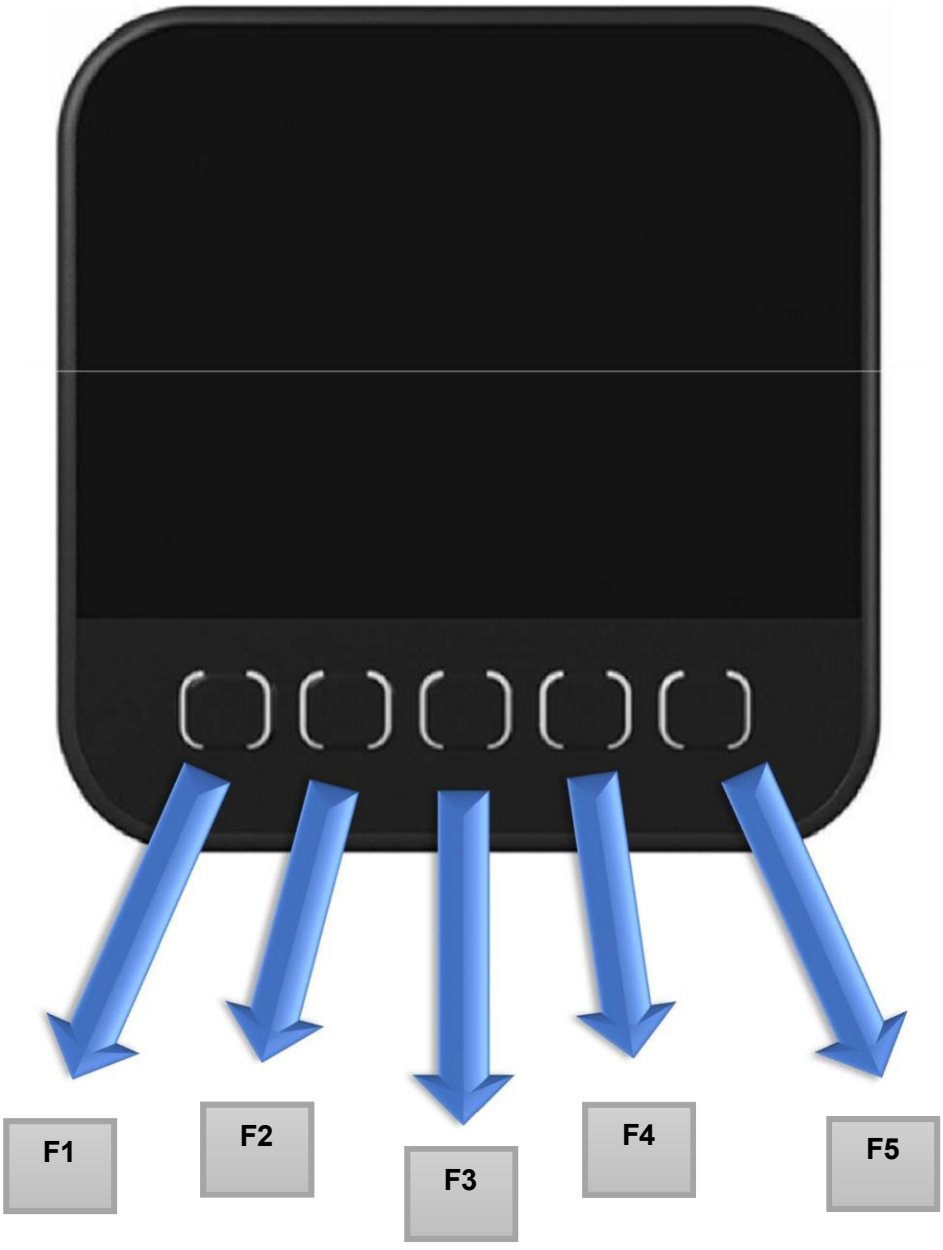
Operating instructions
Marx-Technik Smartdisplay for Yanmar

Basics

The display has a colour screen for visualising the engine information and engine control.

