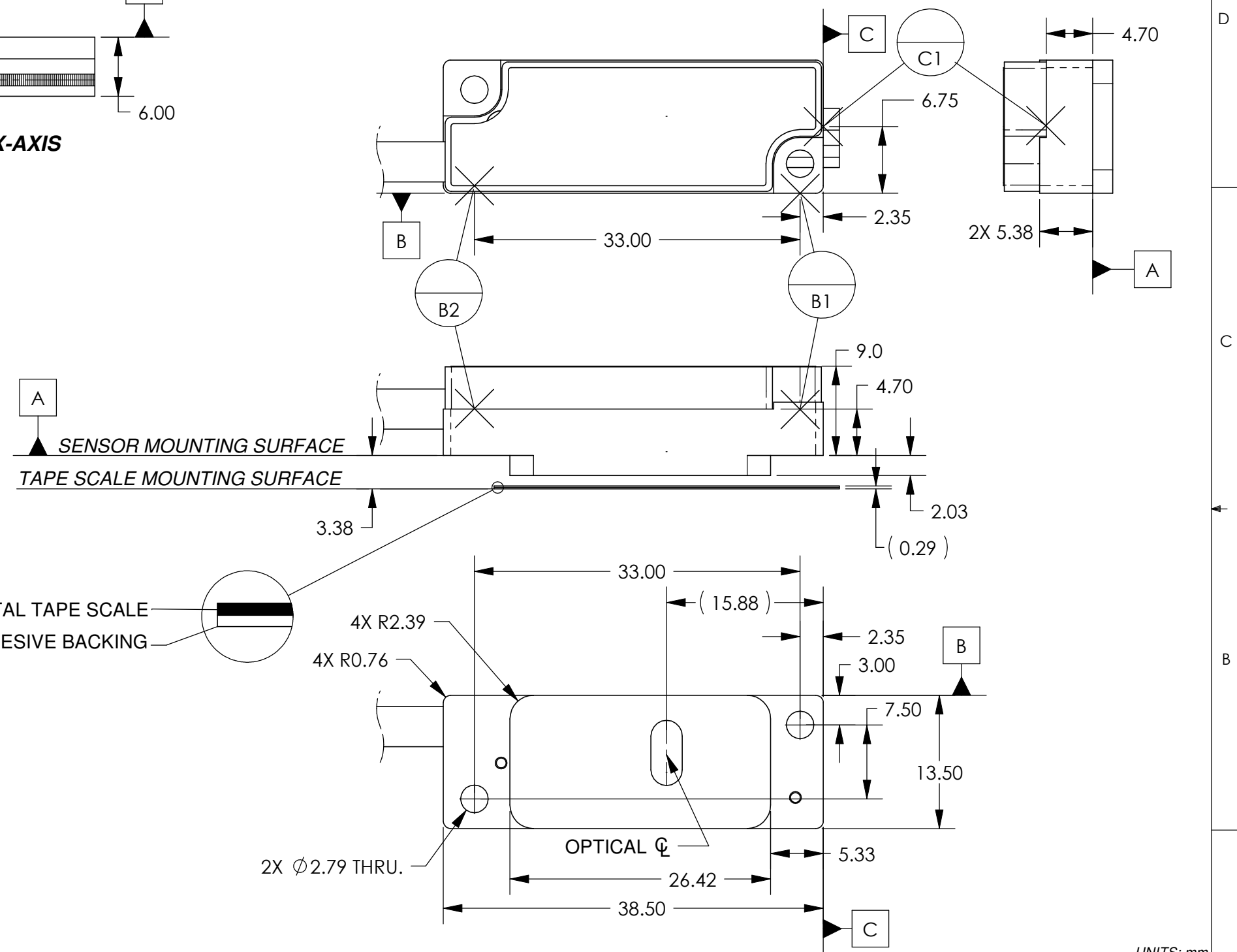
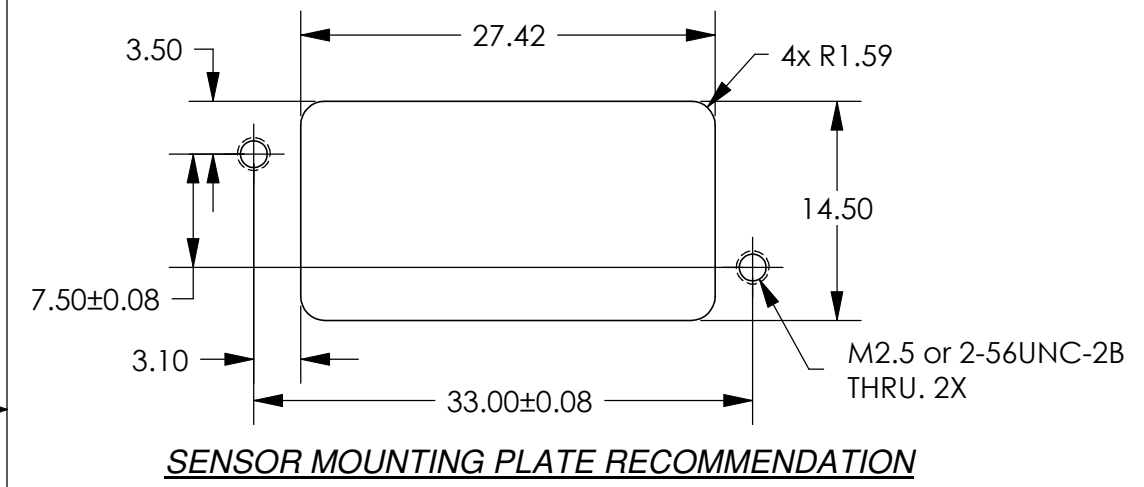
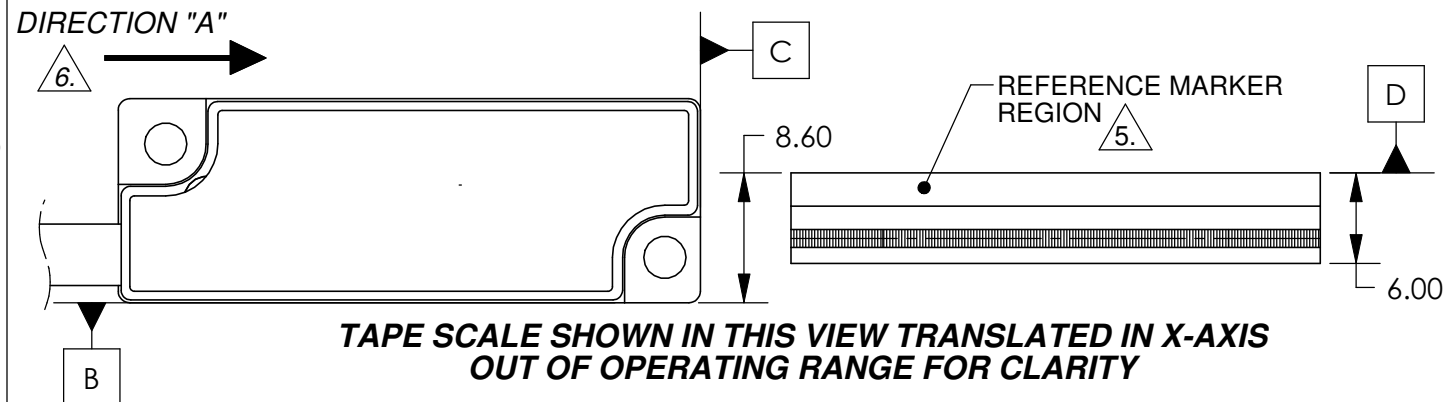


THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.

REVISIONS				
LTR	ECO	DESCRIPTION	DATE	APPROVED
1	---	INITIAL	7/28/08	VB
2	2121	ADDED WIRE COLORS TO TABLES 2 & 3, MTG PLATE REC. UPDATED ADDRESS.	7/17/09	VB
3	2360	ADD DIMENSIONS ON DATUM TARGETS B1/B2/C1 (SHEET 1). ADD MARKER TAPE SCALE INDEX W/END LIMITS & INDEX VIEWS AND NOTES. UPDATE END CAP/INDEX & LIMIT MARKERS/NOTES (PREVIOUSLY SHEET 3). ELIMINATE FIGURES 1, 2, 3 & INSTALLATION NOTES (PREVIOUSLY SHEET 4). CHANGE DRAWING DESCRIPTION IN TITLE BLOCK.	6/27/11	SB

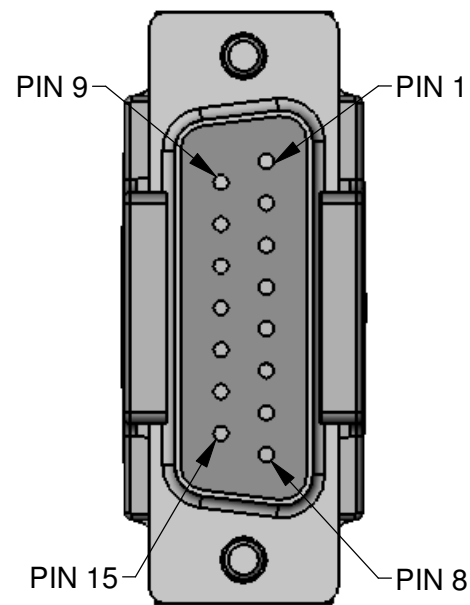


- NOTES:**
1. RECOMMENDED MOUNTING HARDWARE:
2-56 or M2.5 SOCKET HEAD CAP SCREWS
 2. IF BENCHING PINS ARE TO BE USED, PINS MUST BE PLACED ALONG DATUM EDGES OF SENSOR FOR PROPER ALIGNMENT. (REFERENCE DATUMS B1, B2 AND C1).
 3. HEIGHT OF SENSOR BENCHING PINS MUST NOT EXCEED HEIGHT OF SENSOR BODY (4.70mm).
 4. RECOMMENDED SENSOR MOUNTING PLATE THICKNESS:
MINIMUM: 4 SCREW THREADS
MAXIMUM: ALLOW FOR CLEARANCE TO SCALE AND SCALE MOUNTING HARDWARE (BENCHING SURFACES, TRENCHES, ETC.)
5. SEE SHEETS 3 AND 4 FOR DIMENSIONS AND LOCATIONS OF REFERENCE MARKERS.
6. WHEN SCALE MOVES IN DIRECTION "A" WITH RESPECT TO A STATIONARY SENSOR, OUTPUT SIGNAL A+ (PIN 14) LEADS OUTPUT SIGNAL B+ (PIN 13). THIS APPLIES TO QUADRATURE SENSOR ONLY.

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 ± .25 .XX ± .13 ANGULAR: ±30 MIN.	APPROVALS	DATE	 MicroE Systems Division of GSI Group 125 Middlesex Tpk. Bedford, MA 01730
	DRAWN S.BUTURLIA	7/10/08	
	CHECKED A.GOLDMAN	7/23/08	
	ENGRG.		
	MFG ENG		DESCRIPTION: INTERFACE, ENCODER, 20um, TAPE/MARKER TAPE SCALES MERCURY II 5000 SENSOR
	QA		SIZE DWG. NO. ID-00353 REV. 3
SUBJECT TO CHANGE WITHOUT NOTIFICATION			SCALE: CAD FILE: SHEET 1 OF 4

UNITS: mm

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.



