



Tokheim Quality Calculator

Hand Held Terminal User Interface Manual (HHT UIM)



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1. INTRODUCTION

1.1 Background

This document describes all the menus and sub-menus which are displayed on the Hand-Held Terminal (HHT) while configuring, maintenance and data access to the dispenser. The Hand-Held Terminal device has a wide range of settings such as functions that includes parameter configuration, query, calibration, test, and diagnostics.

The Hand-Held terminal device receives data from the TQC inside the dispenser so that the user could set the correct parameters; these parameters are sent back to TQC for proper functionality.

This document will also define the function keys and some shortcut keys for better manipulation of the Hand-Held Terminal.

1.2 Nomenclature

HHT	Hand Held Terminal
VFM	Vapor Flow Meter
CAN	Controller Area Network
MPC	Magnetic Pulser Controller (With CAN Interface)
HYM	Hydraulic Module
HHT	Hand Held Terminal
SIO	Slave IO board
FIP (PUMP)	Filling Position per side
ECVR	Electronic Controlled Vapor Recovery
ECVR-SCS	ECVR-Self Calibrated System
ECVR-OL	ECVR-Open Loop
SPI	Serial Peripheral Interface
POS	Point Of Sale
SW	Software
HW	Hardware
IRDA	Infra-Red Data Association
TQC	Tokheim Quality Calculator

1.3 References

- [1] TQC W&M System Description.doc. Version 00.03



2. Description of the equipment

2.1 Hand Held Terminal

The Hand-Held Terminal (HHT) is an equipment used for setting up the configuration, setup, maintenance, operation, data access of the Tokheim Quality Calculator (TQC). The device contains the following software and hardware components;

- IrDA interface
- Alphanumeric Keypad
- Dot Matrix Display
- Serial port for downloading of SW to HHT
- Battery (rechargeable)
- Serial port to communicate to TQC, instead of IR (China only)



Figure 1 Hand Held Terminal

2.1.1 IrDA interface

The Infrared Data Association (IrDA) defines physical specifications communications protocol standards for the short-range exchange of data over infrared light. In this case the communication will be done between the Hand Held Terminal (HHT) and the TQC inside the dispenser.

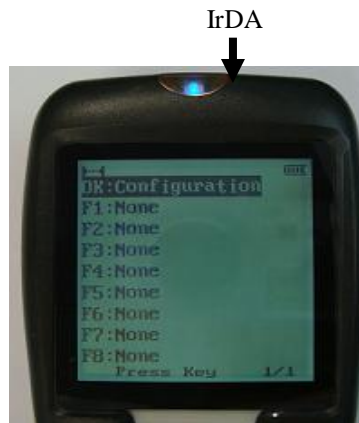


Figure 2 IrDA output

2.1.2 Alphanumeric Keypad

A keypad is a set of buttons arranged in a block which usually bear digits and other symbols but not a complete set of alphabetical letters. It is used to input all parameters needed in order to setup either the configuration or all kind of functions of the TQC.



Figure 3 Alphanumeric keypad

2.1.3 Dot Matrix Display

A dot matrix display is used to display information on machines. It will display all information and configuration data from the TQC which are either by reading it or inputting it by the user through its keypad.



Figure 4 Dot matrix display

2.1.4 Serial port for downloading of SW to HHT

A serial port is a serial communication physical interface through which information transfers in or out for terminals and various peripherals. It is used for downloading/updating the software configuration between the TQC and the Hand Held Terminal (HHT)



Figure 5 Serial port RS-232 with USB connection

2.1.5 Battery (rechargeable)

It is used to power up the Hand Held Terminal (HHT). It is a rechargeable battery, and can be loaded using with delivered USB / RS-232 cable, connecting into connector on the bottom of HHT and to USB port, or use delivered PSU to load HHT.



Figure 6 Battery rechargeable

2.2 Main Functions of the Hand Held Terminal (HHT)

In order to better understand the system's functionality, the terminal has been divided into three main parts. Those are mainly Dot Matrix Display, Alphanumerical Keypad and Functional Buttons respectively.



Figure 7 Main functions of Hand Held Terminal (HHT)

2.2.1 Dot Matrix Display

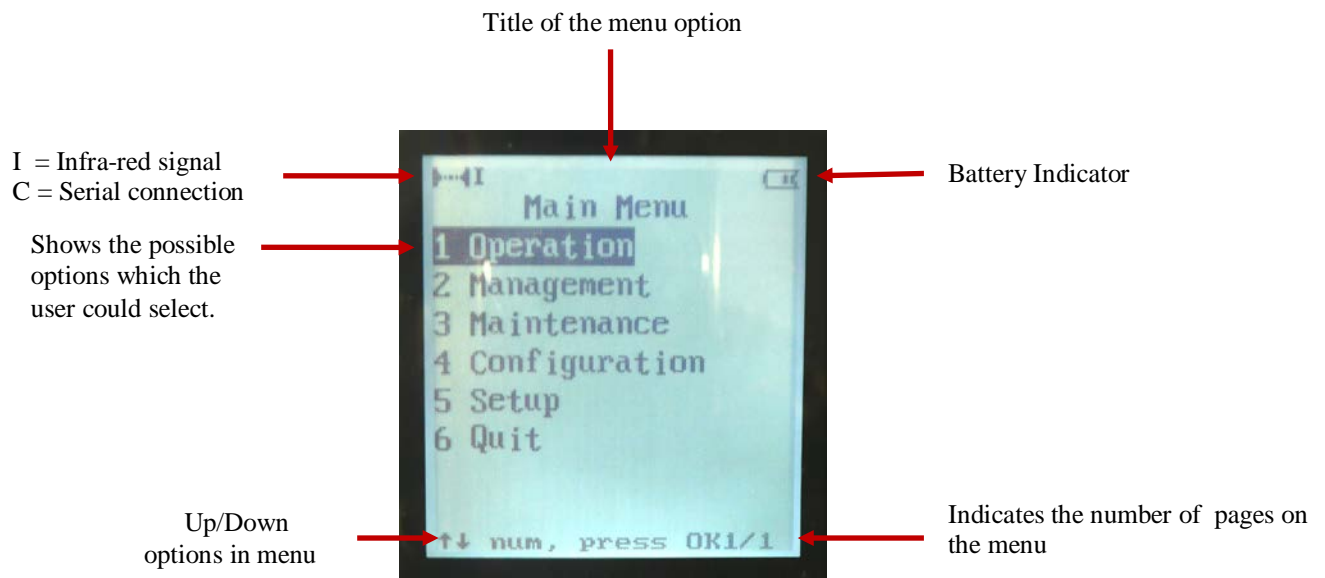
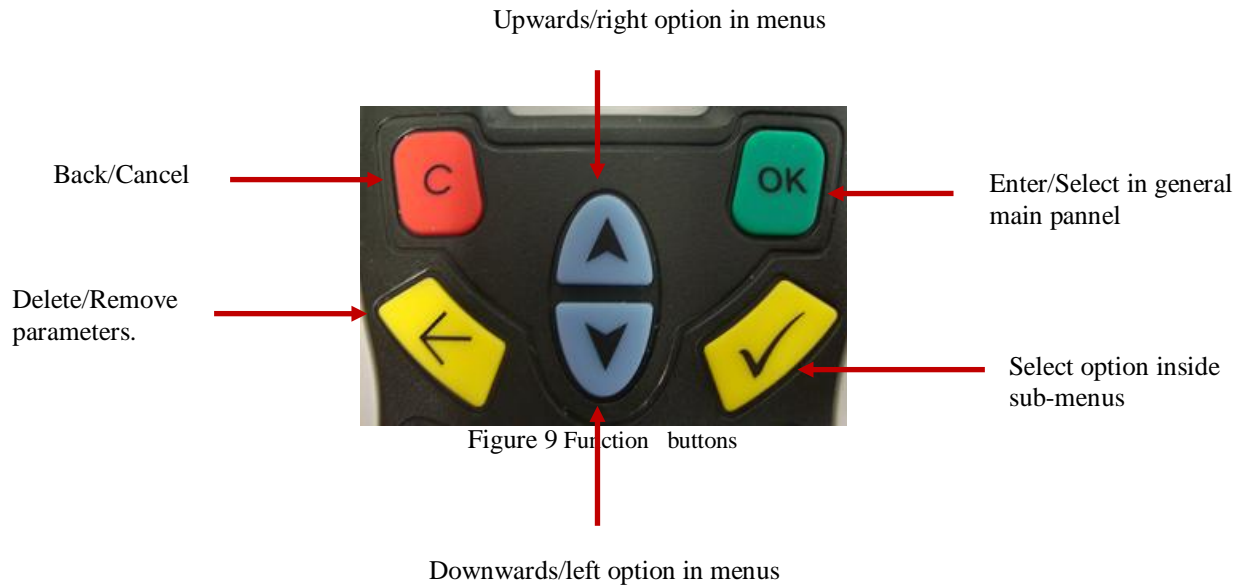
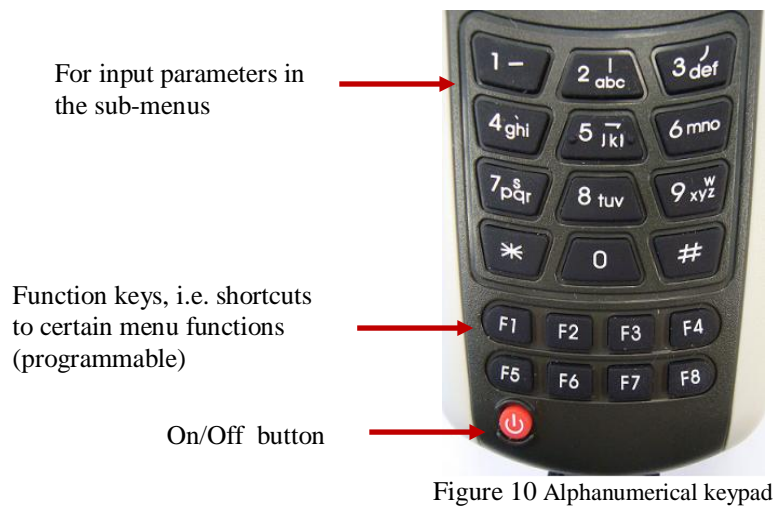


Figure 8 Main menu description

2.2.2 Function buttons



2.2.3 Alphanumeric Keypad










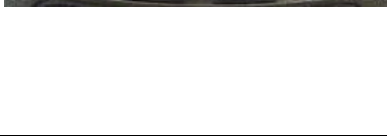


Note: In the next chapter a full description of these functions will be explained

3. USER INTERFACE DESIGN

3.1 Overview

When the Hand Held Terminal (HHT) has been connected successfully to the TQC, the first screen shown is to select configuration. The function keys on the Hand-Held Terminal (HHT) are defined as it follows;

Key	Symbol	Description
C		No save and Return higher level
OK		Confirm and Return higher level
SEL		a) Select/unselect checkbox, select radio-box b) Start Modify parameter c) Enter sub-level
DEL		Delete one character
UP		a) Move up b) Move right c) Up scroll the parameter list d) Next Record number
DOWN		a) Move down b) Move left c) Down scroll the parameter list d) Previous Record number
*		Switch among 123/ABC/abc Go to next field (example IP address input)
On/Off		Turn on/off the Hand-Held Terminal(HHT)
F1-F4		These are shortcuts to often used submenus (programmable). Examples: F1: Operation: Just stop F2: Recall X transaction menu. F3: Operation: Preset amount F4: Operation: Preset volume
F5-F8		F5: Operation: Preset clear. F6: Operation: request current trans. F7: Operation: change shift F8: Toggle Infrared or Serial Communication



3.2 Operating with the Hand-Held terminal (HHT)



3.2.1 Information on the Screen (Dot Matrix display)



Every screen on the Hand Held terminal (HHT) can display eleven rows, and support up/down scrolling line. When there are more than eleven rows shown, the following symbol [OK1/2] will tell the user the amount of pages that are currently viewed by the user at that specific moment in the menu. In this case it has 2 pages.

Hand Held Terminal (HHT) Screen Panel

Infrared signal	Battery
Main Menu	
1 Operation	
2 Management	
3 Maintenance	
4 Configuration	
5 Setup	
6 Quit	
7.....	
8.....	
↑↓ num, press OK1/2	← 1 Page of 2
9.....	
↑↓ num, press OK2/2	← 2 Page of 2

3.2.2 Select an option in the Menu


When the symbols [↑] or [↓] are present in the screen, it meets vertical single-choice or multiple-choices in the Hand Held Terminal menu, the user will be able to select the choices by scrolling UP [] or DOWN [] from the Hand Held Terminal (HHT). It is also possible to press the number of the menu.

The user could select the item requested by pressing the key SEL [] on the Hand Held Terminal. At last the user must then press the key OK [] in order to be recognized by the system.

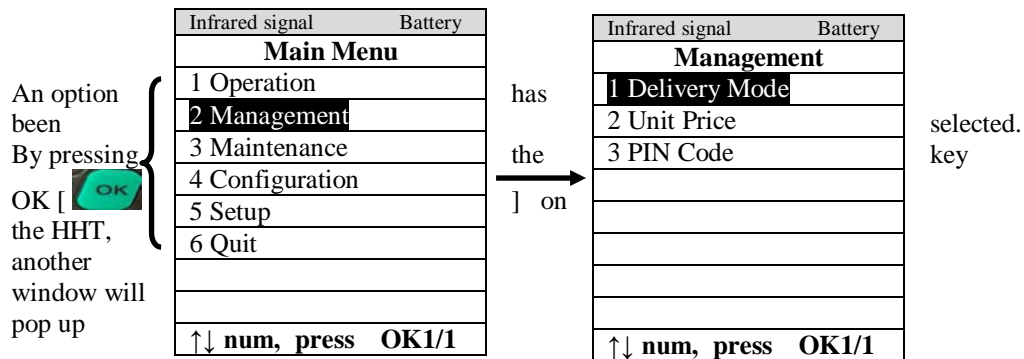
Example;

Hand Held Terminal (HHT) Screen Panel

Infrared signal	Battery
Main Menu	
1 Operation	
2 Management	
3 Maintenance	
4 Configuration	
5 Setup	
6 Quit	
↑↓ num, press OK1/1	

By scrolling key [] options menu the HHT device { with up/down from DOWN [↓]

UP [↑] or



3.2.3 Operations Menu Architecture



The sign '⊙' is used to denote single choice , while the sign '□' is used to denote multi choice.

The **SEL key** is used to toggle the active choice.

3.2.4 Operating distance conditions with the Hand Held terminal

Operating the TQC with HHT can be done at a distance of max. 2 meters at an angle of 0° to max. 15° in all directions except above. Note that the HHT has to be aimed to the display receiver. Operating at angles to 30° decreases the distance to approx. 1 meter. The user might look the communication status on the HHT upper left corner indicator.



4. MENU organisation

The current TQC system defines two methods of gaining access to menu's, PIN only or white-list. Marketing defines which access type is to be used on dispensers. In the menu descriptions of Chapter 5 it will be stated when the menu's are different per access type.

4.1 PIN only access type

The "PIN Only" access method is used in all TQC systems up till now. It allows the user to enter the configuration menus and enter a PIN code to gain access to a certain level of menu's. When this PIN is validated, the user also has access to all lower levels menus as well (without the need to enter a PIN for those menus). Higher level menu's still require entering the appropriate PIN for accessing that level.

When leaving the menu session, all access rights are automatically reset again.

These are the different user levels in the menu of the Hand Held Terminal:

Operation (Lowest level)

This menu is basically for reading transactions and totals of the system

Management

This menu is meant for setting up the Delivery mode (Connected or Standalone), Unit price of the products

Maintenance

This menu is meant to do all kind of diagnostic of the system and check the current status of the TQC system as well.

Configuration

This menu can configure the whole system, timers, communication, vapour recovery, Electronic calibration, etc.

Setup (Highest level)

More advance & legally relevant configuration setup system. To change parameters in these menu's, the coldstart switch needs to be flipped on & off (seal has to be broken).

A distinct PIN has been defined per menu level. This PIN is always 6 numeric digits and can be changed per menu level (except for the operation level).

The initially shown menu for PIN only is:

Infrared signal	Battery	Remark
OK: Configuration		The user may press OK key to enter configuration, or select one of functional keys to realize his operation.
F1:		
F2:		Product totals to display on the VGA screen (for LCD screens it states Prohibit Configure denoting no handling implemented) When the Lifetime Totals optional function is set to enabled, pressing this option will show menu
F3: VGA Totals		
F4: Lifetime Volume		
F5:		
F6:		
F7:		
F8:		
Press Key	1/1	



When choosing “OK: Configuration”, the menu session is prepared and the main menu is shown.

