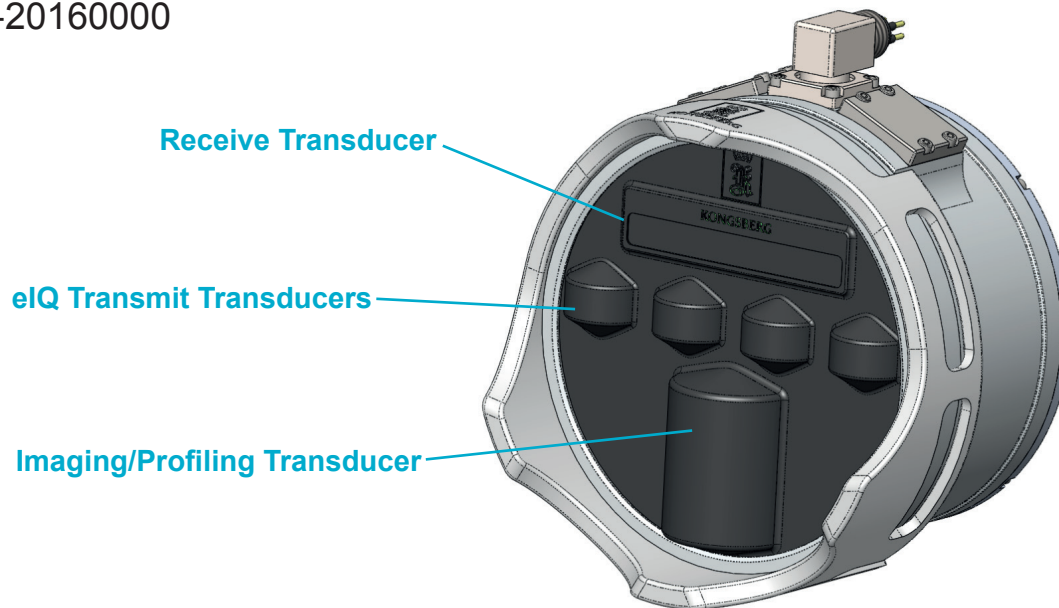


M3 SONAR® - 500M SUBCONN CONNECTOR



KONGSBERG

P/N 922-20160000



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 capabilities. 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 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

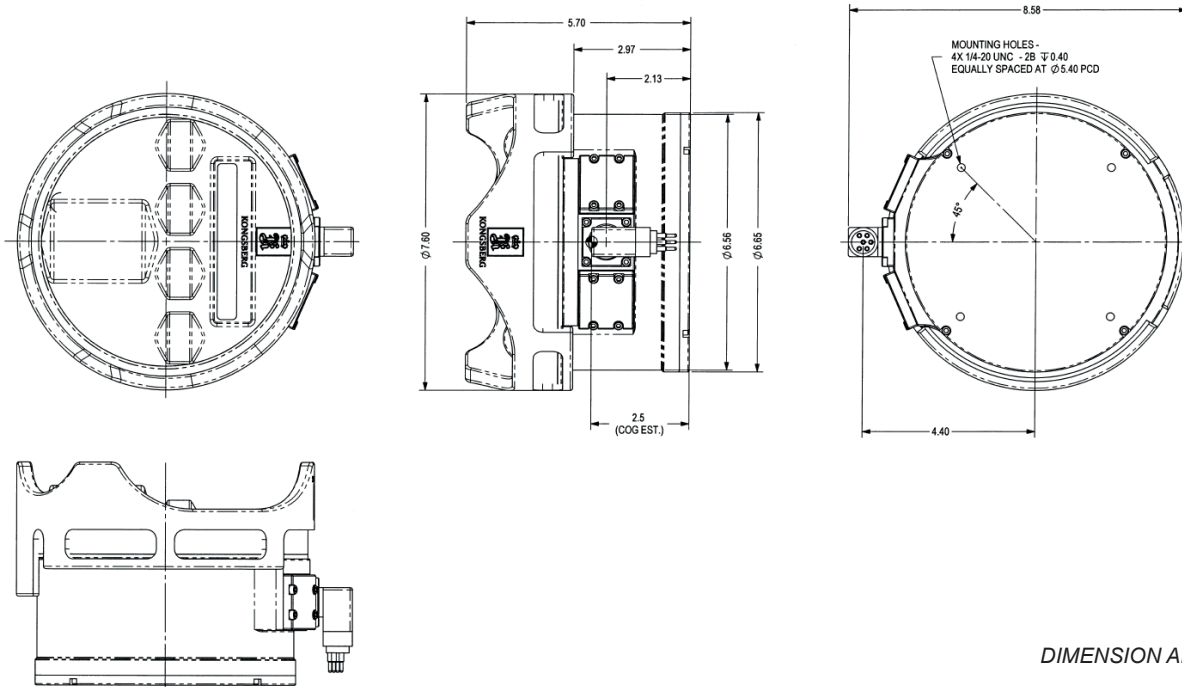
Operation: -2°C to +38°C
 Storage: -40°C to +55°C

