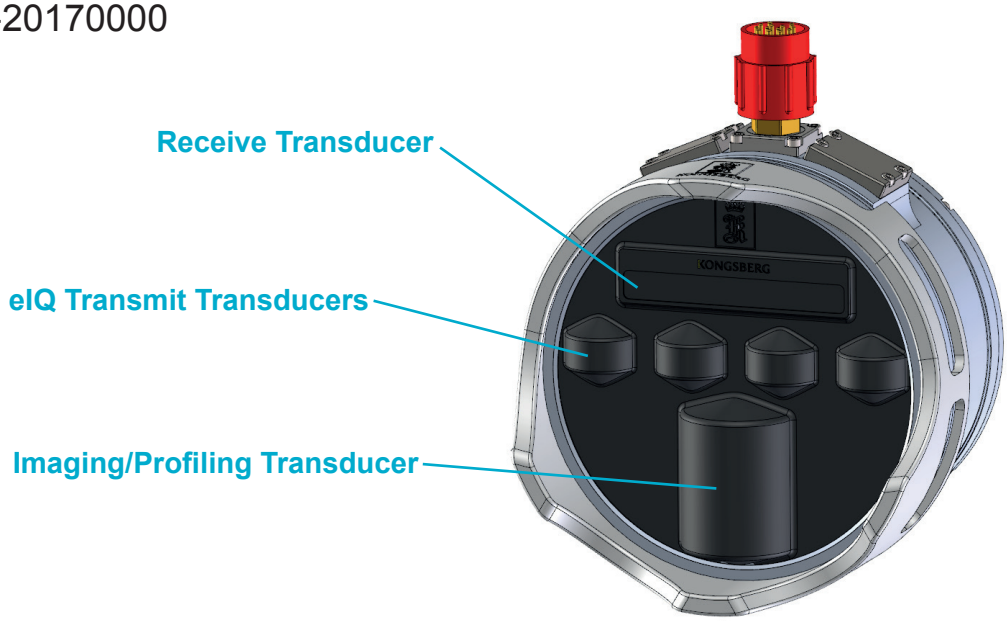
M3 SONAR® - 500M SUBCONN CONNECTOR

KONGSBERG

P/N 922-20170000



THE MULTIMODE MULTIBEAM FOR MULTIPLE APPLICATIONS

- **Imaging and profiling capabilities**
- **GeoTIFF output for image mosaics**
- **Multiple true-zoom windows**
- **CHIRP and Doppler modes of operations**
- **User-friendly interface**
- **Significant time savings**
- **Integrated tilt and pan/tilt control**

The Kongsberg Mesotech M3 Sonar® is a multibeam system with both imaging and profiling capabilites. The M3 Sonar® provides high-resolution and easy to interpret images by combining the rapid refresh rate of a conventional multibeam sonar with image quality comparable to a single-beam sonar.

Detection of small objects out to 150 meters combined with a 120° to 140° field of view allows the operator to see the complete underwater picture in real-time.

APPLICATIONS

- Marine Engineering
- Shallow Water Bathymetric Surveying
- Site Inspection
- Environmental Monitoring
- Site Clearance
- Defense and Security

INSTALLATION OPTIONS

- Pole mount on a surface vessel
- Suitable for a wide range of vehicles from large work-class ROVs to small observation class ROVs
- Tripod mounted

M3 SOFTWARE

The M3 Software was developed specifically for the M3 Sonar® to manage communications with the head and operate all beam-forming and imaging processing.

Four Pre-Defined Operating Modes:

1. **Imaging:** long range navigation with high speed update rate
2. **Enhanced Image Quality (eIQ):** greatest image quality (0.95° angular resolution) from a short range with a slower update
3. **ROV Navigation:** selects eIQ or imaging based on range
4. **Profiling:** narrow 3° beam used to generate a 3D point cloud

TECHNICAL SPECIFICATION

Sonar Specifications

Range:	0.2m to 150m
Range Resolution:	1cm
Frequency:	500 kHz
Pulse Types:	CW, CHIRP
Modes:	Variable Vertical Beamwidth, eIQ