Infrared signal	Battery	Remark
Main Menu		Main menu access is shown below
1	Operation	Operation (Lowest access level)
2	Management	Management
3	Maintenance	Maintenance
4	Configuration	Configuration
5	Setup	Setup (Highest access level)
6	Quit	Quit
		When the user chooses one menu item, the user should be asked for entering password or PIN code!
↑↓ num, press OK1/1		

With any selection 1-5, the PIN is requested first (if there is no access to the level currently):

123	Battery Level	Remark
		PIN code
		The PIN is numerical and exactly 6 digits. When the user inputs his code, the system shows
		“*” for safety reasons.
	PIN Code: *****	
		Remark: Max. 3 attempts, after this, configuration access is blocked for half an hour. The dispenser can be used for deliveries though.
	Input PIN 1/1	
123	Battery Level	Remark
		When the password is not recognized by the system, an error display message will be shown at the bottom of the screen. The user must press C to exit and retry entering the menu.
	PIN Code: *****	
	PIN Code Error	

4.2 Whitelist access type

The Whitelist access mode is introduced in TQC release 07.004.01 and works a little different compared to PIN only. It requires first choosing a user and filling in the associated PIN before the configuration session can be started. The main menu will then only show the options that user has access to. No PIN codes are asked after that and the PIN for any user can only be changed via an update of the entire whitelist scheme. This can be done in the setup menu (see paragraph 5.5.8.4, requires breaking a seal).



Infrared signal	Battery	Remark
OK: Login		The user may press OK key to enter username & password prior to entering the configuration session, or select one of functional keys to realize his operation. Product totals to display on the VGA screen (for LCD screens it states Prohibit Configure denoting no handling implemented) When the Lifetime Totals optional function is set to enabled, pressing this option will show menu
F1:		
F2:		
F3: VGA Totals		
F4: Lifetime Volume		
F5:		
F6:		
F7:		
F8:		
Press Key	1/1	

When pressing Login, the following screen allows choosing username & entering PIN code of that user:

Infrared signal	Battery	Remark
Login Configuration		The user-name can be selected from a pre-defined list The associated password has to be entered by the user Menu option that can be selected when the password is unknown to the service engineer.
[Choose User]		
Management		
[Enter password]		

Forgot Password		
Press Key	1/1	

When entering an incorrect PIN, this will be prompted. You can choose the PIN entry edit box and enter the correct PIN. When entering three times an incorrect PIN, access to configuration will be blocked for half an hour, the dispenser can be used for deliveries though.

When you need to obtain access to an unfamiliar pump or just forgot your password, the Forgot Password option will be able to help you out:

Infrared signal	Battery	Remark
Login Configuration		The user-name has been set to Forgot Password automatically but another user can still be chosen. The password has to be obtained via your SSD organization Notification that you have to call your SSD back-office to obtain access. The 16-digit alpha-numeric text in the bottom of the HHT screen has to be communicated for the SSD to generate the required PIN code of this user account.
[Choose User]		
Forgot Password		
[Enter password]		

[Forgot Password]		
[Call SSD with code]		
[244D5F3A6E7F8F66]		
Press Key	1/1	



When the logged in user has changeable access to the setup menus, also the seal has to be broken after the PIN is verified for that user. The coldstart switch should be flipped on in the left menu. You can press the 'C' key to omit this but then you enter the configuration with setup readonly rights.

When you switch the coldstart switch in ON position, it should be flipped to off position to avoid getting the pump in coldstart mode when it starts again.

Infrared signal	Battery	Infrared signal	Battery
Setup Authorization		Finish Authorization	
Turn On Cold Start			
Forgot Password		Turn Off Cold Start	
Switch or		Switch	
C to Skip Authoriza-			
Tion			
Standby...	1/1	Standby...	1/1

In both cases above, the user enters the main menu, also when no seal has to be broken (no authorization required):

Infrared signal	Battery	Remark
Main Menu		Main menu access is shown below
1 Operation		Operation (Lowest access level)
2 Management		Management
3 Maintenance		Maintenance
4 Configuration		Configuration
5 Setup		Setup (Highest access level)
6 Quit		Quit
		Only the menu items the user has access to will be shown, the rest will be hidden & renumbered.
↑↓ num, press OK1/1		

No PIN codes will be asked once the menu session is in progress.



4.3 Function key handling:

Function keys can activate functionality outside an actual menu session and therefore do not require access rights to be configured.

4.3.1 VGA Totals

The VGA totals selection will gather all configured totals and display an overview of that on the VGA screen. This functionality has to be activated in the VGA menu's and this menu will only be available when VGA screens are fitted in the dispenser.

4.3.2 Lifetime Volume function

The Lifetime volume will request the current lifetime volume of all meters and display then in a HHT menu:

Infrared signal	Battery	Remark
Lifetime Volume		Menu will show the lifetime total volume per meter / pulser
Meter: Volume		
1: xxxxxxxx,xx		Lifetime volume of meter 1
2: No answer		No answer received from pulser at meter 2
3: CRC mismatch		Illegal response from pulser received at meter 3
4: No data		Unexpected response data from pulser received
Press C when done		Return to the regular initial menu (see above)



5. Menu details

Infrared signal	Battery	Remark
Main Menu		Operation:
1	Operation	See 5.1
2	Management	See 5.2
3	Maintenance	See 5.3
4	Configuration	See 5.4
5	Setup	See 5.5
6	Quit	See 5.6
↑↓ num, press OK1/1		

For whitelist access, the menu's where no access is allowed to are hidden. All other menu options are renumbered.

5.1 Operation

Infrared signal	Battery	Remark
Operation		Operation
1	Totals	See 5.1.1
2	Read Transaction	See 5.1.2
↑↓ num, press OK1/1		

5.1.1 Totals

Infrared signal	Battery	Remark
Totals Per		Totals Per
⊙	Dispenser	Dispenser: Totals for all FIPs (see 5.1.1.1)
⊙	Pump x	Pump: Selects one of the available FIPs (see 5.1.1.2)
□	Prod Product x	Prod: Product "x" is a default product name, once the name is defined differently it will appear that way, i.e like "Diesel". (see 5.1.1.3)
[Grouped By]		
⊙	Grand	Grand: Includes both delivery modes(Standalone/connected) on "Totals Per"
⊙	Connected	Connected: Shows Totals Connected to Cash register
⊙	Standalone	Standalone: Shows Totals Not connected to Cash register
⊙	Meter	Meter: Shows totals per meter
↑↓ SEL to input 1/1		



5.1.1.1 Totals per Dispenser

Infrared signal	Battery	Remark
Total		Total
Amount: 14,67		Total amount: The total amount delivered on this dispenser.
Volume: 13,20		Volume: Total volume delivered on this dispenser The volume unit, is either Liter or US Gallon
TC Vol.: 0,00		TC Vol: Temperature Compensated Volume is to correct the (EC corrected) Raw volume against normalized 15 degrees thermal expansion
EC Vol.:0,00		EC Vol: Electronic (meter) Calibration to correct measurement failures of the meter, will be applied first to correct the Raw Volume
Num of Deliveries		Total number of deliveries for this dispenser
↑↓ Page	1/1	

5.1.1.2 Totals per Pump

Infrared signal	Battery	Remark
Total		Total per pump
Amount: 14,67		Total amount: The total amount delivered on this filling position.
Volume: 13,20		Volume: Total volume delivered on this filling position The volume unit, is either Liter or US Gallon
TC Volume: 0,00		TC Vol: Temperature Compensated Volume is to correct the (EC corrected) Raw volume against normalized 15 degrees thermal expansion
EC Volume:0,00		EC Vol: Electronic (meter) Calibration to correct measurement failures of the meter, will be applied first to correct the Raw Volume
Num of Deliveries		Total number of deliveries for this dispenser
Num of 0 deliveries		Total Number of zero deliveries
0 Deliveries Vol.		Total delivered volume in zero-deliveries
Hose expansion Vol		
Preset Overshoot Vol		
Cents overshoot Vol		
Idle Vol		
Leak Vol.		



5.1.1.3 Totals per product

Infrared signal	Battery	Remark
Meter Total		Product Total
Meter : 1		Meter number
Amount: 14,67		Total amount: The total amount delivered on this meter/product position.
Volume: 13,20		Volume: Total volume delivered on this meter/product The volume unit, is either Liter or US Gallon
TC Vol.: 0,00		TC Vol: Temperature Compensated Volume is to correct the (EC corrected) Raw volume against normalized 15 degrees thermal expansion
EC Vol.:0,00		EC Vol: Electronic (meter) Calibration to correct measurement failures of the meter, will be applied first to correct the Raw Volume
Num of Deliveries		Total number of deliveries for this meter
↑↓ Page	1/1	

5.1.2 Read Transaction

Infrared signal	Battery	Remark
Query Transaction		Query Transaction.
<input type="checkbox"/> Date		Date: Identifies the date of the transactions to be shown. The format is yy.yy.mm.dd
<input type="checkbox"/> FIP x		FIP: Identifies of which FIP the transactions must be shown
<input type="checkbox"/> Prod Product x		Prod Product: Identifies the product of which the transactions need to be shown.
		See 5.1.2.1 for details
↑↓ SEL to input	1/1	

5.1.2.1 Transaction details

Date

Infrared signal	Battery	Remark
Transaction		Transaction.
15 records num: 1		15 is the total number of transactions. 1 is the specific record number
SN:0044		SN: Transaction number
Date 2009-01-02		Date: Shows the date of the transaction
Time Start:22:33:07		Time Start: The time it started the transaction
Time Stop:22:33:19		Time Stop: The time it stopped the transaction
Nozzle ID:1		Nozzle ID: Shows the Nozzle ID number
Error Code:0		Error Code: Error number, if any otherwise 0
D. Mode: Standalone		Delivery Mode: It shows either Standalone or connected. In this example: standalone.
↑↓ Page	1/3	



Date

Infrared signal	Battery	Remark
Transaction		Transaction
15 records num: 1		Current record
Volume: 13,20		Volume: Shows the price per selected volume unit, i.e Liter, US Gallon
Amount: 14,67		Amount: The price to pay in the selected currency
Unit Price: 1,111		Unit Price: Shows the liter price
M1 Vol: 13,20		M1 Vol: Meter1 Volume
M2 Vol: 0,00		M2 Vol: Meter 2 Volume
Raw Vol: 13,20		Raw Vol: The measured volume without Temperature compensation and Electronic calibration.
↑↓ Page	2/3	

Date

Infrared signal	Battery	Remark
Transaction		Transaction
15 records num: 1		Current record
Ave Temp.: 15,00		Ave Temp: The average Temperature during this transaction
TC Vol.: 0,00		TC Vol: Temperature Compensated Volume is to correct the (EC corrected) Raw volume against normalized 15 degrees thermal expansion
EC Vol.: 0,00		EC Vol: Electronic (meter) Calibration to correct measurement failures of the meter, will be applied first to correct the Raw Volume
Max Flow: 48,04		Max Flow: Shows the maximum flow rate during this transaction
Ave Flow: 48,02		Ave Flow: Shows the average flow rate during this transaction
↑↓ Page	3/3	



5.2 Management

Infrared signal	Battery	Remark
Management		Management
1 Delivery Mode		See 5.2.1
2 Unit Price		See 5.2.2
3 VGA Audio		See 5.2.3, only when VGA screen(s) are used
4 PIN Code		See 5.2.4, only for “PIN Only” access type
		When options are not applicable, they are hidden.
↑↓ num, press OK1/1		

5.2.1 Delivery mode

Infrared signal	Battery	Remark
Delivery Mode		Delivery Mode:
[Pump 1 2 3 4]		Only the available Pumps can be toggled between connected mode and standalone.
Connected <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Connected mode: (checked) Dispenser is controlled via POS
		Standalone: (unchecked)dispenser is in standalone mode, not controlled via POS.
		Note: The Pump configuration 1,2,3,4 (4-active hose)
↑↓ SEL to input 1/1		

5.2.2 Unit Price

Infrared signal	Battery	Remark
Unit Price		Unit Price
1 Standalone Mode		See 5.2.2.1
2 Connected Mode		See 5.2.2.2
↑↓ num, press OK1/1		

5.2.2.1 Standalone Mode

Infrared signal	Battery	Remark
Standalone Mode		Standalone Mode Prod: Product “x” is a default product name, once the name is defined differently it will appear that way, i.e like “Diesel”. Price: It can be customized to the value the user wants to set. This value will be shown at the dispenser display.
Prod: Product 1		
Price: 1,800		
↑↓ SEL to input 1/1		



5.2.2.2 Connected mode

Infrared signal	Battery	Remark
Connected Mode		Connected Mode
Prod: Product 1		Prod: Product “x” is a default product name, once the name is defined differently it will appear that way, i.e like “Diesel”. Price: It can be customized to the value the user wants to set. This value will be shown at the dispenser display
Price: 1,800		
↑↓ SEL to input 1/1		

5.2.3 VGA Audio

This menu will only be shown when VGA screens are used. It contains only the audio settings from menu 5.4.16.1. It will be available in TQC version 06.xxx.xx & 07.004.01 and later.

Infrared signal	Battery	Remark
FIP: A		VGA: Selects one of the VGA's [A..D]
Audio Volume(%):100		Audio Menu
Test <input type="radio"/> On <input checked="" type="radio"/> Off		Volume in Percentage [0..100]
		Audio Volume Test. Start/Stop volume testing.
↑↓ SEL to input 1/1		

5.2.4 PIN Code

This menu will only be shown for PIN Only access type.
When using whitelist access type, this menu is not used.

Infrared signal	Battery	Remark
PIN Code		PIN Code. It shows two option Level PIN Codes
1 Level 1 PIN		See 5.2.3.1
2 Level 2 PIN		See 5.2.3.2
↑↓ num, press OK1/1		



5.2.4.1 Level 1 PIN

This menu will only be shown for PIN Only access type.
When using whitelist access type, this menu is not used.

Infrared signal	Battery	Remark
Level 1 PIN Code		Level 1 PIN code
[Enter New Pin]		[Enter New Pin]
*****		The PIN Code must be typed here
[Re-Enter New Pin]		[Re-Enter New Pin]
*****		Confirm the new PIN code
↑↓ SEL to input 1/1		

5.2.4.2 Level 2 PIN

This menu will only be shown for PIN Only access type.
When using whitelist access type, this menu is not used.

Infrared signal	Battery	Remark
Level 2 PIN Code		Level 2 PIN code
[Enter New Pin]		[Enter New Pin]
*****		The PIN Code must be typed here
[Re-Enter New Pin]		[Re-Enter New Pin]
*****		Confirm the new PIN code
↑↓ SEL to input 1/1		

5.3 Maintenance

Infrared signal	Battery	Remark
Maintenance		Maintenance
1 Dispenser Status		See 5.3.1
2 Diagnostic Info		See 5.3.2
3 Journal Info		See 5.3.3
4 Dispenser Test		See 5.3.4
5 Backup		See 5.3.5
6 PIN Code		See 5.3.6, only for "PIN Only" access type
↑↓ num, press OK1/1		When options are not applicable, they are hidden.

5.3.1 Dispenser status (TQC software release 07.005.00 or newer)

This shows potential problem areas. In case a filling position is blocked the menu will show ERR instead of OK. All items that show a different state than OK can be clicked on to get a sub-menu showing more details and to unblock / reset that problem situation. The unblocking option is not always possible though.

All items that are problematic are stated on top to also draw the user's attention and to prevent having to scroll lots of items down.