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: MCBHRA6MSS
 Materials: Hard Anodized Aluminum, Stainless Steel 316, Elastomeric Polyurethane



DIMENSION ARE IN INCHES

Specifications subject to change without any further notice.

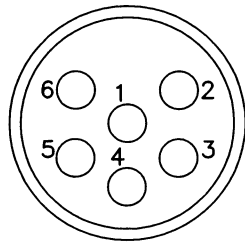
922-20167901-1.0

www.kongsbergmesotech.com

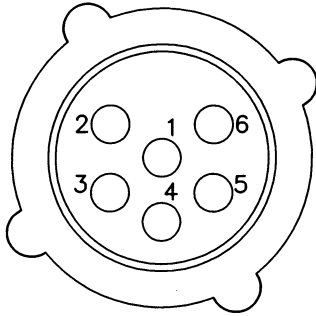
E-mail: km.sales.vancouver@kongsberg.com
 Telephone: +1 604 464 8144
 Toll-free: +1 888 464 1598



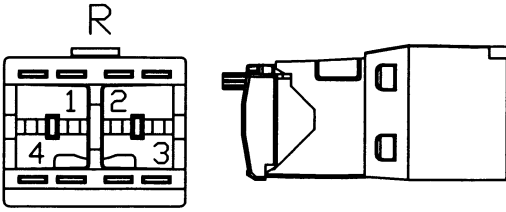
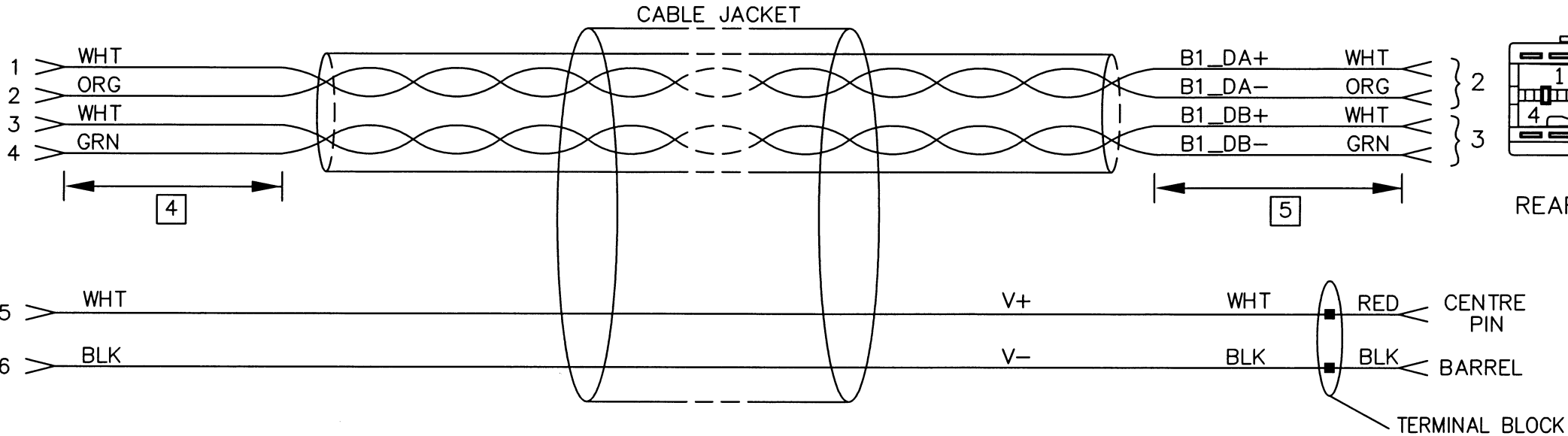
KONGSBERG