Actions can be triggered via the F keys.



Switching on the display

When the display is energised (*ignition on*), a Marx splash screen appears for two seconds as a welcome.

You then switch directly to the home screen.

Meaning Symbols:

-  Speed
-  Fuel consumption
-  Cooling water temperature
-  Battery voltage
-  Operating hours

Meaning F keys:

F1	Reduce speed
F2	Error messages
F3	Page change
F4	Settings
F5	Increase speed

Regeneration

Starting from page "Home

When the F3 key is pressed, the display changes to the page "Regeneration".

All important information is requested here.

In addition, it is possible to initiate, suppress or cancel regenerations via this page.

Meanings:

DPF status Provides information about the type of regeneration

- "not needed" white font
- "self/assist" white font
- "reset" white font
- "Stationary" yellow font
- "Service" red font

Reg. status Indicates whether a regeneration is active.

- not active
- active → Progress bar

  The progress bar is a timer set to 45 minutes. This is used to visualise the regeneration length.
  However, the end of the regeneration may differ from the end of the bar.

Meanings Symbols:

	Soot loading
	Ash load
	Exhaust gas temperature
	Motor load

Meanings F keys:

F1	Force (Reg. Start)
F2	Error messages
F3	Side change
F4	Inhibit (cancel reg.)
F5	Home

Regeneration nicht möglich

If an attempt is made to initiate regeneration wher the ecu does **not allow** it due to certain engine parameters, a yellow screen will appear with conditions that must be met.

The screen can be pushe away with F5. After checking the conditions shown, another attempt can be made to start a regeneration.

Types of regenarten

- **Self/assist regeneration**

  The regeneration runs in the background. The user does not have to take any precautions and can continue to use the machine. If this regeneration is active, this is shown in the DPF status and a yellow DPF symbol is displayed in the right bar  .

  The regeneration can be suppressed or cancelled via the F3 key. If the inhibit is set via the F3 key (*visible by a green dot instead of the standard red dot on the F3 symbol*), a grey *dot* appears,
  durchgestrichenes DPF-Symbol  . Fordert die ECU mit gesetztem Inhibit eine

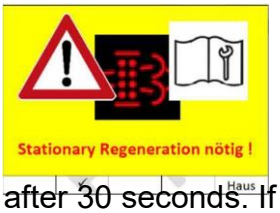
regeneration, the symbol changes to a yellow flashing, crossed-out DPF symbol  . In addition, the output 3 is set to flashing. After enabling regeneration by pressing the F3 button again (*visible by a red, instead of previously green, dot on the symbol*), it is started automatically. The DPF symbol changes from flashing yellow to permanently lit.
In parallel, output 3 is set to be permanently lit. If high exhaust gas temperatures are reached, the following symbol may appear. 
If the regeneration process is cancelled by the inhibit button F3, the symbol changes back to the grey, crossed-out DPF symbol.  All displays are reset and the regeneration is now considered to be "waiting".
After an "internal" suppression time has elapsed, the regeneration is attempted again.

- **Reset regeneration**
  The regeneration is identical to the self/assist regeneration, except that a release must be given due due to possible higher temperatures. If the ECU requests this regeneration, the yellow flashing DPF symbol  is set.
  In addition, output 3 is set to flash.

  To start regeneration, the inhibit F3 must not be set (*recognisable by the red dot on the F3 symbol*) and the force F1 must be pressed for 3 seconds (*recognisable by a change from red to green dot on the F1 symbol*). The DPF symbol changes from flashing yellow to permanently lit. At the same time, output 3 is permanently lit. If high exhaust gas temperatures are reached, the following symbol may appear. 