Infrared signal	Battery	Remark
Dispenser Status		Dispenser Status:
Motor Protect	ERR	Motor Protection problems (see 5.3.1.1)
Valve Protect	ERR	Valve Protection problems (see 5.3.1.2)
Zero Trans	ERR	Zero transactions errors (see 5.3.1.3)
Leak Error	ERR	Leak detection errors (see 5.3.1.4)
Slow Flow	ERR	Slow Flow errors (see 5.3.1.5)
Preset Overrun	ERR	Preset Overrun errors (see 5.3.1.6)
VR	ERR	VR (see 5.3.1.7)
CAN Module	ERR	CAN Module problems: (see 5.3.1.8)
Dispenser Block	ERR	Whole dispenser is blocked (see 5.3.1.9). If not the whole dispenser is blocked, this option is hidden (see below)
Fip Block	ERR	Fip Block status (see 5.3.1.10) This status will show MAN when the user chose to block at least one FIP. This menu is hidden when different problems are reported per nozzle (see below)
Nozzle Block	ERR	A single nozzle is blocked or different nozzles have different block reasons (see 5.3.1.11) This option is hidden when dispenser- or FIP- wide problems are detected.
Integrity CAN/APP/ERR		Modules having an integrity error: CAN = Only CAN module(s), APP = Only Application module(s), ERR = Mix of CAN and Application modules (See 5.3.1.11.2)
[End of List]		Last entry indicator
↑↓ num, press OK1/1		

Compared to older TQC software releases:

- 1) The Integrity menu now shows an overview of problematic modules. SD card integrity binding can only be done via Dispenser Block menu if the SD card integrity is not bound to this calculator.
- 2) VR Motor Protect menu is integrated in the regular 'Motor Protect' menu
- 3) VR Valve Protect menu is integrated in the regular 'Valve Protect' menu
- 4) Only problematic states are shown in this menu, all items that are OK are not shown



5.3.1.1 Motor Protection

Infrared signal	Battery	Remark
Motor Protection		Motor Protection details
Pump: 1		FIP: Selects one of the available FIPs where motor problems have been detected on. This may result in not all FIPs to be selectable, meaning the FIPs that can't be selected do not have problematic motors. Motor: "x" is the product number of the motor that has a protection problem (More as 4 times occurred which blocks the FIP). Only problematic motors are selectable, including the VR motor using Motor indication 'Vapor'. Select reset to remove blocking Counter (x) for over and under current detection of primary motor Counter (x) for over and under current detection of secondary motor
Motor: 1		
Reset		
[over under]		
Pri: 1 4		
Sec: 1 1		
↑↓ SEL to input	1/1	

Infrared signal	Battery	Remark
Motor Protection		Motor Protection details
Pump: 1		FIP: Selects one of the available FIPs where motor problems have been detected on. This may result in not all FIPs to be selectable, meaning the FIPs that can't be selected do not have problematic motors. Motor: Here the Vapor motor is selected, having a problem. Select reset to remove blocking Problem kind of the Vapor motor
Motor: Vapor		
Reset		
[Vapor]		
OVERCURRENT		
↑↓ SEL to input	1/1	

Every time a reset is performed, the status of that FIP / VR is refreshed and the list of problematic motors is updated, automatically focussing on the next problematic motor. When all motor errors are solved, the menu refreshes into the dispenser main menu (see 5.3.1) where the motor protection indication will be set to 'OK'.

5.3.1.2 Valve protection

Infrared signal	Battery	Remark
Valve Protection		Valve Protection details
Pump:1		FIP: Selects one of the available FIPs where valve problems have been detected on. This may result in not all FIPs to be selectable, meaning the FIPs that can't be selected do not have problematic valves. Valve: "x" is the product number of the motor that has a protection problem (More as 4 times occurred which blocks the FIP). Only problematic valves are selectable, including the VR flow valve using Valve indication 'Vapor'. Select reset to remove blocking Counter (x) for over and under current detection of main valve Counter (x) for over and under current detection of master valve Counter (x) for over and under current detection of slave valve
Valve: 1		
Reset		
[over under]		
Main: 1 4		
Master: 1 4		
Slave: 1 1		
↑↓ SEL to unblock	1/1	



Infrared signal	Battery	Remark
Valve Protection		Valve Protection details
Pump:1		FIP: Selects one of the available FIPs where valve problems have been detected on. This may result in not all FIPs to be selectable, meaning the FIPs that can't be selected do not have problematic valves.
Valve: Vapor		Valve: Here the Vapor flow valve is selected, having a problem. Select reset to remove blocking
Reset		
[Vapor]		
UNDERCURRENT		Problem kind of the Vapor flow valve.
↑↓ SEL to unblock 1/1		

Note problems of the VR return valves (when applicable) are reported in the VR menu, not here

Every time a reset is performed, the status of that FIP / VR is refreshed and the list of problematic valves is updated, automatically focussing on the next problematic valve. When all valve errors are solved, the menu refreshes into the dispenser main menu (see 5.3.1) where the valve protection indication will be set to 'OK'.

5.3.1.3 Zero transaction

Infrared signal	Battery	Remark
Zero Transaction		Zero Transaction details
[Nozzle – Count]		Display a list of Fip – Nozzle combinations that have had zero transactions since the last unblock or system startup. Clicking each list item will unblock that error After resetting the last zero transaction, the main dispenser status menu will show with indication ‘OK’ for Zero Transaction
A1 – 7 times		
B3 – 3 times		
↑↓ SEL to unblock 1/1		

5.3.1.4 Leak error

Infrared signal	Battery	Remark
Leak Error		Leak Error details
[Nozzle – Count]		Display a list of Fip – Nozzle combinations that have had leak errors since the last unblock or system start-up.
A2 – 7 times		Clicking each list item will unblock that error
		After resetting the last leak error, the main dispenser status menu will show with indication ‘OK’ for Leak Error
↑↓ SEL to unblock 1/1		

Note: A leak error on a single product can cause the entire FIP to get blocked. In this case, the other nozzles (on which no leak was detected) need to be unblocked separately. This will be shown in the Dispenser Status main menu (See 5.3.1) at option Nozzle Block (See 5.3.1.11).



5.3.1.5 Slow flow

Infrared signal	Battery	Remark
Slow Flow		Slow flow details
[Slow Flow]		Clicking each list item will unblock that error After resetting the last slow flow error, the main dispenser status menu will show with indication 'OK' for Slow Flow
A1 SLOW FLOW		
B4 SLOW FLOW		
↑↓ SEL to unblock 1/1		

5.3.1.6 Preset overrun

Infrared signal	Battery	Remark
Preset Overrun		Preset Overrun details
A1 PRESET OVERRUN		Clicking each list item will unblock that error After resetting the last preset overrun error, the main dispenser status menu will show with indication 'OK' for Preset Overrun
B3 PRESET OVERRUN		
↑↓ SEL to unblock 1/1		

5.3.1.7 VR

Infrared signal	Battery	Remark
VR		Non motor or flow-valve related VR errors
[Nozzle – Error]		Show a list of errors per nozzle The VR system block timer is running (all nozzles of that side) VR return valve over-current detected The block timer of this nozzle is running due to the error above (LED on the CSD is red) After resetting the last VR error, the main dispenser status menu will show with indication 'OK' for VR
B TIMER RUNNING		
B3 UST OC ERROR		
B3 NZL BLOCK TMR		
↑↓ SEL to input 1/1		

Note: In the example, nozzle B3 has two entries. When clearing one of these list entries, all errors related to that nozzle will be unblocked.

Note: VR Return valves are connected to HYMs. There is one over- and under- current detection per side of the HYM. The problem might therefore also be in one of the hydraulic valves.

5.3.1.7.1 Error Examples

Possible diagnostics of the errors shown:

Motor Protect: a motor undercurrent has occurred. Possible reasons:

- Motor thermal protection has tripped
- circuitry inside the motor

Valve Protect: a valve undercurrent has occurred. Possible reasons:

- Coil damaged
- Cable disconnected

Zero transactions: the maximum number of zero transactions has been reached.

Leak detection:

- At the start of each delivery, a leak test is started via a request from the Kiosk.



Slow Flow:

- Flow is below minimum defined flow.

Preset Overrun:

- Flow above defined preset value

Fip Block

- Status / selection Fip Block

VR motor Protect: a motor undercurrent has occurred. Possible reasons:

- Motor thermal protection has tripped
- circuitry inside the motor

VR valve protect: a valve undercurrent has occurred. Possible reasons:

- Coil damaged
- Cable disconnected

VR: other VR problem

5.3.1.8 CAN module

Infrared signal	Battery	Remark
CAN module		CAN Module problems per module This menu only displays a list that currently administrates as being problematic. Check the wiring and CAN bus termination. An auto-configure may help solve this problem. If the problem persists, the device may need to be replaced.
[Module - Problem]		
Display_A_Master		
DISCONNECTED		
Pulser A1		
DISCONNECTED		
HYM 1		
DISCONNECTED		
[End of List]		
↑↓ SEL to input 1/1		

5.3.1.9 Dispenser block

Infrared signal	Battery	Remark
Unblock		Dispenser Block details
[Dispenser]		Shows the pump-number and the block reason per pump-number
INTEGRITY PROBLEM		Click to view details (See 5.3.1.11.2)
SD INTEGRITY BLOCK		Unblock / Bind the SD card to this dispenser (See 5.3.1.11.1)
		After resetting the last dispenser scope blocking error, the main dispenser status menu will be shown where the Dispenser Block option will be hidden.
↑↓ SEL to unblock 1/1		

5.3.1.10 FIP block

Unblocking FIP Problems:

Infrared signal	Battery	Remark
Unblock		Fip Block problem details
[FIP Problem]		Show a complete list of current pump blocking problems There is currently no FIP blocking reason other than the manual block defined.
3 (Block reason)		
4 (Block reason)		
↑↓ SEL to unblock 1/1		

Manual blocking a FIP:



Infrared signal	Battery	Remark
Manual Block		Fip Manual Block usage overview
[FIP Usage]		Per pump number, it can be chosen to normally use or to block this pump / FIP
3 - ☉ Used ○ Block		
4 - ☉ Used ○ Block		
↑↓ Choose Usage	1/1	

Note: This functionality is only used in China. For other global regions, this menu is hidden.

5.3.1.11 Nozzle block

Infrared signal	Battery	Remark
Unblock		Nozzle / Product Block details
[Nozzle or Product]		
A1 Zero transaction		Clicking this block reason will open a sub-menu showing all zero-transaction counters per nozzle. This sub-menu also allows unblocking all errors from this menu.
A3 Slow Flow		Clicking this block reason will open a sub-menu showing all slow flow counters per nozzle. This sub-menu also allows unblocking all errors from this menu.
B1 EMT broken		Unblocks this error immediately
P4 Leak error		Clicking this block reason will open a sub-menu showing all leak counters per nozzle. This sub-menu also allows unblocking all errors from this menu (The prefix P denotes 'Product').
P5 Current		Clicking this block reason will open a sub-menu showing all over- and under-current counters per nozzle. This sub-menu also allows unblocking all errors from this menu (The prefix P denotes 'Product').
↑↓ SEL to unblock	1/1	

Note: When unblocking problems in a sub-menu, they will no longer be listed in this menu any more. When all block conditions are solved, the dispenser status main menu will be shown where the Nozzle block menu will be hidden and the Fip Block menu will be available for manual blocking.

5.3.1.11.1 Bind SD card integrity

Infrared signal	Battery	Remark
Integrity		Integrity
[Press]		Leave the situation as it is now Bind the SD card to this calculator
C to Cancel		
OK to Bind SD card		
[Eject card and]		
OK to Reset Error		Remove the SD card and unblock the situation. Not removing the card will also bind it to this calculator.
↑↓ SEL to input	1/1	

Note: When this menu is shown, it is safe to eject / insert the SD card without generating additional errors.

5.3.1.11.2 Integrity

Infrared signal	Battery	Remark
Integrity		Integrity
[Module – Problem]		
HYM 1 <i>problem</i>		Peripheral module that has a problem: The problem-field describes the reason of the integrity problem. This may occur when an interchanged (e.g. pulser) device is changed. It is needed to accept this change to unblock the dispenser. It is possible to have multiple problems for the same module. Unblocking of Peripheral integrity must be done per module by clicking OK on the selected Module.
Login Setup RW to		Text to state the user has to login with Setup RW access (flip coldstart switch) before the unblock applications option becomes available.
Accept Applications		One global option to only unblock all Application modules. (Can only be used when the user logs in with Setup RW access).
[ProcessMgr.Arm] <i>Problem</i>		Non-peripheral that has a problem: The problem-field describes the reason of the integrity problem. If this occurs, fraud has been detected. Be aware of this before accepting these changes in the system.
[Module-name] CHECKSUM		The software checksum is different than the previous one.
[Module-name] SW VERSION		The software version is different than the previous one.
[Module-name] SERIAL		The hardware serial number is different than the previous one.
[Module-name] HW VERSION		The hardware version is different than the previous one.
[Module-name] UNEXPECTED		This device is seen on the CAN bus but is not expected to be present in e.g. a 2-hose dispenser.
[Module-name] NOT PRESENT		This device is expected to be connected& operational but it is not. You will probly also find this device in the list of problematic CAN modules.
[End of list]		This line indicates the end of the list.
↑↓ SEL to input 1/1		

5.3.2 Dispenser status (TQC software release up to 07.005.00)

This shows potential problem areas. In case a filling position is blocked the menu will show ERR instead of OK. All items that show a different state than OK can be clicked on to get a sub-menu showing more details and to unblock / reset that problem situation. The unblocking option is not always possible though.

Infrared signal	Battery	Remark
Dispenser Status		Dispenser Status:
Motor Protect	OK	Motor Protection problems (see 5.3.1.1)
Valve Protect	OK	Valve Protection problems (see 5.3.1.2)
Zero Trans	OK	Zero transactions errors (see 5.3.1.3)
Leak Error	OK	Leak detection errors (see 5.3.1.4)
Slow Flow	OK	Slow Flow errors (see 5.3.1.5)
Preset Overrun	OK	Preset Overrun errors (see 5.3.1.6)
Fip Block		Fip Block status / selection (see 5.3.1.7)
VR Motor Protect	OK	VR motor protection problems (see 5.3.1.8)



VR Valve Protect	OK	VR valve protection problems (see 5.3.1.9)
VR	OK	VR (see 5.3.1.10)
CAN Module	OK	CAN Module problems: (see 5.3.1.11)
Integrity	OK	Integrity problems (see 5.3.1.12)
↑↓ num, press	OK1/1	

5.3.2.1 Motor Protection

Infrared signal	Battery	Remark
Motor Protection		Motor Protection
Pump:1		FIP: Selects one of the available FIPs
Motor 1		Motor: Motor “x” is product number of the motor have a protection problem (More as 4 times occurred which blocks the FIP)
Reset		Select reset to remove blocking
[over under]		
Pri: 1 4		Counter (x) for over and under current detection of primary motor
Sec: 1 1		Counter (x) for over and under current detection of secondary motor
↑↓ SEL to input	1/1	

5.3.2.2 Valve protection

Infrared signal	Battery	Remark
Valve Protection		Valve Protection
Pump:1		FIP: Selects one of the available FIPs
Valve 1		Valve: Valve “x” is product number of the valve have a protection problem (More as 4 times occurred which blocks the FIP)
Reset		Select reset to remove blocking
[over under]		
Master: 1 4		Counter (x) for over and under current detection of master valve
Slave: 1 1		Counter (x) for over and under current detection of slave valve
↑↓ SEL to input	1/1	

5.3.2.3 Zero transaction

Infrared signal	Battery	Remark
Zero Transaction		Zero Transaction
Pump:1		FIP: Selects one of the available FIPs
Prod: Product 1		Prod: Product “x” is a default product name,once the name is defined differently it will appear that way, i.e like “Diesel”..
Zero Trans:		Number of zero transaction
Reset		Select reset to set to zero (= unblocked)
↑↓ SEL to input	1/1	

5.3.2.4 Leak error

Infrared signal	Battery	Remark
Leak error		Leak Error
Pump:1		FIP: Selects one of the available FIPs
Prod: Product 1		Prod: Product “x” is a default product name,once

	the name is defined differently it will appear that way, i.e like "Diesel"..
Leak error:	Number of leak errors
Reset	Select reset to set to zero (= unblocked)
↑↓ SEL to input 1/1	

5.3.2.5 Slow flow

Infrared signal	Battery	Remark
Slow flow		Slow flow
Pump:1		FIP: Selects one of the available FIPs
Prod: Product 1		Prod: Product "x" is a default product name,once the name is defined differently it will appear that way, i.e like "Diesel"..
Slow Flow:		Number of Slow flow errors
Reset		Select reset to set to zero (= unblocked)
↑↓ SEL to input 1/1		

5.3.2.6 Preset overrun

Infrared signal	Battery	Remark
Preset Overrun		Preset Overrun
Pump:1		FIP: Selects one of the available FIPs
Prod: Product 1		Prod: Product "x" is a default product name, once the name is defined differently it will appear that way, i.e like "Diesel"..
Preset overrun:		Number of overrun errors
Reset		Select reset to set to zero (= unblocked)
↑↓ SEL to input 1/1		

5.3.2.7 FIP block

Infrared signal	Battery	Remark
Fip Block		Fip Block
Pump:1		FIP: Selects one of the available FIPs
Prod: Product 1		Prod: Product "x" is a default product name,once the name is defined differently it will appear that way, i.e like "Diesel".. It is also possible to select all products.
Fip Block:		
UNBLOCKED		Status: UNBLOCKED / BLOCKED
Manual Block		Selection: Manual Block / Unblock
↑↓ SEL to input 1/1		



5.3.2.8 VR motor protection

Infrared signal	Battery	Remark
VR motor Protection		VR motor Protection
Pump:1		FIP: Selects one of the available FIPs
Reset		
↑↓ SEL to input 1/1		Select reset to remove blocking

5.3.2.9 VR valve protection

Infrared signal	Battery	Remark
VR valve Protection		VR valve Protection
Pump:1		FIP: Selects one of the available FIPs
Reset		
↑↓ SEL to input 1/1		Select reset to remove blocking

5.3.2.10 VR

Infrared signal	Battery	Remark
VR		VR
[Pump 1]		FIP: Selects one of the available FIPs
Error		
Reset		
↑↓ SEL to input 1/1		RESET: Resets The Motor protection.

