

KRA-R25W Dome Radar Installation Manual



Disclaimer

As we continuously improve our products, we reserve the right to make changes to the product at any time. This version of the manual may not reflect such changes. If you require further assistance, please contact your nearest dealer.

Users must install and operate this device in a manner that does not cause accidents, personal injury, or property damage. The user assumes full responsibility for such use. It is the user's responsibility to follow practical marine safety procedures. ONWA Marine Electronics Co. Ltd. is not liable for accidents, injuries, or legal issues resulting from improper use of the product.

This manual contains information applicable to the product at the time of printing. ONWA Marine Electronics Co. Ltd. reserves the right to change specifications without prior notice.

Notice:

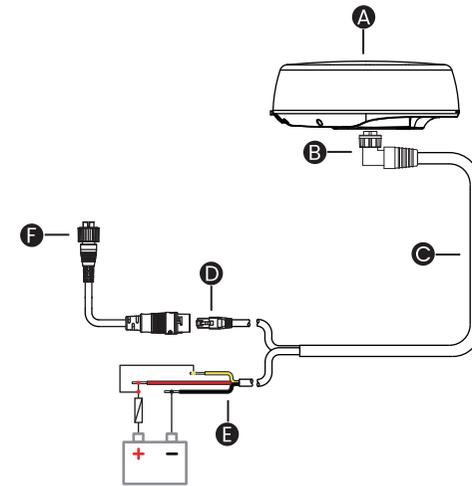
The KRA-R25W Radar is factory sealed. Removing the cover will void the factory warranty.

Packing List

- KRA-R25W Radar x 1
- Mounting bolts and washers
 - Hex bolt (M8x30) x 4
 - Flat washer x 4
 - Spring washer x 4
- Installation Manual x 1
- Interconnection cable x 1
- Ethernet adapter RJ45 to 5-pin, 1.5m (4.9 ft) x 1
- Waterproof cable boot for interconnection cable RJ45 plug x 1
- Cable retainer kit
 - Cable retainer clip x 2
 - Screw (Phillips drive) x 4

Wiring

Run the interconnection cable between the dome radar and the display unit or Ethernet switch.



- A KRA-R25W dome radar
- B Dome radar connector
- C Interconnection cable
- D Ethernet connector
- E Power wires
- F Ethernet adapter RJ45 to 5-pin (optional)

Dome Radar Connection

The dome radar interconnection cable connects to the dome radar using an 8 pin connector.

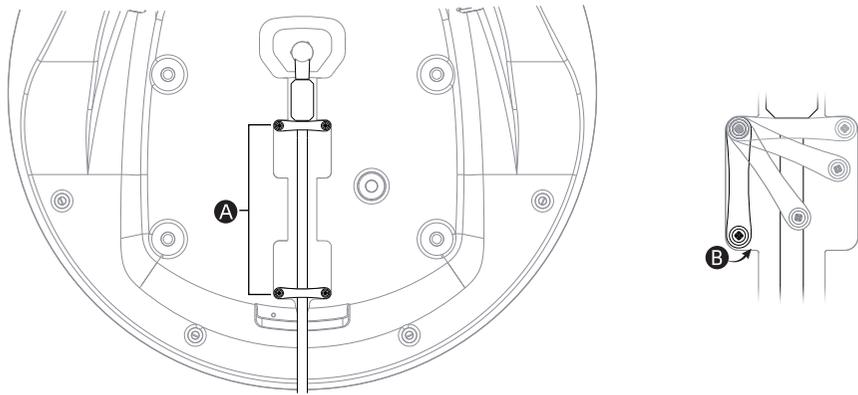
- 1 Insert interconnection cable connector into the socket on the dome radar, rotating locking collar clockwise until it clicks.
- 2 Place the cable into the cable retention channel.
- 3 Install the two cable retainers (A) using the supplied screws. Tighten the screws gently.

Notice:

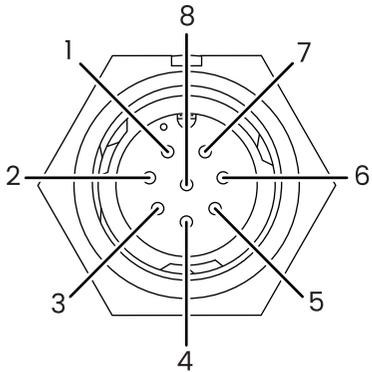
- If routing the interconnection cable down through a hole in the mounting surface concealed by the radar, install only the retainer nearest the interconnection cable socket.
- If installing the dome radar in a location where the dome radar can't be placed upside down within reach of the dome radar cable, install the retainers on one side first. After the cable is laid into place, swivel the retainers (B) over the retention channel and gently tighten the screws.