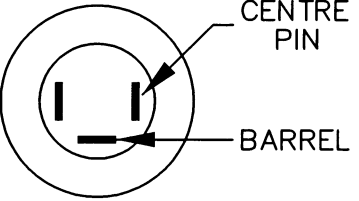
PIN VIEW



FRONT VIEW



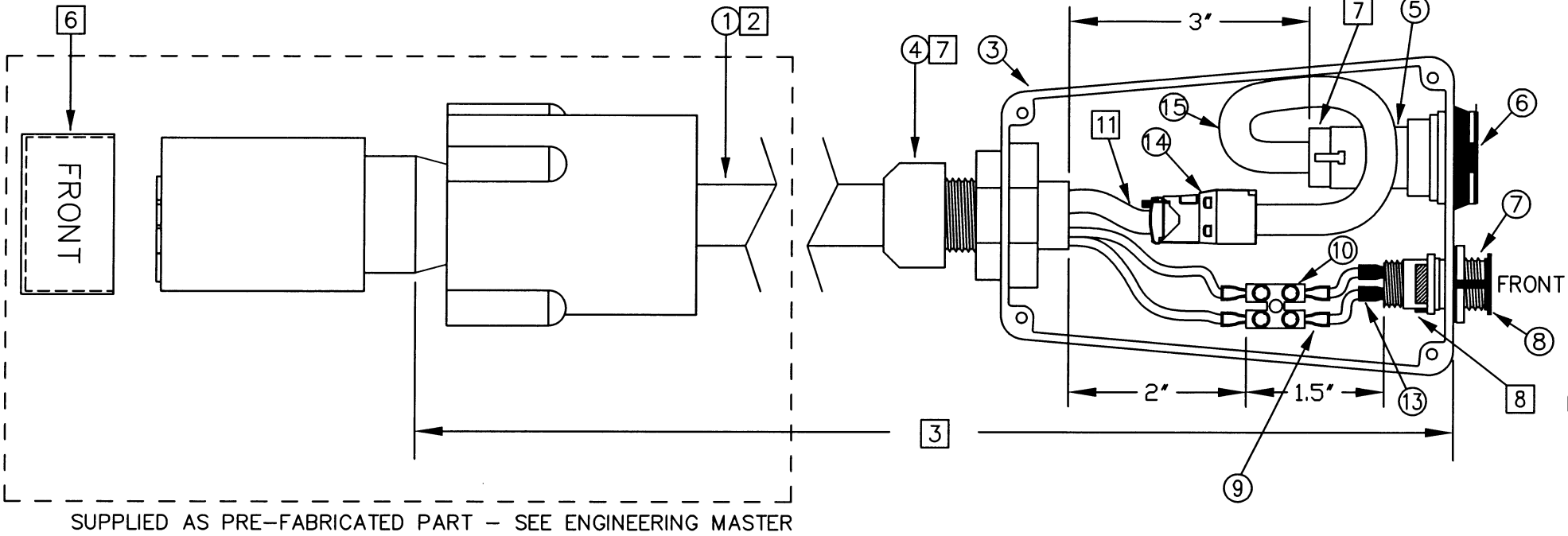
REAR VIEW SIDE VIEW



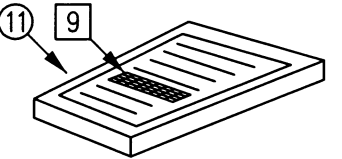
REAR VIEW

NOTES:

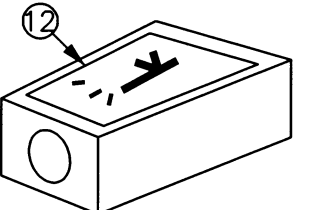
- ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
- CABLE MINIMUM BEND RADIUS = 5".
- LENGTH (IN FT., $\pm 2\%$) = XXXX IN PART# 436-0PPP0000-XXXX.
- STRIP CABLE BY 1.5" ± 0.10 ". MAXIMUM 0.5" UNTWISTED.
- STRIP CABLE BY 3.5" ± 0.25 ". MAXIMUM 0.5" UNTWISTED.
- INSTALL CAP (SUPPLIED WITH CONNECTOR).
- INSTALL CABLE GLAND.
INSTALL RJ45 JACK:
a- REMOVE JACK PLUG FROM RJ45 JACK ⑤.
THEN INSTALL OUTER PIECE AND HAND-TIGHTEN WITH 24MM SOCKET (COVER BEND ON TOP).
b- INSTALL WIRES AS PER T568B ETHERNET STANDARD.
c- TEST WITH 1 Gbps ETHERNET TESTER (FLUKE CABLE IQ TESTER OR EQUIVALENT).
- INSTALL POWER JACK CONNECTOR:
a- INSTALL O-RING, THEN INSTALL CONNECTOR THRU THE HOLE IN THE BOX.
b- INSTALL COVER (WITH THE BEND ON TOP), WASHER, THEN THE NUT.
c- INSTALL WIRES AS PER WIRING DIAGRAM.
- 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
- INSTALL WIRES AS PER T568B ETHERNET STANDARD
INSTALL RJ45 JACK



