

**Department of Ocean Engineering (DOE)**  
**Indian Institute of Technology Madras (IITM)**  
**Chennai 600 036, Tamil Nadu, India**

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Ref: **OED/2018/0131 Project/VSRR**

Date: 12<sup>th</sup> October 2018

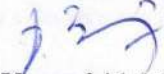
**FIELD INSTRUMENT FOR SURVEYING**

**Due date:**

\* Submission of technical and commercial proposal: On or before **26<sup>th</sup> October 2018@15:30 hrs.**

\* Bid opening: **26<sup>th</sup> October 2018@16:00 hrs.**

1. Quotations are invited in duplicate for the item shown in enclosed list as **Annexure 1**.
2. The quotations must be submitted under two bid system indicating clearly technical bid and financial bid on the envelope. Both the bids should be closed in the single envelop in a sealed cover.
3. The Quotations duly sealed and super scribed on the envelope with the reference No. and due date, Should be addressed to the undersigned so as to reach him on or before the due date stipulated above.
4. The Quotations shall be valid for 90 days from the due date and the period of delivery, warranty terms etc. should also be clearly indicated. A minimum of one year warranty is required.
5. Brochure detailing technical specifications and performance, list of industrial and educational establishments where the items enquired have been supplied must be provided.
6. Compliancy certificate is to be provided indicating conformity to the technical specifications.
7. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples / machine/ equipment if called for should be submitted / demonstrated at free of charges, and collected back at the supplier's expenses.
8. Packing and delivery charges must be clearly indicated.
9. The rates of GST and other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for GST/General Taxes will be admitted at any stage and on any ground whatsoever.
10. IIT Madras is eligible for concessional GST. Relevant certificate will be issued. In case of Imports, the price should be quoted without custom duty. IIT Madras is exempted from levy of IGST on Imports and eligible for concessional custom duty. In case of import supply, the price should be quoted on **EX-WORXS** and **CIP** basis indicating the mode of shipment.
11. Goods should be supplied carriage paid and insured.
12. Goods shall not be supplied without an official supply order.
13. Payment: Every attempt will be made to make payment within 30 days from the date of receipt of bill/ acceptance of goods, whichever is later.
- 14. Acceptance and Rejection:** - IIT Madras has the right to accept the whole or any part of the Tender or portion of the quantity offered or reject it in full without assigning any reason.

  
Yours faithfully,

## Annexure-1

Ref: OED/2018/013/Project/VSRR

### SICK 2D LiDAR Scanner – 1No

SICK 2D LiDAR Scanner and including all primary accessories. Find the specifications below:  
Specifications:

<b>Version</b>	Mid Range
<b>Variant</b>	PRO
<b>Application</b>	Indoor & Outdoor
<b>Resolution power</b>	High Resolution
<b>Light source</b>	Infrared (905 nm)
<b>Laser class</b>	1 (IEC 60825-1:2014, EN 60825-1:2014)
<b>Aperture angle</b>	190°
<b>Scanning frequency</b>	25 Hz / 35 Hz / 50 Hz / 75 Hz / 100 Hz
<b>Angular resolution</b>	0.167° 0.25° 0.333° 0.5° 0.667° 1°
<b>Working range</b>	0.7 m ... 80 m
<b>Max. range with 10 % reflectivity</b>	26 m
<b>Spot size</b>	4.7 mrad
<b>Amount of evaluated echoes</b>	5
<b>Fog correction</b>	yes
<b>PERFORMANCE</b>	
<b>Response time</b>	≥ 10 ms
<b>Detectable object shape</b>	Almost any
<b>Systematic error</b>	± 25 mm (1 m ... 10 m)



	$\pm 35 \text{ mm (10 m ... 20 m)}^{1)}$
<b>Statistical error</b>	7 mm (1 m ... 10 m) 9 mm (10 m ... 20 m) <sup>1)</sup>
<b>Integrated application</b>	Field evaluation
<b>Number of field sets</b>	10 fields
<b>Simultaneous evaluation cases</b>	10
<b>INTERFACES</b>	
<b>Ethernet</b>	✓, TCP/IP
Remark	OPC
Function	Host
Data transmission rate	10/100 MBit/s
<b>Serial</b>	✓, RS-232, RS-422
Function	Host
Data transmission rate	9.6 kBaud ... 500 kBaud
<b>CAN</b>	✓
Function	Extension of outputs
<b>USB</b>	✓
Remark	Mini-USB
Function	AUX
Data transmission rate	9.6 kBaud ... 500 kBaud
<b>Switching inputs</b>	4 (Encoders)
<b>Switching outputs</b>	6
<b>Optical indicators</b>	5 LEDs (Additional 7-segment display)
<b>MECHANICS/ELECTRONICS</b>	
<b>Electrical connection</b>	4 x M12 round connector
<b>Operating voltage</b>	24 V DC
<b>Power consumption</b>	22 W, + 55 W heating (typical)
<b>Housing color</b>	Gray (RAL 7032)
<b>Enclosure rating</b>	IP65, IP67 (IEC 60529 Edition 2.2:2013-08)
<b>Protection class</b>	III (EN 60529, Section 14.2.7)
<b>Weight</b>	3.7 kg