  If the regeneration process is cancelled by the inhibit button F3, the symbol changes back to the grey, crossed-out DPF symbol.  All displays are reset and the regeneration is now considered "aborted". Since the entire regeneration process can take up to 45 minutes, a progress bar with integrated [0-100] % indication is displayed over this period in the lower area of the regeneration screen. Furthermore, a "rotation star" is displayed in the right-hand icon bar.
  When the regeneration is completed, all displays are reset.

- **Stationary Regeneration**
  The Stationary Regeneration basically runs in the same way as the Reset Regeneration, however, depending on the preconditions, an additional "error" DTC message P1421(SPN3719 / FMI 16) can be sent by the ECU and thus, in addition to the DPF symbol , the following symbols can also be displayed in the right-hand icon bar, permanently lit in red and flashing in yellow . When stationary regeneration occurs, a warning screen with flashing pictograms on a yellow background appears immediately and every time the engine is started until stationary regeneration has been successfully completed.



  The hint screen can be confirmed (pressed away) with ✓ (F2) and leads to the Regeneration page, or confirmed with "House" (F5) and then leads to the main page.
  If the regeneration is not started, the screen appears again after 30 seconds. If the regeneration is active and has been completed, the above information page no longer appears.
  To start the regeneration, the same procedure of the other regenerations applies.

- **Service Regeneration (Backup Mode)**
  Service regeneration is requested depending on the preconditions and at least the "error" DTC message P1424 (SPN 3719 / FMI 0) is also sent by the ECU and thus, in addition to the DPF symbol , the following symbols are also displayed in the right-hand icon bar, permanently lit in red and flashing in red .
  When service regeneration occurs, the following nerve screen with a flashing red caution pictogram on a yellow background appears immediately and every time the engine is started until service regeneration has been successfully completed.

  The information screen can be confirmed (pressed away) with ✓ (F2) and leads to the "Service Info" page. The screen appears again after 30 seconds.
  At the same time, output 3 is set flashing to indicate a regeneration request and output 2 is set as an error signal.
  Since the use of a service partner is necessary in this regeneration case, no further measures are to be taken here.

Engine

Starting from page "Home

By pressing the F3 key twice, the display changes to the "Engine" page.

All important engine information is requested here.

Engine load	Throttle position
Cooling water temp.	Hours until Maintenance

Fuel

Starting from page "Home

When the F3 key is pressed 3 times, the display changes to the page "Fuel.

All important information in connection with fuel is requested here.

Fuel temp. pressure	Injection
Fuel level	Consumption

Pressure

Starting from page "Home

When the F3 key is pressed 4 times, the display changes to the page "Pressure.

All important information in connection with pressures is requested here.

Ambient pressure	Hydraulic pressure (additional function)
Intake manifold-pressure	Exhaust manifold pressure

Temperature

Starting from page "Home

Pressing the F3 key 5 times changes the display to the page "Temperature.

Here, all important information in connection with temperatures is requested, which has not been visualised before.

DOC Output temp.	DOC Input temp.
Intake manifold temperature	

Error code

Starting from each page

When the F2 key is pressed, the display changes to the page "DTC-Table DM1 active". All active error codes are visualised here. There are 50 codes stored, which are displayed directly translated.
The remaining part of the P code is only displayed by SPN & FMI. If an active error occurs, please contact a service partner immediately

When pressing the F3 key again, the display changes to the page "DTC-Table DM2 inactive". All error codes stored in the ECU are displayed here. For further assistance, contact your service partner.

Service information

Starting from page "Home

When the F4 key is pressed, the display changes to the "Service info" page.

This indicates when maintenance is due on your engine.