SUPPLIED AS PRE-FABRICATED PART - SEE ENGINEERING MASTER



PRODUCT INFO LABEL ON ENCLOSURE LID



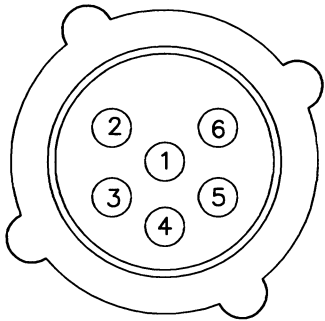
KONGSBERG LOGO LABEL ON ENCLOSURE BASE

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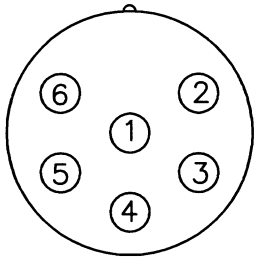
DO NOT SCALE DRAWING

APPROVALS		DATE
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REVISED		
CHECKED	<i>[Signature]</i>	04/29/15
ENGR	<i>[Signature]</i>	4/23/2015
ISSUED	<i>[Signature]</i>	2015/04/30
CONFIDENTIAL DO NOT COPY		

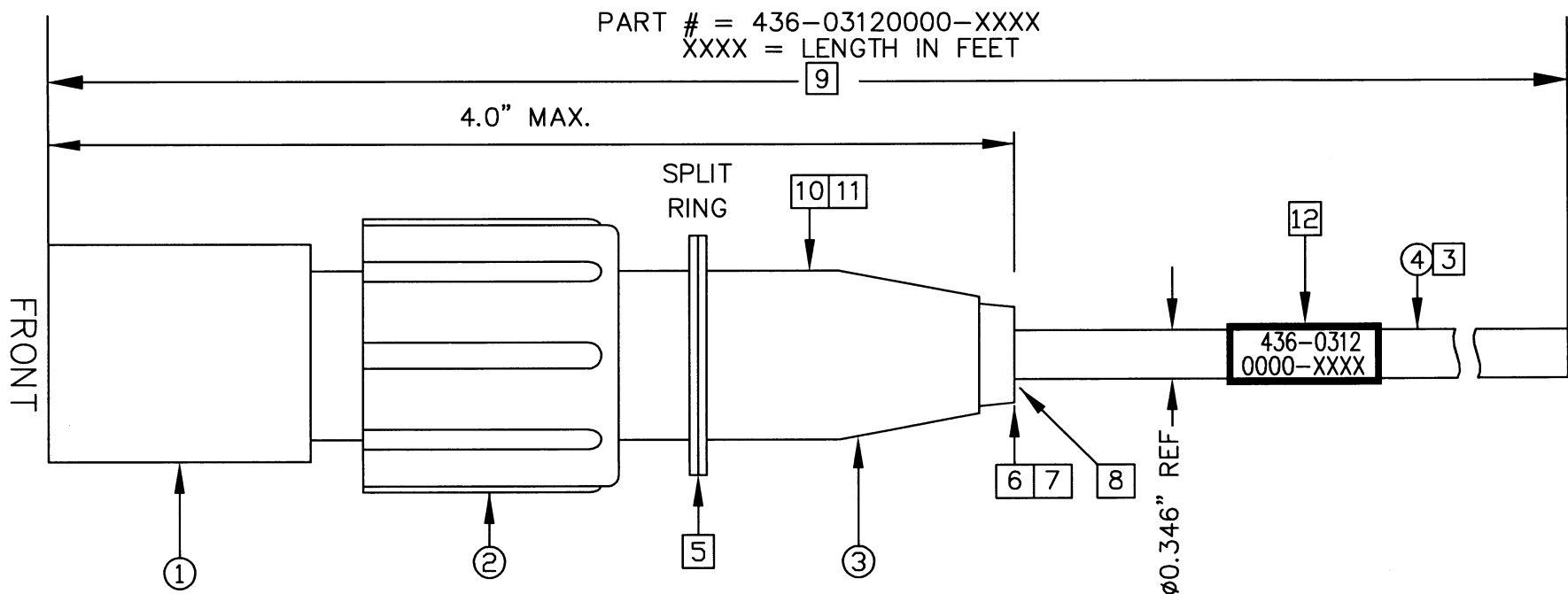
ISS	DESCRIPTION	DATE
REVISIONS		
Kongsberg Mesotech Ltd.		
M3 SONAR CABLE POWER/ETHERNET WHIP SUBCONN 6PIN CONNECTOR		
SIZE	NSCM NO	TYPE
B	1C965	MD
DWG NO.		ISS
436-03111000		1.0
SCALE: NTS		W.O. NO.
SHEET 1 OF 1		



