Software manual

# ecomatDisplay/Symbol fonts

## CP9050

GB

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# 1 Preliminary note

You will find instructions, technical data, approvals and further information using the QR code on the unit / packaging or at www.ifm.com.

## 1.1 Legal and copyright information

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## 1.2 Symbols used

| | |
|---|---|
| ✓ | Requirement |
| ▶ | Instructions |
| ▷ | Reaction, result |
| [...] | Designation of keys, buttons or indications |
| → | Cross-reference |
|  | Important note<br>Non-compliance may result in malfunction or interference. |
|  | Information<br>Supplementary note |

## 1.3 Purpose of the document

This document describes the installation and use of the ecomatDisplay/Symbol fonts item no. CP9050 from firmware version V2.x.x.x.

# 2 Safety instructions

Please read the software manual before using the software.

Ensure that the software is suitable for your application and the connected sensors without any restrictions.

If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property can occur. That is why installation, set-up and maintenance of the article must only be carried out by qualified personnel authorised by the machine operator.

Non-observance of the instructions, operation which is not in accordance with use as prescribed below, wrong installation or incorrect handling can affect the safety of operators and machinery.

The installation and connection must comply with the applicable national and international standards. Responsibility lies with the person installing the software.

Changes to the source code or to individual components of the software which are not explicitly described in the instructions lead to the loss of the right to benefit from the support provided by ifm electronic gmbh.

# 3 Intended use

The symbol font ecomatDisplay/Symbol fonts is used to display symbols in the visualisation of the ecomatDisplay.

# 4 Installation

## 4.1 Package

A free demo project with 10 sample symbols is available for testing the symbol font.

For more information, see chapter Demo project (→ 🗋 26).

The ecomatDisplay/Symbol font is provided as a zip file.

The zip file contains the following files:

| File name | Description |
|---|---|
| ifm_icon_A_B_C.ttf | Font with symbol names A, B and C in ttf format. |
| ifm_icon_D_E.ttf | Font with symbol names D and E in ttf format. |
| ifm_icon_F_H.ttf | Font with symbol names F and H in ttf format. |
| ifm_icon_I_J_L.ttf | Font with symbol names I, J and L in ttf format. |
| ifm_icon_M_N_O_P.ttf | Font with symbol names M, N, O and P in ttf format. |
| ifm_icon_R_S.ttf | Font with symbol names R and S in ttf format. |
| ifm_icon_T_U_V.ttf | Font with symbol names T, U and V in ttf format. |

## 4.2 Installation on the PC

✓ The symbol font package is on the PC.

✓ CODESYS is closed.

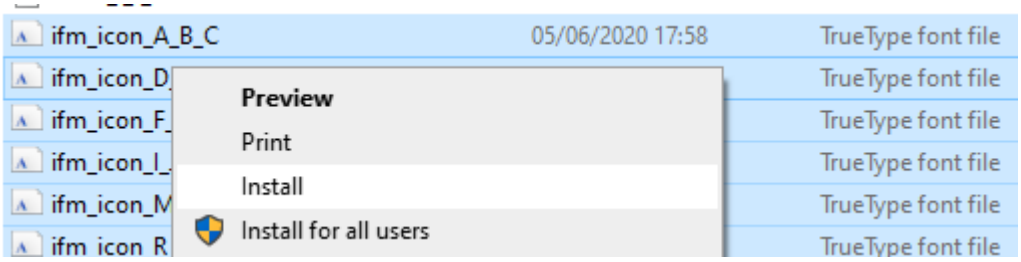
▶ Unpack the zip file.

▷ Due to the number of symbols the symbol font is divided into several font files in the TrueType font format.

▶ In the file explorer: select the contained ttf files.

▶ Right-click on the ttf files to open the context menu.

▶ Click [Install] in the context menu.




▷ The selected files of the symbol font are installed under Windows.

▷ The symbol font is available in Windows. The installed fonts can be checked under [System settings > Fonts].

## 4.3 Installation on the device

From firmware version 2.2.x onwards, the symbol font files are pre-installed on the ecomatDisplay and do not have to be installed on the device as described below.

