

China Classification Society (CCS) type approval  
EU MED B + D Type Approval

AREA OF POSSIBLE POSITION  
(70% PROBABILITY)

AREA OF POSSIBLE  
STORM-FORCE WINDS  
(WINDS  
KT OR MORE)

# RADAR

## ARPA RADAR X-BAND AND S-BAND HLD-RADAR900/900C



**HIGHLANDER**  
海兰信



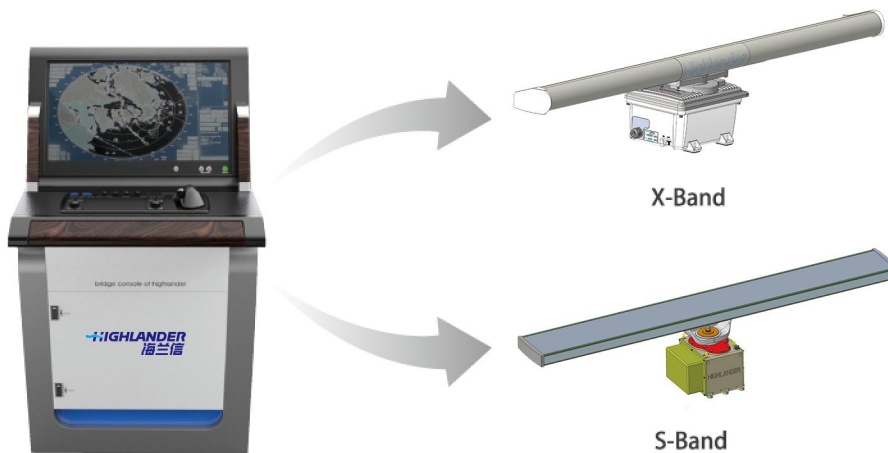
# RADAR

Radar is one the important Navigation equipments. Radar determines distance to an object by measuring the time required for a radio signal to travel from a transmitter to the object and return. The radar display is often referred to as the plan position indicator. On a PPI, the sweep appears as a radial line, centered at the center of the scope and rotating in synchronization with the antenna.

- In coastal navigation and harbor approaches, by giving a clear indication of land and other fixed hazards;
- As a means to provide an enhanced traffic image and improved situation awareness;
- In a ship-to-ship mode for aiding collision avoidance of both detected and reported hazards;
- In the detection of small floating and fixed hazards, for collision avoidance and the safety of own ship;
- In the detection of floating and fixed aids to navigation;
- Adaptive clutter suppression function, meet the requirements of the use of various sea condition and weather;
- Automatic tracking plot, automatic warning targets at a high speed.

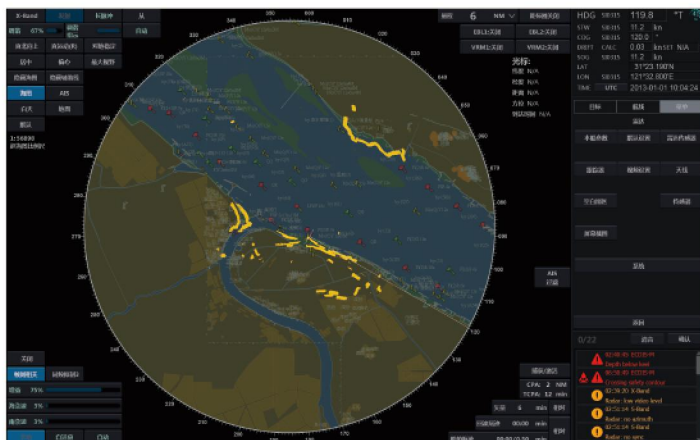
HLD - RADAR 900/900 c series products meet IMO/SOLAS and the latest IEC 62388-2013 standard.

