SAN GIORGIO S.E.I.N.

MARINE INSTRUMENTS AND SENSORS SINCE 1960

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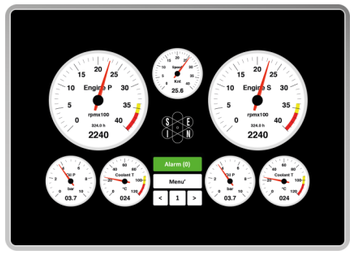
USER MANUAL

UNS10195

7” Touch screen

monitoring and control system

M180530 - Rev. 1.02 - 29/10/20



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BEFORE BEGINNING INSTALLATION OF THIS PRODUCT:

- A visual inspection of this product for damage during shipping is recommended before mounting.
- It is your responsibility to have a qualified person install this unit.
- Read and follow all installation instructions.
- Disconnect all electrical power to the instruments.
- Make sure the instruments cannot operate during installation.
- Follow all safety warnings of the instruments manufacturer.
- Contact SAN GIORGIO S.E.I.N. if you have any questions.

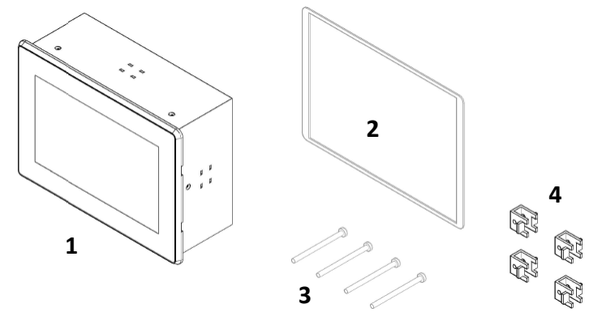
The instrument is a maintenance free product, no spare parts are available. At the end of its life cycle the tachometer must be disposed according the electronics disposal rules in force. For technical assistance please contact your dealer.

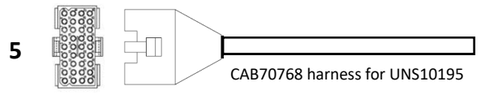
Introduction

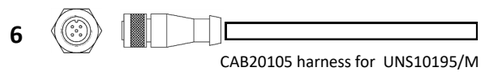
High performance monitoring and control system specifically designed for naval, professional and pleasure boats applications. It offers a new 7” touch screen display optimized for sun visibility, a new design and many possibilities of connection to on-board apparatus and portable devices. The innovative “Flexible Hardware” electronics provides direct acquisition of many measurement sensors without additional signal converters.Three CAN Bus J1939 ports and one NMEA2000 compatible output make it the perfect device to use with multifunction navigation systems. Datalogger functionality with internal SD card

The unit is supplied already programmed and ready to work according to the client application, but for experienced users it is also possible to easily customize the data acquisition and layout using a simple installation text file.

Package content





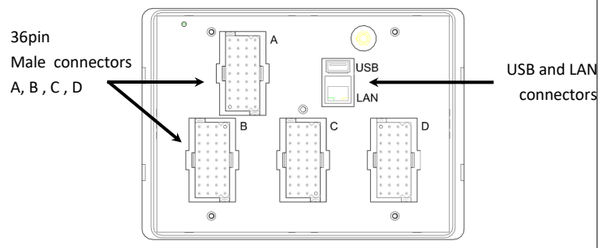


The **basic package** includes :

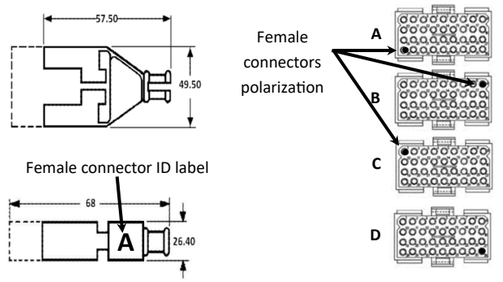
1) UNS10195 panel (FULL) or UNS10195/M (M12 canbus only) .
2) Rubber gasket for panel installation.
3) N.4 Mounting screws 4 x 50mm
4) N.4 Mounting brackets (code STA80195)
5) Harness for 4 x 36 connectors L= 2.5m (CAB70768) to be used with UNS10195 full
6) Harness 1 x M12 connector L=0,15m (CAB20105) to be used with UNS10195 M12 CAN

Connection - FULL version UNS10195

The FULL version offers the complete set of input/output available and uses 4 x ITT-36-PIN male connectors. A 2.5m harness with female connectors is also available . OEM applications may have special harness that fits engine connectors.



A-D connectors are not interchangeable. Each connector (male and female counterpart in optional harness) is marked with a letter from A to D and is polarized using a special stub pin to prevent an wrong connection.