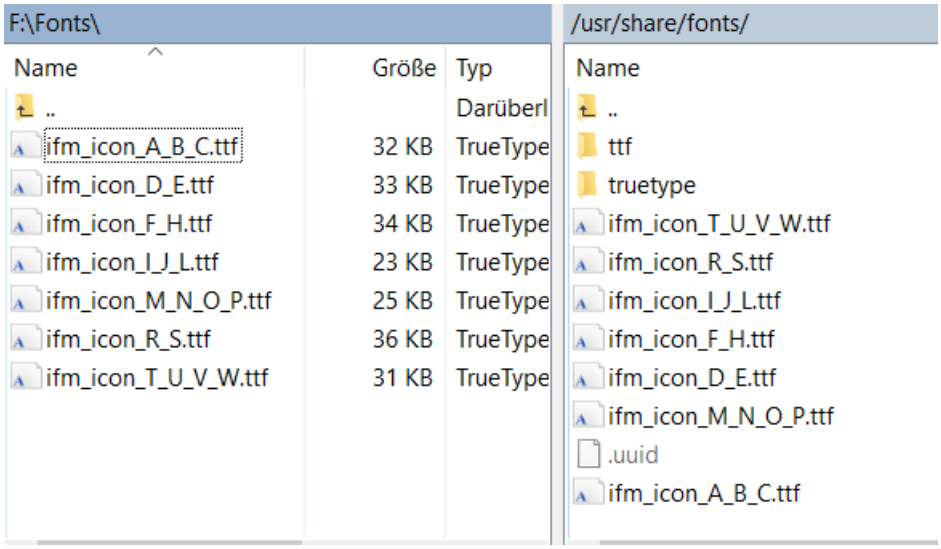
A corresponding licence is required to use the symbol font.

### 4.3.1 Adding a font

Loading a font (TrueType font) to the device:

▶ Connect the device via winSCP.

▶ Copy the file with the TrueType font ( `*.ttf` ) to the following folder on the device: `/usr/share/fonts/`




▶ Restart the device.

▷ All fonts in the folder will be installed and can be used.

If the font is also reinstalled under Windows:

▶ If CODESYS is open, restart it to make the new font available in CODESYS.

### 4.3.2 Login data

The following login data is factory-preset:

User name/login: `root`
Password: `pdm3`

These settings apply e.g. to:

- Access to the device via FTP, Telnet, SSH
- Access to the setup mode, provided that password protection is activated.

# 5 Configuration

## 5.1 Using symbol fonts in CODESYS

✓ The ecomatDisplay/Symbol fonts are installed on the PC. (→ Installation on the PC 🗋 6)

▶ Each symbol in the ecomatDisplay/Symbol fonts is assigned to a letter. Refer to the mapping table (→ Symbol fonts mapping 🗋 12) for the assignment of the symbols.

▶ Open the visualisation editor in CODESYS.

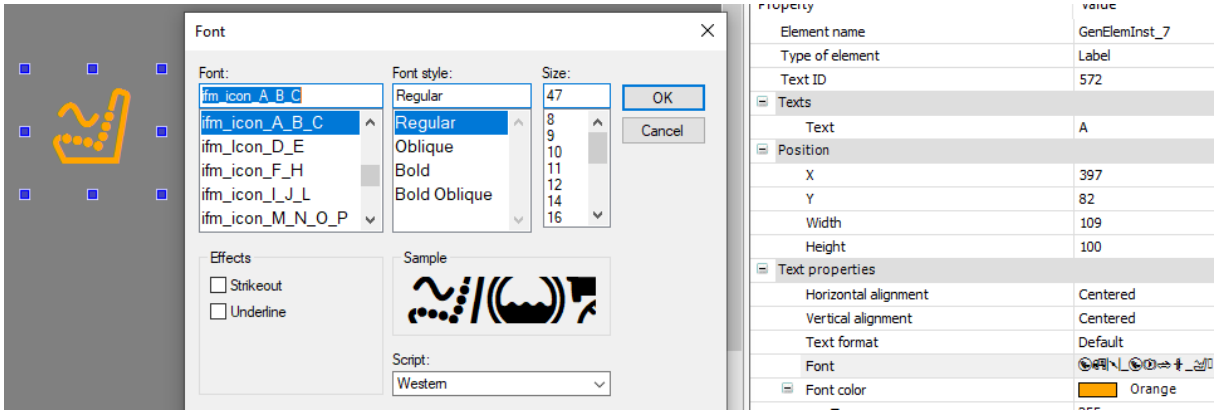
▶ Insert a text field.