SEE TABLE 2 and 3 FOR PIN FUNCTIONS

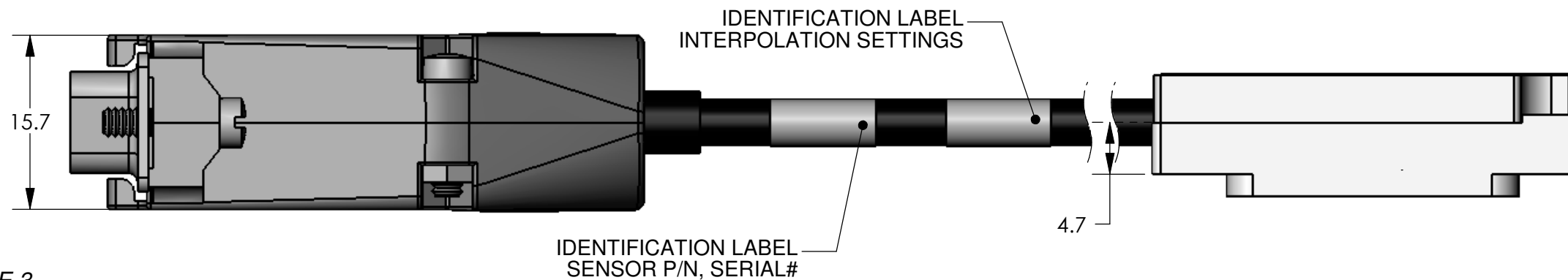
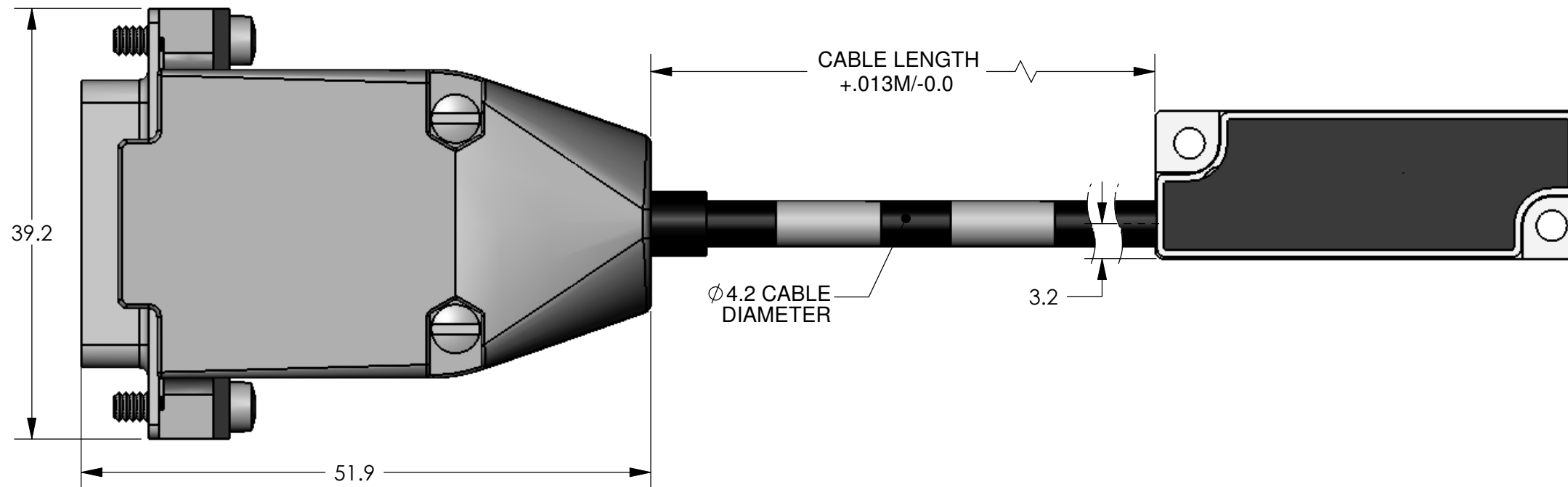


TABLE 2.

Mercury II 5000 15-Plug Quadrature Output

Pin	Wire color	Function
1	Brown	RL+
2	Black	GND
3	White	RL-
4	White	I-
5	White	B-
6	White	A-
7	Red	5V
8	Red	5V
9	Black	GND
10	Gray	LL+
11	White	LL-
12	Green	I+
13	Blue	B+
14	Violet	A+
15	Black	DO NOT CONNECT

TABLE 3.

Mercury II 5000 15-Plug Serial Output

Pin	Wire color	Function
1	Brown	nCS+
2	Black	GND
3	White	nCS-
4	White	DIAG_IN_OUT-
5	White	SCLOCK_OUT-
6	White	SDATA_OUT-
7	Red	5V
8	Red	5V
9	Black	GND
10	Gray	SCLOCK_IN+
11	White	SCLOCK_IN-
12	Green	DIAG_IN_OUT+
13	Blue	SCLOCK_OUT+
14	Violet	SDATA_OUT+
15	Black	DO NOT CONNECT

NOTE: GND AND INNER SHIELD ARE INTERNALLY CONNECTED.

TABLE 1.

Cable Lengths

1 Meter
3 Meter
5 Meter
Custom

UNITS: mm

GSI **MicroE Systems**
Division of GSI Group

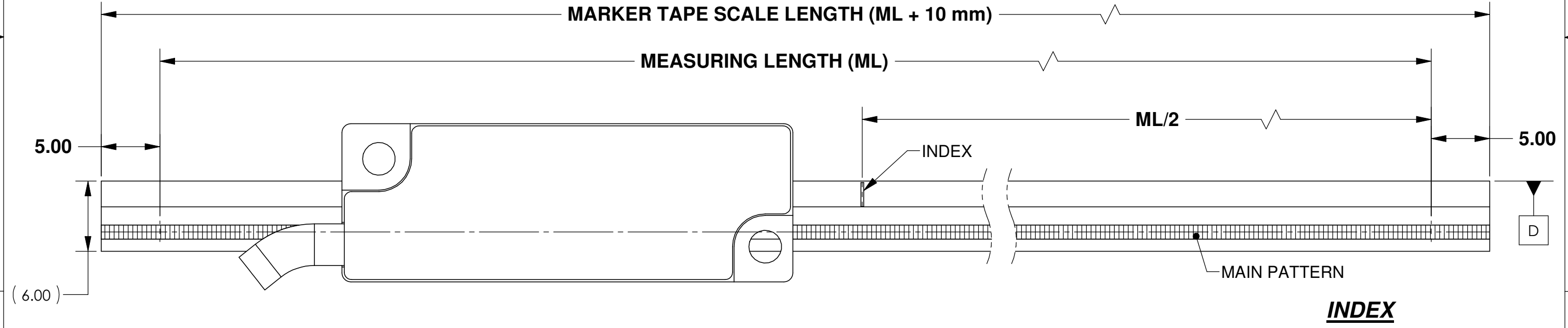
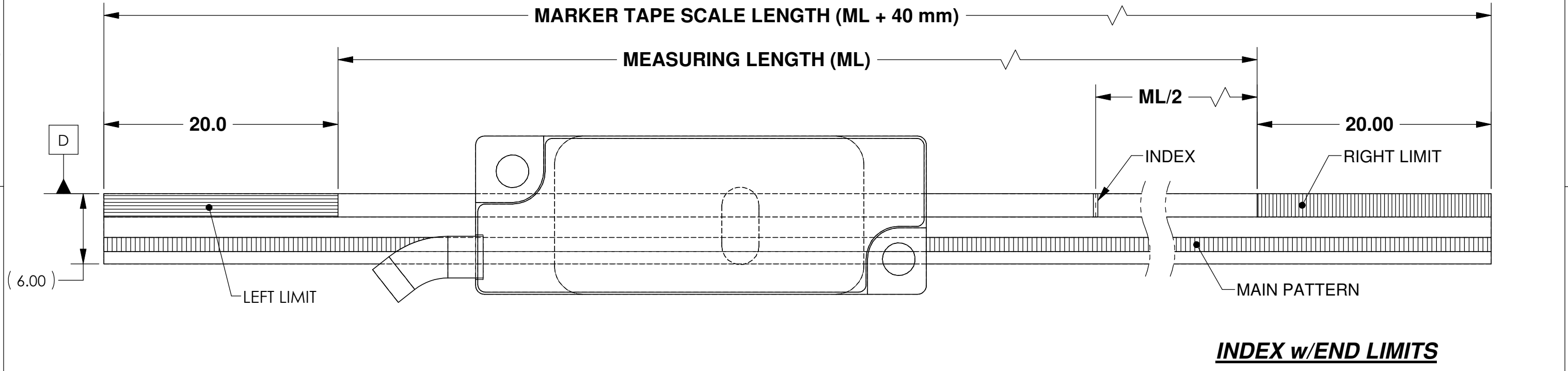
125 Middlesex Tpk.
Bedford, MA 01730

DESCRIPTION: INTERFACE, ENCODER, 20um, TAPE/MARKER TAPE SCALES, MERCURY II 5000 SENSOR

SIZE B DWG. NO. **ID-00353** REV. **3**

SCALE: CAD FILE: 3RD ANGLE PROJECTION SHEET 2 OF 4

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.

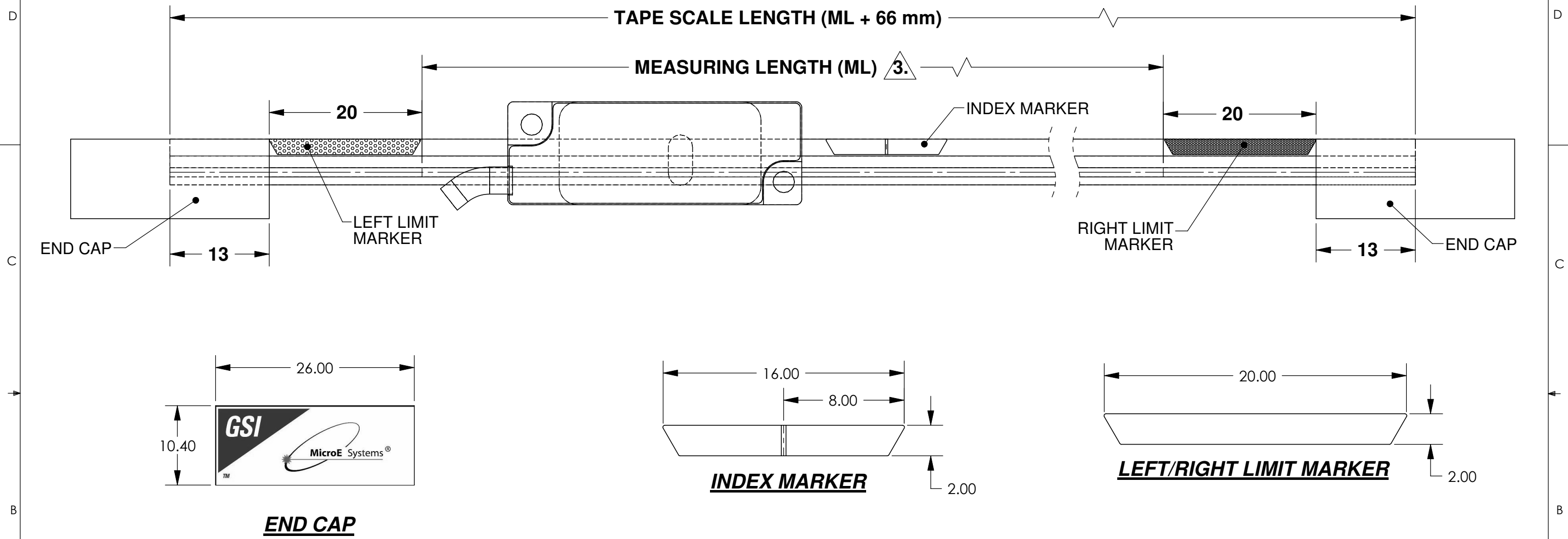


- NOTES:
1. MARKER TAPE SCALES CAN BE SUPPLIED IN INDIVIDUAL PIECES OR IN CONTINUOUS FORM.
 2. END CAPS ARE OPTIONAL. IF USED, RECOMMENDED MINIMUM EXPOSED LENGTH OF END LIMITS IS 5 mm (SEE INSTALLATION MANUAL), AND ADDITIONAL TAPE LENGTH MAY BE REQUIRED BASED ON APPLICATION (SEE SHEET 4).
 3. REFERENCE MARKERS (STICK-ONS) CANNOT BE USED ON MARKER TAPE.
 4. FOR ALTERNATE MARKER LOCATIONS OR LENGTHS, MULTIPLE INDEXES OR ADDITIONAL FEATURES, CONTACT MICROE SYSTEMS.
 5. FOR MOUNTING REQUIREMENTS IN TAPE SCALE APPLICATIONS, REFERENCE INTERFACE DRAWING ID-00379.