5.3.2.10.1 VR error Examples

Possible diagnostics of the errors shown:

Motor Protect: a motor undercurrent has occurred. Possible reasons:

- Motor thermal protection has tripped
- circuitry inside the motor

Valve Protect: a valve undercurrent has occurred. Possible reasons:

- Coil damaged
- Cable disconnected

Zero transactions: the maximum number of zero transactions has been reached.

Leak detection:

- At the start of each delivery , a leak test is started via a request from the Kiosk.

Slow Flow:

- Flow is below minimum defined flow.

Preset Overrun:

- Flow above defined preset value



Fip Block

- Status / selection Fip Block

VR motor Protect: a motor undercurrent has occurred. Possible reasons:

- Motor thermal protection has tripped
- circuitry inside the motor

VR valve protect: a valve undercurrent has occurred. Possible reasons:

- Coil damaged
- Cable disconnected

VR: other VR problem

5.3.2.11 CAN module

Infrared signal	Battery	Remark
CAN module		VR
[Module 1]		Module: Selects a module. Press OK to refresh the menu with the state of the selected device Status of the selected device
Error		
Reset		
↑↓ SEL to input 1/1		RESET: Resets The CAN module error blocking.

5.3.2.12 Integrity

Infrared signal	Battery	Remark
Integrity		Integrity
[New configuration]		Accept changes in configuration
Accept		
[SD Card]		
Bind to this one		Link the current SD card to this dispenser
↑↓ SEL to input 1/1		



5.3.3 Diagnostic Info

Infrared signal	Battery	Remark
Query Diagnostic		Query Diagnostic Retrieve information from the TQC such as diagnostic, errors, Records saved in the system
[Query by]		[Query by]
⊙Error		Error: Diagnostic errors (see 0)
○VR Blocking		VR: VR block timer diagnostic info (see 5.3.2.3)
○VR Deliveries		VR: VR delivery diagnostic info (see 5.3.2.4) Group by Pump is mandatory for this selection (see below).
[Grouped By]		[Grouped By]
<input type="checkbox"/> Pump x		Pump: Selects one of the available FIPs / Pumps
<input type="checkbox"/> Prod Product x		Prod Products: 1,2,3,4. Selection for different fuels such as Diesel, Benzine, Gasoil, Gas.
<input type="checkbox"/> Date		Date: To search diagnostic by date. Not implemented yet
<input type="checkbox"/> Err/Event		Err/Event: To search diagnostic type. Not implemented yet
<input type="checkbox"/> Module		Module: To search diagnostic by different modules, Display, VCC, MPC, etc
↑↓ SEL to input	2/2	

5.3.3.1 Error diagnostics

Infrared signal	Battery	Remark
Error		Error
X record: 1		Record 1 of X
Delete this record		Not yet implemented
Delete Error Table		Not yet implemented
SN:		Sequence number
Module Name:		Name of module causing the error
Error Class : MINOR		MINOR or MAJOR error
Error type: x		Error number
Error detail:		Textual detail of this error.
Total:		How often did this specific error occur
FIP id:		On which FIP did this error occur.
Prod ID:		Which Product was in use when this error occurred
Data:		Date of error occurrence
Time:		Time of error occurrence



5.3.3.2 VR Blocking

Infrared signal	Battery	Remark
Vapor Blocking		Block situations
X record: 1		Record 1 of X
Fip: F		Fuelling point F
VR system / Nozzle N		VR system (all nozzles of the displayed FIP) or nozzle N of the displayed FIP
Date: Y		Date the system will / has been blocked
Time: Z		Time the system will / has been blocked
No block situation		This nozzle / FIP is not blocked and no timer is running to block in the near future, Date / Time is not shown.
Bad eff. Count: E		Current number of consecutive bad efficiencies administrated for nozzle N.
Block reason: R		<p>The blocking or block-timer is started due to the reason stated at R:</p> <p>Invalid VR Config: please check the VR configuration</p> <p>No VR hardware: VR configured but no hardware is fitted to serve ECVR</p> <p>Too many bad eff.: Maximum bad efficiency count exceeded for nozzle N</p> <p>Motor OC / UC ID x: VR pump motor Over or Undercurrent of motor x</p> <p>Flow valve OC / UC x: VR proportional valve Over or Undercurrent of valve x</p> <p>OC / UC of UST valve or Ret valve OC / UC: Over or Undercurrent detected at the VR return valve of nozzle N</p> <p>Not calibrated: VR needs to be calibrated prior to use</p>
↑↓ Pre/Next tuple/1		



5.3.3.3 VR Deliveries

Infrared signal	Battery	Remark
Vapor Delivery		Vapor delivery diagnostics information
FIP:	F	Selected FIP the data is shown for
Nozzle:	N	Nozzle that was used for this delivery
Date:		Timestamp the delivery started. Records are sorted latest to oldest.
Time:		
Fuel Volume:		Total fuel volume that was administrated by VR.
Max Fuel Flow:		Maximum fuel flowrate registered during this delivery
Max Aperture:		Largest proportional valve setting used in this delivery. If this value becomes (close to) 255 (max valve setting), it might be that the VR system is no longer capable of having good efficiency at high fuel flows.
The following fields are SCG specific parameters and these are not shown when VR is running in OL mode.		
VCC Efficiency:		Vapor compared to fuel volume efficiency (only in SCG mode). This is calculated as $(vcc\ Vol - vcc\ inv.\ Vol) / (fuel\ Vol - fuel\ inv.\ Vol)$ where the invalid volume is the volume that was measured below 25 l/minute if table was updated. If the table was not updated, the efficiency is calculated as $(vcc\ vol) / (fuel\ vol)$.
VCC Volume:		Total Vapor volume measured by VCC
Max VCC Flow:		Maximum (corrected) VCC vapor flowrate registered
VCC Q-P Ratio:		VCC Flow/Pressure ratio. This ratio over time tells the health of the VR system. When the system is becoming blocked, this ratio will decrease as the pressure will increase. When a leak occurs, the ratio is higher because the pressure is lower.
Table updated:		Status of the delivery and table-updating mechanism: <i>Updated:</i> OK efficiency, so the table was updated <i>Per. control failed:</i> Negative response to VR peripheral control <i>Per. control timeout:</i> Timeout controlling a VR peripheral <i>Peripheral Overcurrent:</i> Overcurrent on a VR peripheral <i>Peripheral Undercurrent:</i> Undercurrent on a VR peripheral <i>VR Return valve closed:</i> VR Return valve closed unintentionally <i>Delivery start fail:</i> Failed to start a VR delivery <i>Open Loop mode:</i> VR is running in Open loop mode (table updating is only possible in SCG mode) <i>Insufficient Volume:</i> Insufficient fuel volume for table updating <i>No SCG samples:</i> Too little high fuel-flow samples to allow the table updating mechanism <i>Bad vapor efficiency:</i> VCC efficiency was out of the accepted range
Bad Eff. Count:		Current bad efficiency counter for this hose after this delivery
SEL to input 1/1		



5.3.4 Journal Info

Infrared signal	Battery	Remark
Journals		Journal
○General		General loggings with 5 different sub ID (see 5.3.3.1)
○EC		Electronic calibration loggings (see 5.3.3.2)
○Function		Function change journal loggings (see 5.3.3.3)
○Unit price change		Unit-price change loggings (see 5.3.3.4)
○Delivery mode change		Delivery mode change loggings (see 5.3.3.5)
○Density change		Density change loggings (see 5.3.3.6)
○Hardware integrity		Hardware integrity loggings (see 5.3.3.7)
○Software integrity		Software integrity loggings (see 5.3.3.8)
○Peripheral integrity		Peripheral integrity loggings (see 5.3.3.9)
○Password change		Password change loggings (see 5.3.3.10)
↑↓ SEL to input 1/1		

5.3.4.1 General journal

Infrared signal	Battery	Remark
General		Journal
X Records: 1		Record 1 of X
UTN		UTN which generated the log
Date		Date of logging
Time		Time of logging
User ID:		ID of logged in user
User Name		Name of logged in user
Sub ID		Currently 5 sub ID's possible: 1 = Start HHT configuration Session, data states menu level entered 2 = End HHT configuration 3 = FIP started 4= FIP suspended 5 = Door open 6 = Coldstart switch change
Journal data		Description of logging
↑↓ SEL to input 1/1		

5.3.4.2 Electronic Calibration journal

Infrared signal	Battery	Remark
EC		Electronic Calibration
X Records: 1		Record 1 of X
UTN		UTN which generated the log
Date		Date of logging
Time		Time of logging
User ID:		ID of logged in user
User Name		Name of logged in user
Meter ID:		ID of calibrated meter
K factor		K factor calculated during this EC
Cum Volume Totals		All totals cumulative



EC volume totals	Volume delivered during EC
↑↓ SEL to input 1/1	



5.3.4.3 Function change journal

Infrared signal	Battery	Remark
Function		Function change journal
X Records: 1		Record 1 of X
UTN		UTN which generated the log
Date		Date of logging
Time		Time of logging
User ID:		ID of logged in user
User Name		Name of logged in user
Product:		Product associated
Meter ID:		Meter ID associated
Function:		Function ID that changed: 1=Electronic Calibration 2=Temperature Compensation
New state:		New state of this function (e.g. Enabled or Disabled)
Text:		Additional textual log remark
↑↓ SEL to input 1/1		

5.3.4.4 Unit price change journal

Infrared signal	Battery	Remark
Unit price		Unit price change journal
X Records: 1		Record 1 of X
UTN		UTN which generated the log
Date		Date of logging
Time		Time of logging
User ID:		ID of logged in user
User Name		Name of logged in user
Nozzle:		Nozzle for which price is changed
Delivery mode		Delivery mode for the changed unit price
Cum Volume Totals		All totals cumulative
New unit price		
↑↓ SEL to input 1/1		

5.3.4.5 Delivery mode change journal

Not yet implemented

5.3.4.6 Density change journal

Not yet implemented

5.3.4.7 Hardware integrity journal

Not yet implemented

5.3.4.8 Software integrity journal

Not yet implemented

5.3.4.9 Peripheral integrity journal

Not yet implemented

5.3.4.10 Password change journal



Not yet implemented

5.3.5 Dispenser Test

Infrared signal	Battery	Remark
Dispenser test		Dispenser Test
1 Functional		See 5.3.4.1
2 VR		See 5.3.4.2
3 Com Board		See 5.3.4.3
↑↓ num, press OK1/1		

5.3.5.1 Functional Test

Infrared signal	Battery	Remark
Functional Test		Functional Test (see 5.3.4.1.1)
[Function]		[Function]
⊙Leak		Leak: Checks for any leakage in the TQC system. For extra info about Leak . Please refer to Functional Specification Chapter 3.16
⊙Sequential Nozzle		Sequential Nozzle : 1,2,3,4
⊙Test Delivery		Test Delivery: Verifies if the nozzle is delivering the petrol
[Setup]		Setup of the test delivery
⊙Time 00:05:00		Time: Set the time to be tested
⊙Amount 1000,00		Or Amount: Set the amount to be tested
⊙Volume 1000,00		Or Volume: Set the volume to be tested
[Pulser Hide]		Pulser hide : Enable or disable
⊙Disabled ⊙Enabled		
[Display Flow Rate]		Display Flow Rate : Enable or disable
⊙Disabled ⊙Enabled		
[Flow Rate Checking]		Flow Rate Checking : Enable or disable
⊙Disabled ⊙Enabled		
[Hose Expansion]		Hose Expansion : Enable or disable
⊙Disabled ⊙Enabled		
↑↓ SEL to input 2/2		

5.3.5.1.1 Test delivery menu

You will be guided via the menus through the various stages of the test delivery.
During the test delivery the following menu will be displayed:

Infrared signal	Battery	Remark
Test ...		Dispenser Test
Pump :		Pump number
Prod:		Product used for test delivery
Max flow Rate:		Max flow during this test delivery
Ave Flow rate:		Average flow rate during this test delivery
Max Fuel Temp		Maximum Fuel temperature during this test delivery
Ave Fuel Temp		Average Fuel temperature during this test delivery



EC vol	Volume delivered with EC
TC Vol	Temperature compensated volume
↑↓ num, press OK1/1	

5.3.5.2 VR test

Infrared signal	Battery	Remark
VR Test		VR Test
☉Dry Test		See 5.3.4.2.1
○Air Tightness		See 5.3.4.2.2
○Leak test		See 5.3.4.2.3
○TuV Test		See 5.3.4.2.4
↑↓ SEL to input 1/1		

5.3.5.2.1 Dry test

Dry Test: Normal vapor delivery with preset values but without fuel. The simulated fuel flow can be set as a constant value during the entire dry test as well as the test time and which product to test. This test will test the quality of the VR calibration.

Infrared signal	Battery	Remark
Dry Test		Dry Test
Test Duration: 60 s		Test Duration: here the value can be set.
↑↓ SEL to input 1/1		

5.3.5.2.2 Air Tightness

Air Tightness: Vapor system and Leakage test, VR Motor & Valves can separately switched on/off/open in order to measure if there are leakages in the VR system. An external gas meter is required for this test. The test will run for a maximum of 5 minutes unless the operator puts the VR motor (off and) on again or (re-)opens the VR valve on all sides the test is being performed

Infrared signal	Battery	Remark
Air Tightness Test		Air Tightness Test:
[Device Control]		Set Motor A-B: Switch motor on/off.
Set Motor A-B On		
Set Valve A Open		Set Valve A: Open/Close.
Set Valve B Open		Set Valve B: Open/Close
[Status Motor Valve]		
FIP A Off Closed		[Status Motor / Valve]
FIP B Off Closed		Shows the status for the Motor / Valve for FIP A and FIP B
↑↓ SEL to input 1/1		



5.3.5.2.3 Leak test

Leak test : The leak test works as an 'automated' air-tightness test, only it does not allow manual switching of valve & motor. It therefore also requires the gallus meter to be connected to the VR outlet and the optical cable to be fitted into the TQC. The leak test is to be run on per FIP, takes 1 minute to complete and has two phases: Start phase, leak test phase.

Infrared signal	Battery	Remark
Leak Test		Leak Test
FIP: x		FIP: Selects one of the available FIPs
Start		Start: Begin diagnosing the system
		Connect Gallus to VR output flange and connect optical cable to TQC.
↑↓ SEL to input 1/1		

Leak Test remarks:

- Starting phase: Allows the system to be sucked vacuum and let the Gallus measure any flow from that. This phase will take 10 seconds in which the vacuum must have been stabilized. During this time, the VR Module allows any gallus flow to be detected (this is ignored but displayed on the HHT). After the expiry of the vacuum stabilizing time, the next phase is initiated:
- Leak test phase: This phase starts with a steady vacuum and will run for 50 seconds, checking if gallus holes are seen. Two gallus holes are allowed to be seen before the error 'leak detected' is generated and the test will immediately stop. If after this time, there is no 'leak' detected, the test finalizes with OK result.

This test will not be able to detect the smallest of leaks as only the holes on the optical wheel of the gallus meter can be used. A leak-flow of roughly 7,5 ml / second or 450 ml / minute might be accepted as OK in this test. An exact figure of this leak flow is hard to give because of a non-linear optical wheel movement and the start position of the disc prior to running the test.

Note: A Gallus meter is always required for this test, the VCC will / cannot be used for leak test purposes for two reasons:

- VCC is not accurate in low-flow conditions having a very low pressure.
- Leaks between VCC and pump will not be seen if the VCC would even be suitable for this purpose.
- Not connecting a Gallus properly will also not detect leaks if there are any.

5.3.5.2.4 TuV test

TuV test: Facilitates testing of administrating bad vapor efficiencies by using temporary parameters for VR nozzle block conditions.

Infrared signal	Battery	Remark
TuV Test		TuV test
FIP: x		FIP: Selects one of the available FIPs, or All Fips
Start		Start: Begin diagnosing the system
↑↓ SEL to input 1/1		



TÜV test remarks:

There's no visual indication that the test is active and it will only be active for the first delivery (or dry test) on that side.

The latest 02 and 03 release also allow to select FIP "All" denoting to run the test on all FIPs with a single HHT action.

Start: Activate TÜV parameters in the selected side. TÜV parameters will set the number of bad efficiencies (before the nozzle block timer is started) temporarily to '1' and the time before that nozzle actually blocks temporarily to 1 minute. In the latest 02 and 03 release it will also clear the bad efficiency counters for all non-blocked VR nozzles.

After pressing "Start", the menu traverses to a menu where the dry test can be started. Either the dry test or a real delivery can be used to perform the TÜV test on the selected side(s) now.