From this page you can access the **logbook** and the **maintenance menu.**

Meanings F keys:

F1 Key button (*combination F1 + Fx*)

F2 DTC table

F3 Logbook button

F4 Change pages

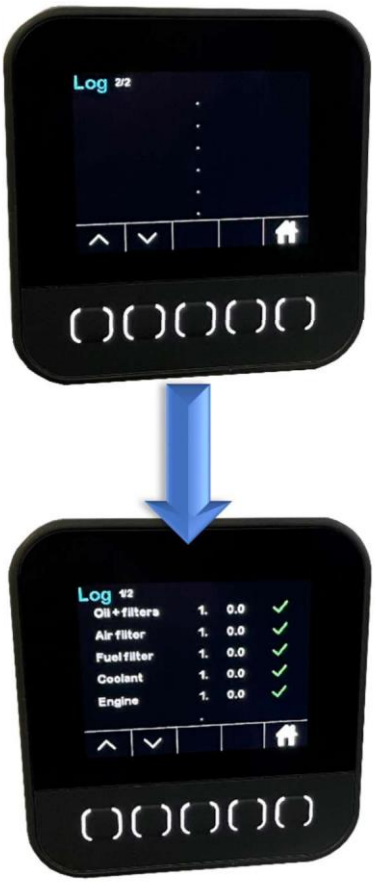
F5 Home

Logbook

Starting from page "Service info

When pressing the key combination **F1** (hold *for one second)* + **F3** (*pulse),* the display changes to the page "Log".

Here, the last two service measures incl.
Operating hours visualised.
When a new service is carried out, the oldest status is replaced.



Meanings F keys:

F1 Arrow key up (*change log* ½) **F2**

Arrow key down (*change log* ½)

F5 Home

Maintenance

Starting from page "Service info

When pressing the key combination **F1** (hold *for one second)* + **F4** (*pulse),* the display changes to the page "Maintenance I".

When confirmed via F2, a lock appears at position F3. When F3 is pressed, a password prompt appears.

Password: 23207

Meanings F keys:

F1 Arrow key up (*number selection from 9)*

F2 Selection hook (*change next field* **F3** ' ')

Arrow key down (*number selection from 9)* **F5** Home (*cancel)*

After successful password entry and confirmation via F2, the display changes to the "Maintenance II" page.

The completed service task is saved here.

After selecting the available options, a tick is placed behind each option and saved in the logbook

Meanings F keys:

F1 Arrow key down (*Next selection)*

F2 Hook (option *executed*)

F3 Arrow key down (*Next selection)*

F5 Home (*save all*)

Brightness

Starting from page "Home

When the F4 key is pressed twice, the display changes to the page "Brightness.

Here you have the option of adjusting the brightness.

Meanings F keys:

F1 Minus (*brightness reduction)*

F2 DTC table (*save*)

F3 Plus (*increase brightness*)

F4 Seitenwechsel (*speichern*)

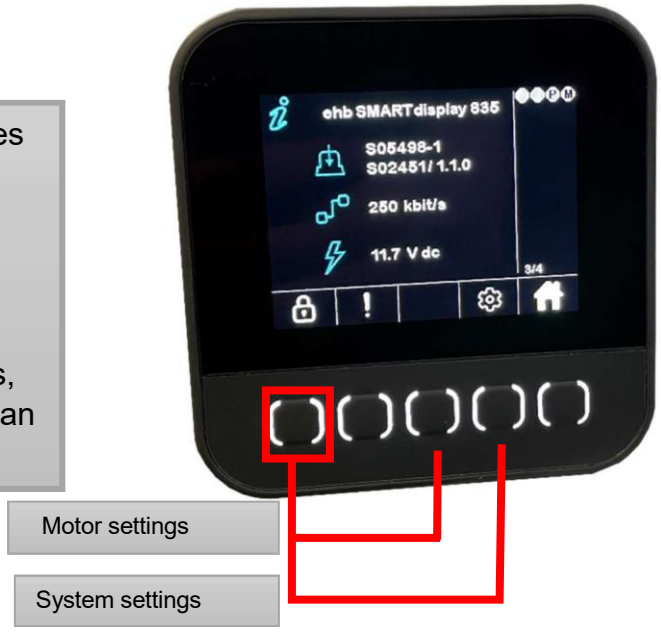
Info

Starting from page "Home

Pressing the F4 key 3 times switches the display to the "Info" page.