UNITS: mm

	MicroE Systems Division of GSI Group	
	125 Middlesex Tpk. Bedford, MA 01730	
DESCRIPTION: INTERFACE, ENCODER, 20um, TAPE/MARKER TAPE SCALES MERCURY II 5000 SENSOR		
SIZE B	DWG. NO. ID-00353	REV. 3
SCALE:	CAD FILE:	SHEET 3 OF 4

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.



NOTES:

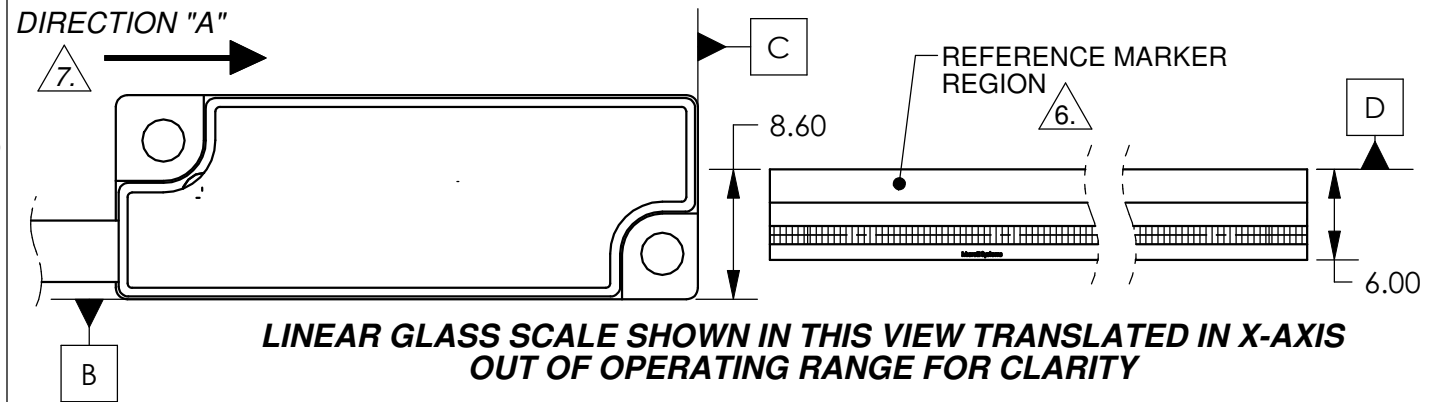
1. BEFORE PLACING INDEX MARKERS, LIMIT MARKERS AND END CAPS, REMOVE PROTECTIVE FILM FROM TAPE SCALE.
2. NOTE DATUM EDGE OF TAPE SCALE AND REFERENCE MARKER REGION BEFORE APPLYING MARKERS.
3. MINIMUM MEASURING LENGTH SHOWN. ACTUAL MEASURING LENGTH MAY BE GREATER.
4. END CAPS, INDEX AND LIMIT MARKERS ARE OPTIONAL (SEE INSTALLATION MANUAL). WHEN NO LIMITS OR END CAPS ARE USED, RECOMMENDED TAPE SCALE LENGTH = MEASURING LENGTH + 10 mm.
5. LIMIT MARKERS CAN BE PLACED AT ENDS OF THE TAPE SCALE WHEN END CAPS ARE NOT USED.
6. END CAPS, INDEX AND LIMIT MARKERS SHALL NOT OVERLAP (WILL CAUSE INTERFERENCE WITH SENSOR).
7. FOR OTHER LENGTHS OF REFERENCE MARKERS, CONTACT MICROE SYSTEMS.
8. FOR MOUNTING REQUIREMENTS IN TAPE SCALE APPLICATIONS, REFERENCE INTERFACE DRAWING ID-00379.

UNITS: mm

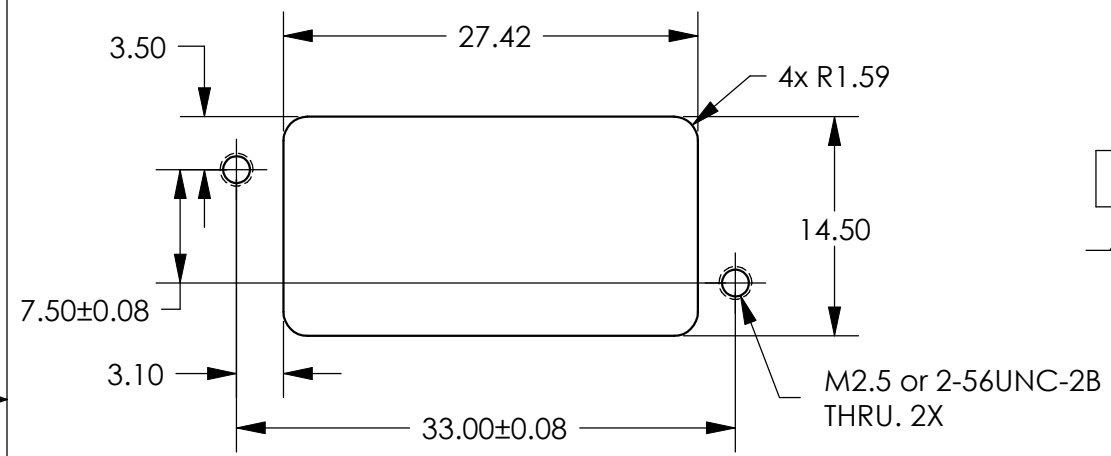
		MicroE Systems Division of GSI Group	
		125 Middlesex Tpk. Bedford, MA 01730	
DESCRIPTION: INTERFACE, ENCODER, 20um, TAPE/MARKER TAPE SCALES MERCURY II 5000 SENSOR			
SIZE B	DWG. NO. ID-00353	REV. 3	
SCALE:	CAD FILE:		SHEET 4 OF 4

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.

REVISIONS				
LTR	ECO	DESCRIPTION	DATE	APPROVED
1	----	INITIAL	7/28/08	VB
2	2121	ADDED WIRE COLORS TO TABLES 2 & 3, MTG PLATE REC., UPDATED ADDRESS	7/7/09	VB
3	2360	UPDATE INDEX AND LIMIT MARKERS AND NOTES. CHANGE DRAWING DESCRIPTION IN TITLE BLOCK.	6/27/11	SB



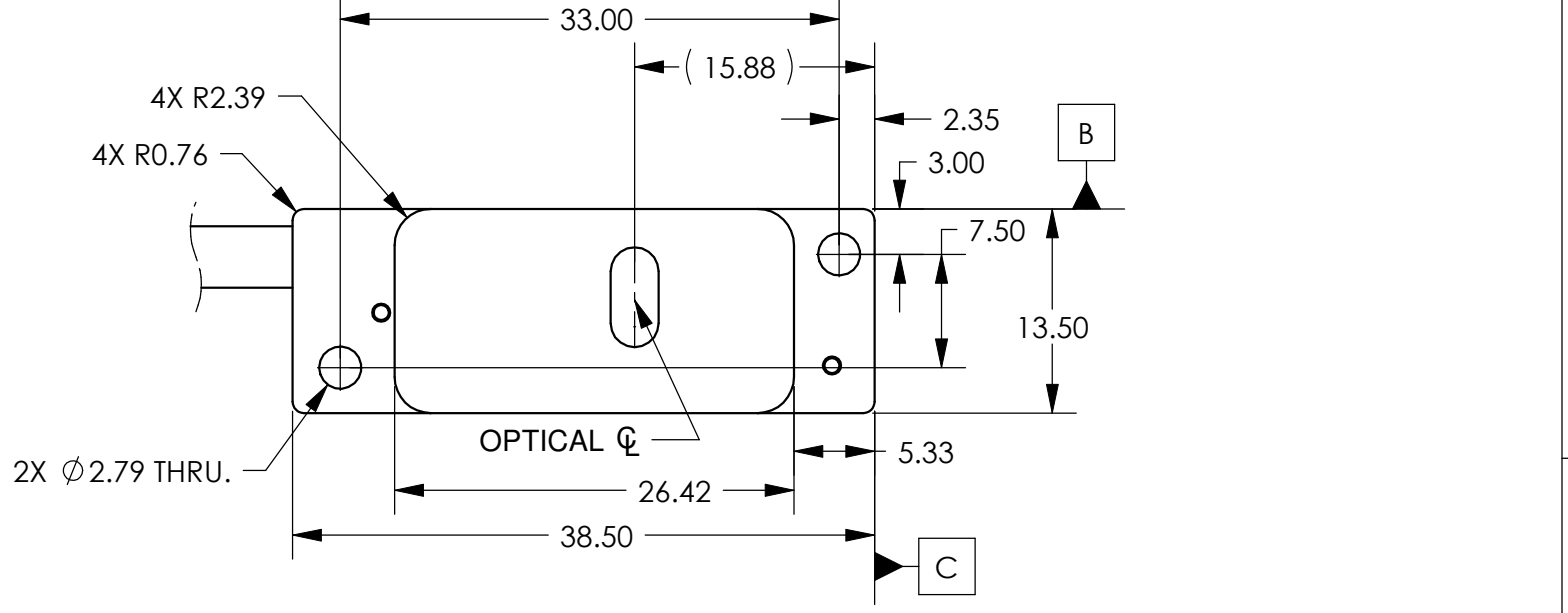
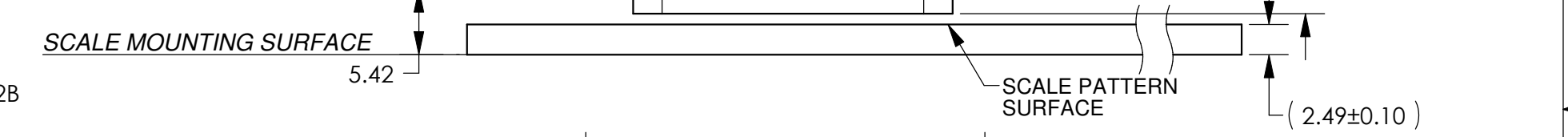
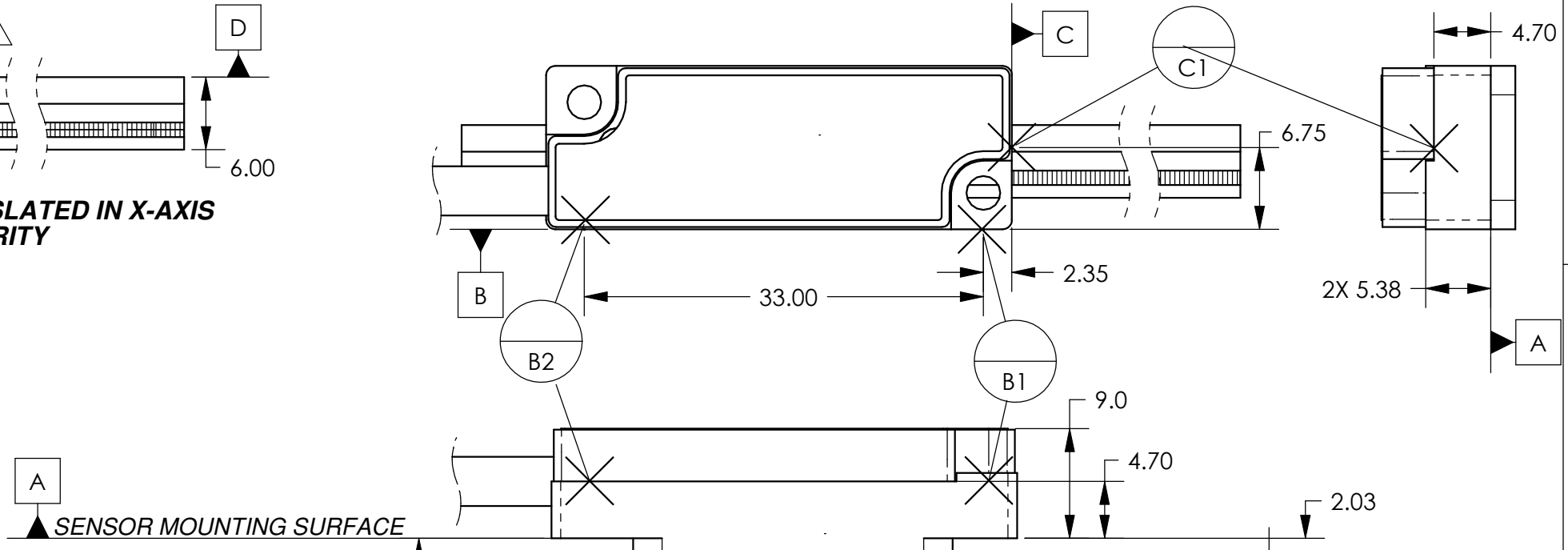
LINEAR GLASS SCALE SHOWN IN THIS VIEW TRANSLATED IN X-AXIS OUT OF OPERATING RANGE FOR CLARITY