PIN VIEW/
FACE VIEW



SOLDER LUG/
REAR VIEW



SUBCONN MCOM6F OR SEACON MCAT6F INLINE
MOLDED WITH LOCKING SLEEVE

MCOM6F OR MCAT6F	FALMAT FM02208-04M03	
PIN NUMBER	COLOR	DESC
1	WHT	TWISTED PAIR
2	ORG	
3	WHT	TWISTED PAIR
4	GRN	
5	WHT	18AWG
6	BLK	18AWG

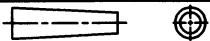
NOTES:

- 1 ALL PARTS AND PROCESSES USED IN THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE.
2. MAX. PRESSURE RATING: 4500 PSI.
- 3 CABLE MINIMUM BEND RADIUS = 5".
- 4 REFER TO TABLE FOR TOLERANCES
- 5 SNAP SPLIT RING INTO SHELL.
- 6 TRIM BOOT BACK USING EXACTO KNIFE.
- 7 POUR POTTING MATERIAL INTO THE BOOT.
- 8 COVER SOLDER JOINT WITH HEATSHRINK.
- 9 THE LAST 4 DIGITS OF THE PART NUMBER STATES THE LENGTH OF THE CABLE IN FEET.
- 10 O-RINGS MUST BE INSTALLED ON CONNECTOR IF APPLICABLE.
- 11 MAXIMUM 1/2" UNTWISTED FOR ALL TP.
- 12 PRINT PART NUMBER USING 1/8" BLACK TEXT ON WHITE, THEN INSTALL CLEAR HEATSHRINK OVER.

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%

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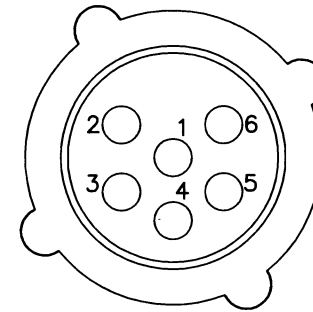
DO NOT SCALE DRAWING



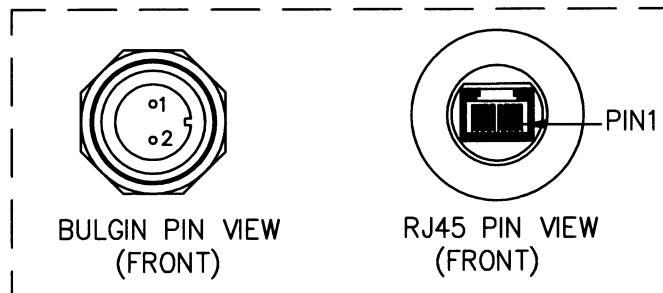
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DRAWN	DM	2017-JAN-10
REVISED		
ENGR	dm	Jan 18/2017
CHECKED	JH	Jan 18/2017
PROD	B.C	Jan 18/2017
QA	K.H	18 JAN 17
ISSUED	R.H	18 JAN 17

1.1	ECO-6004	2016-DEC-08
ISS	DESCRIPTION	DATE
REVISIONS		
Kongsberg Mesotech Ltd.		
M3 SONAR CABLE PWR/TEL WHIP SUBCONN MCOM6F OR SEACON MCAT6F		
SIZE	NSCM NO	TYPE
B	1C965	MD
DWG NO.	436-03121000	ISS 1.1
SCALE: NTS	W.O. NO.	SHEET 1 OF 1

SUBCONN MCOM6F OR SEACON MCATC6F TO M3 BOX CONNECTION			
MCOM6F OR MCATC6F		BULGIN	RJ45(T568B)
PIN NUMBER	SIGNAL	PIN NUMBER	PIN NUMBER
1	BI_DA+	N/C	1
2	BI_DA-	N/C	2
3	BI_DB+	N/C	3
4	BI_DB-	N/C	6
5	V+	1	N/C
6	V-	2	N/C