Imaging Mode

Horizontal Field of View:	120°
Vertical Beamwidth:	3°, 7°, 15°, 30°
Angular Resolution:	1.6°
Update Rate:	up to 40 Hz

eIQ Imaging Mode

Horizontal Field of View:	140°
Vertical Beamwidth:	30°
Angular Resolution:	0.95°
Update Rate:	up to 10 Hz

Profiling Mode

Horizontal Field of View:	120°
Vertical Beamwidth:	3°
Number of Beams:	256
Update Rate:	up to 40 Hz

Interface Specifications

Communication:	Ethernet
Data Rates:	10/100 /1000 Mbps
Input Voltage:	12 to 36 VDC
Input Power:	22W (avg.), peak power < 60W, mode dependant
Operating System:	Windows 10 Professional; Windows 7 Professional

Environmental Specifications

Temperature

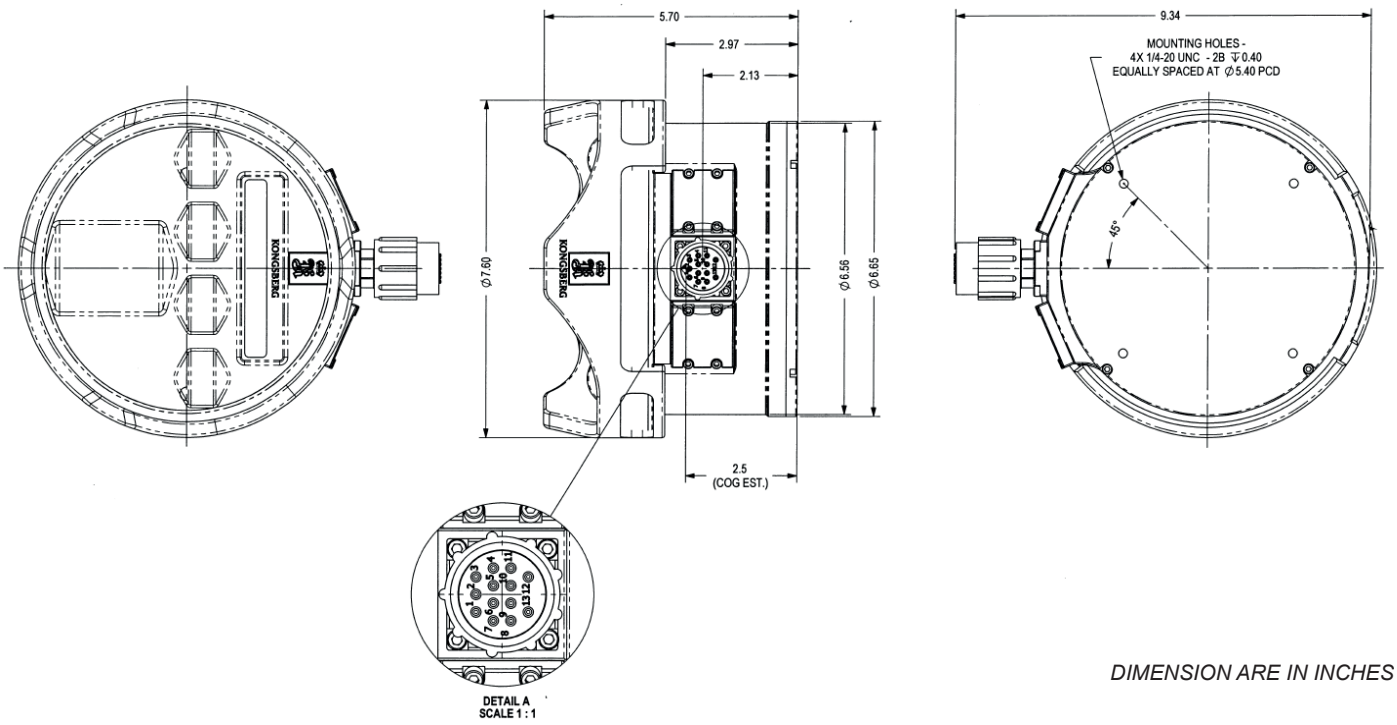
Operation:	-2°C to +38°C
Storage:	-40°C to +55°C

Shock and Vibration

Shock Qualified:	+/-50gs, 3 Axes, 6 shocks per axis
Vibration Qualified:	4g, 30Hz 3 Axes, 2 hours per axis. No resonance below 800Hz

Mechanical Specifications

Dimensions:	*(see diagram below)*
Weight in Air:	4.6kg
Weight in Water:	1.7kg
Depth Rating:	500m
Connector Type:	Subconn
Connector Model:	DBH13MSS
Materials:	Hard Anodized Aluminum, Stainless Steel 316, Elastomeric Polyurethane



DIMENSION ARE IN INCHES

Specifications subject to change without any further notice.