▶ Select the required character set via the properties of the text field, e.g. `ifm_icon_A_B_C`.

▶ Select the letter corresponding to the required symbol, e.g. `A` for the symbol `Active_seat` from the character set `ifm_icon_A_B_C`.

▷ The required symbol is inserted.

▶ Set the properties colour, background colour and font size statically as required.




▶ Alternatively: Animate the properties colour, background colour and font size as required in CODESYS so that, for example, a colour change occurs during runtime. (→ Symbol fonts animated during runtime 🗋 8)

A free demo project with 10 sample symbols is available for testing the symbol font.

For more information, see chapter Demo project (→ 🗋 26).

## 5.2 Symbol fonts animated during runtime

The symbols of the symbol fonts can be set to be animated during runtime.

In the following example "Parking brake", the symbol colour is controlled depending on a variable.

For simulation purposes the colour is controlled by means of two buttons in the visualisation.

In a real application it would be controlled e.g. via a logic in the control program and depending on control inputs.

- The parking brake is activated = symbol is red (`16#FFFF0000`)



- The parking brake is deactivated = symbol is grey ( `16#FFC0C0C0` )




### 5.2.1 Defining the colour variable in PLC_PRG

✓ The ecomatDisplay/Symbol fonts are installed on the CODESYS PC under Windows.

✓ An ecomatDisplay project is open in CODESYS.

✓ The `PLC_PRG` is open.

▶ In `PLC_PRG` in the section `VAR`, define the colour variable `dwColor` as follows and initialise it with the start value (16#FF0000 = black):
`dwColor: DWORD := 16#FF000000;`

### 5.2.2 Configuring the display of the parking symbol

✓ A visualisation is open.

▶ Position a [Rectangle] from the view [Visualization Toolbox] on the visualisation.