SENSOR MOUNTING PLATE RECOMMENDATION

- NOTES:**
1. RECOMMENDED MOUNTING HARDWARE:
2-56 or M2.5 SOCKET HEAD CAP 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 NOT EXCEED HEIGHT OF SENSOR BODY (4.70mm).
 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 FOR CLEARANCE TO SCALE AND SCALE MOUNTING HARDWARE (BENCHING SURFACES, TRENCHES, ETC.)

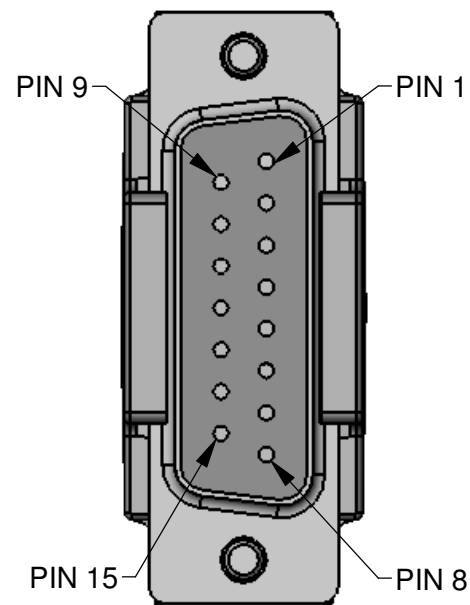
6. SEE SHEET 3 FOR DIMENSIONS AND LOCATIONS OF REFERENCE MARKERS.
7. WHEN SCALE MOVES IN DIRECTION "A" WITH RESPECT TO A STATIONARY SENSOR, OUTPUT SIGNAL A+ (PIN 14) LEADS OUTPUT SIGNAL B+ (PIN 13). THIS APPLIES TO QUADRATURE SENSOR ONLY.



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 ± .25 .XX ± .13 ANGULAR: ±30 MIN.	APPROVALS	DATE	GSI MicroE Systems 125 Middlesex Tpk. Bedford, MA 01730	DESCRIPTION: INTERFACE, ENCODER, 20um, SHORT LINEAR SCALE w/ STICK-ON INDEX AND LIMITS, MERCURY II 5000 SENSOR
	DRAWN S.BUTURLIA	7/11/08		
	CHECKED A.GOLDMAN	7/23/08		
	ENGRG.			
	MFG ENG		SIZE B	DWG. NO. ID-00354
	QA		SCALE:	CAD FILE:
SUBJECT TO CHANGE WITHOUT NOTIFICATION			SHEET 1 OF 3	REV. 3

UNITS: mm

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.



SEE TABLE 2 and 3 FOR PIN FUNCTIONS

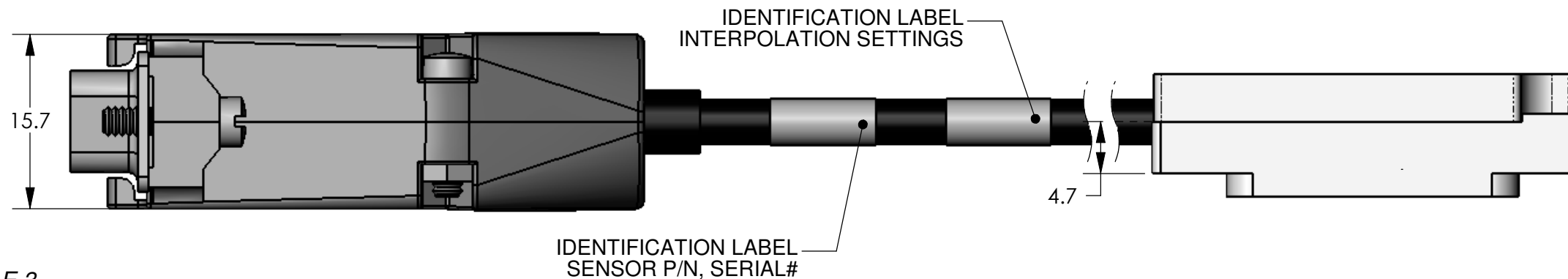
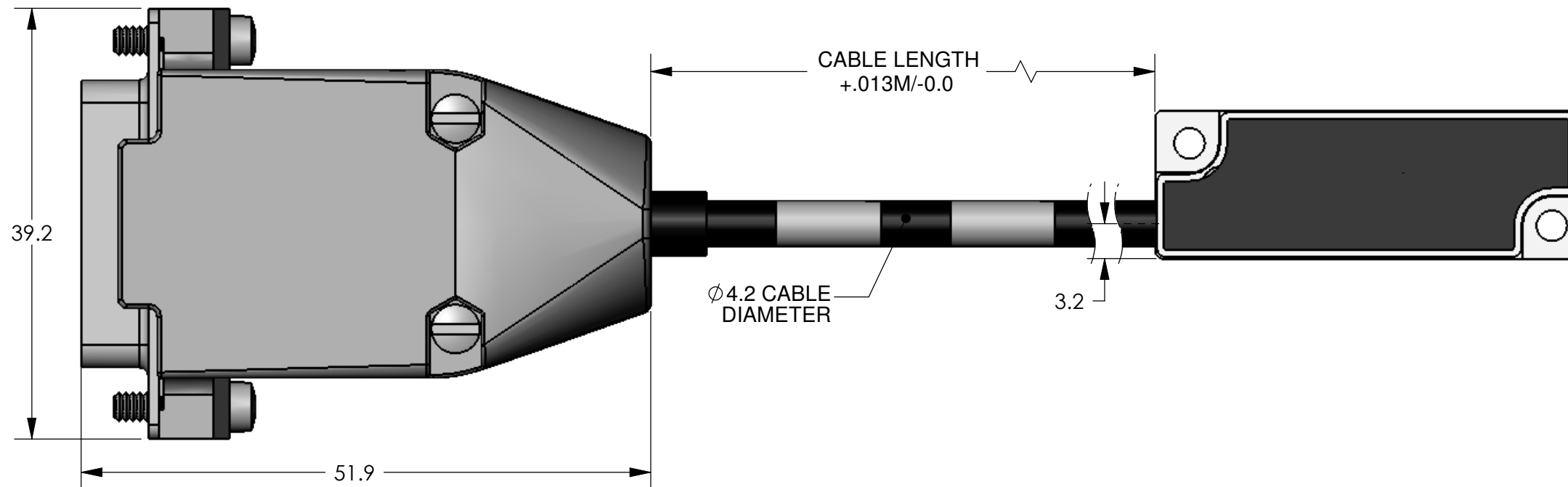


TABLE 2.

Mercury II 5000 15-Plug Quadrature Output

Pin	Wire color	Function
1	Brown	RL+
2	Black	GND
3	White	RL-
4	White	I-
5	White	B-
6	White	A-
7	Red	5V
8	Red	5V
9	Black	GND
10	Gray	LL+
11	White	LL-
12	Green	I+
13	Blue	B+
14	Violet	A+
15	Black	DO NOT CONNECT

TABLE 3.

Mercury II 5000 15-Plug Serial Output

Pin	Wire color	Function
1	Brown	nCS+
2	Black	GND
3	White	nCS-
4	White	DIAG_IN_OUT-
5	White	SCLOCK_OUT-
6	White	SDATA_OUT-
7	Red	5V
8	Red	5V
9	Black	GND
10	Gray	SCLOCK_IN+
11	White	SCLOCK_IN-
12	Green	DIAG_IN_OUT+
13	Blue	SCLOCK_OUT+
14	Violet	SDATA_OUT+
15	Black	DO NOT CONNECT

NOTE: GND AND INNER SHIELD ARE INTERNALLY CONNECTED.

TABLE 1.

