

# TDU series

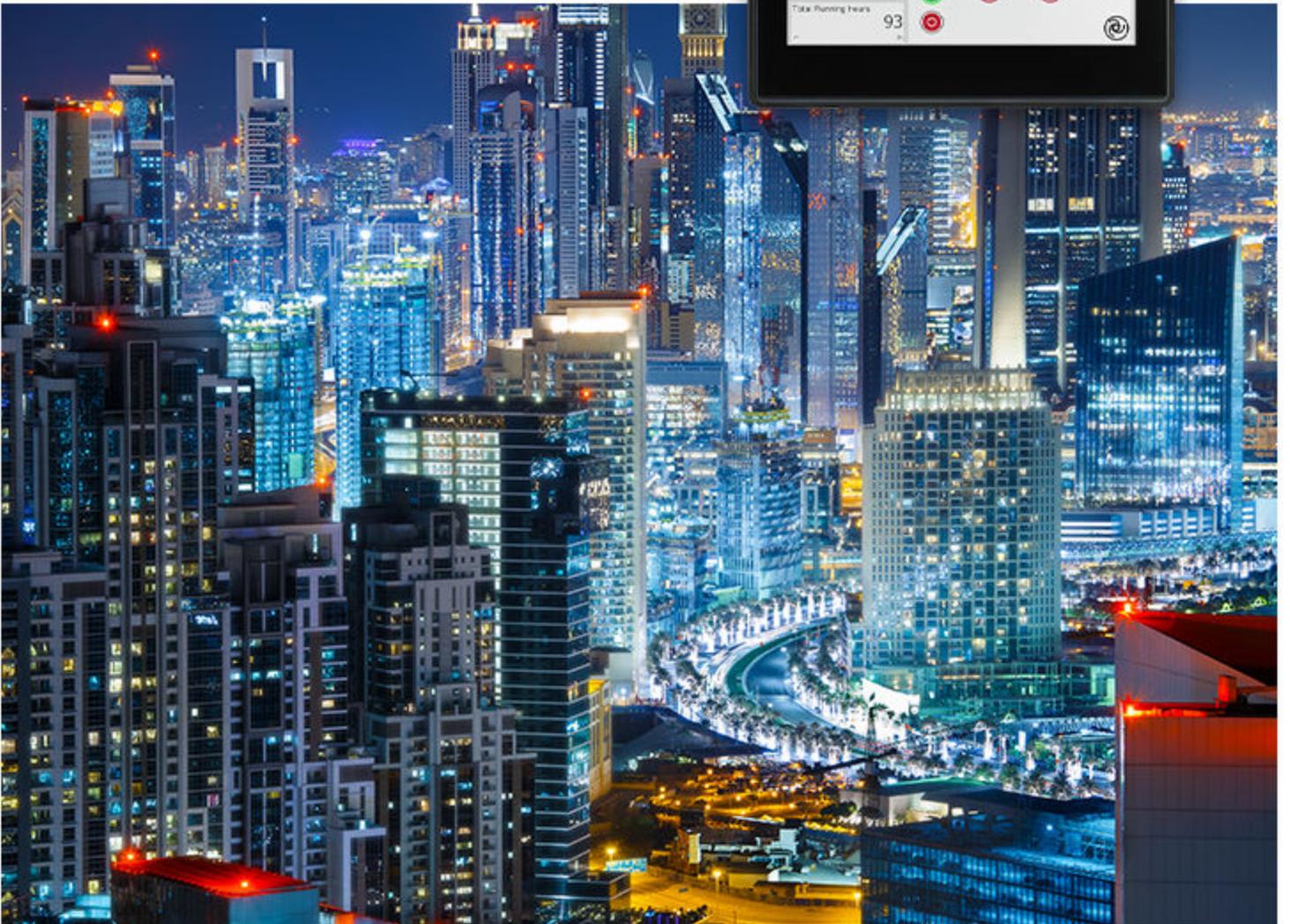
Touch Display Unit

Data sheet

4921240602-L



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## 1. Product description

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# 1. Product description

## 1.1 Overall description

The Touch Display Unit (TDU) is a plug-and-play touch screen for DEIF's iE 150, ASC 150, AGC 150, AGC-4 Mk II, AGC-4 and/or ASC-4 controllers. The TDU uses an Ethernet port to connect to these controllers.

TDUs provide operator-friendly touch screen control, visualisation, and graphical overviews. The TDU has a high quality display that is easily readable even at sharp angles.

The operator can use the TDU in supervision mode or asset mode. The operator can change from one mode to the other as needed.

### Supervision mode

The TDU shows the power management plant. This overview is dynamic and immediately shows any change in the setup. The operator can see real-time information from all the controllers.