922-20177901-1.0

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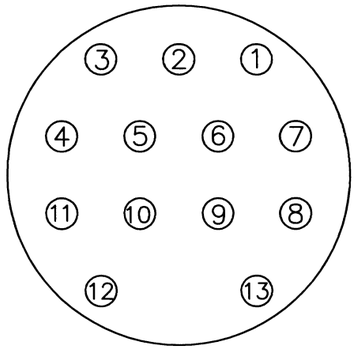
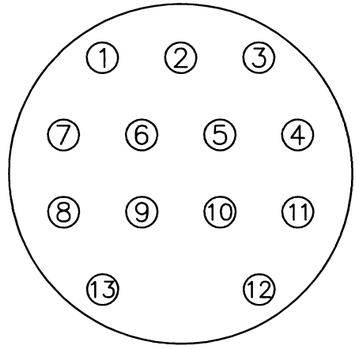
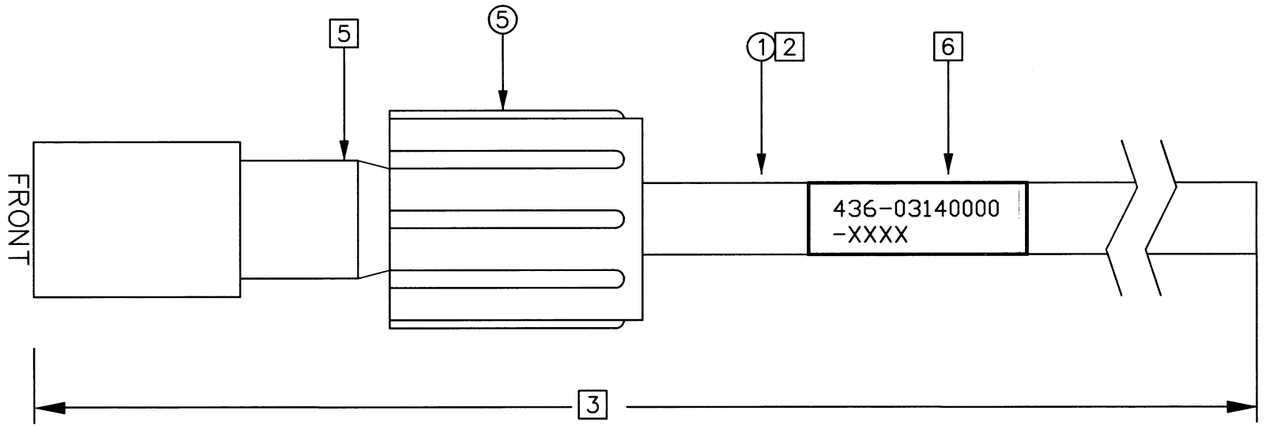


PIN VIEW/
FACE VIEW



SOLDER LUG/
REAR VIEW



PART # = 436-03140000-XXXX
XXXX = LENGTH IN FEET

SUBCONN DIL13F WHIP		
DIL13F	CABLE	
PIN NUMBER	COLOR	DESC
1	BLK	18AWG
2	ORG	SHIELD
3	WHT	18AWG
4	BRN	TWISTED PAIR
5	BRN/WHT	
6	BLU	TWISTED PAIR
7	BLU/WHT	
8	ORG	TWISTED PAIR
9	ORG/WHT	
10	GRN	TWISTED PAIR
11	GRN/WHT	
12	RED	18AWG
13	GRN	18AWG

4

CABLE AND WIRE LENGTH TOLERANCE	
≤1 FT	+1 IN -0 IN
>1 FT-5 FT	+2 IN -0 IN
>5 FT-10 FT	+4 IN -0 IN
>10 FT- 25 FT	+6 IN -0 IN
>25 FT	+5% -0%

NOTES:

1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.