Warnings:

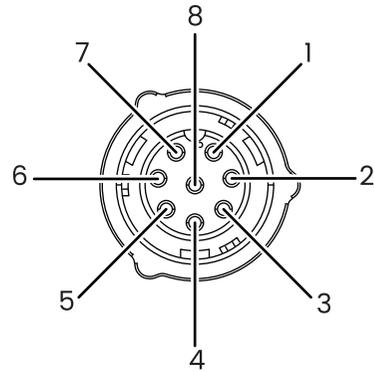
- The retainers only help hold the cable in place. They are not intended to provide strain relief.
- Do not allow the cable to be pulled tight when fitted to the dome radar.
- Do not hang the dome radar from the cable.



Dome Radar Connection Details



Dome radar socket

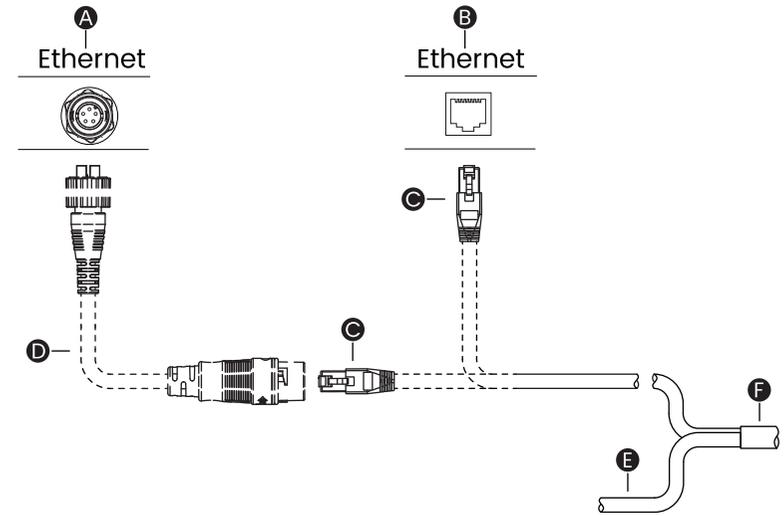


Interconnection cable plug (dome radar end)

Pin-Out	Wire Color	Description
1	Black	DC negative
2	Yellow	Power control
3	Green	Data Receive -
4	White / Green	Data Receive +
5	Orange	Data Transmit -
6	White / Orange	Data Transmit +
7	Red	+12/24 V DC
8	Drain	Shield

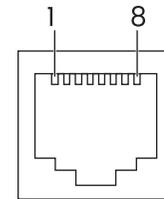
Ethernet Connection

The dome radar can be connected either directly to a RJ45 Ethernet socket or to a 5-pin Ethernet socket via the supplied Ethernet adapter.

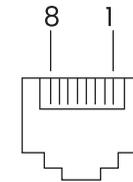


Key	Description
A	Display unit or Ethernet switch with a 5-pin Ethernet socket
B	Display unit or Ethernet switch with a RJ45 Ethernet socket
C	Ethernet cable plug (RJ45)
D	Ethernet adapter cable (RJ45 to 5-pin)
E	Power and power control wires
F	Interconnection cable to dome radar

RJ45 Ethernet Connector Details



Ethernet switch socket



Interconnection cable (RJ45 plug)

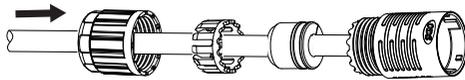
Pin-Out	Wire Color	Description
1	White/Orange	Data transmit +
2	Orange	Data transmit -
3	White/Green	Data receive +
4	Blue	Not used
5	White/Blue	Not used
6	Green	Data receive -
7	White/Brown	Not used
8	Brown	Not used

Ethernet Adapter Cable

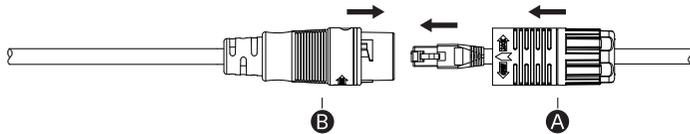
The ethernet adapter cable is used to connect the dome radar to a 5-pin Ethernet connector. Use the supplied waterproof cable boot to seal the connection between the interconnection cable and the Ethernet adapter cable.

Waterproof Cable Boot

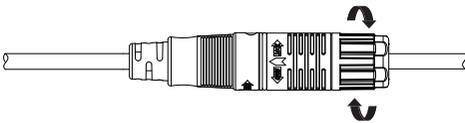
1 Slide the boot parts over the interconnection cable.