The operator can use the TDU to start and stop assets, and open and close breakers. The operator can also use the TDU to explore each asset's operation.

To reduce the risk of mistakes, the operator cannot change asset parameters from supervision mode. However, the operator can select an asset and change from plant supervision mode to asset mode.

**NOTE** Supervision mode is only available with TDU Extended.

### Asset mode

Asset mode shows the real-time operation for the selected asset. The colour graphic screen shows status and info messages. The operator can see live data and manage alarms. An advanced event log page allows filtering and merging of log events. If the operator has authorisation, the operator can also check and/or change the input/output and parameter configuration. Asset mode includes an overview of the power management system.

To customise the display, start and stop buttons and breaker commands can be shown or hidden. TDU 110 and TDU 115 extended models have a fully programmable operator and readout panel. TDU models integrate a HMI display with 6 AOPs (Additional Operator Panel) on one device. The simple HMI and icons provide fast access and configurable instrument pages.

The TDU provides Tier 4 final/Stage V support for genset controllers.

### Tier 4 final/Stage V support

- Tier 4/Stage V icons on dashboard.
- DM-1 and DM-2 pages.
- Extended dialogue texts including number of occurrences.
- Jumps to the exhaust after-treatment dashboard for any status change.

### Display choices

The TDU is available in four versions:

#### TDU 107 Core

- Screen size 7 inch.
- Operating temperature range 0 °C to +50 °C (vertical installation).
- Resistive touch screen.
- Only asset mode.

### TDU 107 Extended

- Screen size 7 inch.
- Operating temperature range -20 °C to +60 °C (vertical installation).
- Capacitive touch screen.
- VNC support (Remote access).
- Ethernet switch (Bridged between 2 ports).
- Asset or supervision mode.

### TDU 110 Extended

- Screen size 10 inch.
- Operating temperature range -20 °C to +60 °C (vertical installation).
- Capacitive touch screen.
- VNC support (Remote access).
- Ethernet switch (Bridged between 2 ports).
- Includes extended Operator panel and Read out panel.
- Larger scrollable area for list information.
- Asset or supervision mode.

### TDU 115 Extended

- Screen size 15 inch.
- Operating temperature range -20 °C to +60 °C (vertical installation).
- Capacitive touch screen.
- VNC support (Remote access).
- Ethernet switch (Bridged between 2 ports).
- Includes extended Operator panel and Read out panel.
- Larger scrollable area for list information.
- Asset or supervision mode.

## 1.2 Multiple controllers and multiple displays

A number of configurations are available for the connection of controllers and displays.

Configuration	Switch	Controllers	Displays	TDU type
Direct connection	-	1	1	Core/Extended
Series connection	-	1	Up to 10	Extended
Multiple displays	●	1	Up to 10	Core/Extended
Redundant controllers, two displays	-	2	2	Core/Extended
Primary and redundant controller, one display	-	2	1	Extended
Primary and redundant controller, one display	●	2	1	Core/Extended
Two independent controllers, one display	-	2	1	Extended
Two independent controllers, one display	●	2	1	Core/Extended



#### More information

See the **TDU series Connection guidelines**.

## 1.3 Software versions

The information in this document corresponds to TDU software version **1.4.6** or later.

## Controllers that support Asset mode

Controller	Controller types	Software version
iE 150 *	Generator, Mains, BTB	1.30 or later
iE 150 *	Battery, Solar	1.30 or later
ASC 150 *	Storage, Solar	1.18 or later
AGC 150 *	Generator, Mains, BTB	1.11 or later
AGC-4 Mk II	Generator, Mains, BTB	6.00 or later
AGC-4	Generator, Mains, BTB	4.72 or later
ASC-4	Battery, Solar	4.27 or later

**NOTE** \* The controller must have **Premium** software.

## Controllers that support Supervision mode

Controller	Controller types
iE 150 *	Generator, Mains, BTB
iE 150 *	Battery, Solar
ASC 150 *	Storage, Solar
AGC 150 *	Generator, Mains, BTB
AGC-4 Mk II	Generator, Mains, BTB
AGC-4	Generator, Mains, BTB
ASC-4	Battery, Solar
ALC-4 **	Automatic load controller

**NOTE** \* The controller must have **Premium** software.

**NOTE** \*\* Supervision mode shows a symbol for the ALC-4, but not the ALC-4 operating data.

## 1.4 Warnings and safety

### 1.4.1 Data security

To minimise the risk of data security breaches DEIF recommends:

- As far as possible, avoid exposing controllers and controller networks to public networks and the internet.
- Use additional security layers like a VPN for remote access, and install firewall mechanisms.
- Restrict access to authorised persons.