Technical features

Display	7” TFT LCD, high brightness 1000cd
Resolution	800 x 480 pixel
Touch screen	Capacitive
CPU	Advanced Hybrid CPU Dual Cortex A9 + FPGA
Memory	1 GB RAM DDR3
Data memory	128MB Flash + 16 GB SD card
Inputs / Outputs	No.8 Analog inputs 0-300ohm No.16 Analog inputs 0-10V /4..20mA No.8 Analog inputs NTC 0-100Kohm with autorange No.8 Analog thermocouple inputs No.6 Analog inputs 0-36V No.3 Frequency inputs W alternator / pickup No.8 Digital ON/OFF inputs, active to ground No.8 Relay outputs, single contact max 500mA
Communication ports	No.4 CAN Bus 2.0B - No.1 Ethernet No.1 Wi-Fi 802.11bgn - No.1 USB OTG No.1 NMEA0183 - No.1 RS232 - No.1RS485
Dimension	200 x 143 x 76.1 mm
Mounting hole	183 x 135 mm
Environment	0 +55 °C (-20 +70 °C on demand) - IP65

Documentation

This documentation is provided attached to the instruments for installation and use:

D150903 - Connection and technical features - **Standard Connectors**

D150904 - Connection and technical features - **M12 Connectors**

Introduction

The unit must be installed inside a console that protects the rear of the unit and provides the desired IP protection. The back of the unit is not water resistant and serious damage to the unit and external connection may occur in case of contact with water, moisture or condensation .

The console must provide protection against direct sunlight and an appropriate cover when the unit is not in use, failing to do so will cause display wear/damage.

IMPORTANT: Exposure to extreme direct sunlight can cause a considerable increase unit temperature , and lead to over temperature and damage. This event should be avoided by correct bridge design (shade, distance from the windows, ventilation).

The console must have a correct inclination, generally 30 degrees, to allow water drainage and to reduce viewing angle.

IMPORTANT: the unit uses a capacitive touchscreen technology that is not designed to work if it is covered by water : moderate rain drops are tolerated but if outdoor operation under heavy rain is requested please use an auxiliary external keyboard/controller.

The console must provide enough space and ventilation, inside temperature must be kept as low as possible, always below 55°C.

The console must provide enough space for access and maintenance the rear connectors of the unit including an USB port that may be needed to update the firmware and download logger data.

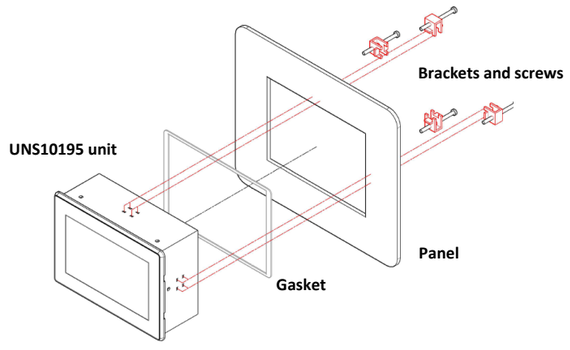
Identifications

The unit has an identification label on the back panel where it is possible to read :

- Date of manufacture in YYMMDD format, for example 171205
- Mac address in format : XX:XX:XX:XX:XX:XX, for example 00:50:C2:AA:95:C7

The MAC ADDRESS is an extremely useful information that allows service support to identify the unit, its customer, the release of firmware and software and history of related activities.

Installation



The unit has to be installed in a console with “cutout” of 183 x 135mm , this measure has to be as accurate as possible due to the unit small border profile 200 x 143mm.

Reserve a depth below unit not smaller than 175mm for connector and cable clearance.

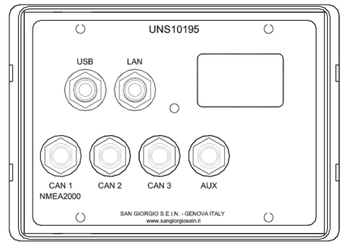
Please use the four bracket and screws as shown in the picture above to secure the unit to the panel leaving the gasket correctly compressed : with the standard screws the panel maximum thickness is 25mm.

The unit is equipped with an gasket, If the material of the panel or the application require a more appropriate sealing method please do apply.

The installer is responsible for a correct waterproof installation and if necessary replace the gasket provided with another suitable sealant method. Failing to do so may cause leakage from the front of the unit and damage to the unit itself and connected electrical components.