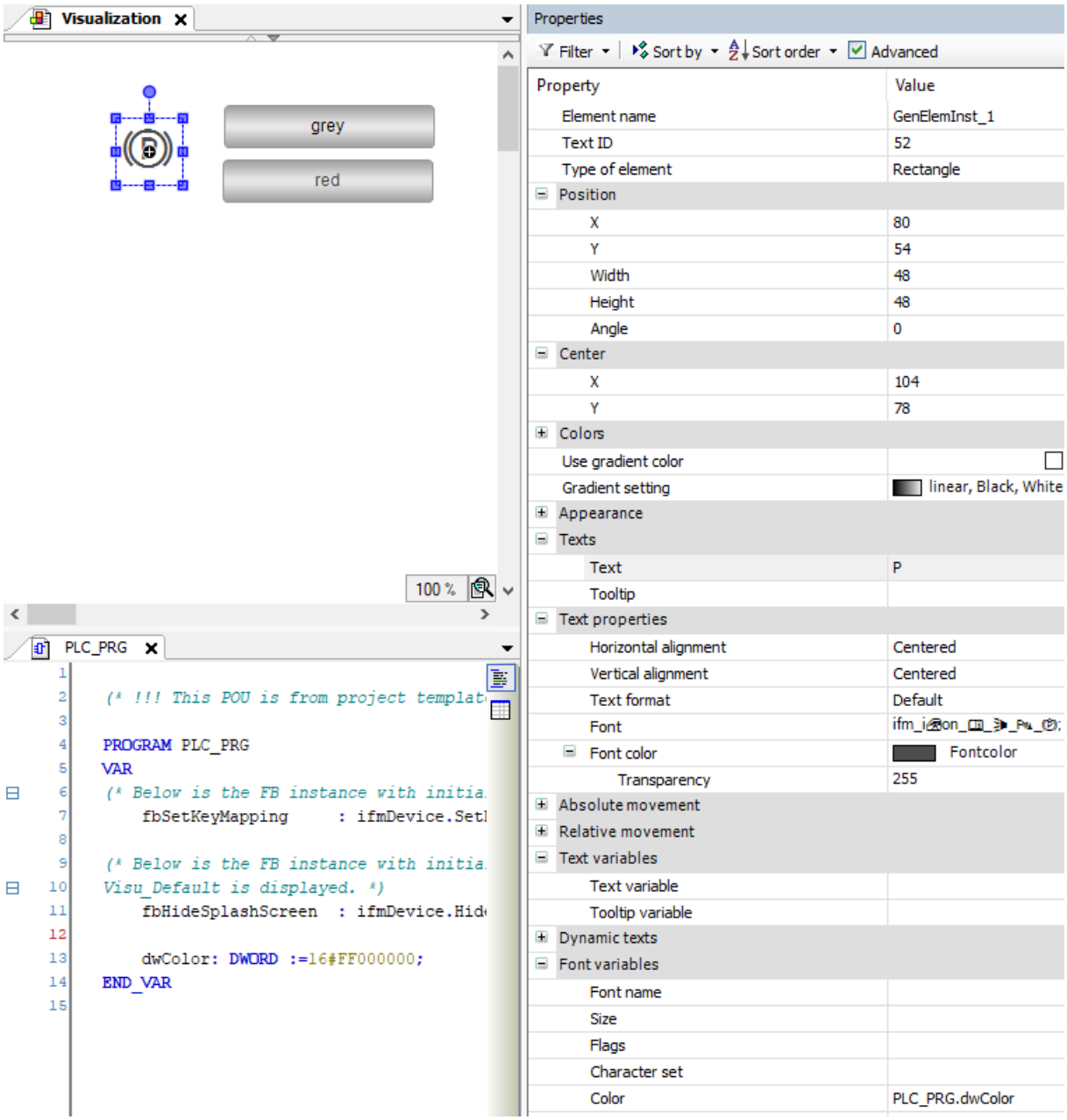
▶ Set the size of the rectangle, e.g.: `Width = 48`, `Height = 48`

▶ Under [Font], set the font `ifm_Icon_M_N_O_P` and the font size `28` .

▶ Under [Texts], enter `P` for [Text].

▷ The rectangle with the park symbol is statically configured.

▶ In the [Font variables] section under [Color], enter the variable `PLC_PRG.dwColor` .




### 5.2.3 Configuring the "grey" button

- ▶ Position a [Button] from the view [Visualization Toolbox] on the visualisation.
- ▶ Under [Texts], enter `grey` for [Text].
- ▶ Go to [Input Configuration > OnMouseClick] and set the action [Execute ST-Code] .
- ▶ Enter [Execute ST-Code] `PLC_PRG.dwColor:=16#FFC0C0C0;` in the input field.

### 5.2.4 Configuring the "red" button

- ▶ Position a [Button] from the view [Visualization Toolbox] on the visualisation.
- ▶ Under [Texts], enter `red` for [Text].
- ▶ Under [Input Configuration > OnMouseClick], set [Execute ST-Code].
- ▶ Enter [Execute ST-Code] `PLC_PRG.dwColor:=16#FFFF0000;` in the input field.

### 5.2.5 Saving and simulating

▶ Save the project and activate the simulation mode via [Online > Simulation].

▶ Translate the project, load it and start the simulation.

▷ By means of the buttons the colour of the symbol can be switched to grey and red.