Please note that the bad efficiency is to be created manually by either blocking the VR inlet of the nozzle or put a electrical resistor on the motor or valve output such that the physical VR system does not really operate but the TQC does not detect this.

The delivery or dry test must meet the minimum conditions set in the VR configuration (minimum flow (25 l/min) for a specified minimum time (20 seconds) and a minimum fuel volume (20 liter), these numbers are default numbers and can be different in your situation).

5.3.5.3 Com board test

Infrared signal	Battery	Remark
Comm Board Test		Comm Board Test
[Comm Board]		
LON		
Address:17		
Start Test		
↑↓ num, press OK1/1		
		Start Test: Begin diagnosing the system

5.3.6 Backup

Infrared signal	Battery	Remark
Backup		Backup
1 Settings		Settings for the automatic setup (See 5.3.5.1)
2 Backup		See 5.3.5.2
3 Format card		See 5.3.5.3
↑↓ num, press OK1/1		

5.3.6.1 Automatic Backup

Infrared signal	Battery	Remark
Automatic Backup		Automatic Backup
⊙Enable		Enable automatic backup function (see 5.3.5.1.1).
⊙Disable		Disable: Automatic Backup.



↑↓ num, press OK1/1	
---------------------	--



5.3.6.1.1 Backup progress

If the automatic backup is enabled first time the following menu will be displayed

Infrared signal	Battery	Remark	menuID_035221
Backup generation		Backup	
[Dispenser ID]		Status of backup. <i>Initializing, backup, finalizing or created</i>	
123456789012			
[CPU ID]			
4BC00C0000000000			
Initializing Backup			
Please wait			
↑↓ SEL to input 1/1			

5.3.6.2 Backup

The Backup menu has been changed a bit since V07.005.00:

Infrared signal	Battery	Remark	menuID_035220
Backup		Backup	
[Dispenser ID]		Backup of the current Last Known Good configuration to internal flash and SD card (when a writable SD card is present).	
123456789012			
[CPU ID]			
4BC00C0000000000			
1 Backup Now			
[Internal Status]		After starting the backup, the progress menu (See 5.3.5.1.1) will be displayed	
Backup present		Shows the current internal (flash) backup state	
[External Status]		Shows the current external (SD card) backup state	
Backup present		Shows the current external (SD card) automatic backup state. This status denotes the presence of the backup, regardless of the current auto-backup setting	
[Auto Status]			
Backup present			
↑↓ SEL to input 1/1			

Note: The Last Known Good / Internal flash backup can be created when leaving the menu's after having logged in with at least Maintenance RW access rights (entered the Maintenance or higher PIN).

The menu from older releases looks like:

Infrared signal	Battery	Remark	menuID_035220
Backup		Backup	
[Dispenser ID]			
123456789012			
[CPU ID]			
4BC00C0000000000			
[Destination]			
⊙SD card		Choose where the backup is to be stored SD card medium, card must be inserted. Changing cards can be done in this menu without blocking the dispenser	
⊙Internal Flash		Create Last Known Good backup	
1 Backup Now		Backup of the current configuration	



2 Create Full Backup	Backup the current configuration AND factory default configuration. This Backup takes roughly twice as long as only the current configuration. This option will be hidden when the dispenser does not have factory defaults installed.
[Status]	After starting the backup, the progress menu (See 5.3.5.1.1) will be displayed
Backup present	Shows the current backup state on the selected destination.
↑↓ SEL to input 1/1	

5.3.6.3 Format Card

Infrared signal	Battery	Remark
Format card		
Start		
This will erase any existing data		
Are you sure ?		
↑↓ num, press OK1/1		

5.3.7 Pin Code

This menu will only be shown for PIN Only access type.
When using whitelist access type, this menu is not used.

123 Battery Level	Remark
PIN Code	PIN Code
[Enter New PIN]	[Enter New Pin]
*****	The PIN Code must be typed here
[Re-Enter New PIN]	[Re-Enter New Pin]
*****	Confirm the new PIN code
↑↓ SEL to input 1/1	



5.4 Configuration

Infrared signal	Battery	Remark
Configuration		Configuration
1 Dispenser Info		See 5.4.1
2 Calculator Info		See 5.4.2
3 Software Info		See 5.4.3
4 Hydraulic		See 5.4.4
5 Communication		See 5.4.5
6 Timer		See 5.4.6
7 Fraud Protection		See 5.4.7
8 Optional Functions		See 5.4.8
9 Prod Configuration		See 5.4.9
10 Name Tables		See 5.4.10
11 Prod Density		See 5.4.11
12 Prod Coefficient		See 5.4.12
13 Meter Calibration		See 5.4.13, only when this function is enabled for at least one meter
14 Vapor Recovery		See 5.4.14, only when VR hardware is present
15 Display Config		See 5.4.16, only when VGA screens are fitted
16 PIN Code		See 5.4.17, only for "PIN Only" access type
17 Delivery Handling		See 5.4.17
↑↓ num, press OK2/2		This menu shows the configuration information and allows setting up the elemental parameters in order to have an operating dispenser.

5.4.1 Dispenser info

Infrared signal	Battery	Remark
Dispenser Info		Dispenser Info
Type: TQC		Display the information about the dispenser
SN: 123456789012		Type: TQC(Tokheim Quality Calculator)
[FIP: A B C D]		SN: Shows serial number
Pump Nr: 1 2		FIP:
		Which Filling Position is used
		Pump Nr: Gives the pump number
↑↓ SEL to input 1/1		

5.4.2 Calculator info

Infrared signal	Battery	Remark
Calculator Info		Calculator Info
		Display the information about the hardware components of the Calculator
Pre-processor		See 5.4.2.1
Communication Board		See 5.4.2.2
Pulser		See 5.4.2.3
VCC		See 5.4.2.4
Display		See 5.4.2.5
HYM		See 5.4.2.6
SIO		See 5.4.2.7
↑↓ num, press OK1/2		



5.4.2.1 Pre-Processor

Infrared signal	Battery	Remark
Pre-processor		Pre-processor
[Device Identifier]		[Device Identifier]
Pre-processor		Shows the information of the Pre-processor
[Hardware Version]		[Hardware]
TQC-EI03		Shows the hardware version
[SN]		[SN]
Not programmed		Shows the serial number
C to return 1/1		

5.4.2.2 Communication Board

Infrared signal	Battery	Remark
Pre-processor		Pre-processor
[Device Identifier]		[Device Identifier]
Pre-processor		Shows the information of the Pre-processor
[Hardware Version]		[Hardware]
TQC-EI03		Shows the hardware version
[SN]		[SN]
Not programmed		Shows the serial number
C to return 1/1		

5.4.2.3 Pulser

Infrared signal	Battery	Remark
Pulser		Pulser
[Device Identifier]		Shows the information about Pulser processor
MPC_A1		[Device Identifier]
[Hardware Version]		Pulser
PUR-MPC3		[Hardware Version]
[SN]		Shows the hardware version
Not programmed		[SN]
C to return 1/1		Shows the serial number

5.4.2.4 VCC

Infrared signal	Battery	Remark
Pulser		Pulser
[Device Identifier]		Shows the information about Pulser processor
MPC_A1		[Device Identifier]
[Hardware Version]		Pulser
PUR-MPC3		[Hardware Version]
[SN]		Shows the hardware version
Not programmed		[SN]
C to return 1/1		Shows the serial number



5.4.2.5 Display

Infrared signal	Battery	Remark
Pulser		Pulser
[Device Identifier]		Shows the information about Pulser processor
MPC_A1		[Device Identifier]
[Hardware Version]		Pulser
PUR-MPC3		[Hardware Version]
[SN]		Shows the hardware version
Not programmed		[SN]
C to return 1/1		Shows the serial number

5.4.2.6 HYM

Infrared signal	Battery	Remark
Pulser		Pulser
[Device Identifier]		Shows the information about Pulser processor
MPC_A1		[Device Identifier]
[Hardware Version]		Pulser
PUR-MPC3		[Hardware Version]
[SN]		Shows the hardware version
Not programmed		[SN]
C to return 1/1		Shows the serial number

5.4.2.7 SIO

Infrared signal	Battery	Remark
Pulser		Pulser
[Device Identifier]		Shows the information about Pulser processor
MPC_A1		[Device Identifier]
[Hardware Version]		Pulser
PUR-MPC3		[Hardware Version]
[SN]		Shows the hardware version
Not programmed		[SN]
C to return 1/1		Shows the serial number

5.4.3 Software info

Software version before 07.005.02:

Infrared signal	Battery	Remark
Software Info		Software Info
1 Kernel Version		See 5.4.3.1
2 Application Build		See 5.4.3.2
3 Application Module		See 5.4.3.3
4 CAN Device Modules		See 5.4.3.4
5 VGA Module		See 5.4.3.5, only shown on dispensers with VGA screens fitted
		The main purpose of this sub-menu is to give information about the all modules software of the TQC such as version of the Application installed, its peripheral version, which CAN addresses are configured in the TQC.
↑↓ num, press OK1/1		



Software version 07.005.02 and newer:

Infrared signal	Battery	Remark
Software Info		Software Info
1	Kernel Version	See 5.4.3.1
2	Application Build	See 5.4.3.2
3	Application Module	See 5.4.3.3
4	Peripheral Modules	See 5.4.3.4 (includes VGA when applicable)
		The main purpose of this sub-menu is to give information about the all modules software of the TQC such as version of the Application installed, its peripheral version, which CAN addresses are configured in the TQC.
↑↓	num, press OK1/1	

5.4.3.1 Kernel version

Infrared signal	Battery	Remark
Kernel		Kernel
	[Name]	[Version]
	TqcKernel	It shows the version of the Kernel used
	[Version]	[Checksum]
	01.000.02	
	[Time]	
	2010.01.26 10:03:44	
	C to return 1/1	

5.4.3.2 Application Build

Infrared signal	Battery	Remark	menuID_043300
Kernel		Kernel	
	[Name]	[Version]	
	TqcKernel	It shows the version of the Kernel used	
	[Version]	[Checksum]	
	01.000.02		
	[Time]		
	2010.01.26 10:03:44		
	C to return 1/1		

5.4.3.3 Application module

Infrared signal	Battery	Remark
Application Module		Application Module
	[Modules]	[Modules]
	ProcessMgr.Arm	It shows all the TQC application modules.
	[Version]	[Version]
	01.000.25	It shows the version of the selected module.
	[Checksum]	[Checksum]
	00005811	This shows the checksum of the selected module.



C to return 1/1	
------------------------	--

5.4.3.4 CAN Devices Modules

Infrared signal	Battery	Remark
CAN Device Module		CAN Device Module
[Type]		[Type]
HYM		Here you select the type of CAN device
[Name]		[Name]
HYM_1		In case more than one CAN device are present of the same type (e.g. pulser) then you can select here one of the available devices.
[SW Version]		[SW Version]
01.000.32		Shows the software version
[SW Checksum]		[SW Checksum]
0000E709		Shows the checksum used.
C to return 1/1		

5.4.3.5 VGA module

Infrared signal	Battery	Remark
VGA Module		VGA Module It shows the VGA module info.
VGA build		
[Version]		[Version]
01.000.25		Version number of VGA module
[Time]		[Time]
10:34:25		Time when module is generated
[Checksum]		[Checksum]
00005811		Checksum of VGA module.
C to return 1/1		

5.4.4 Hydraulic

Infrared signal	Battery	Remark
Hydraulic		Hydraulic
1 Submerged		See 5.4.4.1
2 Combined Hose		See 5.4.4.2
3 LPG		See 5.4.4.3
4 HS Control		See 5.4.4.4
5 Preset		See 5.4.4.5
6 Valve Error Control		See 5.4.4.6
↑↓ num, press OK1/1		

5.4.4.1 Submerged

Infrared signal	Battery	Remark
Submerged		Submerged
Valve Delay:0		Valve Delay: this is the delay (in seconds) between switching on the motor and opening the valve. This will allow the “submerged” system to build up the pressure on the pipes to the dispenser. This to allow for a smooth start of the delivery. 0-10 sec, default is set to 0



↑↓ SEL to input 1/1	
---------------------	--

5.4.4.2 Combined hose (not implemented yet)

Infrared signal	Battery	Remark
Combined Hose		Combined Hose
[Prod Pre-Selection]		
<input type="radio"/> No		Not implemented yet
<input checked="" type="radio"/> Yes		
↑↓ SEL to input 1/1		

5.4.4.3 LPG

Infrared signal	Battery	Remark
LPG		
[Nozzle Switch]		
<input type="radio"/> None		With or without Nozzle switch (deadmans button only)
<input checked="" type="radio"/> Open		Normally Open or Normally Closed nozzle switch
<input type="radio"/> Closed		
[Interlock]		
<input type="radio"/> Enabled <input type="radio"/> Disabled		When enabled lifting a LPG nozzle will block dispensing all other nozzles on the same dispenser
[Chair Valve]		
<input checked="" type="radio"/> None		Chair valve not fitted, one valve is fitted per side or only one is fitted in the dispenser.
<input type="radio"/> One per FIP		
<input type="radio"/> One per 2 FIPs		
Nozzle Delay:		Nozzle Delay: Maximum time between taking the nozzle and pushing the deadmans button. Range is min 1 and Max 300 Seconds This timer is also used when push to start is enabled. It then is used for the maximum time between taking the nozzle and pushing push to start.
Button Delay: 5		Button Delay: this is the delay between releasing the deadmans button and ending the delivery. Range is Min 0 and Max 30 Seconds
Motor Delay: 3		Motor Delay: this is the delay between releasing deadmans button and switch off the motor. Just to prevent that the motor switched on/off too often. Range is Min 0 and Max 5 Seconds
↑↓ SEL to input 1/1		

5.4.4.4 HS control

Infrared signal	Battery	Remark
HS Control		HS Control



[Fuelling]	High Speed button control
◻ Before	[Fuelling]
◉ Before or During	There are possible two options
	Before The user must press the HS control button before the nozzle is lifted from the dispenser
	Before or during. The HS button can be pressed either before or during the delivery
↑↓ SEL to input 1/1	

5.4.4.5 Preset

Infrared signal	Battery	Remark
Preset		Preset settings
[Preset Valve Type]		There are 3 possible options for the preset valve type.
<input checked="" type="radio"/> Single		Single (2-stage valve)
<input type="radio"/> Parallel		Parallel (standard)
<input type="radio"/> None		None
[Response Time]		Depending on the valve response the TQC must switch sooner or later to the low flow rate.
Normal Speed:15		Valve response for normal speed. Steps of 5 until 100
Low Speed: 2		Valve response for low speed (<2 l/min). Steps of 5 until 100
High Speed:20		Valve response for high speed (80 l/min). Steps of 5 until 100
Very High Speed:40		Valve response for very high speed (>80 l/min). Steps of 5 until 100
[Limits]		
Max Volume: 9900,00		Sets the max/min preset <u>volume</u> with comma.
Min Volume: 0002,00		
Max Amount: 2000,00		Sets the max/min preset <u>amount</u> with comma.
Min Amount: 0002,00		
[Local Preset Input]		
<input checked="" type="checkbox"/> Keypad		Preset entry via Keypad (Is always possible)
<input type="checkbox"/> Button		Preset entry via fixed value with buttons (see 5.4.4.5.1)
↑↓SEL to input 2/2		

5.4.4.5.1 Preset button mode

Infrared signal	Battery	Remark
Preset mode		Preset button Mode
[Value: 1 2 3]		Select predefined values
Assign: 5 10 20		Button 1 is 5 Euro/litre, 2 is 10 and 3 is 20
[Preset mount]		
<input type="radio"/> Amount		3 buttons with fixed amount plus clear
<input type="radio"/> Volume		3 buttons with fixed volume plus clear
<input type="radio"/> Selectable		2 buttons with value 2 and 3 and 1 button to toggle between volume/amount plus clear
↑↓SEL to input 1/1		

5.4.4.6 Valve Error Control

Infrared signal	Battery	Remark
Valve Error Control		Valve Error Control
[Error Control]		
<input checked="" type="radio"/> Yes		
<input type="radio"/> No		
↑↓SEL to input 1/1		

5.4.5 Communication

Infrared signal	Battery	Remark
Communication		Communication
1 CAN		See 5.4.5.1
2 Comm Board		See 5.4.5.2
3 Network		See 5.4.5.3
4 IFSF		See 5.4.5.4
5 Serial Port		See 5.4.5.5
↑↓ num, press	OK1/1	

5.4.5.1 CAN

Infrared signal	Battery	Remark
CAN		CAN
1 Auto Configuration		See 5.4.5.1.1
2 Module Init		See 5.4.5.1.2
3 Module Status		See 5.4.5.1.3
4 Reset All Nodes		When selecting option 4 all CAN nodes will be reset
5 Last Auto Result		Show last Auto Configure or Module Init result screen, see also 5.4.5.1.1
↑↓ num, press	OK1/1	

5.4.5.1.1 Auto configuration

Infrared signal	Battery	Remark
Configuring		While doing Configuring the “X” will show the steps that are complete, the “-“ show what step(s) are currently executed. All steps that do not have such a prefix symbol are to be performed still.
X All operational		Once finished, then the following message will be shown.
X Externals powered		
X All default addr		Completed steps may be hidden when the procedure progresses to the end.
X Switch all off		
- Program Connector:		Check if any device needs a software update
Specify mod IDs		
SW Update Check		This step is only done in warm-start and when integrity checking is enabled.
Retrieve Integrity		
Software Update		This step is only done in warm-start and when at least one CAN device has outdated software
Standby...	1/1	

When software update is required:

Infrared signal	Battery	Remark
Software Update		CAN Software updating
HYM 3 51 UPD		Device candidate for software updating (to be performed still)
MPC A2 0C OK/CHK		Device that is successfully software updated. OK means that all operations for this device are finished
		CHK means that integrity checking is being performed
MPC A3 14 BSY		Device where software is being updated at this moment.
Standby...	3/3	

Note: The order of software updating is not necessarily from top to bottom.



