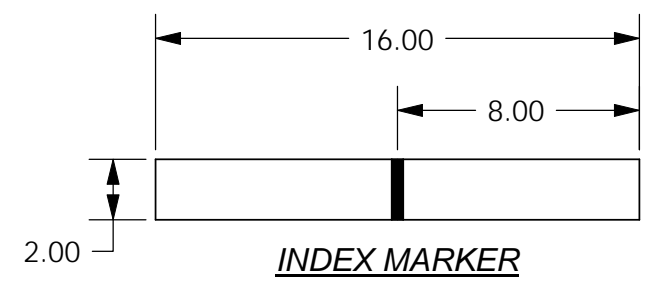
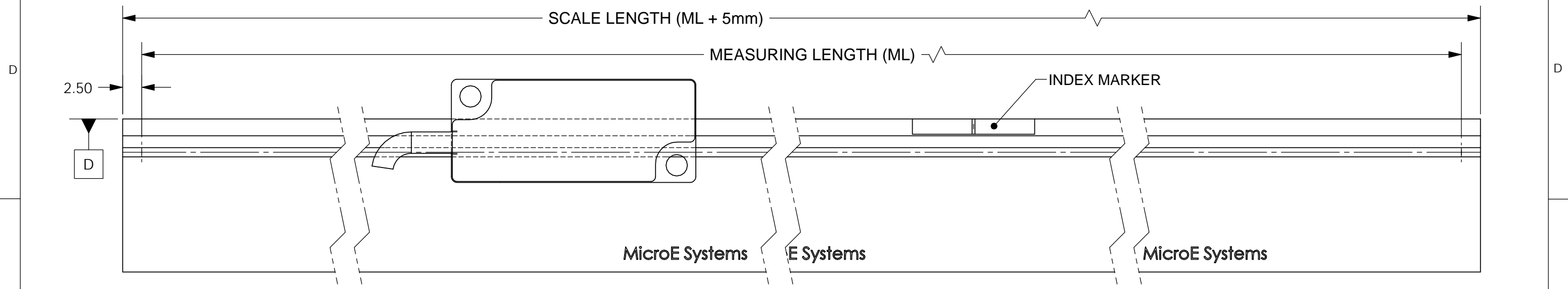
TABLE 1.

Cable Lengths	
1 Meter	
3 Meter	
5 Meter	
Custom	

UNITS: mm

		MicroE Systems Division of GSI Group 125 Middlesex Tpk. Bedford, MA 01730
	DESCRIPTION: INTERFACE, ENCODER, 20um, LONG LINEAR SCALE w/INDEX MARKERS, MERCURY II 1900 SENSOR	
SIZE B	DWG. NO. ID-00351	REV. D
SCALE: 2:1	CAD FILE:	SHEET 2 OF 3

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SCALE IDENTIFICATION AND SIZE

Scale Identification	Measuring Length (ML)	Scale Length
MII LXXX	XXXmm - 5mm	XXXmm
(Min.) MIIL135	135mm - 5mm = 130mm	135mm
(Max.) MIIL1000	1000mm - 5mm = 995mm	1000mm

UNITS: mm

GSI **MicroE Systems**
Division of GSI Group

125 Middlesex Tpk.
Bedford, MA 01730

DESCRIPTION: INTERFACE, ENCODER, 20um,
LONG LINEAR SCALE
w/INDEX MARKERS,
MERCURY II 1900 SENSOR

SIZE	DWG. NO.	REV.
B	ID-00351	D

SCALE: CAD FILE: SHEET 3 OF 3