## 2. Technical specifications

### 2.1 TDU 107 Core

#### 2.1.1 Display

Specification	Description
Type	TFT
Resolution	800 × 480 pixel (WVGA)
Active display area	7" diagonal
Aspect ratio H/V	16:9
Colours	16 bit (64 K)
Viewing angle (H/V)	140/120
Backlight	LED
Brightness	200 Cd/m <sup>2</sup> typ.
UI display theme	Light or dark
Screen saver	Yes

#### 2.1.2 Interfaces

##### TDU 107 Core Operator interface

Specification	Description
Touch screen	Resistive

##### TDU 107 Core Interface

Specification	Description
Ethernet	1 pcs. 10/100 Mbit
USB	1 × USB 2.0 (hosts) - max. 500 mA

#### 2.1.3 Connections



## 2.1.4 Power supply

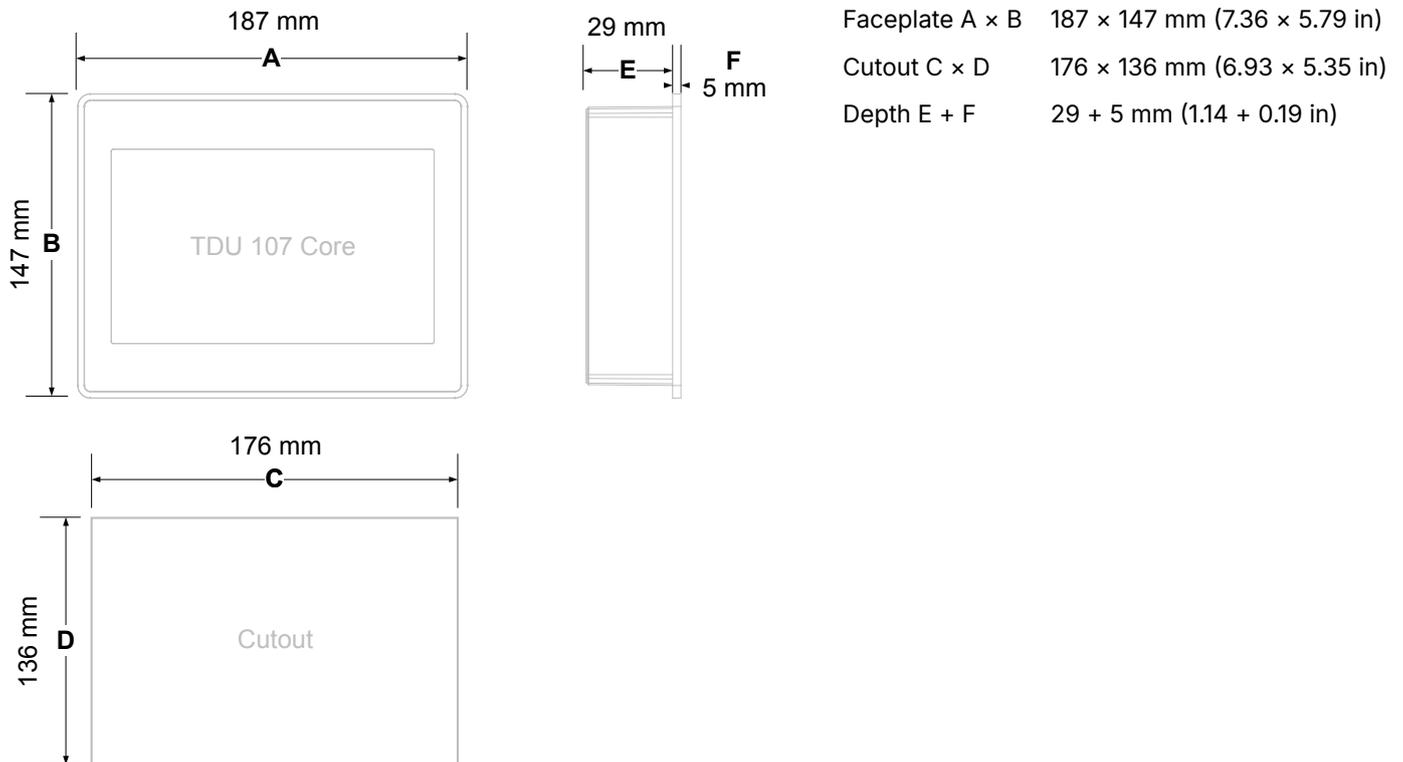
Specification	Description
Power supply voltage	24 V DC (10 to 32 V DC)
Current consumption	0.3 A at 24 V DC (max.)
Fuse	No
Weight	Approximately 0.6 kg (un-boxed)
Battery	Supercapacitor