Infrared signal	Battery	Remark
Configuration Result		Auto Configuration
MPC A1	04 OK	It shows the status of the results for detected potential CAN device, the CAN address of the device and the configuration status (see below). Since version 07.005.00, the devices that have problems are stated at the start of the list.
MPC A2	0C OK	
MPC A3	14 OK	
MPC A4	1C OK	
MPC A5	24 OK	
MPC B1	05 OK	
MPC B2	0D OK	
↑↓		
C to return 3/3		

For TQC there is functionality to detect & reprogram not used HYMs and pulsers.

Basically, in Manufacturing they will not mount not used hardware, but if they do, they can encounter some additional warnings in the final auto configure result screen.

51 Ext power Failed	xx xx	[WAR] [WAR]	Failed to put on the external power of a CAN connector on device xx. Caution, all devices connected to that device are likely not to be auto-configured. Device xx will probably be auto-configured itself, therefore it can have a different address now. It's best to lookup the device type belonging to this address and check the connections / software version.
Request number of connects Failed	0 0 0 0	[ERR] [ERR] [ERR] [ERR]	TQC ARM9 Inter-process communication failed, try to start the auto-configure method again. If this problem persists, call the service department.
Unknown def A yy	xx xx	[WAR] [WAR]	Device xx reported an unknown default address yy. This likely when the device is not yet (fully) supported by the current TQC ARM9 software, this device type will probably be skipped in auto-configuration, maybe leaving chain-connected devices not configured as well. Please report this error to the service department.
Unused MPC found	02 02	[WAR] [WAR]	A pulser is connected on a not used HYM position. Check all HYMs for pulsers connected at not powered (pulser power LED on HYM is off) connectors, unplug & unmount this pulser. Check if some pulser in the result comes with result 'ERR' denoting this pulser might need to be connected at that position.
Unexpected HYM_y	xx xx	[WAR] [WAR]	A HYM is connected on a not used HYM position. Letter y tells where this HYM is positioned. Both pulser outputs will not be powered (pulser power LED on HYM is off) after auto-configuration. Unmount this HYM and anything connected to it.

The status per device can be:

- “OK” : Programming OK
- “ERR” : Error in programming the specified device, the device failed to assume the requested address.
- “MOD” : Timeout in programming the module ID for a device (no response)
- “PWR” : Timeout in switching on / off the power to a CAN connector. This is typically the case for configured HYMs that are not present on the CAN bus.
- “N/A” : Unresponsive device during programming. Maybe a pulser has no operational software or the CAN bus is not well terminated.
- “VER” : When a dynamic addressable device did not respond to the set address PDO message, while it is in operational state on the CAN bus (stating that the device software-version is probably outdated).
- “INT” : This device is fully CAN auto-configured but causes an integrity problem. Devices with this result can be clicked on to get to the Integrity unblock menu (sub-menu of Dispenser Status menu) to see details and unblock the situation.
- “SWU” : Software update of this device failed. This can result in this device being in bootloader mode.
- “OSW” : Software of this device is outdated but not updated in this auto-configure session because another device's software update failed and this might result in that device being in bootloader mode.



5.4.5.1.2 Module init

Infrared signal	Battery	Remark
Module Init		Module Init
[Type]		[Type]
Pulser		Select the type of CAN device, e.g.: Pulser,Display
[Name]		[Name]
MPC_A1		Select one of the available CAN devices for the [type] selected
Address:04		Address: This is pre-defined, initially the actual address is shown, when sub-menu is selected the only one possible address is given
Start to Setup		
↑↓ SEL to input	1/1	Start to setup : Start configuration

Start to setup

Infrared signal	Battery	Remark
Configuring		While doing Configuring the “X” will show the status of the processes being done at that moment, otherwise shows “-“. Once finished , then the following message will be shown, in this case for Pulser configuration
X All operational		
X Externals powered		
X All default addr		
X Switch all off		
- Program Connector:		MPC A1 04 [OK]
Standby...	1/1	

5.4.5.1.3 Module Status

Infrared signal	Battery	Remark
Module Status		Module Status
[Module]		[Module]
Pre-Processor		Select applicable module, e.g.:
Node Status:NO_ERROR		VCC_AB,Display_B_Master,MPC_B4 to
Node Reset		MPC_B1,Display_A_Master,
		MPC_A4 to MPC_A1, HYM_4 to
		HYM_1,Slave_IO,Comm_Board_IFSF,Pre_Processor
		,IO Board
		Node Status: It shows the status of the Node
		Node Reset: Resets the Node
↑↓ SEL to input	1/1	

5.4.5.2 Comm Board

Infrared signal	Battery	Remark
Comm Board		
1 Node Address		
2 Point to Point		
↑↓ num, press	OK1/1	



5.4.5.2.1 Node Address

Infrared signal	Battery	Remark
Node Address		Node Address
[Module]		[Module]
Node: 0		Set the node's address. Range is Min 0 and Max 64.
UDC ID: 0		In case of UDS protocol the ID can be set here.
SEL to input 1/1		Remark: when using TCP / IP communication node must be filled in, in this menu and in IFSF network menu. (see 5.4.5.4.2)

5.4.5.2.2 Point to point

Infrared signal	Battery	Remark
P2P Node Address		P2P Node Address
FIP 1 : 0		[FIP]
FIP 2 : 0		Filling Point Number:
		Range is Min 0 and Max 64
SEL to input 1/1		

5.4.5.3 Network

Infrared signal	Battery	Remark
Network		Network
[IP Address]		[IP Address]
192.168.1.5		Fill in TQC TCP /IP Address.
[Subnet Mask]		[Subnet Mask]
255.255.240.0		Fill in TQC Subnet Mask.
[Gateway]		[Gateway]
192.168.1.1		Fill in TQC Gateway.
SEL to input 1/1		

5.4.5.4 IFSF

Infrared signal	Battery	Remark
IFSF		IFSF
1 IFSF Configuration		See 5.4.5.4.1
2 IFSF Network		See 5.4.5.4.2
SEL to input 1/1		

5.4.5.4.1 IFSF Configuration

Infrared signal	Battery	Remark
IFSF Configuration		IFSF Configuration
[Interface Mode]		[Interface Mode]



<input checked="" type="radio"/> Comm Board	Select IFSF via Comm Board or via TCP / IP Remark: When TCP / IP is selected the menu below will not be visible.
<input type="radio"/> TCP /IP	
SEL to input 1/1	



In case TCP/IP is selected the following menu will be displayed.

Infrared signal	Battery	Remark
IFSF Configuration		IFSF Configuration
[Interface Mode]		[Interface Mode]
○Comm Board		Select IFSF via Comm Board or via TCP / IP.
<input checked="" type="radio"/> TCP /IP		
[TCP / IP Setting]		Remark: Node Address must equal to value set in node address (see 5.4.5.2.1
Node Addr: 1		
Subnet Addr: 2		
HB Port: 3486		
Server Port: 5000		
SEL to input 1/1		

5.4.5.4.2 IFSF Network

Infrared signal	Battery	Remark
IFSF Network		IFSF Network
[IP Address]		Set POS TCP / IP address
192.168.242.224		
[Subnet Mask]		
255.255.240.0		
[Gateway]		
192.168.242.1		
SEL to input 1/1		

5.4.5.4.3 IP-ADDRESSING, The Fuel-pos way.

Below a **background** is given on the “calculator IP addressing” used in the Fuel-Pos.
Fuel-Pos can connect up to 7 systems into one network. Every system has reserved up to 32 IP addresses for calculators.

The Fuel-Pos supports 32 calculator addresses per system. In practice this could end up in 128 filling positions (4 active hoses). This makes no sense, so it is defined that up to 64 TQC-VGAs can be installed; this is 2 per filling position and makes 32 filling positions.

When this is not enough, the next system must be selected. Every system will have one IP-Address reserved for the Media Server.

Net mask is always 255.255.240.0

Default gateway is always 192.168.1.1

SystemNr	Device	Ip Address
1	T-MEDIA	192.168.242. 10
	TQC1 to TQC32	192.168.242.224 to 192.168.242.255
	VGA1 to VGA64	192.168.243. 0 to 192.168.243. 63
2	T-MEDIA	192.168.244. 10
	TQC1 to TQC32	192.168.244.224 to 192.168.244.255
	VGA1 to VGA64	192.168.245. 0 to 192.168.245. 63
3	T-MEDIA	192.168.246. 10
	TQC1 to TQC32	192.168.246.224 to 192.168.246.255



	VGA1 to VGA64	192.168.247. 0 to 192.168.247. 63
4	T-MEDIA	192.168.248. 10
	TQC1 to TQC32	192.168.248.224 to 192.168.248.255
	VGA1 to VGA64	192.168.249. 0 to 192.168.249. 63
5	T-MEDIA	192.168.250. 10
	TQC1 to TQC32	192.168.250.224 to 192.168.250.255
	VGA1 to VGA64	192.168.251. 0 to 192.168.251. 63
6	T-MEDIA	192.168.252. 10
	TQC1 to TQC32	192.168.252.224 to 192.168.252.255
	VGA1 to VGA64	192.168.253. 0 to 192.168.253. 63
7	T-MEDIA	192.168.254. 10
	TQC1 to TQC32	192.168.254.224 to 192.168.255.255
	VGA1 to VGA64	192.168.255. 0 to 192.168.255. 63

5.4.5.5 Serial Port setup

Infrared signal	Battery	Remark
Serial Port		These are settings the RS-232 port above the APB board.
		Note: Single-Twin main boards do not have a RS232 connector fitted.
[Mode]		
STANDALONE		Select the protocol that is to be used on the COM-port: STANDALONE (do not use)
		DVRC2 / Fafnir VR monitoring protocol, detailed settings can be adjusted in the VR menu, see 5.4.14.1.2
		RM_CONTROL allows the Remote server tool to perform some diagnostics actions via the serial port (rather than the UTP port). This is required for some South-American markets.
↑↓ SEL to input	2/2	

5.4.6 Timer

5.4.6.1 Maximum delivery timer

There are two maximum delivery timers. One for normal speed (40/80 liter/min) and one for high speed (130 litre/min). This time is the maximum time the pump motor can be active, it starts when the nozzle is taken out of the nozzle boot

5.4.6.1.1 Max delivery timer low

Default 900 seconds, range 0 – 2550 seconds.

5.4.6.1.2 Max delivery timer high

Default 2550 seconds, range 0 – 2550 seconds.

5.4.6.2 Suspend timer

Within this time a filling has to be started (released via payment terminal), or continued (satellite). When this time is passed the filling is ended. To use the dispenser for a filling it has to be released again. The local parameter setting for this value can be overruled by the controller.

5.4.6.3 Low no filling timer

This functionality concerns a 'hydraulic time out', which is used to detect the end of the flow.



After switching off the motor/valves, the flow does not end immediately because of the system characteristics. If no pulses are detected during this 'low no filling time', then a so-called "end of the flow" message is generated. If pulse(s) are detected the time out is restarted. The value of the 'low no filling time' is typically 0.5 seconds and cannot be altered.

5.4.6.4 Inter-delivery timer

This is the minimum time to elapse between successive 2 fillings.

5.4.6.5 Maximum time of no flow menu

Maximum allowed period between powering the pump motor and the detection of fuel flow or timeout after fuel flow stops. If no flow is detected the pump motor is switched off.

5.4.6.6 No action timer

Maximum time of no user interaction on the HHT. Once this timer is elapsed the HHT session will be terminated. Value 0 will disable this timer mechanism and the menu session needs to be closed explicitly (choosing quit from the main menu) at all times.

5.4.6.7 Wait preset button timer

Maximum time of no user interaction on the local preset buttons. If this timer is elapsed an ongoing local preset selection is terminated. The display is restored according to the active idle display control setting (See 5.4.8.10).

5.4.6.8 Battery test timer

Time between each successive battery test.

Infrared signal	Battery	Remark
Timer		These are settings for timers used in the system.
[Max delivery Low]		Maximum time for a delivery at 40 lpm.
0*10 sec		Range is Min 0 and Max 255 seconds
[Max delivery High]		Maximum time for a delivery at 130lpm.
255*10sec		Range is Min 0 and Max 255 * 10 seconds
[Suspended]		Maximum time a filling can be suspended
60*sec		Range is Min 0 and Max 180 seconds
[Inter-Delivery]		Minimum time between two deliveries.
0* sec		Range is Min 0 and Max 255 seconds
[Max No Flow]		Maximum time that no flow is detected after filling is started. After this time transaction is closing.
60 *sec		Range is Min 0 and Max 255 seconds
[No Action]		Range is Min 0 and Max 255 seconds
60 *sec		
[Wait preset button]		Maximum time of no activity on the local preset buttons. After that the display is updated according the idle display control and local preset is reset.
60 *sec		Range is Min 30 and Max 255 x 0.1 seconds
[Battery Check]		Time between two successive battery checks, performed by diagnostic manager.
1 *min		Range is Min 1 and Max 60 minutes
↑↓ SEL to input 2/2		



5.4.7 Fraud protection

Infrared signal	Battery	Remark
Fraud Protection		Fraud Protection
Max Zero Trans: 7		Max Zero Trans: Default value is 7. This is the max times that user may lift up a nozzle without making any transaction. After 7 zero deliveries the filling position will be blocked.
[Connect Protection]		[Connect Protection]
⊙Disabled		Not yet implemented
⊙Enabled		
↑↓ SEL to input 1/1		

5.4.8 Optional Functions

The following Optional functions are available. They can be selected by scrolling through the various items with the up and down keys.

Stand alone	See 5.4.8.1
PIN bypass	See 5.4.8.3
Monitor Tank Level	See 5.4.8.4
Push to Start	See 5.4.8.5
Product name display	See 5.4.8.6
Fleet management	See 5.4.8.6
Just Stop	See 5.4.8.7
Dispenser light	See 5.4.8.9
Indication Light	See 5.4.8.10
Idle Display	See 5.4.8.11
Satellite	See 5.4.8.12
Audio	See 5.4.8.12

5.4.8.1 Standalone

Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
Standalone		Disable standalone:
⊙Disabled		There two modes of operating the TQC which are as Standalone or Connected (to a POS). This option allows you to enable or disable the Standalone mode.
⊙Enabled		
↑↓ SEL to input 1/1		

5.4.8.2 PIN Bypass



Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
PIN		Disable PIN:
⊙Disabled		It is possible to disable or enable the PIN access in the TQC system when entering in the Hand Held Terminal.
⊙Enabled		
↑↓SEL to input 1/1		

5.4.8.3 Monitor Tank Level

Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
Monitor Tank Level		Monitor Tank Level.
⊙Disabled		With this option , it is possible to monitor the Tank level of the fuels. depending on status of tank level input decide to allow a transaction or not
⊙Enabled		
↑↓SEL to input 1/1		

5.4.8.4 Push to Start

Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
Push to Start		It is used for some countries where before start tanking a button needs to be pressed in order to start making the delivery to the car. Timeout for push to start set in LPG menu (LPG nozzle timeout) (See 5.4.4.3)
⊙Disabled		
⊙Enabled		
↑↓SEL to input 1/1		

5.4.8.5 Product name display

Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
Prod Name Display		This option gives to the user a possibility to display the product name. Don't enable when TQC-VGA display is used.
⊙Disabled		
⊙Enabled		
↑↓SEL to input 1/1		

When Product name enabled.