2 CABLE MINIMUM BEND RADIUS = 5".

3 THE LAST 4 DIGITS OF THE PART NUMBER STATES THE LENGTH OF THE CABLE IN FEET.

4 REFER TO THE TABLE FOR TOLERANCES

5 MAXIMUM 1/2" UNTWISTED FOR ALL TP.

6 PRINT PART NUMBER USING 1/8" BLACK TEXT ON WHITE, THEN INSTALL CLEAR HEATSHRINK OVER.

DO NOT SCALE DRAWING

APPROVALS		DATE
DRAWN	DM	2017-JAN-10
REVISED		
ENGR	DM	Jan 18/2017
CHECKED	J.H.	Jan 18/2017
PROD		Jan 18/2017
QA		18-JAN-17
ISSUED	R.H.	18 JAN 17

ISS	DESCRIPTION	DATE

REVISIONS

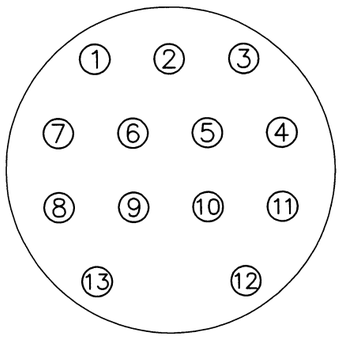
Kongsberg Mesotech Ltd.

M3 SONAR
CABLE PWR/TEL WHIP
SUBCONN DIL13F MOLDED

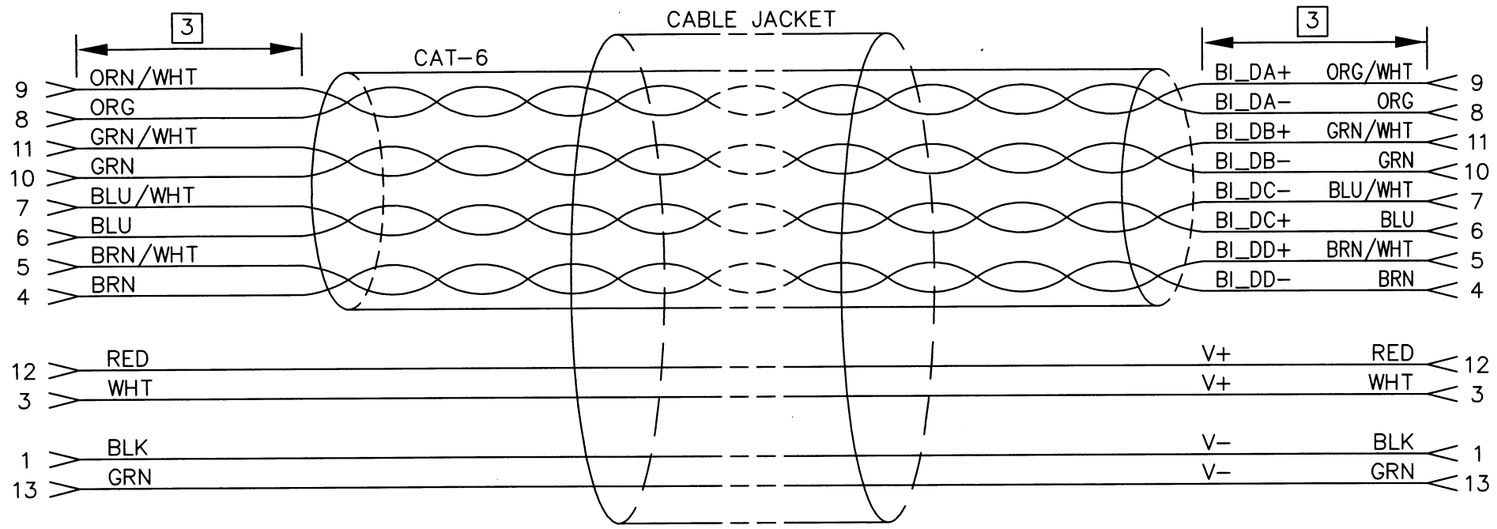
SIZE	NSCM NO	TYPE	DWG NO.	ISS
B	1C965	MD	436-03141000	1.1