<b>Dimensions(L x W x H)</b>	160 mm x 155 mm x 185 mm
<b>AMBIENT DATA</b>	
<b>Object remission</b>	2 % ... > 1,000 % (reflectors)
<b>Electromagnetic compatibility (EMC)</b>	IEC 61000-6-2:2016-08 / IEC 61000-6-3:2006-07
<b>Vibration resistance</b>	IEC 60068-2-6:2007-12
<b>Shock resistance</b>	IEC 60068-2-27:2008-02
<b>Ambient operating temperature</b>	-30 °C ... +50 °C
<b>Storage temperature</b>	-30 °C ... +70 °C
<b>Ambient light immunity</b>	70,000 lx

**Accessories:**

<b>Brief description</b>	<b>type</b>
<b>DEVICE PROTECTION (mechanical)</b>	
Protection hood	Protection cover
<b>MOUNTING BRACKETS AND PLATES</b>	
1 piece, mounting bracket for direct mounting, from the rear, on wall or machine, not adjustable	Mounting kit 1
<b>PLUG CONNECTORS AND CABLES</b>	
Head A: female connector, M12, 12-pin, straight, A-coded	Connecting cable (female connector - open)
Head B: Flying leads	
Cable: Power, I/O, twisted pair, PUR, halogen-free, shielded, 5 m	
Head A: female connector, M12, 5-pin, straight, A-coded	Connecting cable (female connector - open)
Head B: Flying leads	
Cable: Power, shielded, 5 m	
Head A: male connector, M12, 12-pin, straight, A-coded	Connecting cable (male connector-open)
Head B: Flying leads	
Cable: Power, I/O, twisted pair, PUR, halogen-free, shielded, 5 m	
Head A: male connector, M12, 4-pin, straight, D-coded	SSL-2J04-G05ME
Head B: male connector, RJ45, 8-pin, straight	
Cable: Ethernet, twisted pair, PUR, halogen-free, shielded, 5 m	



## **2. Prerequisite**

The vendor has to submit proof of documents for similar **SICK 2D LiDAR Scanner** supply in India. In addition, the proof of documents for successful completion of at least two supplies of same **SICK 2D LiDAR Scanner** should be submitted.

## **3. Payment terms**

Please specify the payment terms. IIT Madras reserves the right to negotiate the terms of payment as acceptable to the purchase procedures prevalent from time to time.

## **4. Terms and conditions**

Please quote the rate with the following details.

1. Quotation validity minimum 90 days.
2. Submission of Methodology, Delivery and commissioning periods.  
Tax details.

## **5. Force Majeure**

Neither the Agency nor the owner shall be considered in default in performance of its obligations hereunder if such performance is prevented or delayed for any causes beyond the reasonable control of the party affected, such as war, hostilities, revolution, riots, civil commotion, epidemic, major fires, explosions, floods, earthquakes or because of any law, order, proclamatory regulations or ordinance of Government, provided notice in writing of such cause with necessary evidence that the obligation under the Contract is thereby affected or prevented or delayed, is given within 14 days from the happening of the event and in any case it is not possible to serve the notice within the said 14 days period, then within the shortest possible period without delay.

As soon as the cause of Force Majeure has been removed, the party whose ability to perform its obligation has been affected shall notify the other party the actual delay occurred on account of such activities.

Although the time for completion of work shall be suitably extended (not exceeding the period during which the work was stopped on account of Force Majeure clause), such extension shall not result in any financial claim by the Agency against the Owner on any account of such a delay for any other reason whatsoever.

- **Pre-bid meeting will be held on 22<sup>nd</sup> October 2018@3.30 pm**
- **Venue: Department of Ocean Engineering, IIT Madras.**

Proposal send to following Address:-

**Dr.V.Sriram**

**Associate Professor**

**Dept. of Ocean engineering,**

**IIT Madras, Chennai-600036**