# 6 Symbol fonts mapping

| Character | Character set ifm_icon_A_B_C | ISO Icon |
|---|---|---|
| A | Active_seat |  |
| B | Adaptive_cruise_control |  |
| C | Adaptive_cruise_control_failure |  |
| D | Air-conditioning_system |  |
| E | Airbag_2 | AIRBAG |
| F | Airbag |  |
| G | Air_conditioning_system_off |  |
| H | All_wheel_drive_4x4 |  |
| I | All_wheel_drive_6x6 |  |
| J | Antenna |  |
| K | Anti-lock_brake_system_ABS_off_2 |  |
| L | Anti-lock_brake_system_ABS_off |  |
| M | Automatic_mode | A |
| N | Axle_fluid_level |  |
| O | Axle_fluid_temperature |  |
| P | Axle_lifting |  |
| Q | Battery_charging_condition |  |
| R | Battery_failure |  |
| S | Battery_fluid_level |  |
| T | Battery_shut_off |  |
| U | Beacon |  |
| V | Bend_lighting |  |
| W | Bonnet_front_hood |  |
| X | Boot_rear_trunk |  |
| Y | Brake_system |  |

| Character | Character set ifm_icon_A_B_C | ISO Icon |
|---|---|---|
| Z | Brake_failure |  |
| a | Brake_fluid_level |  |
| b | Brake_system_pressure |  |
| c | Brake_temperature |  |
| d | Cab_lock |  |
| e | Camera |  |
| f | Cargo_heater |  |
| g | Central_lubrication |  |
| h | Child_seat |  |
| i | Child_seat_ISOFIX_LATCH |  |
| j | Child_seat_lower_anchorage_attachment |  |
| k | Child_seat_prohibition |  |
| l | Child_seat_upper_tether_anchor |  |
| m | Choke |  |
| n | Clutch |  |
| o | Convertible_top |  |
| p | Cruise_control |  |
| q | Cup_holder |  |
| r | cushion_front |  |
| s | Cushion_rear |  |

| Character | Character set ifm_icon_D_E | ISO Icon |
|---|---|---|
| A | Daytime_running_lights |  |
| B | Defrost_and_lower_air_outlet |  |
| C | Destination_home |  |
| D | Diesel_pre_heat |  |
| E | Differential_lock |  |
| F | Diverging_flap_release_2 |  |
| G | Diverging_flap_release |  |
| H | Doors_ajar_2 |  |
| I | Doors_ajar |  |
| J | Door_lock_control |  |
| K | Double_door_lock |  |
| L | Drawbar_angle_warning |  |
| M | Drawbar_coupling_locked_secure |  |
| N | Drawbar_coupling_open_not_secure |  |
| O | Driver_airbag_off_or_not_available |  |
| P | Drive | D |
| Q | Electric_motor_enabled |  |
| R | Electric_motor_failure |  |
| S | Electronic_diesel_control |  |
| T | Elevated_headlights |  |
| U | Emergency_first_aid_vehicle |  |
| V | Engine |  |
| W | Engine_coolant_fan |  |
| X | Engine_coolant_heating |  |
| Y | Engine_coolant_level |  |

| Character | Character set ifm_icon_D_E | ISO Icon |
|---|---|---|
| Z | Engine_coolant_temperature |  |
| a | Engine_emission_filter |  |
| b | Engine_emission_system_failure |  |
| c | Engine_emission_system_temperature |  |
| d | Engine_failure |  |
| e | Engine_heating |  |
| f | Engine_inlet_air_filter |  |
| g | Engine_inlet_air_pre_heat |  |
| h | Engine_oil |  |
| i | Engine_oil_filter |  |
| j | Engine_oil_level |  |
| k | Engine_oil_temperature |  |
| l | Engine_shut_off |  |
| m | Engine_start |  |
| n | Engine_status_information |  |
| o | Exhaust_gas_brake |  |
| p | Exterior_bulb_failure |  |
| q | External_cord_connect |  |