## [Features]



Support X band, S band

- Smart Sea function—Intelligent sea clutter statistics and suppression algorithms , adapt to different sea conditions, ship types, installation height, etc., Convenient to commissioning and use.
- RACON detection(Option)—Automatic recognition and extraction RACON information: position, signal intensity, Morse code, etc.
- Association of TT and AIS targets
- Targets tracking capacity: up to 100(Tracked), up to 10000(Background)
- AIS capacity: up to 100(Activated), 100(total), sleeping and active
- Chart Radar(option), Chart formats S-S7(S-63)
- In English / Chinese



Chinese language Operation Menu



English language Operation Menu

## [New functions under development]

- Sea Wave detection (Option) —available in 2020
- Very small target detection (Option) —available in 2020
- X/S Band solid marine Radar (Option) —available in 2020

## Technical Specifications

### System Specifications

|                                   |            |  |             |
|-----------------------------------|------------|--|-------------|
| Frequency Band                    |            | X-Band   | S-Band      |
| Antenna Length                    |            | 6ft/8ft  | 12 ft       |
| Peak Transmission Power           |            | 10kW, 25kW                                       | 30kW        |
| Beam Width                        | Horizontal | 1.3° / 1.0°                                      | 2.0 °       |
|                                   | Vertical   | 24°  | 27 °        |
| Operating Frequency               |            | 9410 ± 30MHz                                     | 3050± 15MHz |
| Pulse Width & Reptition Frequency | Short      | 0.05 μs/1800 Hz or 3000Hz                        |             |
|                                   | Medium     | 0.25 μs/1800 Hz                                  |             |
|                                   | Long       | 0.72 μs/785 Hz                                   |             |
|                                   | Ultra long | 1.2 μs/785HZ                                     |             |
| Intermediate Frequency            |            | 60MHz  |             |
| Performance Monitor               |            | System standard part                             |             |
| Anti Clutter                      | Sea        | Manual/Automatic/Adaptive                        |             |
|                                   | Rain       | Manual/Automatic                                 |             |
| Gain Control                      |            | Automatic/Manual                                 |             |
| Display Resolution                | 19.0 "     | /  |             |
|                                   | 23.1 "     | /  |             |
|                                   | 24.0 "     | 1920*1080  |             |
|                                   | 26.0 "     | 1920*1200  |             |
| Display Mode                      | Motion     | TM, RM   |             |
|                                   | Heading    | H Up, N Up, C Up                                 |             |
| Display Range                     |            | 0.125-96nm                                       |             |
| ARPATargets                       | Acquired   | Up to 100  |             |
|                                   | Background | Up to 10000                                      |             |
| Auto Acquisition of Targets       |            | 2x Automatic Acquisition zone / 2x Guarding zone |             |
| AISTargets                        | Active     | Up to 100  |             |
|                                   | Total      | Up to 1000                                       |             |
| Association of AIS-ARPA Targets   |            | Provided   |             |
| Collission Warning                | CPA        | 300NM Max  |             |
|                                   | TCPA       | 60min Max  |             |
| Navigation Tools                  | VRM        | 2x   |             |
|                                   | EBL        | 2x   |             |
|                                   | PI         | 4x   |             |
| Trail Manoeuvre                   |            | Provided   |             |
| Chart Radar                       |            | Optional   |             |

IEC 62388 (2013)

Table 1 – Performance requirements for categories of ship/craft for SOLAS V

|   | Category of ship/craft |                                       |                             |
|---|------------------------|---------------------------------------|-----------------------------|
|   | CAT 3                  | CAT 2                                 | CAT 1                       |
| Size of ship/craft                        | <500 gt                | 500 gt to <10 000 gt<br>HSC<10 000 gt | All ships/craft ≥ 10 000 gt |
| Minimum operational display area diameter | 180 mm                 | 250 mm                                | 320 mm                      |
| Auto acquisition of targets               | —                      | —                                     | Yes                         |
| Minimum acquired radar target capacity    | 20                     | 30                                    | 40                          |
| Minimum activated AIS target capacity     | 20                     | 30                                    | 40                          |

|  |     |     |     |
|--|-----|-----|-----|
| Minimum sleeping AIS target capacity           | 100 | 150 | 200 |
| Trial manoeuvre                                | —   | —   | YES |
| Minimum total AIS targets and reports capacity | 120 | 180 | 240 |