Cable Lengths

1 Meter
3 Meter
5 Meter
Custom

UNITS: mm

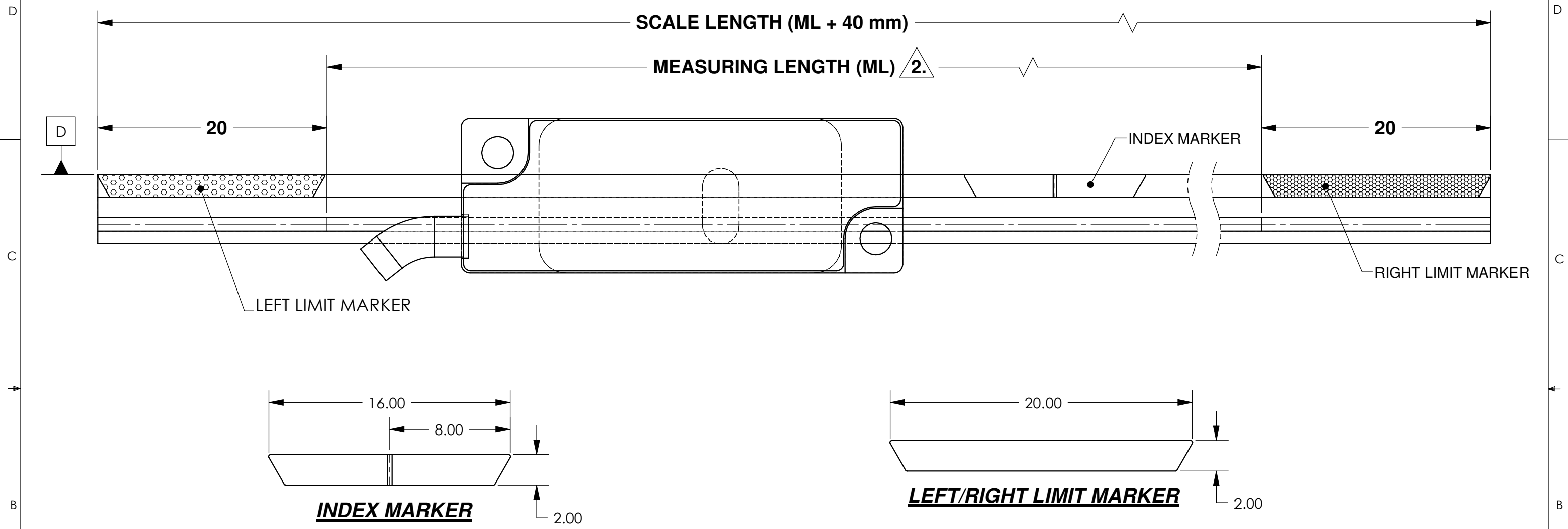
GSI **MicroE Systems**
Division of GSI Group

125 Middlesex Tpk.
Bedford, MA 01730

DESCRIPTION: INTERFACE, ENCODER, 20um,
SHORT LINEAR SCALE
w/ STICK-ON INDEX AND LIMITS,
MERCURY II 5000 SENSOR

SIZE B	DWG. NO. ID-00354	REV. 3
SCALE:	CAD FILE:	3RD ANGLE PROJECTION SHEET 2 OF 3

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.



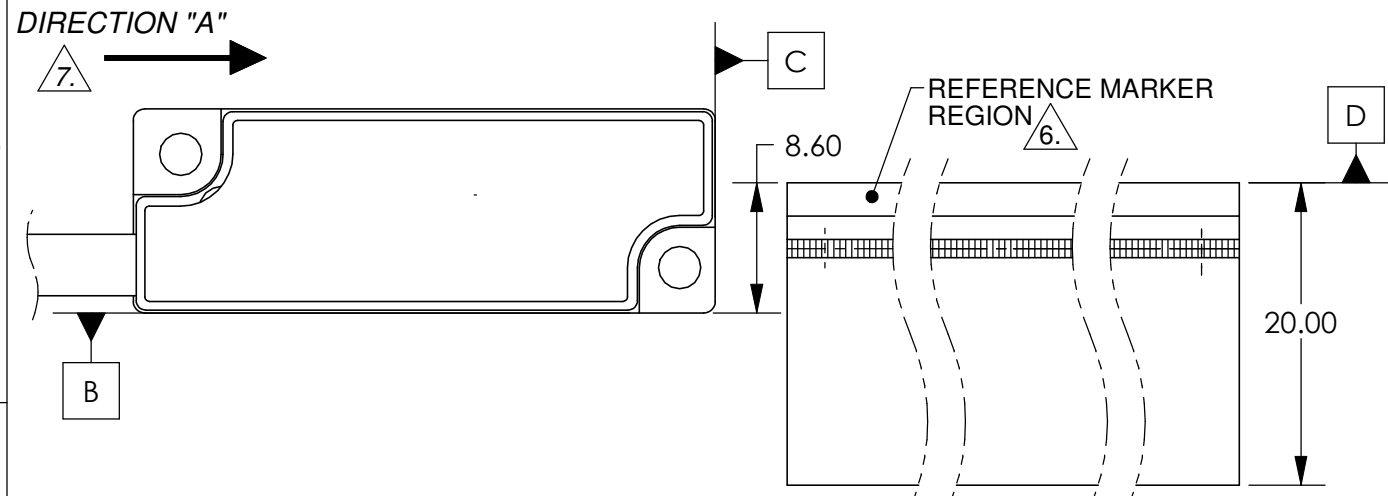
- NOTES:
1. APPLICABLE LINEAR GLASS SCALE LENGTHS 70-130 mm. FOR SCALE LENGTHS SHORTER THAN 70 mm, CONTACT MICROE SYSTEMS.
 2. MINIMUM MEASURING LENGTH SHOWN. ACTUAL MEASURING LENGTH MAY BE GREATER.
 3. NOTE DATUM EDGE OF GLASS SCALE AND REFERENCE MARKER REGION BEFORE APPLYING MARKERS.
 4. INDEX AND LIMIT MARKERS ARE OPTIONAL (SEE INSTALLATION MANUAL). WHEN NO LIMITS ARE USED, RECOMMENDED SCALE LENGTH = MEASURING LENGTH + 5 mm.
 5. INDEX AND LIMIT MARKERS SHALL NOT OVERLAP EACH OTHER (WILL CAUSE INTERFERENCE WITH SENSOR).
 6. FOR OTHER LENGTHS OF REFERENCE MARKERS, CONTACT MICROE SYSTEMS.
 7. INDEX AND LIMIT MARKERS MAY BE PRINTED ON GLASS SCALES AT LOCATIONS SPECIFIED BY THE CUSTOMER. CONTACT MICROE SYSTEMS FOR DETAILS.

UNITS: mm

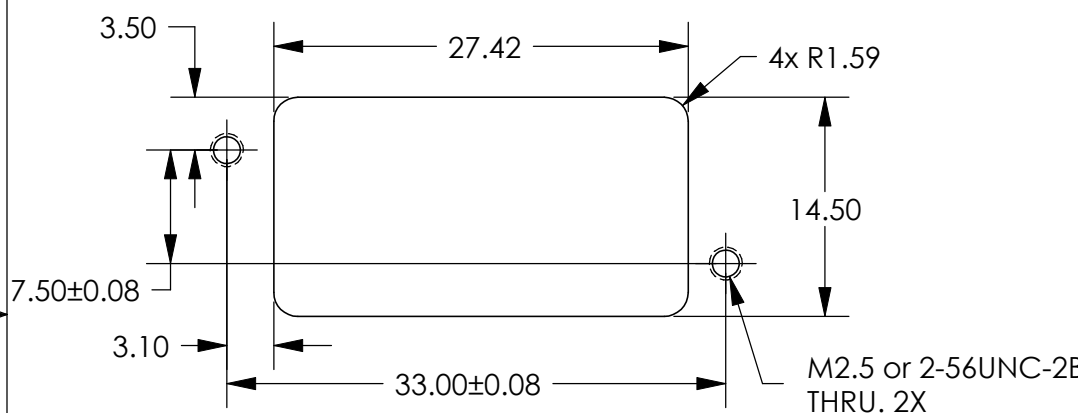
		MicroE Systems Division of GSI Group	
		125 Middlesex Tpk. Bedford, MA 01730	
DESCRIPTION: INTERFACE, ENCODER, 20um, SHORT LINEAR SCALE w/ STICK-ON INDEX AND LIMITS, MERCURY II 5000 SENSOR			
SIZE	DWG. NO.	REV.	
B	ID-00354	3	
SCALE:	CAD FILE:	3RD ANGLE PROJECTION	SHEET 3 OF 3

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.

REVISIONS				
LTR	ECO	DESCRIPTION	DATE	APPROVED
1	----	INITIAL	7/28/08	VB
2	2121	ADDED WIRE COLORS TO TABLES 2 & 3, MTG PLATE REC., UPDATED ADDRESS.	7/7/09	VB
3	2360	UPDATE INDEX AND LIMIT MARKERS AND NOTES. CHANGE DRAWING DESCRIPTION IN TITLE BLOCK.	6/27/11	SB



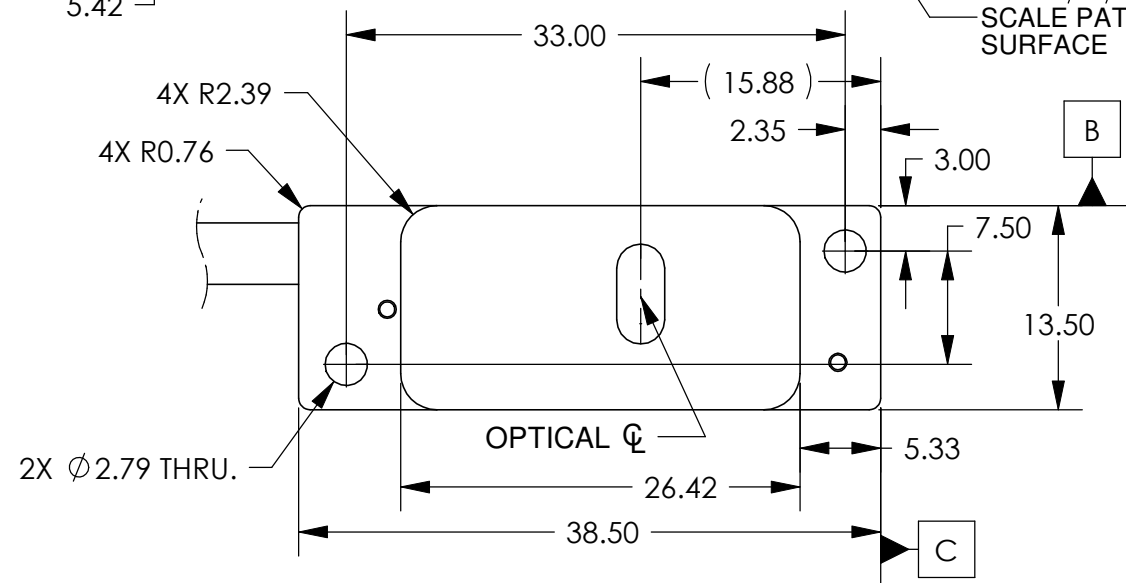
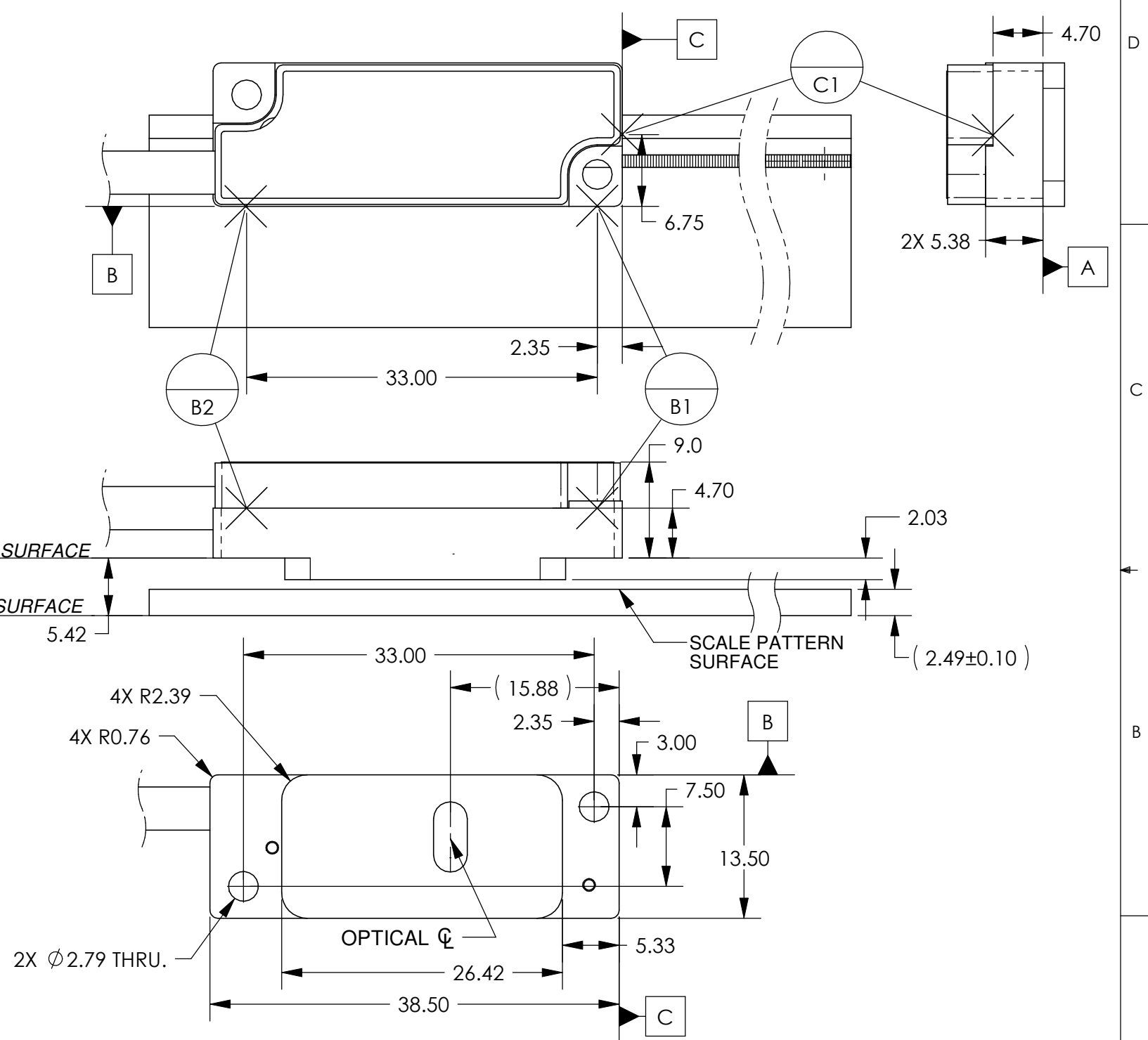
LINEAR GLASS SCALE SHOWN IN THIS VIEW TRANSLATED IN X-AXIS OUT OF OPERATING RANGE FOR CLARITY