Infrared signal	Battery	Remark
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Prod Name Display	Time to display the product name in seconds
Prod. Display:2	
↑↓ num, press OK1/1	

5.4.8.6 Fleet management (Not implemented yet)

Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
Fleet Management		Fleet Management
⊙Disabled		This functionality is dealing with interfacing to “simple” 3 rd party forecourt controllers, often referred to as Fleet Management systems. It contains two features: volume/amount options and a fleet release mechanism
⊙Enabled		
↑↓ SEL to input	1/1	



When Fleet management enabled:

Infrared signal	Battery	Remark
Fleet Management		Function Key
[Vol Pulse]		[Vol Pulse]
Unit: 1		Unit: Range is Min 1 and Max 100
Period: 50		Period: Range is Min 0 and Max 99
[Amount Pulse]		[Amount Pulse]
Unit: 1		Unit: Range is Min 1 and Max 100
Period: 5		Period: Range is Min 0 and Max 99
Release Mode: 0		Release Mode: Range Min 0 and Max 5
↑↓ num, press OK1/1		

5.4.8.7 Just stop

Infrared signal	Battery	Remark	menuID_048000
Optional Functions		Optional Functions	
[Function]		[Function]	
Just Stop		Functionality is mainly to preset up at next round value	
⊙ Disabled			
○ Enabled			
↑↓ SEL to input 1/1			

When Just stop enabled:

Infrared signal	Battery	Remark
Just Stop		Function Key
[Rounding Mode]		
⊙ 0 ○ 1		Rounding mode, two options
↑↓ num, press OK1/1		

5.4.8.8 Dispenser light

Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
Dispenser Light		It is the LCD backlights are switched on during night time.
⊙ Disabled		
○ Enabled		
↑↓ SEL to input 1/1		



When Dispenser light enabled:

Infrared signal	Battery	Remark
Dispenser Light		Dispenser Light When selecting Application, Dispenser Light is controlled by POS system
[Control Mode]		
⊙Default		
○Application		
↑↓ num, press	OK1/1	



5.4.8.9 Indication Light

Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
Indication Light		Indication Light (also called OPT / PTO / Traffic)
⊙Disabled		Based on request of controller switch an output to be able to switch a Indication light.
○Enabled		
↑↓ SEL to input	1/1	

If Indication light is enabled and set to default the mode setting is used at the end of a delivery. Light is turned on at the beginning of a delivery. When the delivery is stopped the light will be switched of or set to blinking fast or slow. If mode = 0 the lamp will be switched off. Mode 1 indicates ON, 2 indicates slow blinking and mode 3 indicates fast blinking. In that mode the light will be switched off once the current transaction is cashed.

Infrared signal	Battery	Remark
Indication Light		Timer: not implemented
[Control Mode]		
○Default		Default = Controlled by TQC.
⊙Application		Application = Controlled by POS
Mode: 1		Mode 0: Switched off, when delivery is stopped. Mode 1: Switch on. Mode 2: Slow blinking Mode 3: Fast blinking.
Timer: 60		Timer: Blink rate (not implemented)
↑↓ num, press	OK1/1	

5.4.8.10 Idle Display

Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
Idle Display		Idle Display
⊙Disabled		Determines which information is on the display whenever the dispenser is idle. Various options can be selected:
○Enabled		
↑↓ SEL to input	1/1	



When Idle display enabled:

Infrared signal	Battery	Remark
Idle Display		When idle display Timer is elapsed: Default = Controlled by TQC. Application = Controlled by POS Mode : See 5.4.8.11.1 for details on the various operating modes.
[Control Mode]		
☉Default		
○Application		
Mode: 0		
↑↓ num, press OK1/1		

5.4.8.10.1 Idle display modes

The following idle display modes can be selected

#	Idle Display Function	Parameter			Remarks
		Control Mode	Operating Mode	Timer	
1	disabled	N/A	N/A	default	timer is fixed to default, can only be changed when the function is enabled. This mode is to be used when the previous delivery needs always to be displayed Description -> 5.4.8.11.1.1
2	enabled	Default	0	default (user)	when the timer is elapsed : Amount : 0000,00 Volume : 0000,00 Unit Price : 000,0 Description -> 5.4.8.11.1.2
3	enabled	Default	1	default (user)	when the timer is elapsed : Amount : xxxx,xx Volume : yyyy,yy Unit Price : zzz,z or (see Event description below) Amount : xxxx,xx Volume : yyyy,yy Unit Price : 000,0 Description -> 5.4.8.11.1.3
4	enabled	Default	2	default (user)	when the timer is elapsed : Amount : 0000,00 Volume : 0000,00 Unit Price : xxx,x (current UP) Description -> 5.4.8.11.1.4
5	enabled	Application	0..2	N/A	The display will be controlled by the POS only, support depending on the protocol used Note: The mode setting will be used to control the display when the error_timer and wait preset button timer are elapsed. Description -> 5.4.8.11.1.5



5.4.8.10.1.1 Configuration 1:

- IF : system starts (power on, end Configuration) AND last delivery is available
THEN : show last delivery (Amount, Volume, Unit Price)
start *idle display timer*
- IF : system starts (power on, end Configuration) AND last delivery is not available
THEN : show Amount : 0000,00
Volume : 0000,00
Unit Price : xxx,x (1. product)
start *idle display timer*
- IF : previous delivery is terminated
THEN : show last delivery
start *idle display timer*
- IF : *idle display timer is elapsed*
THEN : do nothing
- IF a preset button (value) is pressed AND the *idle display timer* is elapsed
THEN : show Amount : <blank> or selected amount preset
Volume : <blank> or selected volume preset
Unit Price : <blank>
start *wait preset button timer*
- IF (a preset button (reset) is pressed OR the *wait preset button timer* is elapsed) AND last delivery is available
THEN show last delivery
start *idle display timer*
- IF : (a preset button (reset) is pressed OR the *wait preset button timer* is elapsed) AND last delivery is not available
THEN : show Amount : 0000,00
Volume : 0000,00
Unit Price : xxx,x (1. product)
start *idle display timer*

remarks :

- preset button handling is also to be applied for similar functionalities, i.e. product selection (not yet available)
- Unit Price / Fuelling Mode changes will not be seen unless a nozzle is taken to start a new delivery

5.4.8.10.1.2 Configuration 2:

- IF : system starts (power on, end Configuration) AND last delivery is available
THEN : show last delivery (Amount, Volume, Unit Price)
start *idle display timer*
- IF : system starts (power on, end Configuration) AND last delivery is not available
THEN : show Amount : 0000,00
Volume : 0000,00
Unit Price : 000,0
- IF : previous delivery is terminated
THEN : show last delivery



start idle display timer

- IF : *idle display timer is elapsed*
THEN : show Amount : 0000,00
Volume : 0000,00
Unit Price : 000,0
- IF a preset button (value) is pressed AND the *idle display timer* is elapsed
THEN : show Amount : <blank> or selected amount preset
Volume : <blank> or selected volume preset
Unit Price : <blank>
start wait preset button timer
- IF a preset button (reset) is pressed OR the *wait preset button timer* is elapsed
THEN : show Amount : 0000,00
Volume : 0000,00
Unit Price : 000,0

remarks :

- preset button handling is also to be applied for similar functionalities, i.e. product selection (not yet available)
- Unit Price / Fuelling Mode changes will not be seen unless a nozzle is taken to start a new delivery

5.4.8.10.1.3 Configuration 3:

- IF : system starts (power on, end Configuration) AND last delivery is available
THEN : show last delivery (Amount, Volume, Unit Price)
start idle display timer
- IF : system starts (power on, end Configuration) AND last delivery is not available
THEN : show Amount : 0000,00
Volume : 0000,00
Unit Price : 000,0
- IF : previous delivery is terminated
THEN : show last delivery
start idle display timer
- IF : *idle display timer is elapsed* AND Unit Price (Fuelling Mode) is not changed
THEN : do nothing
- IF : *idle display timer is elapsed* AND Unit Price (Fuelling Mode) is changed
THEN : show Amount : xxxx,xx (last delivery, 0 if not available)
Volume : yyyy,yy (last delivery, 0 if not available)
Unit Price : 000,0
- IF a preset button (value) is pressed AND the *idle display timer* is elapsed
THEN : show Amount : <blank> or selected amount preset
Volume : <blank> or selected volume preset
Unit Price : <blank>
start wait preset button timer
- IF a preset button (reset) is pressed OR the *wait preset button timer* is elapsed
THEN : show Amount : xxxx,xx (last delivery, 0 if not available)
Volume : yyyy,yy (last delivery, 0 if not available)
Unit Price : 000,0



remarks :

- preset button handling is also to be applied for similar functionalities, i.e. product selection (not yet available)
- Unit Price / Fuelling Mode changes will not be seen unless a nozzle is taken to start a new delivery

5.4.8.10.1.4 Configuration 4:

- IF : system starts (power on, end Configuration) AND last delivery is available
THEN : show last delivery (Amount, Volume, Unit Price)
start *idle display timer*
- IF : system starts (power on, end Configuration) AND last delivery is not available
THEN : show Amount : 0000,00
Volume : 0000,00
Unit Price : xxx,x (1. product)
- IF : previous delivery is terminated
THEN : show last delivery
start *idle display timer*
- IF : *idle display timer is elapsed*
THEN : show Amount : 0000,00
Volume : 0000,00
Unit Price : xxx,x (current Unit Price)
- IF a preset button (value) is pressed AND the *idle display timer* is elapsed
THEN : show Amount : <blank> or selected amount preset
Volume : <blank> or selected volume preset
Unit Price : <blank>
start *wait preset button timer*
- IF a preset button (reset) is pressed OR the *wait preset button timer* is elapsed
THEN : show Amount : 0000,00
Volume : 0000,00
Unit Price : xxx,x (current Unit Price, if not available 1. product)

remarks :

- preset button handling is also to be applied for similar functionalities, i.e. product selection (not yet available)
- Unit Price / Fuelling Mode changes will not be seen unless a nozzle is taken to start a new delivery

5.4.8.10.1.5 Configuration 5:

- the display will be completely controlled by the POS depending on the used protocol support
- POS mode and display commands need to be translated to operate in one of the Operating Modes 0 ... 2
- the POS is responsible to initialize the Operating Mode to be used (default 0)
- the POS is responsible to send the appropriate command to control the display

5.4.8.11 Satellite

Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
Satellite		Dispenser which acts as a Master or Slave. It can contain display and slave nozzles for the main TQC.
⊙Disabled		



○Enabled	“Slave TQC “
↑↓ SEL to input 1/1	

When Satellite enabled:

Infrared signal	Battery	Remark
Satellite		Satellite Mode
[Control Mode]		Two modes are possible Default and Application
⊙Default		Indicate which nozzle can start a delivery.
○Application		
[Start at Nozzle]		
⊙Master or Slave		
○ Only Master		
○ Only Slave		
↑↓ num, press OK1/1		

5.4.8.12 Audio (not implemented yet)

Infrared signal	Battery	Remark
Optional Functions		Optional Functions
[Function]		[Function]
Audio		Option to switch on/off sound
⊙Disabled		Not yet implemented
○Enabled		
↑↓ SEL to input 1/1		

5.4.9 Prod configuration

Infrared signal	Battery	Remark
Prod Configuration		Prod Configuration
Prod: 1		Prod: Selects 1 to 8
Name: Product 1		Name: name of product (as defined in Name tables)
Intern Num: 1		Intern: Numbers (Used inside the TQC itself) for identifying the different fuels
Extern Num: 0		Intern: Numbers (Used outside the TQC itself) used by a POS to identify fuels
↑↓ SEL to input 1/1		

5.4.10 Name tables

Infrared signal	Battery	Remark
Name Tables		Name tables



1 Product	See 5.4.10.1
2 Fuel Type	See 5.4.10.2
3 Customer	See 5.4.10.3
↑↓ num, press OK1/1	

5.4.10.1 Product

Infrared signal	Battery	Remark
Product Name		Product Name
1 EURO-95		There are in total 8 Product selection Product 1 to Product 8
2 Product 2		
3 Product 3		
4 Product 4		Press # to change to alphanumeric entrance (Example for E press # and 3 times key 3)
5 Product 5		
6 Product 6		Remark: When product name display with LCD display is enabled, check if alphanumeric characters can be displayed on 7 segment LCD display.
7 Product 7		
8 Product 8		
SEL to input 1/1		

5.4.10.2 Fuel type

Infrared signal	Battery	Remark
Fuel Type Name		Fuel Type Name
1 Unleaded 95		The different types of fuel to be setup Normally used for temperature compensation to select the appropriate density
2 Unleaded 98		
3 Diesel		Press # to change to alphanumeric entrance (Example for E press # and 3 times key 3)
4 Gasoil		
5 LPG		
6 Leaded 98		
SEL to input 1/1		



5.4.10.3 Customer

Infrared signal	Battery	Remark
Customer Name		Customer Name
1	Agip	Press # to change to alphanumeric entrance (Example for E press # and 3 times key 3)
2	BP	
3	Esso	
4	Repsol	
5	Shell	
6	Tamoil	
7	Texaco	
8	Tokheim	
9	Total	
10	Omega	
11		Free programmable
12		Free programmable
13		Free programmable
14		Free programmable
15		Free programmable
↑↓ SEL to input 3/3		

5.4.11 Prod density

Infrared signal	Battery	Remark
Prod Density		Prod Density
	Unleaded 95: 745	These are the densities for every fuel. It varies depending on the type of fuel used. The standard densities are defined in this table. For example 1cubic meter=745 Kg This density value is used with Temp. compensation. There you select per nozzle which fuel type is to be compensated, using one of the products from this density list or fill in a dedicated value.
	Unleaded 98: 745	
	Diesel: 833	
	Gasoil: 850	
	LPG: 537	
	Leaded 98: 739	
↑↓ SEL to input 1/1		

5.4.12 Prod coefficient

Infrared signal	Battery	Remark
Prod Coefficient		Prod Coefficient. (Koe) used for the German Temperature compensation algorithm for bio fuels. Fuels are defined in Fuel types (see 5.4.10.2)
Bio-/diesel	0.000840	
Jet-Fuel	0.000930	
E0-E40	0.001270	
E60-E100	0.001140	
Naptha	0.001290	
↑↓ SEL to input 1/1		



5.4.13 Meter Calibration

Infrared signal	Battery	Remark
Meter Calibration		Meter Calibration
Pump: 1		Pump: Selects one of the available FIPs Prod: Product “x” is a default product name, once the name is defined differently it will appear that way, i.e like “Diesel”. Volume that the calibration can measure accurately Start Delivery: Controls the real delivery of the TQC nozzle. Thereafter the user is guided to a sequence of entries via which the “K-factor” (electronic calibration factor) will be calculated.
Prod: Product 1		
Can Vol: 0020,00		
Start Delivery		
↑↓ SEL to input 1/1		

An EC test delivery will take place where temperature compensation is temporary disabled (when applicable). After the EC test delivery has taken place:

Infrared signal	Battery	Remark
Meter Calibration		Meter Calibration
Pump: 1		FIP: Selects one of the available FIPs Prod: product indication the delivery was performed on Volume that matches the volume stated on the CSD, compensated using the current EC factor (only shown in V 07.005.02 and newer). Volume measured without any (EC or TC) compensation. This volume and the Can volume is used for the EC compensation K factor calculation Volume that has actually been poured in the calibration can. You need to readout this volume on the Can and fill it in here. Current EC compensation factor Current status of the seal switch on the HYM where this pulser connects to Menu option to calibrate the new K factor based on the entered Can volume
Prod: Product 1		
Net Vol: 20,01		
Raw Vol: 20,05		
Can Vol: 20,00		
Cur K Factor: 1,0019		
Seal switch:Sealed		
Calibrate		
↑↓ SEL to input 1/1		



5.4.14 Vapour recovery

Infrared signal	Battery	Remark
Vapor Recovery		Vapor Recovery
1 Settings		See 5.4.14.1
2 Calibration		See 5.4.14.2
↑↓ num, press OK1/1		

5.4.14.1 Settings

Infrared signal	Battery	Remark
Settings		Settings
1 Hardware Mode		See 5.4.14.1.1
2 Communication Mode		See 5.4.14.1.2
3 Nozzle Config		See 5.4.14.1.3
4 VR Return Per Prod		See 5.4.14.1.4
5 Efficiency		See 5.4.14.1.5
6 Gaz Meter		See 5.4.14.1.6
7 Calibration Params		See 5.4.14.1.7
8 Err Params		See 5.4.14.1.8
↑↓ num, press OK1/1		

5.4.14.1.1 Hardware Mode

Infrared signal	Battery	Remark	menuID_04e110
Hardware Mode		Hardware Mode	
⊙OL		There are two possible options OL : Open Loop	
○SCG		SCG : Self Calibrating Gas. This is more accurate than the OL	
↑↓ SEL to input 1/1			

5.4.14.1.2 Communication Mode

Infrared signal	Battery	Remark
Communication		Communication
[Mode]		
STANDALONE		Option to select DVCR2 communication
[FIP 1/2 address]		Address must be unique for each dispenser.
0		(One address will handle two fips at most)
↑↓ SEL to input 1/1		