## 2.1.5 Environmental conditions

Specification	Description
Operating temperature	0 °C to +50 °C (vertical installation)
Storage temperature	-20 °C to +70 °C
Operating and storage humidity	5 to 85% RH, non condensing
Vibration	<ul style="list-style-type: none"> <li>IEC 60068-2-6 and IACS UR E10</li> <li>2 to 13.2 Hz <math>\pm 1</math> mm</li> <li>13.2 to 100 Hz 0.7 g</li> </ul>
Shock	<ul style="list-style-type: none"> <li>IEC 60068-2-27, test Ea</li> <li>50 g 11 ms</li> </ul>
Protection class	<ul style="list-style-type: none"> <li>IP66 Type 2 and 4X (front)</li> <li>IP20 (rear)</li> </ul>

## 2.1.6 Dimensions

### TDU 107 Core



## 2.1.7 Approvals

Specification	Description
CE	<ul style="list-style-type: none"><li>• EN 61000-6-4 Emission, installation in industrial environments</li><li>• EN 61000-6-2 Immunity, installation in industrial environments</li><li>• EN 61000-6-3 Emission, installation in residential environments</li><li>• EN 61000-6-1 Immunity, installation in residential environments</li></ul>
UL	<ul style="list-style-type: none"><li>• cULus: UL508</li><li>• cULus: Class I, Division 2</li></ul>
Cyber security test conducted towards compliance with the draft IEC 62443 series	

## 2.2 TDU 107 Extended

### 2.2.1 Display

Specification	Description
Type	TFT
Resolution	800 × 480 pixel
Active display area	7" diagonal
Aspect ratio H/V	16:9
Colours	24 bit (16 million)
Viewing angle (H/V)	170/170
Backlight	LED
Brightness	500 Cd/m <sup>2</sup> typ.
UI display themes	Light or dark
Screen saver	Yes

### 2.2.2 Interfaces

#### TDU 107 Extended Operator interface

Specification	Description
Touch screen	Projected capacitive

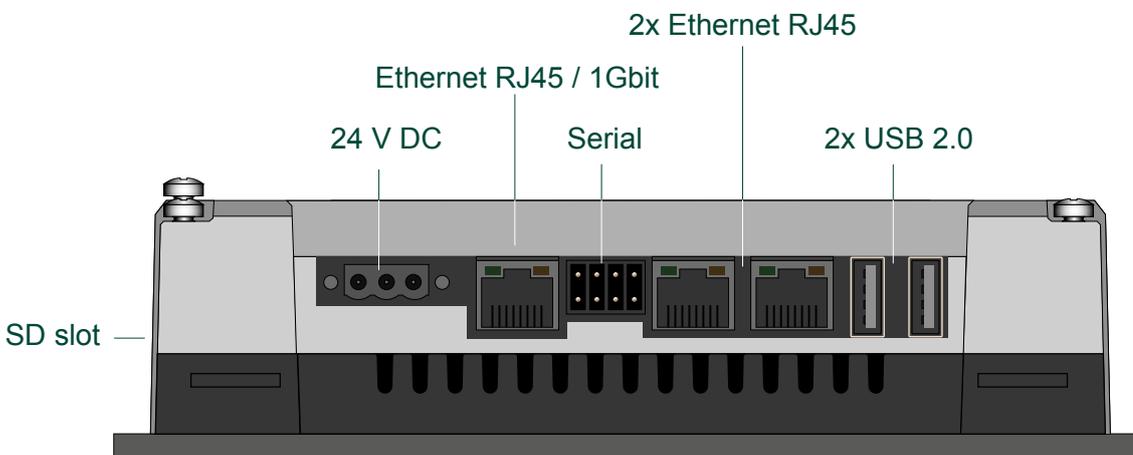
#### TDU 107 Extended Interface

Specification	Description
Ethernet	2 pcs. 10/100 Mbit, 1 pcs. 10/100/1000 Mbit
USB	2 × USB 2.0 (hosts) - max. 500 mA

#### TDU 107 Extended Remote access interface

Specification	Description
VNC server	Remote access using VNC

### 2.2.3 Connections



## 2.2.4 Power supply

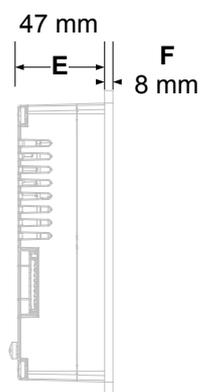
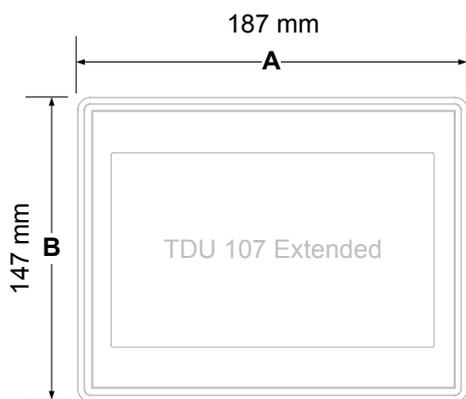
Specification	Description
Power supply voltage	24 V DC (10 to 32 V DC)
Current consumption	0.7 A at 24 V DC (max.)
Fuse	Automatic, self-resettable
Weight	Approximately 1.3 kg (un-boxed)
Battery	Rechargeable Lithium battery, not user-replaceable