| Character | Character set ifm_icon_F_H | ISO Icon |
|---|---|---|
| A | Failure |  |
| B | Failure_of_anti-lock_brake_system |  |
| C | Failure_of_anti-lock_brake_system |  |
| D | FFRONT_VIEW_01 |  |
| E | FFRONT_VIEW_02 |  |
| F | FFRONT_VIEW_03 |  |
| G | FFRONT_VIEW_04 |  |
| H | FFRONT_VIEW_05 |  |
| I | FFRONT_VIEW_06 |  |
| J | Fifth_wheel_coupling_locked_ |  |
| K | Fifth_wheel_coupling_unlocked_not_secure |  |
| L | Fifth_wheel_height_adjustment |  |
| M | Fifth_wheel_longitudinal_adjustment |  |
| N | Fire_extinguisher |  |
| O | Folding_head_restraint |  |
| P | Footwell_illumination |  |
| Q | Forward_collision_warning |  |
| R | Four_wheel_steer |  |
| S | Fresh_air |  |
| T | Front_axle_4x4 |  |
| U | front_axle_6x6 |  |
| V | Front_axle_drive_4x4 |  |
| W | Front_axle_drive_6x6 |  |
| X | Front_fog_light |  |
| Y | Front_height_control |  |

| Character | Character set ifm_icon_F_H | ISO Icon |
|---|---|---|
| Z | FRONT_VIEW_10_2 |  |
| a | FRONT_VIEW_10 |  |
| b | Fuel |  |
| c | Fuel_cap_unfastened |  |
| d | Fuel_economy |  |
| e | Fuel_filter |  |
| f | Fuel_heating |  |
| g | Fuel_pressure |  |
| h | Fuel_shut_off |  |
| i | Fuel_system_failure |  |
| j | Fuel_temperature |  |
| k | Fuel_type_2 |   |
| l | Fuel_type |   |
| m | Fuse_box_access |  |
| n | Hand_throttle |  |
| o | Hazard_warning |  |
| p | Headlamp_cleaner |  |
| q | Headlamp_levelling_control |  |
| r | Head_restraint |  |
| s | Heated_seat |  |
| t | Height_control_2 |  |
| u | Height_control |  |
| v | High_voltage_warning |  |
| w | Hill_descent_control |  |
| x | Hill_holding |  |

| Character | Character set ifm_icon_I_J_L | ISO Icon |
|---|---|---|
| A | Icy_road_condition |  |
| B | Immobilizer |  |
| C | Instrument_panel_illumination |  |
| D | Interior_compartment_illumination |  |
| E | Interior_directed_illumination |  |
| F | Interior_heating |  |
| G | Inter_axle_lock_6x6 |  |
| H | Inter_axle_lock |  |
| I | Jack |  |
| J | Lane_departure_warning_LDWS |  |
| K | Lighter |  |
| L | Limited_performance_mode |  |
| M | Loading_light |  |
| N | Load_tipping |  |
| O | Locked |  |
| P | Lock |  |
| Q | Long-range_lamp |  |
| R | Low-level_interior_illumination |  |
| S | Lower_air_outlet |  |
| T | Low_beam |  |
| U | Low_tyre_pressure |  |

| Character | Character set ifm_icon_M_N_O_P | ISO Icon |
|---|---|---|
| A | Manual_mode |  |
| B | Master_lighting_switch |  |
| C | Medical_assistance_sign_light |  |
| D | Moisture_in_fuel_system |  |
| E | Motion_sensor |  |
| F | Motion_sensor_off |  |
| G | Neutral |  |
| H | Night_vision |  |
| I | North_indicator |  |
| J | NOx_reduction_agent |  |
| K | Number_1 |  |
| L | Number_2 |  |
| M | Operators_manual |  |
| N | Panic_alarm_system |  |
| O | Parking_aid |  |
| P | Parking_brake |  |
| Q | Parking_lights |  |
| R | Park |  |
| S | Passenger_airbag |  |
| T | Passenger_airbag_off |  |
| U | Passenger_compartment_air_filter |  |
| V | Passenger_side_impact_airbag_off |  |
| W | Pedal_adjustment |  |
| X | Phone |  |
| Y | Platform_2 |  |

| Character | Character set ifm_icon_M_N_O_P | ISO Icon |
|---|---|---|
| Z | Platform |  |
| a | Position_lights_side_lights |  |
| b | Power_on_off |  |
| c | Power_window_lock_disable |  |
| d | Propulsion_battery_failure |  |
| e | Protective_roll_bar |  |