### Component Specifications

| Parts                        |   | Size/mm (LxWxH) | Weight/Kg | Environment temperature/°C | Power supply    | Power   |
|------------------------------|---|-----------------|-----------|----------------------------|-----------------|---------|
| Monitor                      |   | 390x345x133     | 12        | -15 °C~+55 °C              | 110/220V AC     | ≤ 120W  |
| Monitor                      | 19.0"                                   | 483x444x82      | 12        | -15 °C~+55 °C              | 110/220V AC     | ≤ 100W  |
|                              | 23.1"                                   | 584x534x85      | 20        |                            |                 | ≤ 120W  |
|                              | 24.0"                                   | 593x384x70      | 10        |                            |                 | ≤ 140W  |
|                              | 26.0"                                   | 621x435x98      | 16        |                            |                 | ≤ 200W  |
| Keyboard and Trackball       |   | 388x188x51      | 2         | -15 °C~+55 °C              | —               | —       |
| Antenna and Transceiver Unit | X-Band 6ftAntenna and Transceiver Unit  | 1926x586x440    | 52        | -25 °C~+55 °C              | 110/220/380V AC | ≤ 450VA |
|                              | X-Band 8ftAntenna and Transceiver Unit  | 2540x586x440    | 55        |                            |                 | ≤ 450VA |
|                              | S-Band 12ftAntenna and Transceiver Unit | 3700x718x800    | 177       |                            |                 | ≤ 650VA |

### [Configuration]

#### HLD-RADAR 900 (X-Band) Typical Configuration

##### Standard

- Antenna HLD-AT106/HLD-AT108
- Transceiver Unit HLD-TU110/HLD-TU125
- Monitor HLD-DU112 / HLD-DU134 / HLD-DU135
- Keyboard and Trackball HLD-IU600
- Processor Unit HLD-MCU600
- Radar Card HLD-PCR120
- Serial Expansion Board HLD-SIC118
- Power Unit HLD-PCU600

##### Optional

- ECDIS Key: HLD-LIC100
- Console (Shading plate)