## 2.2.5 Environmental conditions

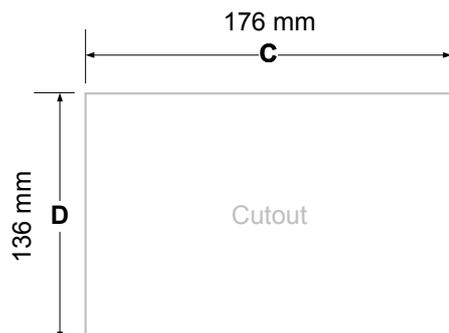
Specification	Description
Operating temperature	-20 °C to +60 °C (vertical installation)
Storage temperature	-30 °C to +70 °C
Operating and storage humidity	95 % RH Condensation IEC 60068-2-30 Db (Cyclic)
Vibration	<ul style="list-style-type: none"> <li>IEC 60068-2-6 and IACS UR E10</li> <li>2 to 13.2 Hz <math>\pm 1</math> mm</li> <li>13.2 to 100 Hz 0.7 g</li> </ul>
Shock	<ul style="list-style-type: none"> <li>IEC 60068-2-27, test Ea</li> <li>50 g 11 ms</li> </ul>
Protection class	<ul style="list-style-type: none"> <li>IP66 (front)</li> <li>IP20 (rear)</li> <li>According to IEC/EN 60529</li> </ul>

## 2.2.6 Dimensions

### TDU 107 Extended



Faceplate A × B	187 × 147 mm (7.36 × 5.79 in)
Cutout C × D	176 × 136 mm (6.93 × 5.35 in)
Depth E + F	47 + 8 mm (1.85 + 0.31 in)



## 2.2.7 Approvals

Specification	Description
CE	<ul style="list-style-type: none"> <li>• EN 61000-6-4 Emission, installation in industrial environments</li> <li>• EN 61000-6-2 Immunity, installation in industrial environments</li> <li>• EN 60945-2002 Maritime navigation and radio communication equipment and systems</li> </ul>
DNV GL	<ul style="list-style-type: none"> <li>• IEC 60092-504 Electrical Installations in Ships - Part 504: Special features - Control and Instrumentation (IACS UR E10 Bridge and deck zone)</li> <li>• IEC 60533 Electrical and electronic installations in ships – electromagnetic compatibility (IACS UR E10 Bridge and deck zone)</li> <li>• DNV GL Type Approval Certificate</li> </ul>
UL	<ul style="list-style-type: none"> <li>• UL508 Listed</li> <li>• Haz. Loc. Class I, Division 2, Groups A, B, C and D</li> </ul>
Lloyds Register	LR Type Approval Certificate
EU RO Mutual Recognition	Yes
Cyber security test conducted towards compliance with the draft IEC 62443 series	

## 2.3 TDU 110 Extended

### 2.3.1 Display

Specification	Description
Type	TFT
Resolution	1280 × 800 pixel
Active display area	10.1" diagonal
Aspect ratio H/V	16:9
Colours	24 bit (16 million)
Viewing angle (H/V)	170/170
Backlight	LED
Brightness	500 Cd/m <sup>2</sup> typ.
UI display themes	Light or dark
Screen saver	Yes