SENSOR MOUNTING PLATE RECOMMENDATION

- NOTES:**
1. RECOMMENDED MOUNTING HARDWARE: 2-56 or M2.5 SOCKET HEAD CAP 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 NOT EXCEED HEIGHT OF SENSOR BODY (4.70mm).
 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 FOR CLEARANCE TO SCALE AND SCALE MOUNTING HARDWARE (BENCHING SURFACES, TRENCHES, ETC.)

6. SEE SHEET 3 FOR DIMENSIONS FOR LOCATIONS OF REFERENCE MARKERS.
7. WHEN SCALE MOVES IN DIRECTION "A" WITH RESPECT TO A STATIONARY SENSOR, OUTPUT SIGNAL A+ (PIN 14) LEADS OUTPUT SIGNAL B+ (PIN 13). THIS APPLIES TO QUADRATURE SENSOR ONLY.

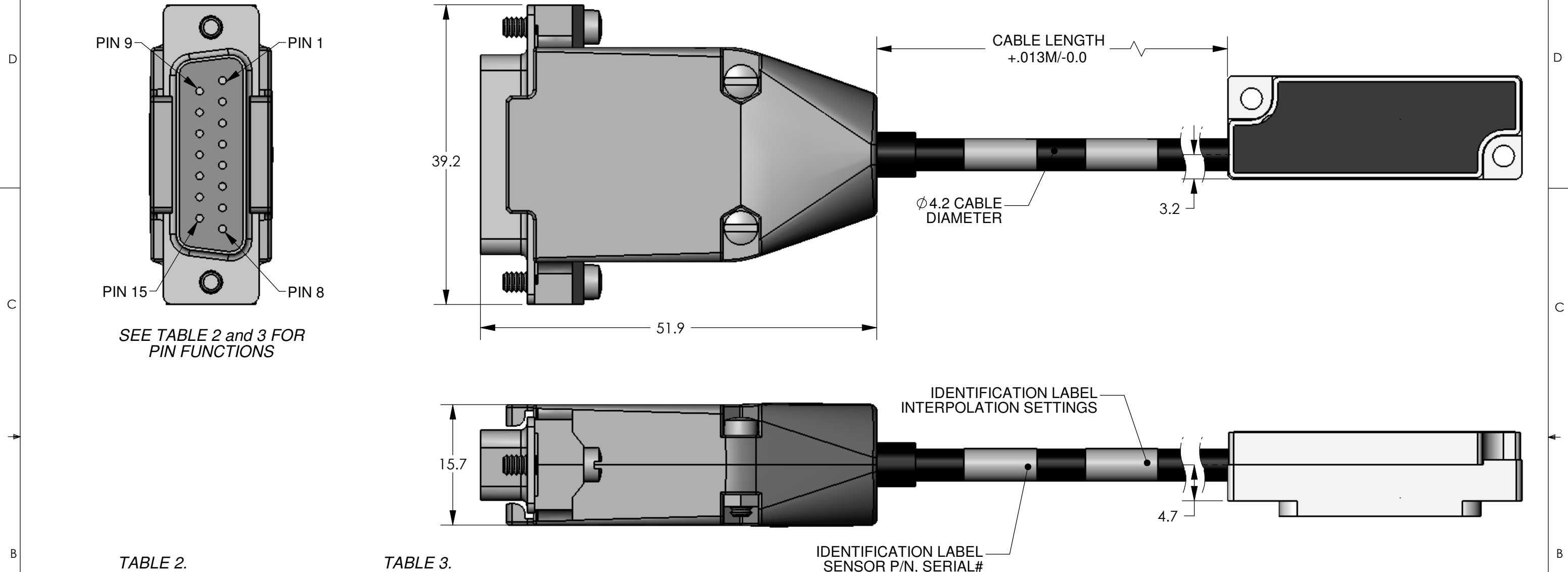


UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS DIM. APPLY AFTER PROCESSING INTERPRET ALL GEOMETRIC TOLS. PER ANSI Y14.5M-1994 TOLERANCES ARE: DECIMALS: .X ± .25 ANGULAR: ±30 MIN. .XX ± .13	APPROVALS	DATE	 MicroE Systems Division of GSI Group 125 Middlesex Tpk. Bedford, MA 01730	DESCRIPTION: INTERFACE, ENCODER, 20um, LONG LINEAR SCALE w/ STICK-ON INDEX AND LIMITS, MERCURY II 5000 SENSOR
	DRAWN S.BUTURLIA	7/11/08		
	CHECKED A.GOLDMAN	7/23/08		
	ENGRG.			
	MFG ENG		SIZE B	DWG. NO. ID-00355
	QA		SCALE:	CAD FILE:

SUBJECT TO CHANGE WITHOUT NOTIFICATION

UNITS: mm
SHEET 1 OF 3

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.



SEE TABLE 2 and 3 FOR PIN FUNCTIONS

TABLE 2.

Mercury II 5000 15-Plug Quadrature Output		
Pin	Wire color	Function
1	Brown	RL+
2	Black	GND
3	White	RL-
4	White	I-
5	White	B-
6	White	A-
7	Red	5V
8	Red	5V
9	Black	GND
10	Gray	LL+
11	White	LL-
12	Green	I+
13	Blue	B+
14	Violet	A+
15	Black	DO NOT CONNECT

TABLE 3.

Mercury II 5000 15-Plug Serial Output		
Pin	Wire color	Function
1	Brown	nCS+
2	Black	GND
3	White	nCS-
4	White	DIAG_IN_OUT-
5	White	SCLOCK_OUT-
6	White	SDATA_OUT-
7	Red	5V
8	Red	5V
9	Black	GND
10	Gray	SCLOCK_IN+
11	White	SCLOCK_IN-
12	Green	DIAG_IN_OUT+
13	Blue	SCLOCK_OUT+
14	Violet	SDATA_OUT+
15	Black	DO NOT CONNECT

IDENTIFICATION LABEL
SENSOR P/N, SERIAL#

NOTE: GND AND INNER SHIELD ARE INTERNALLY CONNECTED.

TABLE 1.

Cable Lengths
1 Meter
3 Meter
5 Meter
Custom

UNITS: mm

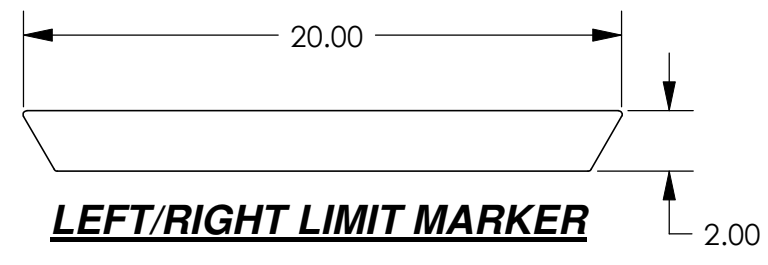
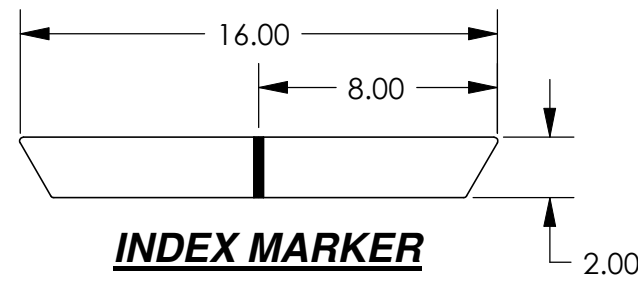
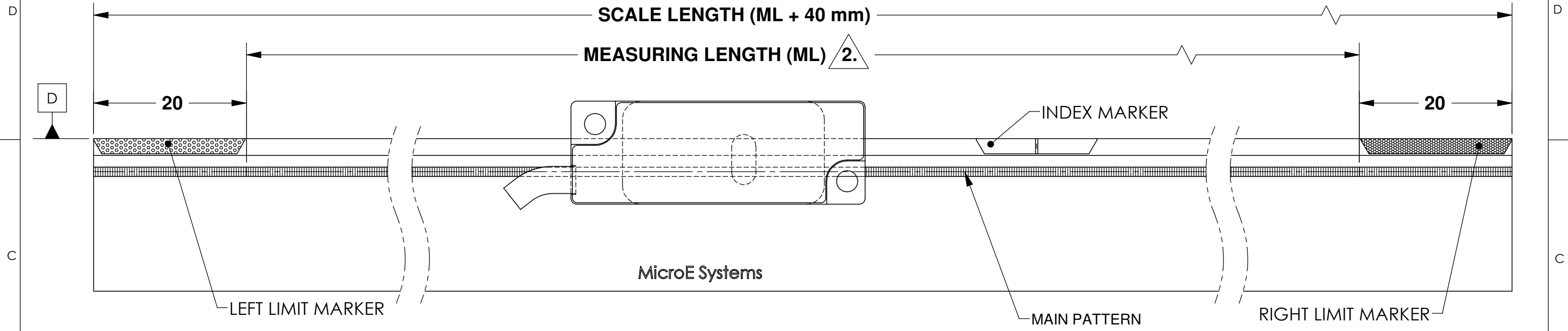
GSI **MicroE Systems**
Division of GSI Group

125 Middlesex Tpk.
Bedford, MA 01730

DESCRIPTION: INTERFACE, ENCODER, 20um,
LONG LINEAR SCALE
w/ STICK-ON INDEX AND LIMITS,
MERCURY II 5000 SENSOR

SIZE B	DWG. NO. ID-00355	REV. 3
SCALE:	CAD FILE:	3RD ANGLE PROJECTION SHEET 2 OF 3

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.