#### HLD-RADAR 900 (S-Band) Typical Configuration

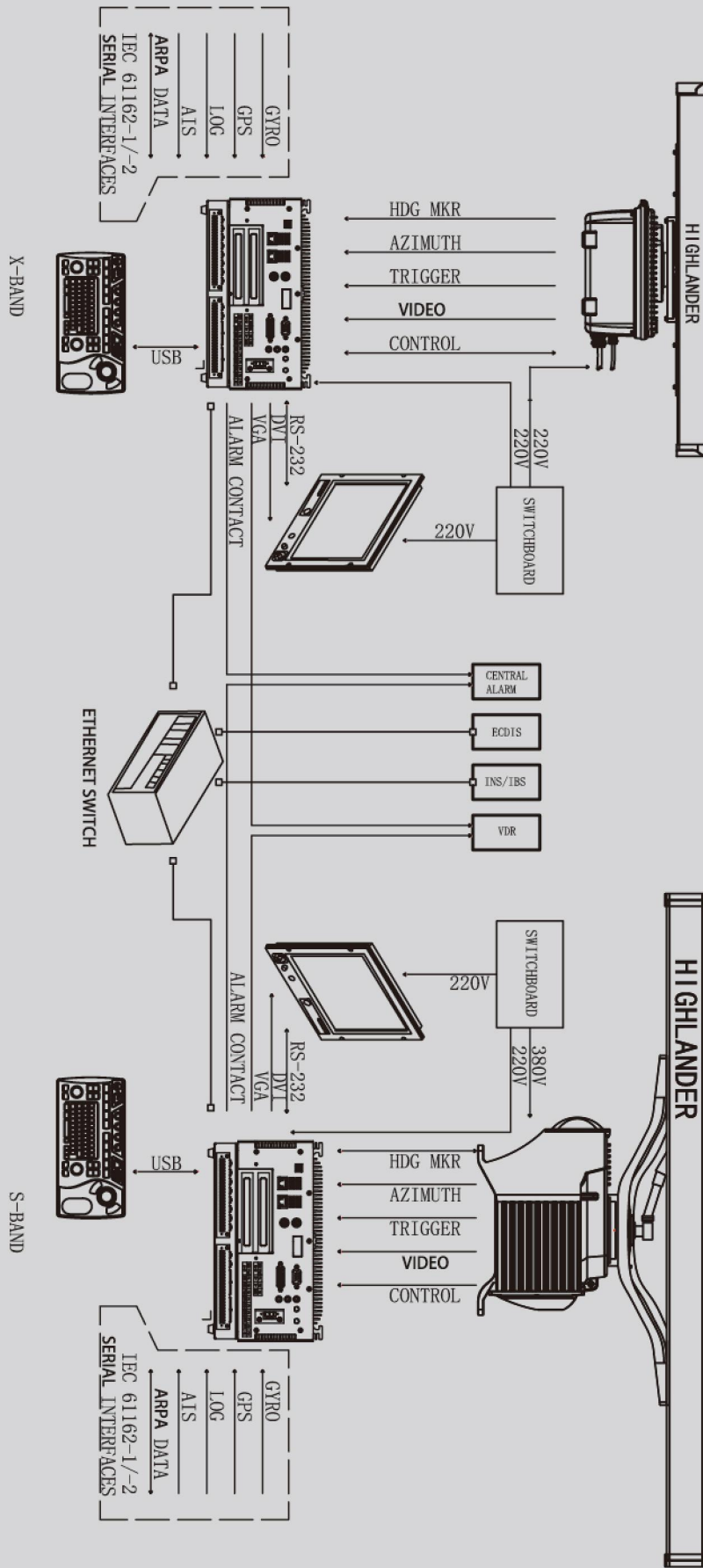
##### Standard

- Antenna HLD- AT112
- Transceiver Unit HLD-TU130
- Monitor HLD-DU112 / HLD-DU134 / HLD-DU135
- Keyboard and Trackball HLD-IU600
- Processor Unit HLD-MCU600
- Radar Card HLD-PCR120
- Power Unit HLD-PCU600