### 2.3.2 Interfaces

#### TDU 110 Extended Operator interface

Specification	Description
Touch screen	Projected capacitive

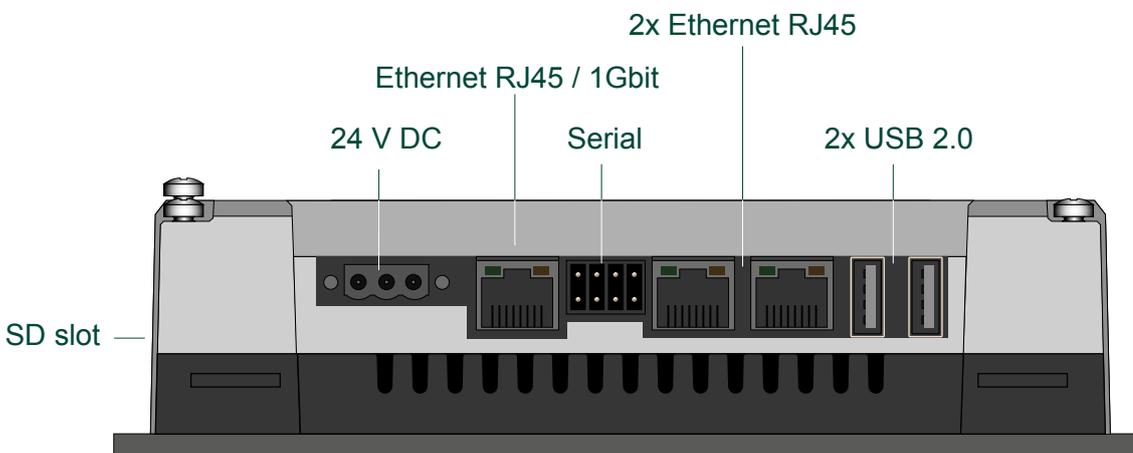
#### TDU 110 Extended Interface

Specification	Description
Ethernet	2 pcs. 10/100 Mbit, 1 pcs. 10/100/1000 Mbit
USB	2 × USB 2.0 (hosts) - max. 500 mA

#### TDU 110 Extended Remote access interface

Specification	Description
VNC server	Remote access using VNC

### 2.3.3 Connections



### 2.3.4 Power supply

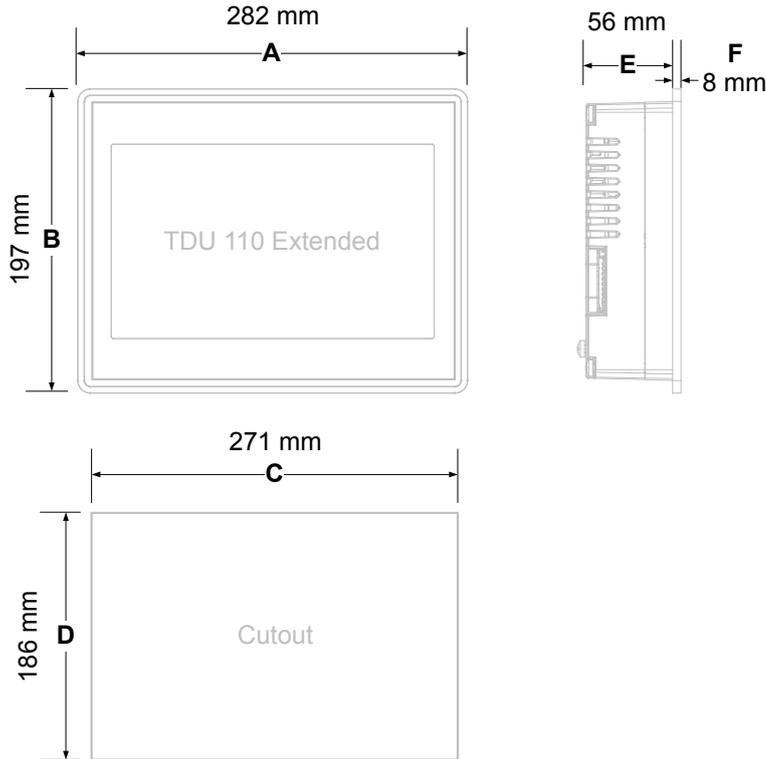
Specification	Description
Power supply voltage	24 V DC (10 to 32 V DC)
Current consumption	1 A at 24 V DC (max.)
Fuse	Automatic, self-resettable
Weight	Approximately 1.7 kg (un-boxed)
Battery	Rechargeable Lithium battery, not user-replaceable

### 2.3.5 Environmental conditions

Specification	Description
Operating temperature	-20 °C to +60 °C (vertical installation)
Storage temperature	-30 °C to +70 °C
Operating and storage humidity	5 % to 85 % RH, non-condensing
Climatic tests	95 % RH Condensation IEC 60068-2-30 Db (Cyclic)
Vibration	<ul style="list-style-type: none"><li>• IEC 60068-2-6 and IACS UR E10</li><li>• 2 to 13.2 Hz <math>\pm</math>1 mm</li><li>• 13.2 to 100 Hz 0.7 g</li></ul>
Shock	<ul style="list-style-type: none"><li>• IEC 60068-2-27, test Ea</li><li>• 50 g 11 ms</li></ul>
Protection class	<ul style="list-style-type: none"><li>• IP66 (front)</li><li>• IP20 (rear)</li><li>• According to IEC/EN 60529</li></ul>