| Character | Character set ifm_icon_R_S | ISO Icon |
|---|---|---|
| A | Rearmost_axles |  |
| B | Rear_axles |  |
| C | Rear_axle_drive_4x4 |  |
| D | Rear_axle_drive_6x6 |  |
| E | Rear_fog_light |  |
| F | Rear_height_control |  |
| G | Rear_liftgate |  |
| H | Rear_liftglass |  |
| I | REAR_VIEW_09 |  |
| J | REAR_VIEW_15 |  |
| K | REAR_VIEW_20 |  |
| L | REAR_VIEW_9 |  |
| M | Recirculated_air_2 |  |
| N | Recirculated_air |  |
| O | Recommended_minimum_octane_number |  |
| P | Refrigerator |  |
| Q | Retarder |  |
| R | Retarder_failur |  |
| S | Reverse |  |
| T | Robson_drive |  |
| U | Roof_sign_illumination |  |
| V | Roof_ventilation |  |
| W | Seat_adjustment |  |
| X | Seat_back_recline |  |
| Y | Seat_belt |  |

| Character | Character set ifm_icon_R_S | ISO Icon |
|---|---|---|
| Z | Seat_height_adjustment |  |
| a | Seat_lumbar_adjustment |  |
| b | Secondary_interior_heating |  |
| c | Secondary_interior_heating_fuel_level |  |
| d | second_circuit |  |
| e | Service |  |
| f | Side_impact_airbag |  |
| g | Side_impact_airbag_off |  |
| h | Side_rear |  |
| i | SIDE_VIEW_01 |  |
| j | SIDE_VIEW_07 |  |
| k | SIDE_VIEW_08 |  |
| l | SIDE_VIEW_13 |  |
| m | SIDE_VIEW_14 |  |
| n | SIDE_VIEW_16 |  |
| o | SIDE_VIEW_17 |  |
| p | Sleeper_compartment_air_circulation |  |
| q | Sleeper_compartment_illumination |  |
| r | Sliding_door |  |
| s | Smart_card |  |
| t | Snowplough |  |
| u | Spring_brake_release |  |
| v | Stability_control_off |  |
| w | Stability_control_system |  |
| x | State_of_charge_propulsion_battery |  |

| Character | Character set ifm_icon_R_S | ISO Icon |
|---|---|---|
| y | Steering_circuit_2 |  |
| z | Steering_circuit |  |
| ! | Steering_failure |  |
| " | Steering_fluid_level |  |
| $ | Steering_wheel_lock |  |
| % | Sunshade |  |

| Character | Character set ifm_icon_T_U_V_W | ISO Icon |
|---|---|---|
| A | Taxi_sign_light |  |
| B | TOP_VIEW_12 |  |
| C | Tow_truck |  |
| D | Traction_control |  |
| E | Traction_control_failure |  |
| F | Traction_control_off |  |
| G | Trailer_2 |  |
| H | trailer |  |
| I | Trailer_brake_ |  |
| J | Trailer_towing_mode |  |
| K | Transfer_case_4x4 |  |
| L | Transfer_case_6x6 |  |
| M | Transmission |  |
| N | Transmission_converter_failure |  |
| O | Transmission_converter_fluid_level |  |
| P | Transmission_converter_temperature |  |
| Q | Transmission_failure |  |
| R | Transmission_fluid_filter |  |
| S | Transmission_fluid_level |  |
| T | Transmission_system_pressure |  |
| U | Transmission_temperature |  |
| V | Truck |  |
| W | Turbocharger_temperature |  |
| X | Turbocharger_temperature |  |
| Y | Turn_signals |  |

| Character | Character set ifm_icon_T_U_V_W | ISO Icon |
|---|---|---|
| Z | Tyre_pressure |  |
| a | Tyre_temperature |  |
| b | Unlocked |  |
| c | Unlock |  |
| d | Upper_air_outlet_and_lower_air_outlet |  |
| e | Upper_air_outlet |  |
| f | Ventilated_seat |  |
| g | Ventilating_fan |  |
| h | Ventilation_closed |  |
| i | Ventilation_open |  |
| j | Voice_activation |  |
| k | Winch |  |
| l | Window_lift_2_BK |  |
| m | Window_lift |  |
| n | Wind_draught_deflector_2 |  |
| o | Wind_draught_deflector |  |
| p | Working_light |  |
| q | Worn_brake_linings |  |

# 7 Demo project

A free demo project with 10 sample symbols for testing the symbol font is available on the ifm website. The demo project contains the CODESYS project and the demo font.