The software version, the transmission rate and the applied voltage are written down here.

From this page, the Engine Settings, System config. and Input Settings can be accessed.



Meanings F keys:

F1	Key button (*combination F1 + Fx*)	**F2**	DTC table
F4	Change pages	**F5**	Home

Motor settings n

Starting from page "Info

When pressing the key combination **F1** (hold *for two seconds)* + **F3** (*pulse),* the display changes to the page
"Engine Settings.

A password prompt appears immediately.

Password: 05111

After successful password entry and confirmation via F2, the display changes to the "Engine Settings" page.

Adjustments to the speed and maintenance interval can be made here.

Meanings F keys:

F1 Arrow key down (*select value)* **F2** OK (*select option/set value)* **F4** Arrow key up (*select value*) **F3** ESC (*undo value selection)* **F5** Home (*save*)

Page 2

Meaning of the settings:

Speed Min.
Minimum usable speed

Idle
DeepL Access setting for the basic speed. The engine speed drops to the set value when F1 is held.
Idle cannot be less than Speed Min.

Work1
First working speed to which the gear is switched after holding down F5.
Function is inactive when the value is set to 0. v.

Work2
Second working speed to which is switched after holding F5.
Function is inactive when the value is set to 0.

Work3
Third working speed to which the engine is switched after holding F5.
Function is inactive when the value is set to 0.

Speed Max.
Maximum usable speed.

Speed Tip
Speed step when F1 or F5 is pressed.

Ramp
Increase of speed per second when jumping to Work1/2/3

Service
Select whether early service is possible or not. An attemp is made to perform an early service if "Interval" is stored n for this in the settings,
a yellow warning screen appears, which prevents this e service. If you set the interval to "off", maintenance is possible. ***The setting is then reset to "Interval" to set***.

System setting

Starting from page "Info

When pressing the key combination **F1** (hold *for two seconds)* + **F4** (*pulse),* the display changes to the page
"System Config.

A page with a password prompt appears immediately.

Password: 04951

After successful password entry and confirmation via F2, the display changes to the "System Config" page.

This is where motor data is stored and settings for the shoring situation are made.

Model
Selection of the motor model
Serial no.
Registration of the serial number
Engine type
DPF/SCR/ECO
Droop/Iso
XX
Speed Input
CAN/Analogue

Input settings

Starting from page "System Config.

Use the arrow keys F1 or F3 to scroll from the "System Config" page to the "System Configuration" page.
"Input Settings" is called up.

The fuel gauge and hydraulic pressure sensors can be set here.

Input fuel level & Hydraulikdruck

Use the arrow keys F1 & F3 to select between "Fuel Level" and "Hydr.pressure" in the "Input" tab.

The sensor can be defined in the "Sensor type" tab.

Normal:

Fuel level	Ohm
Hydr. pressure	Volt/ampere

Input value Live values	
0%	Value for tank empty
100%	Value for tank full
Set 0% value	Press and hold to set to set for 0%
Set 100% value	Press and hold to set to set for 100%
#V/mA	Setting at 0 bar
#V/mA	Setting at max. bar

Meanings F keys:

F1 Arrow key down (*select* tab/value)

F2 OK (*select tab/set value)* **F4**

Arrow key up (*select* tab/value)

F3 ESC (*undo value selection*) **F5**

Home (*save*)

Unit settings n

Starting from page "Home

When the F4 key is pressed 4x, the display changes to the page "Unit Settings".

Here it is possible to display the parameters in other units. All values are converted automatically.