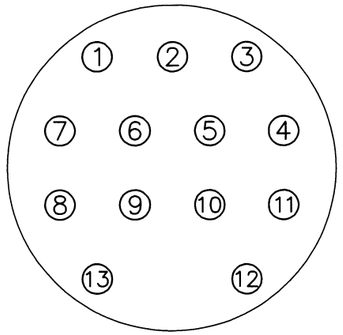
SCALE: NTS | W.O. NO. | SHEET 1 OF 1

DWG NO. 436-03151000 | SHT 1 | ISS 1.0

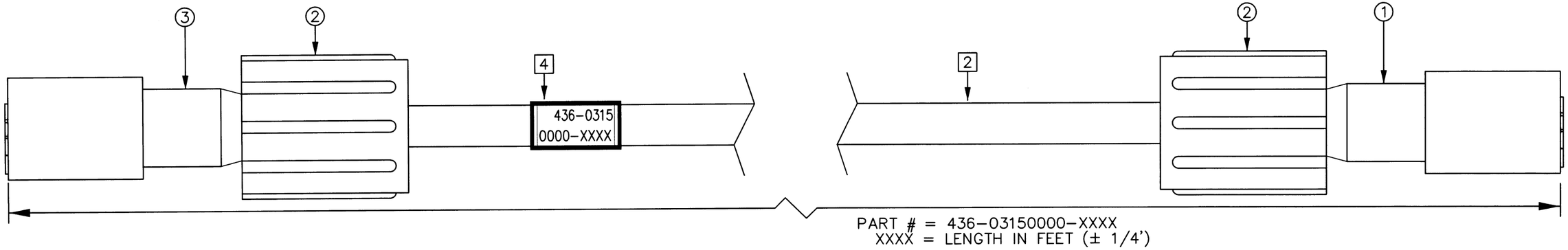


SOLDER LUG/
REAR VIEW





SOLDER LUG/
REAR VIEW



PART # = 436-03150000-XXXX
XXXX = LENGTH IN FEET (± 1/4')

NOTES:

1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
2 CABLE MINIMUM BEND RADIUS = 5".
3 MAXIMUM 1/2" UNTWISTED.
4 PRINT PART NUMBER USING 1/8" BLACK TEXT ON WHITE, THEN INSTALL CLEAR HEATSHRINK OVER.

DO NOT SCALE DRAWING

APPROVALS		DATE
DRAWN	BD	2015 APR 28
REVISED		
CHECKED	I.B.	7/2/15
ENGR	DM	July 4/2015
ISSUED	R.C.H.	2015 JUL 2

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ISS	DESCRIPTION	DATE
REVISIONS		

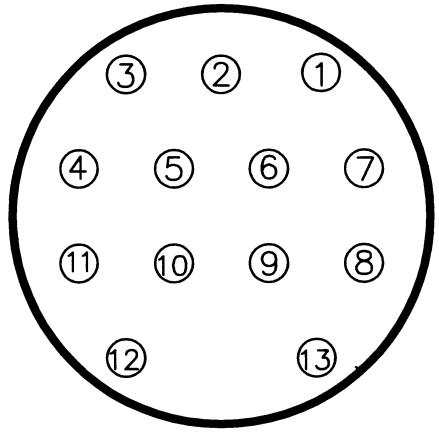
Kongsberg Mesotech Ltd.

M3 SONAR
CABLE POWER/TELEMETRY WHIP

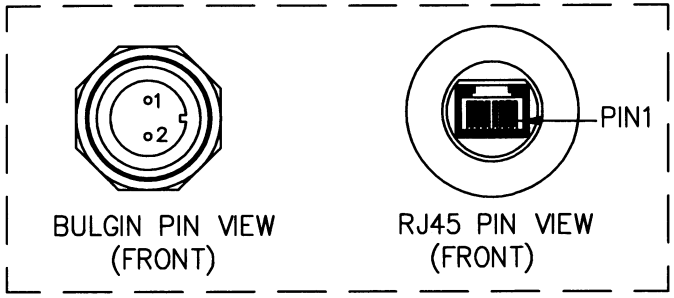
SIZE	NSCM NO	TYPE	DWG NO.	ISS
B	1C965	MD	436-03151000	1.0