##### Optional

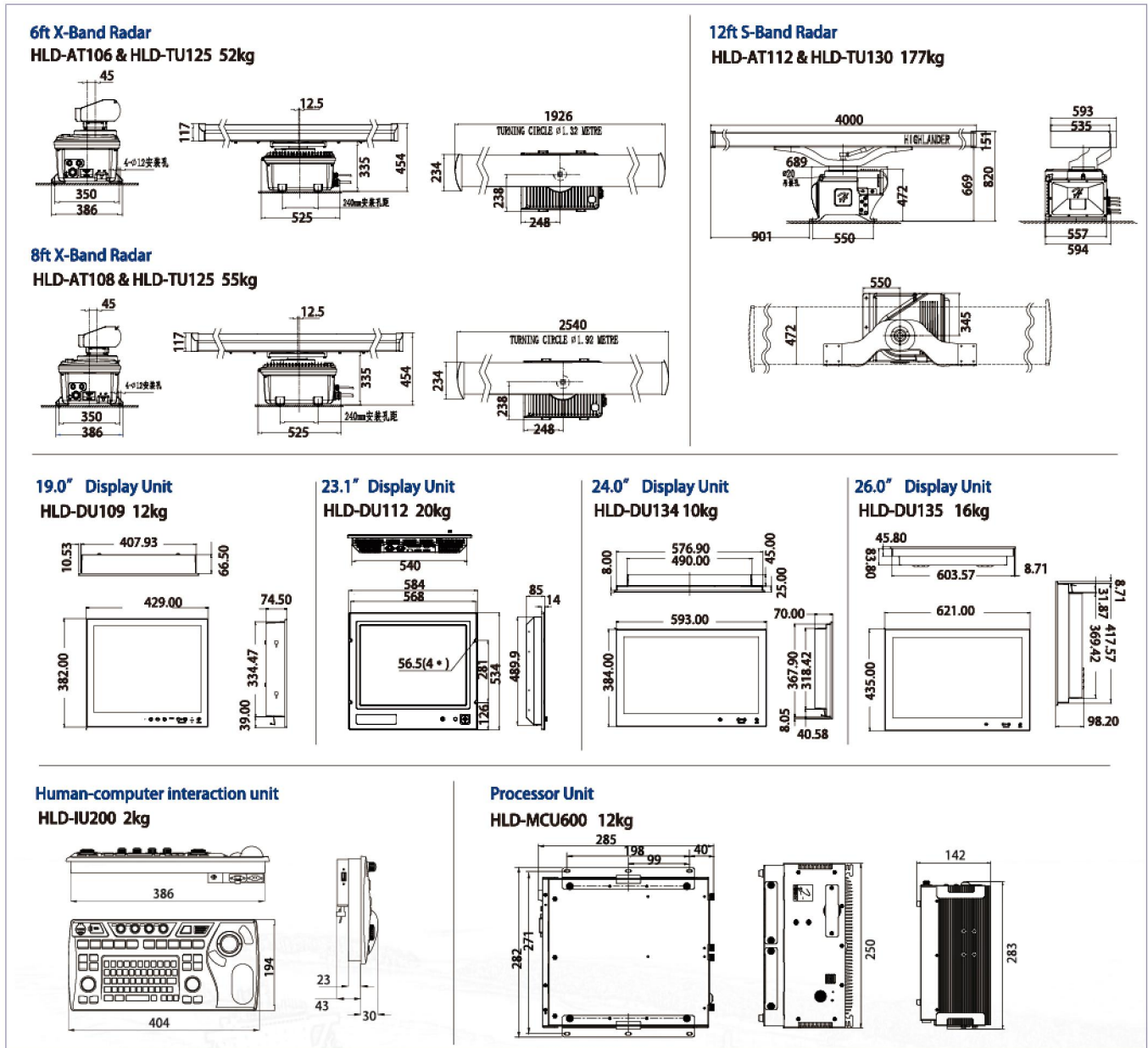
- ECDIS Key: HLD-LIC100
- Console (Shading plate)





Typical System Connection Diagram(X-Band+S-Band)

[Dimensional Drawing]



[Successful case]

- VLOC "PACIFIC VISION" (DWT 400 thousand tons Ore carrier) was delivered to shipowner China Merchants Energy Shipping Co., Ltd. by Shanghai Waigaoqiao Shipbuilding Co., Ltd. on 28th Nov.2018. 2 HLD-RADAR 900 RADAR onboard.
- VLOC "PACIFIC EXCELLENCE" (DWT 400 thousand tons Ore carrier) was delivered to shipowner China Merchants Energy Shipping Co., Ltd. by Shanghai Waigaoqiao Shipbuilding Co., Ltd. on 15th Mar.2019. 2 HLD-RADAR 900 RADAR onboard.
- VLCC "NEW JOURNEY" (DWT 308 thousand tons Tanker) was delivered to shipowner China Merchants Energy Shipping Co., Ltd. by Dalian Shipbuilding Industry Co., Ltd. on 22nd June 2019. 2 HLD-RADAR 900 RADAR onboard.
- VLCC "NEW VISION" (DWT 308 thousand tons Tanker) was delivered to shipowner China Merchants Energy Shipping Co., Ltd. by Dalian Shipbuilding Industry Co., Ltd. on 28th Aug. 2019. 2 HLD-RADAR 900 RADAR onboard.

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