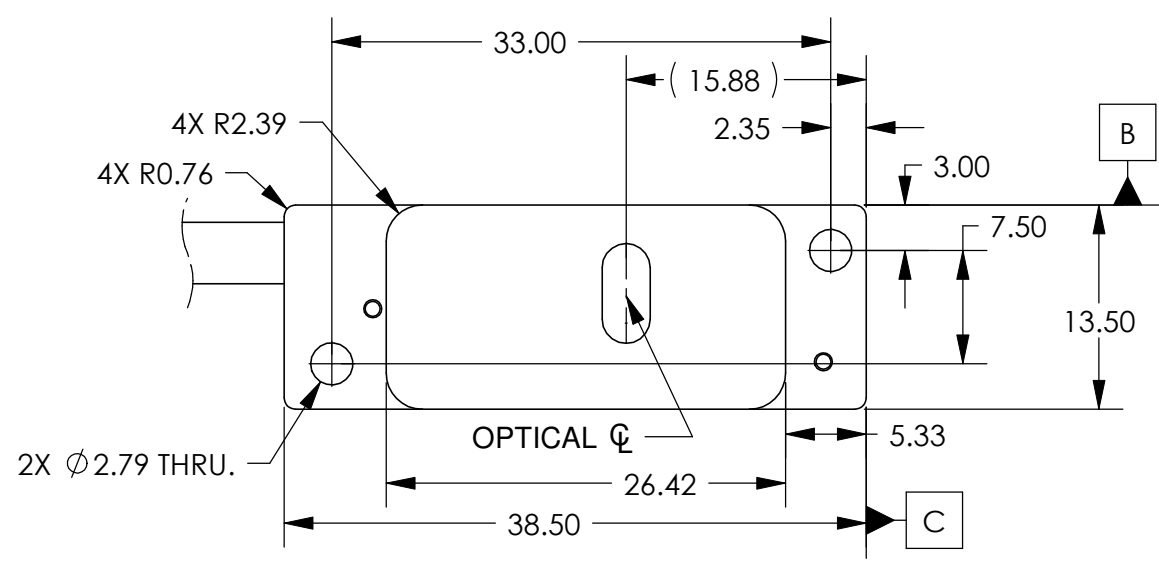
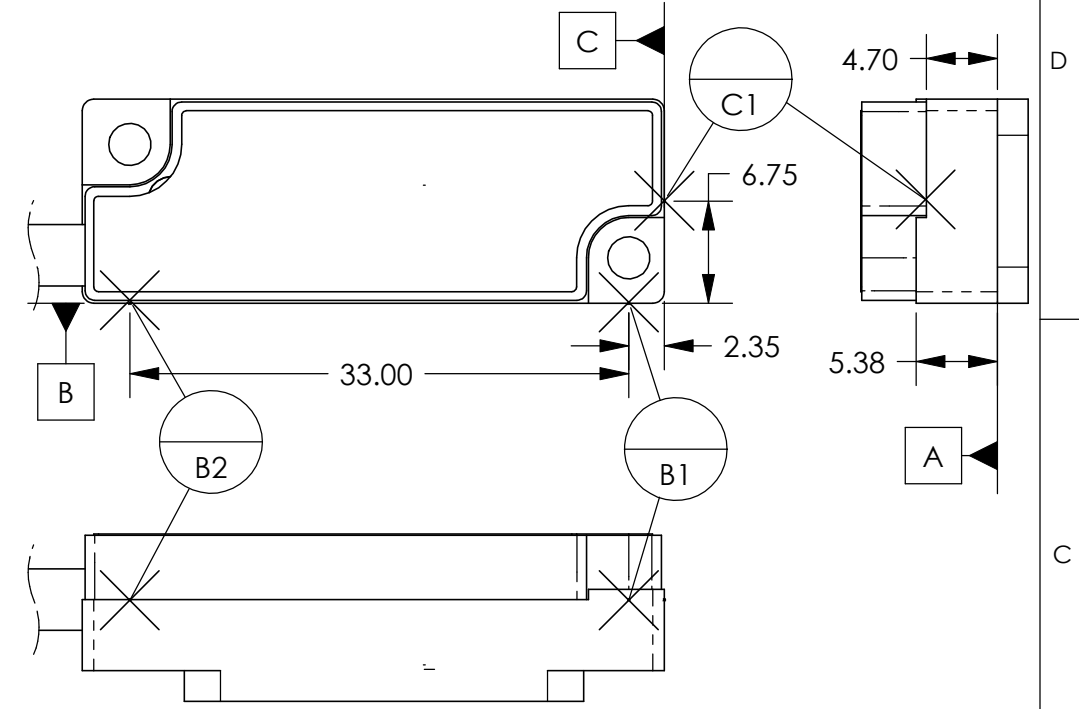
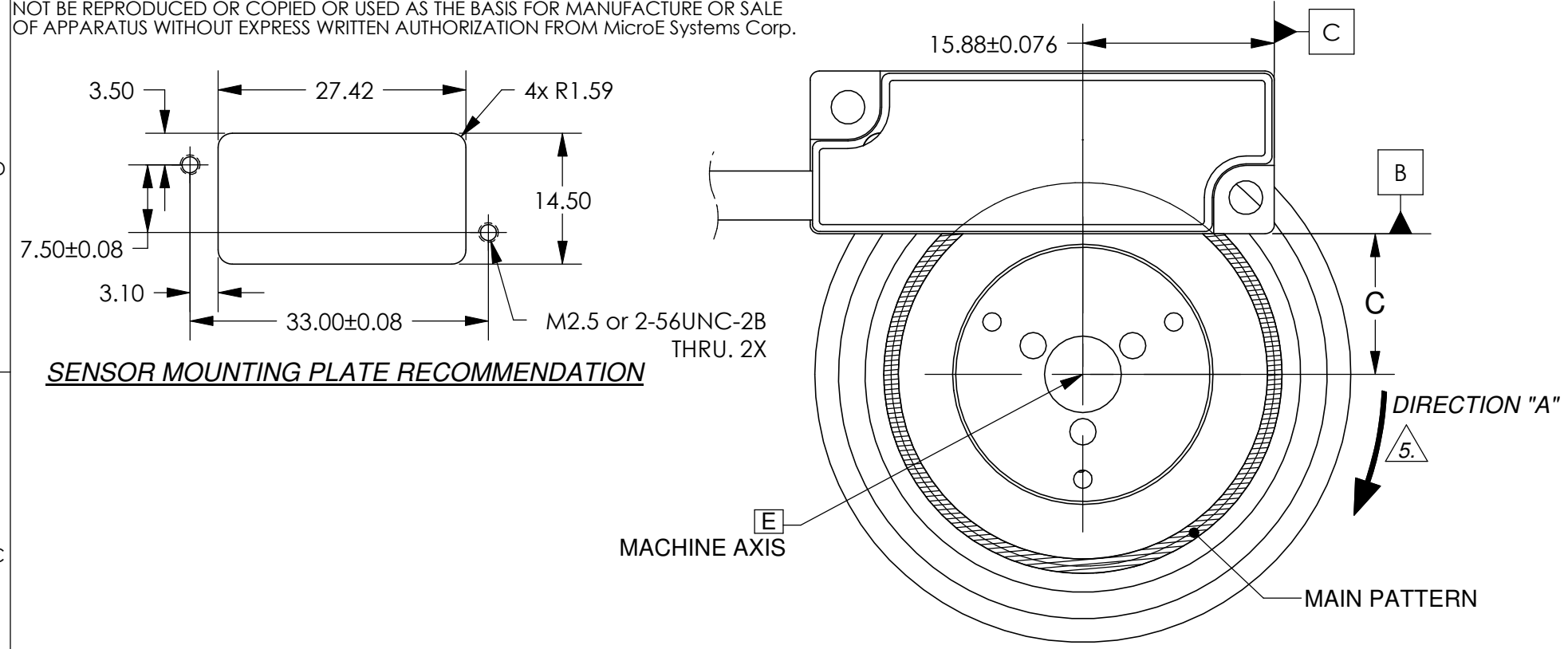
- NOTES:**
1. APPLICABLE LINEAR GLASS SCALE LENGTHS 131-1000 mm. FOR SCALE LENGTHS LONGER THAN 1000 mm, CONTACT MICROE SYSTEMS.
 2. MINIMUM MEASURING LENGTH SHOWN. ACTUAL MEASURING LENGTH MAY BE GREATER.
 3. NOTE DATUM EDGE OF GLASS SCALE AND REFERENCE MARKER REGION BEFORE APPLYING MARKERS.
 4. INDEX AND LIMIT MARKERS ARE OPTIONAL (SEE INSTALLATION MANUAL). WHEN NO LIMITS ARE USED, RECOMMENDED SCALE LENGTH = MEASURING LENGTH + 5 mm.
 5. INDEX AND LIMIT MARKERS SHALL NOT OVERLAP EACH OTHER (WILL CAUSE INTERFERENCE WITH SENSOR).
 6. FOR OTHER LENGTHS OF REFERENCE MARKERS, CONTACT MICROE SYSTEMS.
 7. INDEX AND LIMIT MARKERS MAY BE PRINTED ON GLASS SCALES AT LOCATIONS SPECIFIED BY THE CUSTOMER. CONTACT MICROE SYSTEMS FOR DETAILS.

UNITS: mm

GSI		MicroE Systems Division of GSI Group	
		125 Middlesex Tpk. Bedford, MA 01730	
DESCRIPTION: INTERFACE, ENCODER, 20um, LONG LINEAR SCALE w/ STICK-ON INDEX AND LIMITS, MERCURY II 5000 SENSOR			
SIZE B	DWG. NO. ID-00355	REV. 3	
SCALE:	CAD FILE:	3RD ANGLE PROJECTION	SHEET 3 OF 3

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.

REVISIONS				
LTR	ECO	DESCRIPTION	DATE	APPROVED
1	----	INITIAL	7/28/08	VB
2	2121	ADDED WIRE COLORS TO TABLES 2 & 3, MTG PLATE REC., UPDATED ADDRESS.	7/7/09	VB
3	2360	CHANGE DRAWING DESCRIPTION IN TITLE BLOCK. ADD SHEET 3 AND MOVE SCALE/HUB TABLE FROM SHEET 1 TO SHEET 3 & ADD COLUMN "DIM.J."	6/27/11	SB



- NOTES:**
1. RECOMMENDED MOUNTING HARDWARE:
2-56 or M2.5 SOCKET HEAD CAP 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 NOT EXCEED HEIGHT OF SENSOR BODY (4.70mm).
 4. RECOMMENDED SENSOR MOUNTING PLATE THICKNESS:
MINIMUM: 4 SCREW THREADS
MAXIMUM: ALLOW FOR CLEARANCE TO SCALE AND SCALE MOUNTING HARDWARE (BENCHING SURFACES, TRENCHES, ETC.)
 5. WHEN SCALE MOVES IN DIRECTION "A" WITH RESPECT TO A STATIONARY SENSOR, OUTPUT SIGNAL A+ (PIN 14) LEADS OUTPUT SIGNAL B+ (PIN 13). THIS APPLIES TO QUADRATURE SENSOR ONLY.
 6. SEE SHEET 3 FOR DIMENSIONS OF ROTARY SCALE AND HUB.