## 2.3.6 Dimensions

### TDU 110 Extended



Faceplate A × B	282 × 197 mm (11.10 × 7.80 in)
Cutout C × D	271 × 186 mm (10.67 × 7.32 in)
Depth E + F	56 + 8 mm (2.20 + 0.33 in)

## 2.3.7 Approvals

Specification	Description
CE	<ul style="list-style-type: none"> <li>EN 61000-6-4 Emission, installation in industrial environments</li> <li>EN 61000-6-2 Immunity, installation in industrial environments</li> <li>EN 60945-2002 Maritime navigation and radio communication equipment and systems</li> </ul>
DNV GL	<ul style="list-style-type: none"> <li>IEC 60092-504 Electrical Installations in Ships - Part 504: Special features - Control and Instrumentation (IACS UR E10 Bridge and deck zone)</li> <li>IEC 60533 Electrical and electronic installations in ships – electromagnetic compatibility (IACS UR E10 Bridge and deck zone)</li> <li>DNV GL Type Approval Certificate</li> </ul>
UL	<ul style="list-style-type: none"> <li>UL508 Listed</li> <li>CSA C22.2 142-M1987</li> <li>UL 61010-1</li> <li>CSA C22.2 61010-1-12</li> <li>Haz. Loc. Class I, Division 2, Groups A, B, C and D</li> </ul>
Lloyds Register	LR Type Approval Certificate
EU RO Mutual Recognition	Yes
Cyber security test conducted towards compliance with the draft IEC 62443 series	

## 2.4 TDU 115 Extended

### 2.4.1 Display

Specification	Description
Type	TFT
Resolution	1366 × 768 pixel
Active display area	15.6" diagonal
Aspect ratio H/V	16:9
Colours	24 bit (16 million)
Viewing angle (H/V)	160/160
Backlight	LED
Brightness	400 Cd/m <sup>2</sup> typ.
UI display themes	Light or dark
Screen saver	Yes

### 2.4.2 Interfaces

#### TDU 115 Extended Operator interface

Specification	Description
Touch screen	Projected capacitive

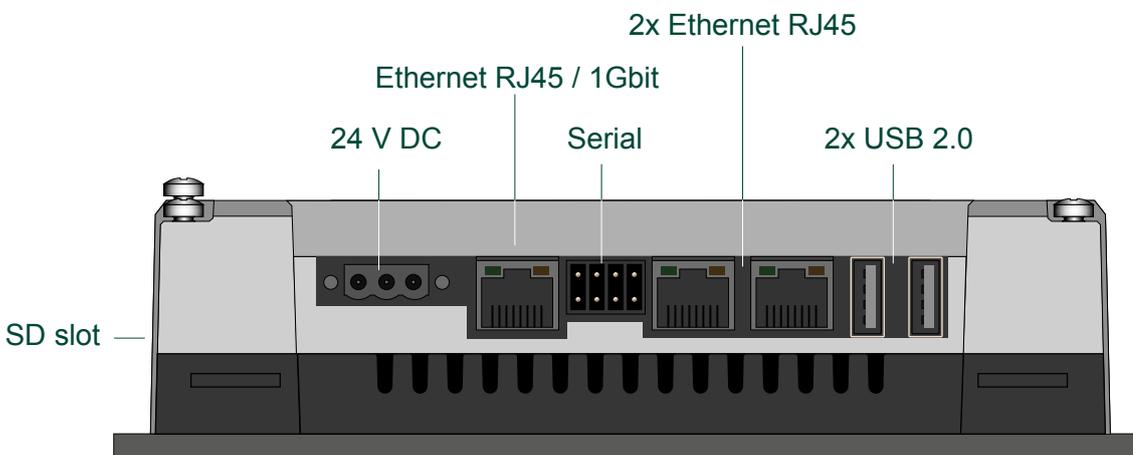
#### TDU 115 Extended Interface

Specification	Description
Ethernet	2 pcs. 10/100 Mbit, 1 pcs. 10/100/1000 Mbit
USB	2 × USB 2.0 (hosts) - max. 500 mA