FRONT VIEW



NOTES:

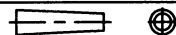
ALL PARTS AND PROCESSES USED ON THIS ASSEMBLY MUST COMPLY WITH THE RoHS DIRECTIVE

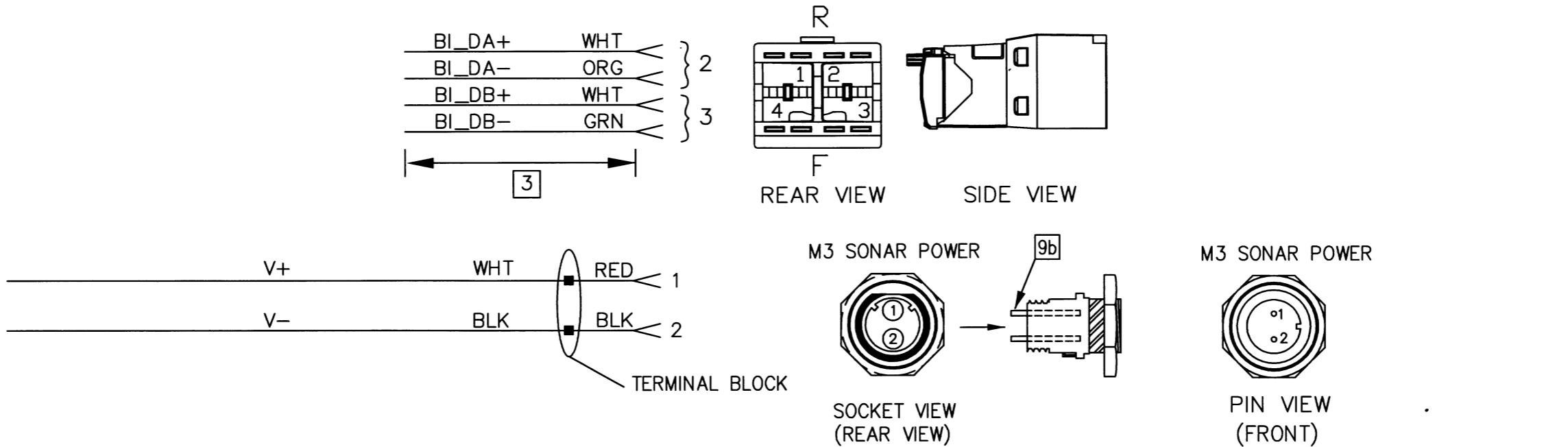
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APPROVALS		DATE
DRAWN	DM	2017-JAN-10
REVISED		
ENGR	DM	JAN 18/2017
CHECKED	J.H.	JAN 18/2017
PROD	GC	JAN 18/2017
QA	KJ	18-JAN-17
ISSUED	RCH	13 JAN 17

ISS	DESCRIPTION	DATE
REVISIONS		
Kongsberg Mesotech Ltd.		
ASSEMBLY PINOUT MCOM6F OR MCATC6F TO POWER/ETHERNET BREAKOUT BOX		
SIZE	NSCM NO	TYPE
A	1C965	MD
DWG NO.	436-00001212	
ISS	1.0	
SCALE: NTS	W.O. NO.	SHEET 1 OF 1

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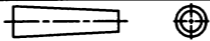
NOTES:

- 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" +/- 0.25". MAXIMUM 0.5" UNTWISTED.
- 4 INSTALL CABLE GLAND.
- 5 INSTALL RJ45 JACK
- 6 REMOVE LABEL THAT IS ON THE CABLE WHIP.
- 7 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).
- 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

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%

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APPROVALS		DATE
DRAWN	DM	2016-DEC-02
REVISED		
ENGR	dm	Jan 18/2017
CHECKED	JH	Jan 18/2017
PROD	KL	Jan 18/2017
QA	KL	18-JAN-17
ISSUED	R.P.H.	18 JAN 17

ISS	DESCRIPTION	DATE
REVISIONS		
Kongsberg Mesotech Ltd.		
ASSY DWG		
M3 POWER/ETHERNET BREAKOUT BOX		
SIZE	NSCM NO	TYPE
B	1C965	MD
DWG NO.	436-00001303	
ISS	1.0	
SCALE: NTS	W.O. NO.	SHEET 1 OF 1