## 7.1 Downloading the demo project

▶ Open www.ifm.com in a browser in the required language and country version.

▶ Enter `CP9050` in the search field and click on [Search].

▶ The product page of `CP9050` appears.

▶ Go to the [Downloads] tab below the product image.

▶ Download the package with the demo project.

## 7.2 Demo project package

The demo project is provided as a zip file.

The zip file contains the following files:

| File name | Description |
|---|---|
| ifm_icon_Demo.ttf | Demo font with 10 example symbols. |
| Demo_ISO_Icons_... | Files of the demo CODESYS project. |

## 7.3 Installing the demo project

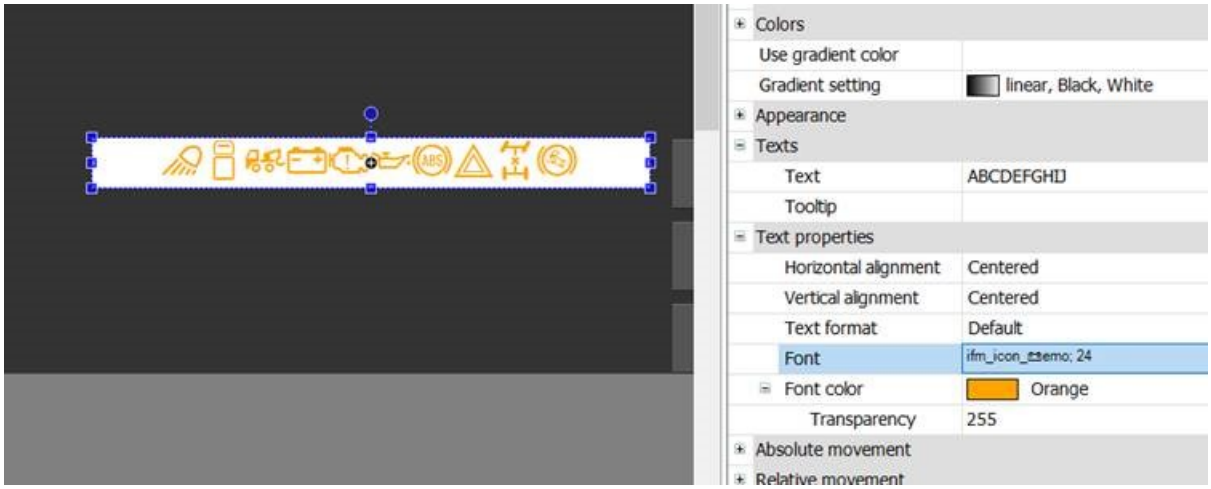
The demo project is installed according to the description in the following chapters:

- Installation on the PC (→ 🗋 6)
- Installation on the device (→ 🗋 6)

## 7.4 Configuring the demo project

The demo font is used according to the description in the following chapters:

- Using symbol fonts in CODESYS (→ 🗋 8)
- Symbol fonts animated during runtime (→ 🗋 8)



## 7.5 Demo font mapping

| Character | Character set ifm_icon_Demo | ISO Icon |
|---|---|---|
| A | Working_light |  |
| B | TOP_VIEW_12 |  |
| C | Tow_truck |  |
| D | Battery_charging_condition |  |
| E | Engine_failure |  |
| F | Engine_oil |  |
| G | Failure_of_anti-lock_brake_system |  |
| H | Hazard_warning |  |
| I | Transfer_case_4x4 |  |
| J | Hill_holding |  |