Connection - M12 CANBUS version

The M12 CANBUS version is designed for digital (CANBUS) application when only a small selection of analogue inputs. It has 6 x M12 connectors as seen in the picture below :



USB - M12 5 Pin Female
1. USB 5VDC
2. USB D-
3. USB D+
4. USB GND

LAN - M12 8 Pin Female
1..8 Pin to Pin RJ45 Lan

AUX M12 8 Pin Male
1. Relay 1 DO1 (NO)
2. Relay 1 DO1 (C)
3. Relay 2 DO1 (NO)
4. Relay 2 DO1 (C)
5. NMEA 0183 INPUT
6. GND
7. Voltage Input ANAB 5 (0..32 Vdc)
8. Voltage Input ANAB 6 (0..32 Vdc)

CAN1 (NMEA2000) - M12 5 Pin Male
1. Not connected
2. + Power_A (NET-S) [12..24 Vdc]
3. - Power_A (NET-C) [GND]
4. CAN-H (NET-H)
5. CAN-L (NET-L)

CAN2 (J1939) - M12 5 Pin Male
1. Not connected
2. + Power_A (NET-S) [12..24 Vdc]
3. - Power_A (NET-C) [GND]
4. CAN2-H
5. CAN2-L

CAN3 (J1939) - M12 5 Pin Male
1. Not connected
2. + Power_B [12..24 Vdc]
3. - Power_B [GND]
4. CAN3-H
5. CAN3-L

Operation

Power ON/OFF

The unit is powered on / off with an external key switch or engine main power supply.

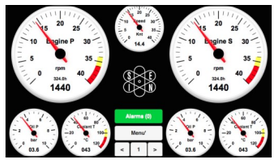
The unit architecture has a two stage startup sequence. A very fast hybrid microprocessor starts immediately after power on (less than 100ms) and takes care of critical measure and controls while an independent dual core microprocessor loads operating and main user interface in approximately 30 seconds. The unit shows a welcome startup screen approximately after 10-15s while the main application is loaded.

IMPORTANT : please do not turn power off while the startup sequence is in progress or if a special warning is given by the application. Always wait at least 60seconds before assuming the unit doesn't startup properly.

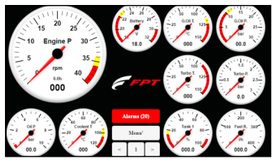
After the startup sequence the unit show the main monitoring page as explained below.

Main monitoring page layout

The user interface is organized in "pages" designed to simulate a virtual cockpit. On a standard application there are generally from 2 to 10 monitoring pages. After power on the unit shows the first monitoring page , other pages are accessible with touch commands. The layout of each monitoring page varies according the application and may display different type of analogue or gauges .



Two engines main monitoring



Single engine main monitoring

Gauges layout

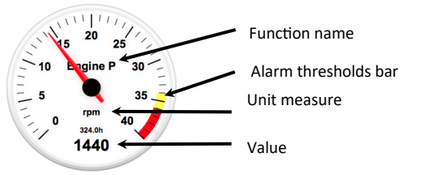
Monitoring pages contain virtual gauges designed to "mimic" original physical gauges in a cockpit. Depending on the application the following standard gauge types can used :

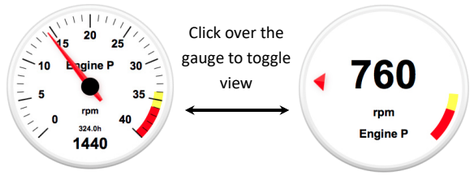
- Analog circular gauge, different size, used for analogue and frequency measures.

- Vertical or horizontal bar gauge, used for analogue and frequency measures.

- Digital (LED) gauge, used for digital on/off measure or status condition

- Databox gauge, used to group multiple information in numeric format.





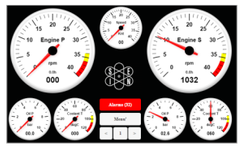
Analog "view"

Digital "view"

The analogue circular gauge has a special feature called "**digital view**" that enhances
numeric readout hiding the analogue pointer and showing numeric value with a larger font. It is possible to switch between analogue and digital views with a touch over the gauge.

Display brightness and day / night mode

The monitoring page is optimized for both day and night operation and the user can quickly toggle between the two operating modes using the main menu button "**Night/day**". Each mode automatically adjust brightness and visual presentation.

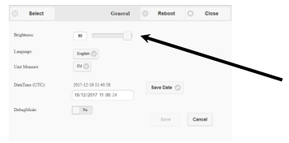


Day mode

Day mode has maximum backlight brightness and draws gauges with white background iand black fonts n order to enhance contrast and visibility in direct sunlight.

Night mode

Night mode reduces display backlight brightness and draws gauges with black background and red font in order to avoid dazzling and help night vision adaptation.



Brightness manual setup

Depending on the application It is possible to **manually control** the backlight brightness in the setup menu page. Some applications may have a custom brightness management.