SCALE: NTS | W.O. NO. | SHEET 1 OF 1

SUBCONN DIL13F TO M3 BOX CONNECTION			
DIL13F		BULGIN	RJ45(T568B)
PIN NUMBER	SIGNAL	PIN NUMBER	PIN NUMBER
1	V-	2	N/C
2	BI_DA+	N/C	N/C
3	V+	1	N/C
4	BI_DD-	N/C	8
5	BI_DD+	N/C	7
6	BI_DC+	N/C	4
7	BI_DC-	N/C	5
8	BI_DA-	N/C	2
9	BI_DA+	N/C	1
10	BI_DB-	N/C	6
11	BI_DB+	N/C	3
12	V+	1	N/C
13	V-	2	N/C



FRONT VIEW



BULGIN PIN VIEW (FRONT)

RJ45 PIN VIEW (FRONT)

NOTES:

ALL PARTS AND PROCESSES USED ON THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE

ISS	DESCRIPTION	DATE
	REVISIONS	

DO NOT SCALE DRAWING

APPROVALS		DATE
DRAWN	DM	2017-JAN-10
REVISED		
ENGR	DM	Jan18/2017
CHECKED	J.H.	Jan18/2017
PROD		JAN18/2017
QA		18-JAN17
ISSUED		18 JAN 17

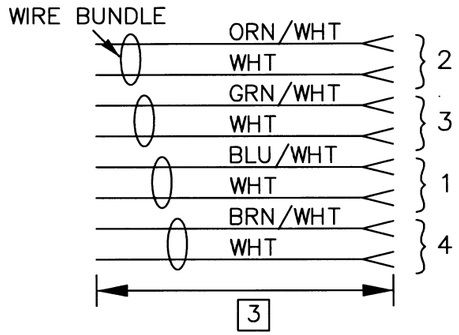
Kongsberg Mesotech Ltd.

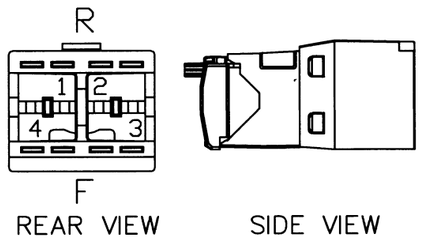
ASSEMBLY PINOUT
DIL13F TO POWER/ETHERNET
BREAKOUT BOX

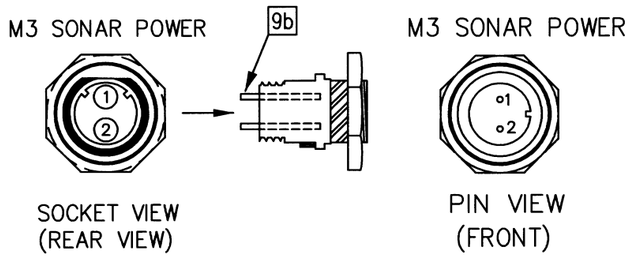
SIZE	NSCM NO	TYPE	DWG NO.	ISS
A	1C965	MD	436-00001211	1.0