Meanings F keys:

F1 Arrow key down (*select* tab)

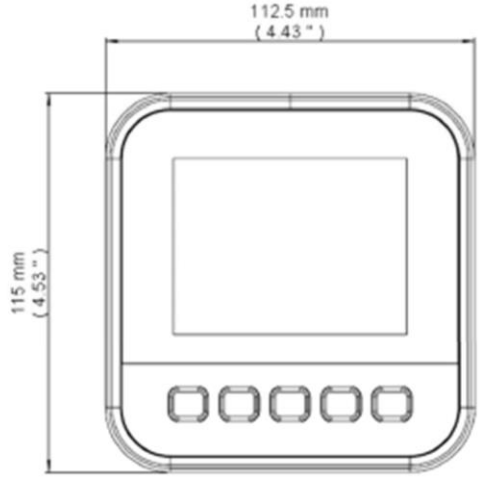
F2 DTC-Table *(speichern)*

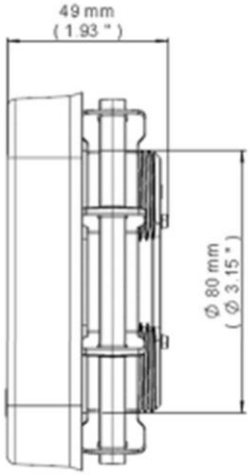
F3 Arrow key up *(select tab)* *en)*

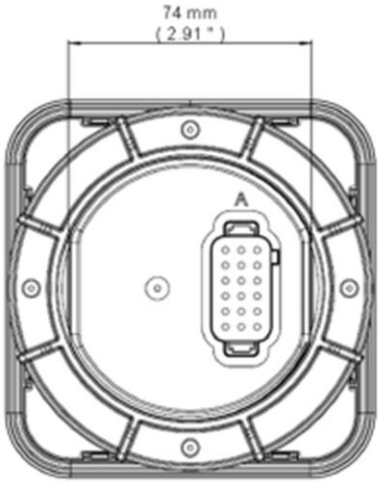
F4 Page change *(save)*

F5 Home (*save*)

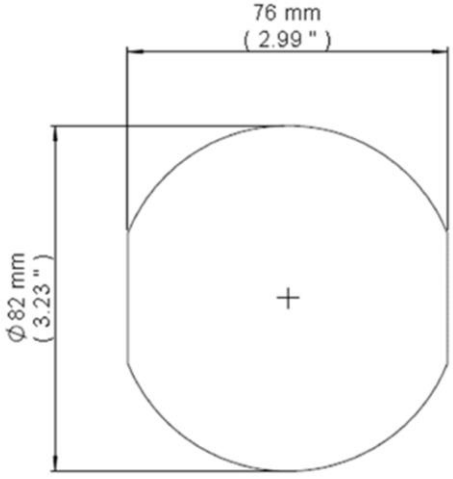
Display dimensions



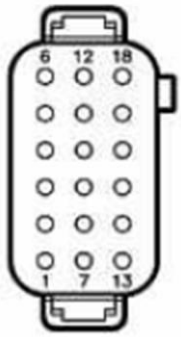




Cut-out dimensions



Pin assignment



German

DT16-18SA-K004

PIN Display	Function	Colour MARX	Colour	Comment	Details
A1	+31	Brown		DT04-6P	PIN 2
A2	(shielding)	/	/	Not used	/
A3	Can L In	Green		DT04-6P	PIN 4
A4	Can H In	Yellow		DT04-6P	PIN 3
A5	Inhibits	Purple		DT06-12S	PIN 10
A6	Fuel level	Pink		DT06-12S	PIN 11
A7	+30	Red		DT04-6P	PIN 1
A8	(shielding)	/	/	Not used	/
A9	Can L out	Green		DT06-12S	PIN 12
A10	Can H out	Yellow		DT06-12S	PIN 1
A11	+31	Brown		Connection to A1	soldered
A12	Hydraulics pressure	Orange		DT06-12S	PIN 2
A13	+31	Brown		Connection to A1	soldered
A14	Out 1	Grey-red		DT06-12S	PIN 8
A15	Out 2	Grey-green		DT06-12S	PIN 4
A16	Out 3	Grey-blue		DT06-12S	PIN 9
A17	+30	Red		Connection to A7	soldered
A18	Force	Grey		DT06-12S	PIN 3