#### TDU 115 Extended Remote access interface

Specification	Description
VNC server	Remote access using VNC

### 2.4.3 Connections



## 2.4.4 Power supply

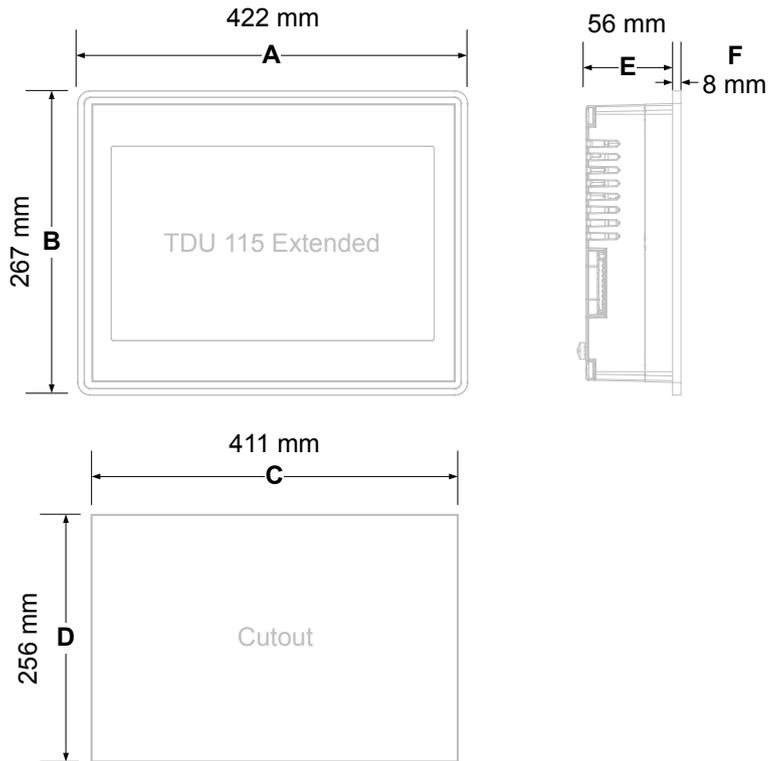
Specification	Description
Power supply voltage	24 V DC (10 to 32 V DC)
Current consumption	1.2 A at 24 V DC (max.)
Fuse	Automatic, self-resettable
Weight	Approximately 4.1 kg (un-boxed)
Battery	Rechargeable Lithium battery, not user-replaceable

## 2.4.5 Environmental conditions

Specification	Description
Operating temperature	-20 °C to +60 °C (vertical installation)
Storage temperature	-30 °C to +70 °C
Operating and storage humidity	5 % to 85 % RH, non-condensing
Climatic tests	95 % RH Condensation IEC 60068-2-30 Db (Cyclic)
Vibration	<ul style="list-style-type: none"><li>• IEC 60068-2-6 and IACS UR E10</li><li>• 2 to 13.2 Hz <math>\pm</math>1 mm</li><li>• 13.2 to 100 Hz 0.7 g</li></ul>
Shock	<ul style="list-style-type: none"><li>• IEC 60068-2-27, test Ea</li><li>• 50 g 11 ms</li></ul>
Protection class	<ul style="list-style-type: none"><li>• IP66 (front)</li><li>• IP20 (rear)</li><li>• According to IEC/EN 60529</li></ul>

## 2.4.6 Dimensions

### TDU 115 Extended



Faceplate A × B	422 × 267 mm (16.6 × 10.5 in)
Cutout C × D	411 × 256 mm (16.18 × 10 in)
Depth E + F	56 + 8 mm (2.20 + 0.33 in)

## 2.4.7 Approvals

Specification	Description
CE	<ul style="list-style-type: none"> <li>EN 61000-6-4 Emission, installation in industrial environments</li> <li>EN 61000-6-2 Immunity, installation in industrial environments</li> <li>EN 60945-2002 Maritime navigation and radio communication equipment and systems</li> </ul>
DNV GL	<ul style="list-style-type: none"> <li>IEC 60092-504 Electrical Installations in Ships - Part 504: Special features - Control and Instrumentation (IACS UR E10 Bridge and deck zone)</li> <li>IEC 60533 Electrical and electronic installations in ships – electromagnetic compatibility (IACS UR E10 Bridge and deck zone)</li> <li>DNV GL Type Approval Certificate</li> </ul>
UL	<ul style="list-style-type: none"> <li>UL508 Listed</li> <li>CSA C22.2 142-M1987</li> <li>UL 61010-1</li> <li>CSA C22.2 61010-1-12</li> <li>Haz. Loc. Class I, Division 2, Groups A, B, C and D</li> </ul>
Lloyds Register	LR Type Approval Certificate
EU RO Mutual Recognition	Yes
Cyber security test conducted towards compliance with the draft IEC 62443 series	

## 3. Ordering information

### 3.1 Product information

Product	Item no.
TDU 107 Core touch display	2912470010.01
TDU 107 Extended touch display	2912470010.02
TDU 110 Extended touch display	2912470010.04
TDU 115 Extended touch display	2912470010.05

### 3.2 Disclaimer

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The English version of this document always contains the most recent and up-to-date information about the product. DEIF does not take responsibility for the accuracy of translations, and translations might not be updated at the same time as the English document. If there is a discrepancy, the English version prevails.

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