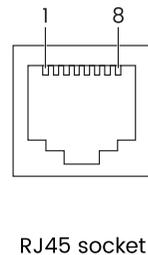
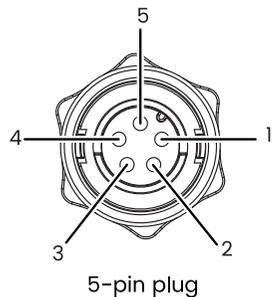
2 Connect the cables together first inserting the RJ45 socket, then turn and lock the cable boot A to the adapter cable B.



3 Tighten the boot gland.



Ethernet Adapter Cable Details



5-Pin Plug	RJ45 Socket	Wire Color	Description
1	1	Orange / White	Data transmit +
2	2	Orange	Data transmit -
3	3	Blue / White	Data receive +
4	6	Blue	Data receive -
5	Shield	--	Drain
--	4-5	--	Not used
--	7-8	--	Not used

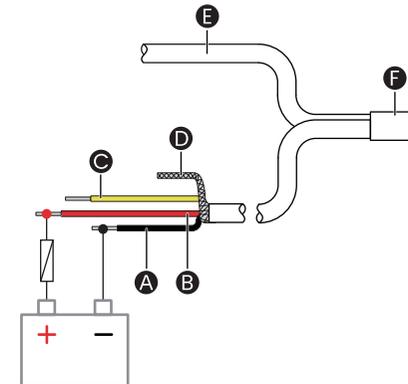
Power Connection

The unit is designed to be powered by a 12 or 24V DC system. It is protected against reverse polarity, under voltage, and over voltage (for a limited duration of time).

A fuse should be fitted to the positive supply, and for the recommended fuse rating, refer to "Specifications".

Note:

- Connection via a switch panel and main isolator switch is assumed. Wiring directly to a vessel's battery bank is not recommended.
- The shield (bare wire) can be insulated from all other wires.
- If interference is encountered from other on-board electronics, the screen can be connected to a vessel hull ground to help reduce any interference, but it is not generally required.

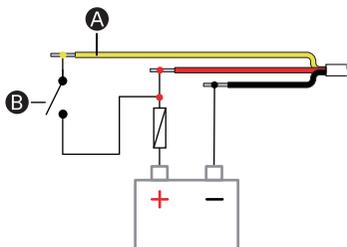


Key	Color	Description
A	Black	DC negative
B	Red	+12/24V DC
C	Yellow	Power control wire
D	--	Shield
E	--	Data cable
F	--	Interconnection cable to dome radar

Power Connection

Power On By Switch

The unit will be turned on as long as the switch is closed.



Key	Wire Color	Description
A	Yellow	Power control wire
B		Power switch

Specifications

Characteristics	
Environmental	IEC60945: 2002 Operating Temperature: -25° to +55°C (-13° to +130°F) Relative humidity: +35° C (95° F), 95% RH Waterproof: IPX6
Max relative wind velocity	51 m/sec (100 Knots)
Power	
DC input	10.5-31.2 V with reverse polarity protection
Power consumption	Operating: 17-29 W (Range/mode dependent) Standby: 3.9 W (Typ.) at 13.8 V DC
Recommended fuse rating	5 A
Dome radar weight (no cable)	5.9 kg (13.0 lbs)
Radar And Antenna Parameters	
Radar ranges	36 NM
Rotation speed (mode dependent)	20 - 60 rpm (mode and MFD dependent)
Transmitter frequency	X-band - 9.4 to 9.5 GHz
Transmitter source (warm-up time)	No Magnetron - all solid state. Instant On™
Plane of polarization	Horizontal Polarization

Transmitter peak power output	25 W
Minimum range	6 m (19.7 ft)
Sweep repetition frequency	700-2400 Hz (mode dependent)
Pulse length	0.04 - 64 usec +/- 10%
Sweep bandwidth	48 MHz max
Horizontal beam width (Tx and Rx antenna)	4.9° nominal (-3 dB width)
Target Separation Control	OFF: 4.9° +/- 10% (-3 dB width nominal) LOW: ~4.3° +/- 10% (-3 dB width nominal) MED: ~3.2° +/- 10% (-3 dB width nominal) HIGH: ~2.5° +/- 10% (-3 dB width nominal)
Vertical beam width (Tx and Rx antenna)	25° (-3 dB width nominal)
Side lobe level (Tx and Rx antenna)	Below -18 dB (within ±10°); Below -23 dB (outside ±10°)
Noise figure	Less than 5 dB nominal
Communications/Cabling	
Protocol	Ethernet 100Base-T
Max. interconnecting cable length	30 m (98.5 ft) - available as option

For more information, please visit our website <https://onwamarine.com/>