UNITS: mm

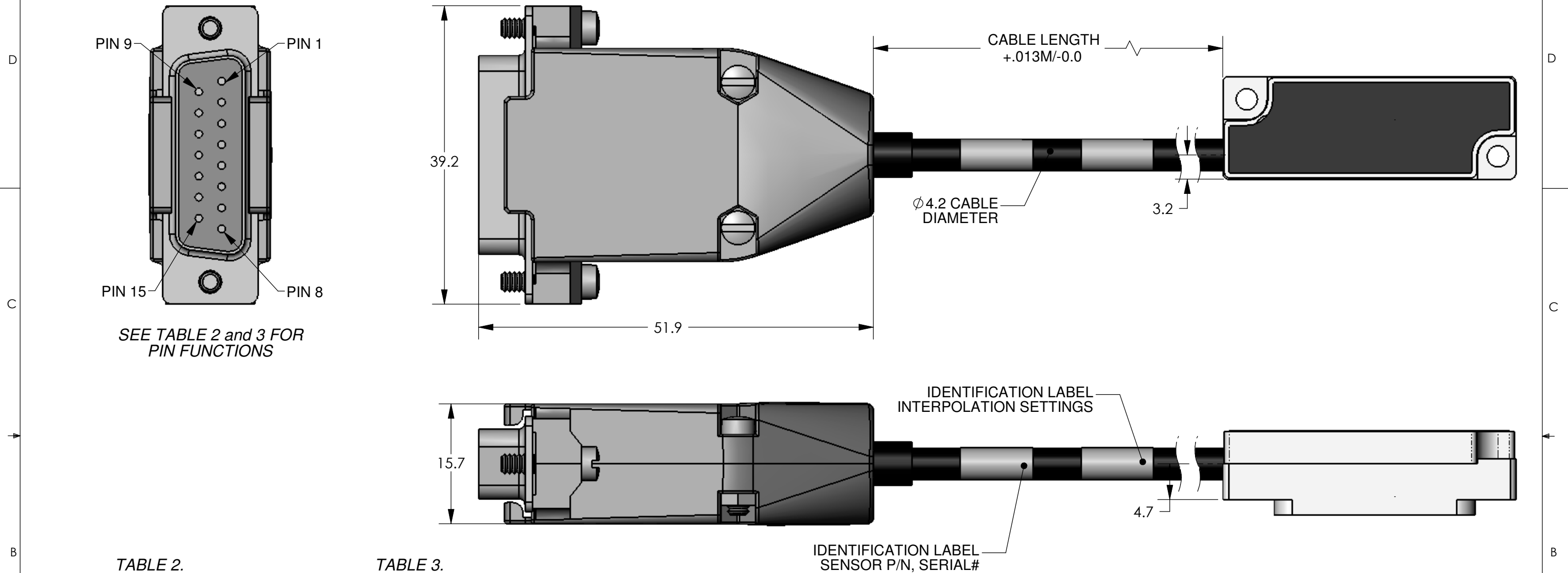
UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN MILLIMETERS DIM. APPLY AFTER PROCESSING INTERPRET ALL GEOMETRIC TOLS. PER ANSI Y14.5M-1994	APPROVALS	DATE	 MicroE Systems Division of GSI Group	125 Middlesex Tpk. Bedford, MA 01730
	DRAWN S.BUTURLIA	7/11/08		
	CHECKED A.GOLDMAN	7/23/08	DESCRIPTION: INTERFACE, ENCODER, 20um, ROTARY SCALE w/ HUB, MERCURY II 5000 SENSOR	
	ENGRG.		SIZE B	DWG. NO. ID-00356

TOLERANCES ARE:
DECIMALS: .X ± .25
.XX ± .13
ANGULAR: ±30 MIN.

SUBJECT TO CHANGE WITHOUT NOTIFICATION

SCALE: 3RD ANGLE PROJECTION SHEET 1 OF 3

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.



SEE TABLE 2 and 3 FOR PIN FUNCTIONS

TABLE 2.

Mercury II 5000 15-Plug Quadrature Output		
Pin	Wire color	Function
1	Brown	RL+
2	Black	GND
3	White	RL-
4	White	I-
5	White	B-
6	White	A-
7	Red	5V
8	Red	5V
9	Black	GND
10	Gray	LL+
11	White	LL-
12	Green	I+
13	Blue	B+
14	Violet	A+
15	Black	DO NOT CONNECT

TABLE 3.

Mercury II 5000 15-Plug Serial Output		
Pin	Wire color	Function
1	Brown	nCS+
2	Black	GND
3	White	nCS-
4	White	DIAG_IN_OUT-
5	White	SCLOCK_OUT-
6	White	SDATA_OUT-
7	Red	5V
8	Red	5V
9	Black	GND
10	Gray	SCLOCK_IN+
11	White	SCLOCK_IN-
12	Green	DIAG_IN_OUT+
13	Blue	SCLOCK_OUT+
14	Violet	SDATA_OUT+
15	Black	DO NOT CONNECT

IDENTIFICATION LABEL SENSOR P/N, SERIAL#

NOTE: GND AND INNER SHIELD ARE INTERNALLY CONNECTED.

TABLE 1.

Cable Lengths
1 Meter
3 Meter
5 Meter
Custom

UNITS: mm

GSI **MicroE Systems**
Division of GSI Group

125 Middlesex Tpk.
Bedford, MA 01730

DESCRIPTION:
INTERFACE, ENCODER, 20um,
ROTARY SCALE w/ HUB,
MERCURY II 5000 SENSOR

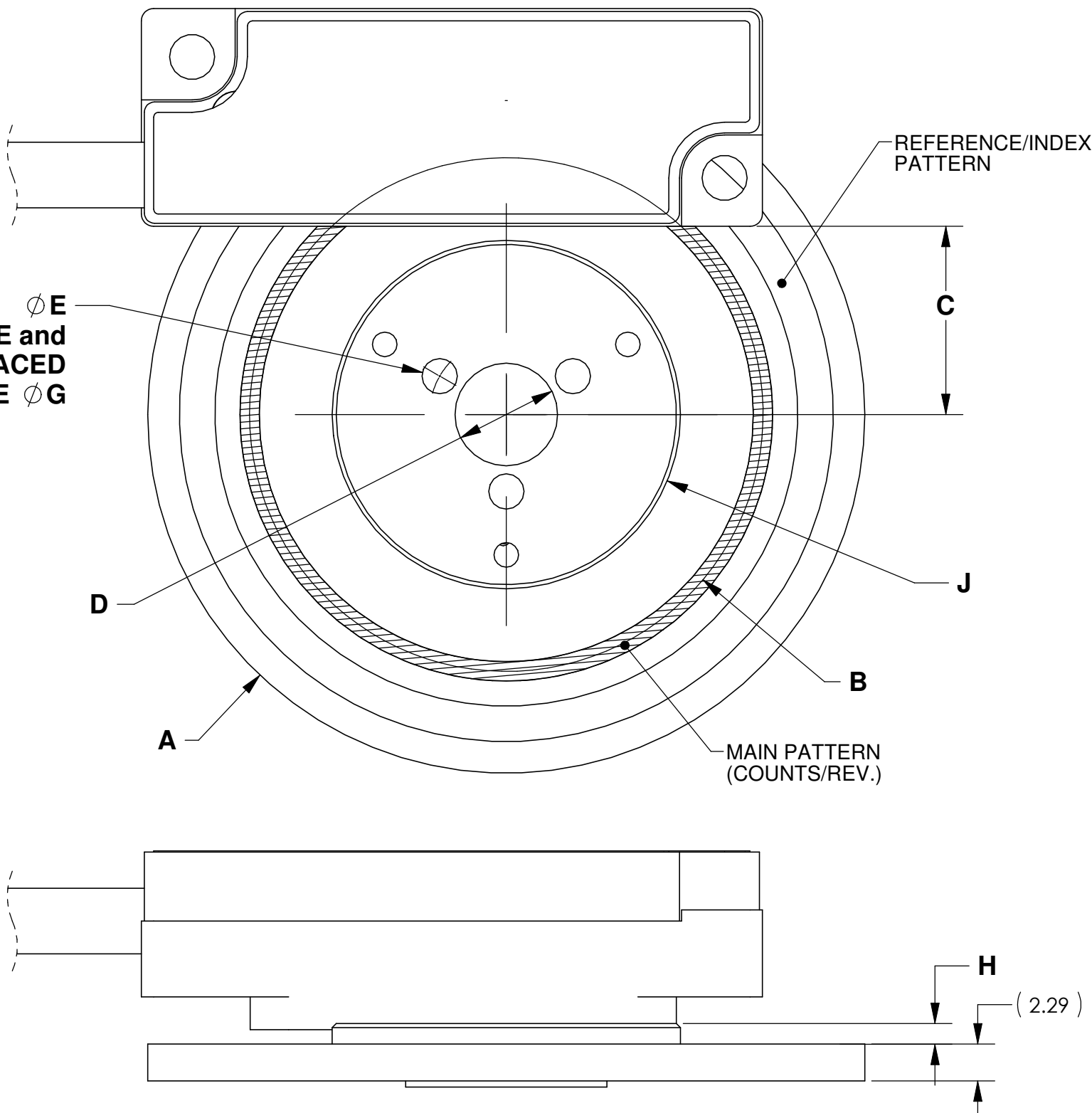
SIZE B	DWG. NO. ID-00356	REV. 3
SCALE:	CAD FILE:	3RD ANGLE PROJECTION SHEET 2 OF 3

THESE DRAWINGS AND SPECIFICATIONS ARE THE PROPERTY OF MicroE Systems Corp. AND SHALL NOT BE REPRODUCED OR COPIED OR USED AS THE BASIS FOR MANUFACTURE OR SALE OF APPARATUS WITHOUT EXPRESS WRITTEN AUTHORIZATION FROM MicroE Systems Corp.

NOTES:

- FOR ADDITIONAL PRINTED ON FEATURES (LIMITS) AND CUSTOM SIZES AND COUNTS, CONTACT MICROE SYSTEMS.

ϕ E
**MOUNTING HOLE and
 THREAD F. EQ. SPACED
 ON A BOLT CIRCLE ϕ G**



SCALE/HUB IDENTIFICATION AND SIZE

Scale/Hub Identification	Counts/Rev	Dim. A Scale O.D.	Scale I.D.	Dim. B Optical Dia.	Dim. C Mounting Dim.	Dim D. Hub I.D.	Dim E. Mntg Hole Dia.	Thread F	Dim G. Bolt Circle	Dim. H Hub Height	Dim. J Hub O.D.
R4513 / HI	5,000	44.45	12.70+/-0.13	31.83	11.66+/-0.05	6.358+.013/-0.000	1.78	2-56	9.53	1.27	21.59
R6425 / HJ	8,192	63.50	25.40+/-0.13	52.15	21.82+/-0.05	12.708+.013/-0.000	3.45	8-32	19.05	1.52	35.88
R12151 / HK	16,384	120.65	50.80+/-0.13	104.30	47.90+/-0.05	25.408+.013/-0.000	3.45	8-32	38.10	2.03	69.85

UNITS: mm

GSI MicroE Systems
 Division of GSI Group

125 Middlesex Tpk.
 Bedford, MA 01730

DESCRIPTION:
 INTERFACE, ENCODER, 20um,
 ROTARY SCALE w/ HUB,
 MERCURY II 5000 SENSOR

SIZE B DWG. NO. ID-00356 REV. 3

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