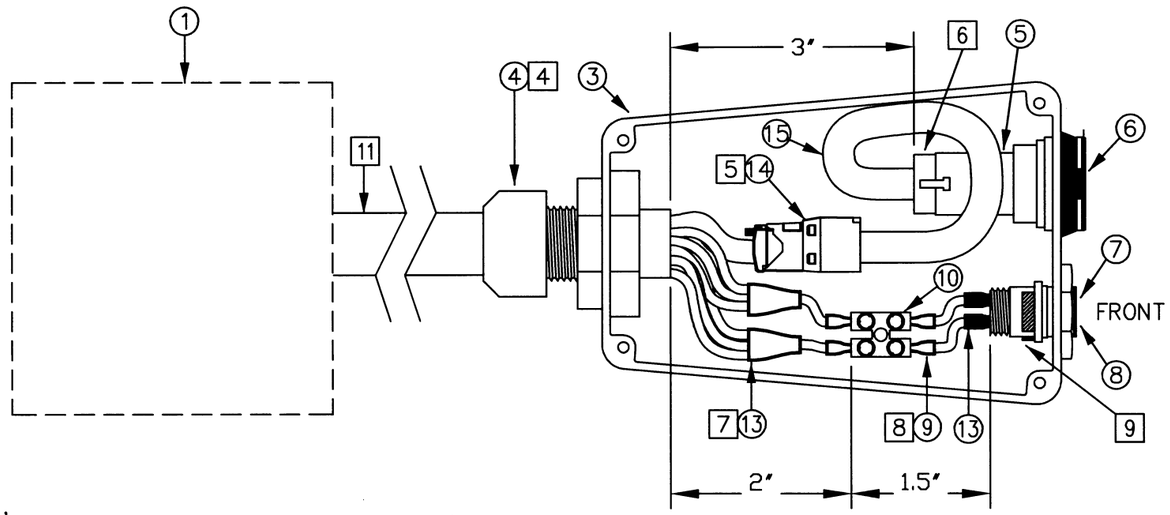
SCALE: NTS | W.O. NO. | SHEET 1 OF 1

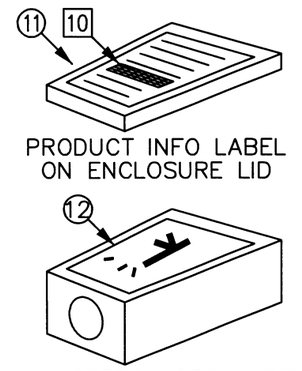
DWG NO. 436-00001302 | SHT 1 | ISS 1.0











NOTES:

1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.

[2] REFER TO THE TABLE FOR TOLERANCES

[3] STRIP CABLE BY 3.5"(+1" −0"). MAXIMUM 0.5" UNTWISTED.

[4] INSTALL CABLE GLAND.

[5] INSTALL RJ45 JACK

[6] INSTALL RJ45 COUPLER
- a – REMOVE JACK PLUG FROM RJ45 COUPLER ⑤, THEN INSTALL OUTER PIECE AND HAND–TIGHTEN WITH 24MM SOCKET (COVER BEND ON TOP).
- b – TEST WITH ETHERNET TESTER (FLUKE CABLE IQ TESTER OR EQUIVALENT).

[7] SPLICE CABLE BY 3.5" (+1" −0"). HEATSHRINK OVERLAPS THE WIRE INSULATION ON BOTH ENDS OF THE SPLICED AREA BY A MINIMUM OF 1 WIRE GROUP(LARGEST GROUP) DIAMETER.

[8] CRIMP FERRULES.

[9] INSTALL POWER JACK CONNECTOR:
- a – INSTALL CONNECTOR, WASHER, THEN THE NUT.
- b – INSTALL PINS WITH SOLDERED WIRES TO THE CONNECTOR.
- c – INSTALL CAP (SUPPLIED WITH CONNECTOR).

[10] INSTALL A STICKER WITH CABLE P/N ON ENCLOSURE LID. LABEL SIZE 45mm x 10MM, BROTHER LABEL MAKER SETTINGS; FONT: HEL, WIDTH x1, SIZE: 12PT, STYLE: BOLD

[11] REMOVE LABEL THAT IS ON THE CABLE WHIP.

[2]

CABLE AND WIRE LENGTH TOLERANCE	
≤1 FT	+1 IN −0 IN
>1 FT–5 FT	+2 IN −0 IN
>5 FT–10 FT	+4 IN −0 IN
>10 FT– 25 FT	+6 IN −0 IN
>25 FT	+5% −0%

DO NOT SCALE DRAWING

APPROVALS		DATE
DRAWN	DM	2016-DEC-08
REVISED		
ENGR		Jan/18/2017
CHECKED	JH	Jan/18/2017
PROD		2017-01-18
QA		18-JAN-17
ISSUED	R.C.H	19 JAN 17

ISS	DESCRIPTION	DATE
REVISIONS		

Kongsberg Mesotech Ltd.

ASSY DWG
M3 POWER/ETHERNET BREAKOUT BOX

SIZE	NSCM NO	TYPE	DWG NO.	ISS
B	1C965	MD	436-00001302	1.0

SCALE: NTS | W.O. NO. | SHEET 1 OF 1