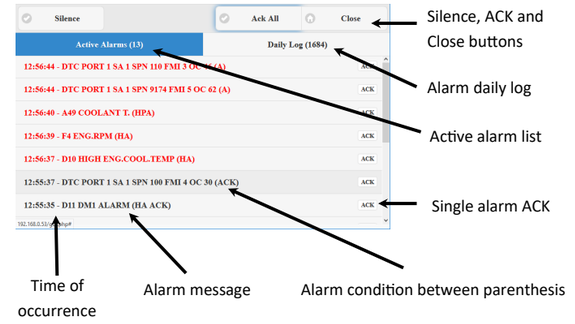
Alarms page

The management of alarm is accessible by the user in the **alarm page** that is further divided in two windows :

- Active alarms

- Daily (alarm) log

The active alarm window is presented to the user immediately after any new alarm is detected and can be shown again by pressing the "Alarms" button in each monitoring page.



Each alarm is presented in a single line with the following format :

"Time of occurrence" - "Alarm description" ("Alarm Status"), for example : 12:56:40 - A49 COOLANT T. (HPA)

The **alarm description** generally contains the source of alarm (for example analogue input "A49"), the alarm message (for example "COOLANT T.") and the status of the alarm itself (for example HPA = high pre alarm).

Each alarm line is presented in red colour for active alarms and in black colour for alarms already acknowledged.

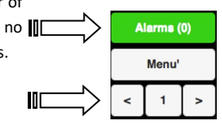
Operation

Scroll from left to right to increase page number

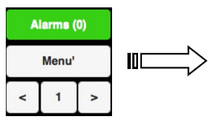
Scroll from right to left to decrease page number

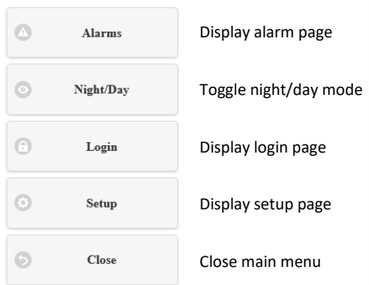
The **alarm status panel** shows the current number of alarms : the background colour is **green** in case of no alarms and **red** in case of one or more active alarms.

The **page number** can be changed also using the two buttons in the control panel.



Pressing the **Menu** button will display the main menu

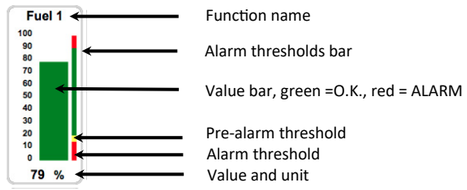




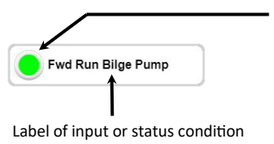
Main Menu

Gauges layout

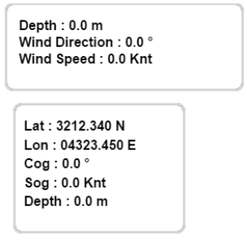
Vertical bar gauge



Status / Alarm gauge



Databox gauge



There are several type of "databox" gauges each designed to show related group of information, generally used for navigation information.

Alarm monitoring

The unit continuously checks the values of all inputs and system status for alarms.
The management is complies with the requirement of the classification registers (for example RINA and DNV). The alarm **source** can be classified as :
- Generic system alarm (SYS)
- Analog input (A)
- Frequency input (F)
- Digital input (D)
- Engine diagnostic (DTC)
- Optional programmable service interval (SRV)

The alarm **condition** can be classified as :
- Fault sensor alarm (FA)
- Low value alarm (LA)
- Low value prealarm (LPA)
- High value prealarm (HPA)
- High value alarm (HA)
- Alarm status for digital input (A)

Some alarms may have **conditioning** on specific input status , for example engine low oil pressure alarm enabled only if engine is running. It is also possible to define **dynamic alarm thresholds** based on input status, for example engine high exhaust gas temperature threshold value changed at different engine speed. Each alarm also has a **configurable delay** to avoid false activation.
Additional information about the alarm condition can be eventually provided in a specific **alarm message** that is always shown to the user.

The alarm **status** can be classified as :
- No alarm
- New alarm detected
- Alarm silenced by the user
- Alarm acknowledged by the user

Notes to update using USB pendrive

1) Power off the UNS10195 unit.
2) Insert the USB pendrive in the back panel.
3) Power on the unit and wait (up to 5 minutes) until the main application is restarted automatically .
4) Check the software version as explained above in this guide.
5) Power off the UNS10195 unit.
6) Remove the USB pendrive.

NOTE: the unit scans for connected pendrive immediately before launching the main application. If a valid USB pendrive containing software update is detected the unit will show a black display followed by an automatic reboot.
On the contrary if black display doesn't appear and the main application is started as quickly as usual the USB pendrive may have not been correctly detected.

REQUIREMENTS: Empty USB pendrive, standard format FAT32. Two or more USB pendrive are recommended to better overcome compatibility issues. One or more update file as specified above in thi guide.

Contacts

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