5.4.14.1.3 Nozzle Config

Infrared signal	Battery	Remark
Nozzle Config		Nozzle Config
[FIP: 1 2 3 4]		In this menu you define which nozzles are subject to vapor recovery. Layout depends on selected number of FIPs and product
PR1	<input type="checkbox"/> <input type="checkbox"/> - -	
PR2	<input type="checkbox"/> <input type="checkbox"/> - -	
PR3	<input type="checkbox"/> <input type="checkbox"/> - -	
PR4	<input type="checkbox"/> <input type="checkbox"/> - -	
PR5	- - - -	
PR6	- - - -	
PR7	- - - -	
↑↓ SEL to input 1/1		
PR8	- - - -	
↑↓ SEL to input 1/2		

5.4.14.1.4 VR Return per Prod

Infrared signal	Battery	Remark
VR Return Per Prod		VR Return Per Prod
○Enable		Enabling this function will route the vapor of a product back via the correct valves to the appropriate UST. Enable or Disable
⊙Disable		
↑↓ SEL to input 1/1		

5.4.14.1.5 Efficiency

Infrared signal	Battery	Remark
Efficiency		Efficiency
[FIP: 1 2 3 4]		
PR1	107 107 --- ---	Density difference of vapor compared to air. Whereby the 107 is the typical % used in the efficiency on fuels. These parameters can slightly be changed according to other fuels.
PR2	107 107 --- ---	
PR3	107 107 --- ---	
PR4	107 107 --- ---	
PR5	--- --- --- ---	
PR6	--- --- --- ---	
PR7	--- --- --- ---	
↑↓ SEL to input 1/1		
PR8	--- --- --- ---	
↑↓ SEL to input 1/2		

5.4.14.1.6 Gaz Meter

Infrared signal	Battery	Remark
Gaz Meter		Gaz Meter
Pulses Per Round: 12		Pulses Per Round: There are 12 round holes in the round disk. This is for determining the measurements.
Cyclic Vol:1214		Cyclic Vol: It is the cyclic needed in order to move a single round. The measurements are 1.214 mili-liters. Usually this numbers is written in the Gaz meter outer part
↑↓ SEL to input 1/1		



5.4.14.1.7 Calibration Parameters

Infrared signal	Battery	Remark
Calibration Params		Calibration Params
Altitude: 30		Altitude: This value should be according to the sea level of the place where the machine is installed. Min Flow rate: The minimum flow rate must be at 25 litres per minute Min Flow Time: This is the time that takes to fulfil the Min Flow and Min Vol Min Vol: This is the minimum volume at which should be delivered according to the conditions set in Min flow rate and Min flow
Min Flow Rate: 25		
Min Flow Time: 20		
Min Vol: 20		
↑↓ SEL to input	1/1	

5.4.14.1.8 Error Parameters

Infrared signal	Battery	Remark
Error Parameter		Error Parameter This is only valid for SCG mode. These parameters are set per default accordingly to the TuV test. It is the Tolerance error that can withstand under Max and Min parameters
Max Error: 115%		Max Error: Efficiency error Min Error: Efficiency error Number: Number of errors allowed taken by the Max and Min. Hours: Numbers of hours, when after this time problem is not solved, FIP / vapour product will be blocked.
Min Error: 85 %		
Number: 10		
Hours: 72		
↑↓ SEL to input	1/1	



5.4.14.2 Calibration

Infrared signal	Battery	Remark	menuID_04e800
Calibration		VR proportional valve calibration	
FIP: 1		Selects either FIP A or FIP B	
[Motor Warning Time]			
0		Range is Min 0 and Max 10 minutes. Use at least 5 min. Warming Time, this is important to get accurate calibration.	
VR Status menu		Shortcut to the <i>Dispenser Info</i> menu where VR problems can be unblocked (see 5.3.1).	
SEL to input 1/1			

Infrared signal	Battery	Remark
Calibration		Calibration
⊙ Per FIP		Per FIP
⊙ Per Nozzle		Per Nozzle
FIP: 1		FIP: Selects either A or B
Start		Start: Start with calibration
[FIP: 1 2]		NOVR: No Vapor recovery
PR1 NOCAL NOCAL		NOCAL: No Calibrated
PR2 NOCAL NOCAL		CAL: Calibrated
PR3 NOVR NOVR		MOT: VR Motor error
↑↓ SEL to input 1/2		fVAL: Flow valve error
		uVAL: Return valve error
		ERR: Generic error.

Infrared signal	Battery	Remark
Calibration		Calibration
[FIP: 1 2]		
PR1 NOCAL NOCAL		
PR2 NOCAL NOCAL		
PR3 NOVR NOVR		
PR4 NOVR NOVR		
PR5 NOVR NOVR		
PR6 NOVR NOVR		
PR7 NOVR NOVR		
PR8 NOVR NOVR		
↑↓ Cal report 2/2		

5.4.15 VGA configuration

This &sub-menu(s) will only be shown when using VGA screens

Infrared signal	Battery	Remark
Display Configuration		
1 VGA Parameters		See 5.4.16.1
2 Media Servers		See 5.4.16.2
3 Backlight Switch		See 5.4.16.3
4 Backup Config		See 5.4.16.4
5 On Screen Totals		See 5.4.16.5
↑↓ num, press OK1/1		



5.4.15.1 VGA Parameters

Infraredsignal	Battery	Remark
VGA Parameters		
FIP: A		VGA: Selects one of the VGA's [A..D]
[IP address]		IP address of the TQC-VGA
192.168.1.6		
[Subnet mask]		Subnet mask of the TQC-VGA
255.255.240.0		
[Gateway]		Gateway of the TQC-VGA
192.168.240.0		
Port nr: 52001		TQC communication port nr
Vmin volume: 2		Value to assemble Vmin picture name, only input 2,5,10 is valid.
ATC degrees: 15		Value to assemble ATC info picture name, Only input 15 is valid (picture VGA)
Audio Volume(%):100 Test <input type="radio"/> On <input checked="" type="radio"/> Off		Audio Menu Volume in Percentage [0..100] Audio Volume Test. Start/Stop volume testing.
↑↓ num, press OK1/1		

5.4.15.2 Media Servers

Infrared signal	Battery	Remark
Media Server		
[IP address]		Media server IP address used in TQC-VGA
0.0.0.0		
[Subnet mask]		Media server Subnet mask used in TQC-VGA
255.255.240.0		
[Gateway]		Media server Gateway used in TQC-VGA
192.168.240.0		
SEL to input 1/1		



5.4.15.3 Backlight Switch

Infrared signal	Battery	Remark
Backlight Switching		VGA Display backlight switching
[Backlight]		Display switching is disabled (backward compatibility). Manually switch the display ON. Manually switch the display OFF Display switching is fully controlled by the forecourt controller Display switching power according time settings in next items Time that the display will be switched on Time that the display will be switched off
<input checked="" type="radio"/> Disable		
<input type="radio"/> On		
<input type="radio"/> Off		
<input type="radio"/> Automatic		
[Automatic]		
Time On: 06:00		
Time Off: 23:00		
SEL to input 1/1		

5.4.15.4 Backup Config

Infrared signal	Battery	Remark
Backup Config		Save the VGA configuration on SD card
VGA cfg to SD card		
Press OK to start		
SEL to input 1/1		

5.4.15.5 On Screen Totals

Infrared signal	Battery	Remark
On Screen Totals		No VGA On Screen Totals Possible On Screen totals per product per side. On Screen totals per product per dispenser.
⓪ Disabled		
○ Per Side		
○ Per Product		
SEL to input 1/1		



5.4.16 Pin Code

This menu will only be shown for PIN Only access type.
When using whitelist access type, this menu is not used.

123 Battery	Remark
PIN Code	PIN Code
[Enter New Pin]	[Enter New Pin]
*****	The PIN Code must be typed here
[Re-Enter New Pin]	[Re-Enter New Pin]
*****	Confirm the new PIN code
↑↓ SEL to input 1/1	

5.4.17 Delivery Handling

123 Battery	Remark
Delivery Handling	Delivery Handling
[Finish Transaction]	Choose whether or not a transaction should be finished when the nozzle is put down
[On Nozzle Down]	
⊙ Yes ○ No	Yes: Transaction will be finalized only when all nozzles are down.
	No: Transaction will be finalized when an error occurs or when all nozzles are down (whatever happens first).
↑↓ SEL to input 1/1	



5.5 Setup

When entering the Setup menu, different access rights are handled for the two access types:

Action	Access type	
	PIN Only	Whitelist
Enter the first time	Request PIN	Like any other visit
PIN is valid (when entering Setup menu / Logging in)	User is requested to flip coldstart switch or enter in ReadOnly mode	User has Setup RW access assigned
		User has Setup RO access assigned
		User is requested to flip coldstart switch or enter in ReadOnly mode
		Setup menu is shown in ReadOnly mode
Enter Setup menu another time (same menu session)	Same access rights as last time apply(seal cannot be flipped again)	

Note: In order to change these parameters, special attention will be required and only authorized person will be allowed to access it. A switch sealed inside the dispenser will allow the user to change these parameters only during cold start or normal operation

Infrared signal	Battery	Remark
Setup		Setup
1 Reset		See 5.5.1
2 Software Update		See 5.5.2
3 Restore		See 5.5.3
4 System Setup		See 5.5.4
5 EMT Setup		See 5.5.5
6 Meter Setup		See 5.5.6
7 Product Setup		See 5.5.7
8 System Access		See 5.5.8
9 Quit		
↑↓ num, press OK1/1		

5.5.1 Reset

When clicking on the **Reset**. The system will automatically reset and start the system up again. (only works when cold start switch in on position)

Infrared signal	Battery	Remark
Reset		Reset / Shutdown:
1 Shutdown		Shutdown TQC and TQC-VGA.
2 Reset TQC		Reset the TQC, as is today. (only works when cold start switch in on position)
3 Reset TQC-VGA		Reset the TQC-VGA only.
↑↓ SEL to input 1/1		

5.5.2 Software Update

Infrared signal	Battery	Remark
Software Update		Software Update. Update TQC application Software
[Remote Update]		
⊙Allowed		Station owner allows remote SW update
○Not allowed		Not allowed to do remote SW update
Software Update		Press to activate actual update (see 5.5.2.1).
↑↓ SEL to input 1/1		

5.5.2.1 Update package selection

Infrared signal	Battery	Remark
Software Update		Software Update. Update TQC application Software
[Current Version]		Current Software version number (x)
06.001.12		
[Select Version]		
TQC_APP_07.000.00		
Update new Software		
		Found new Software version (y).
		Press to update from version x to version y
↑↓ SEL to input 1/1		

5.5.2.2 Software update package handling

The software package used for updating the TQC in the field will be the same package as used in the initial software loading in the factory. The only difference is that for the factory the package filename does not contain a version number and for the software update it does contain the version number.

When on the field TQC, the software package is being installed, only the files different from the already installed version will be taken over. This will be done by comparing the version number inside the current component against the version number of the component inside the software package. Components available in the update package and not available in the field TQC will be taken over always.

To determine which Software update package to install below two locations will be investigated and the highest version number will be presented as selectable:

The SD-Card: Used as portable memory stick. The directory on which to store the Software Update package is /mnt/sdcard/home/TQC/Transfer.

The Ram memory: Used for network transfer of the SW Update package. The directory on which to store the Software Update package is /home/TQC/Transfer.

The name of the Software Update package will have no Region indication incorporated. So the package name will be: TQC_APP_<MM>_<mmm>_<tt>.gz. Where:

MM = Major Version Number
mmm = Minor Version Number
tt = Test Version Number

MID-Reminder: The above mechanism takes care that installing new software will not interfere with running software since Linux loads/runs the components in memory; the components in the flash-disk are therefore free for update.

Installing the software update package, HHT menus



5.5.2.3 Example of software update

1. TQC runs V03.001.25.
2. Software update is requested via the HHT.
3. The TQC detects package versions V03.007.34 and V03.011.09; a list will be made with only the **highest version number** (V03.011.09) as selectable item.

After the software update the TQC application is restarted to activate the new software.

Infrared signal	Battery	Remark
Software Update		Software update
[Current Version]		
03.001.25		Current version
[Select Version]		Version available for update, when no new version is available, system reports "No New Software"
TQC_APP_03.011.09		During update system reports "Installing xx of xx Please Wait"
		When software update is finished, system reports "Installation Succesful Press a Key to Restart"
↑↓ SEL to input	1/1	

Important note: After software update, TQC always need to be restarted when upgrading to any release newer as V04.



5.5.3 Restore

The Restore menu for version 07.005.00 looks very different than it does in older releases. Older than version 07.005.00:

Infrared signal	Battery	Remark
Restore		Restore Configuration, Databases & calibrations
[Dispenser ID]		
xxxxxxx		This Dispenser serial number
[CPU ID]		
xxxxxxx		This CPU serial number
[Source]		Restore from medium selection
⊙SD card		SD card (can contain multiple backups to be restored
⊙Last Known Good		Internal flash last known good configuration to restore
Restore List: x		Allows to browse through all SD card backups found
Dispenser ID: this		Shows dispenser serial number of the SD card backup
CPU ID: this		Shows CPU serial number of the SD card backup
Date: 01-01.2011		TQC Timestamp the backup was created
Time: 14:37		
1 Restore		Restore the complete TQC backup
2 Restore Keep Total		Restore from SD card but keep the current totals
3 Full Restore		Restore all including factory Defaults (only when factory defaults are present in the selected SD card backup).
↑↓ SEL to input	1/1	

Version 07.005.00 and newer:

Infrared signal	Battery	Remark
Restore		Restore Configuration, Databases & calibrations
[Dispenser ID]		
Xxxxxxx		This Dispenser serial number
[CPU ID]		
Xxxxxxx		This CPU serial number
Restore List: x		Allows to browse through all SD card backups found
Dispenser ID: this		Shows dispenser serial number of the SD card backup
CPU ID: this		Shows CPU serial number of the SD card Last Known Good backup, hidden for other backup locations
[Location]		Location where the backup is found (External for SD card last Known Good, Internal for internal flash Last Known Good and Auto-Backup for SD card Auto Backup location.
Date: 01-01.2011		TQC Timestamp the backup was created
Time: 14:37		
Restore Selection		Select which data to restore (check) or keep (uncheck)
<input checked="" type="checkbox"/> Configuration		Restore all data excluding the below
<input checked="" type="checkbox"/> Totals		Restore from SD card but keep the current totals
<input checked="" type="checkbox"/> Electronic Calibration		Restore Electronic Calibration per meter and K factor settings
<input checked="" type="checkbox"/> Vapor Recovery		Restore Vapor recovery settings & calibration tables When the backup does not have VR tables, a notification is shown
<input checked="" type="checkbox"/> Journals		Restore journal database (only available in cold-start)
↑↓ SEL to input	1/1	



When (at least) Configuration is to be restored, the TQC will need a reboot after restoring. In this case it is also possible to restore from a backup made on a different hydraulic setup. In cold-start the auto-configure is skipped. If (CAN) hardware changes have been made to the dispenser after the backup was made, an auto-configure needs to be performed in the next warm-start session.

When Configuration is not to be restored, a reboot is not necessary afterward. The current hydraulic setup has to match the restored hydraulic setup though.

The procedure is:

- Restore complete backup
- Convert the restored backup to match it with the current software version
- Apply Restore selection(s)
- Reboot or activate the restore

The progress of each of these steps is shown on the HHT.

5.5.4 System Setup

There are options to choose from: Date/Time Setup, Country Setup, Hydraulic Setup and I/O Configuration

When a cold start is done more options will be available

Infrared signal	Battery	Remark
System Setup		System Setup
1 Date/Time Setup		See 5.5.4.1
2 Country Setup		See 5.5.4.2
3 Hydraulic Setup		See 5.5.4.3
4 I/O COnfiguration		See 5.5.4.4
5 Dispenser ID		See 5.5.4.5
↑↓ num, press	OK1/1	

5.5.4.1 Date/Time Setup

Infrared signal	Battery	Remark
Date/Time Setup		Date/Time Setup It only shows the Date and Time when the setup was done. These parameters are not changeable.
Date: 2012.01.03		Date format yyyy.mm.dd
Time: 03:13:57		Time format: hh.mm.ss
		Note: In order to change these parameters, special attention will be required and only authorized person will be allowed to access it. A switch sealed inside the dispenser will allow the user to change these parameters only during cold start.
↑↓ SEL to input	1/1	



5.5.4.2 Country Setup

Infrared signal	Battery	Remark	
Country Dependencies		Country Setup	
[Region]		Region: Sets the region either Europe, China, India. Country: Once the region is selected then the countries will be displayed to choose from. Country Dependencies: When the country is selected, then the parameters assigned to that country will be automatically filled up as default values for that specific country.	
Europe			
[Country]			
NETHERLANDS			
1 Rounding Type			See 5.5.4.2.1
2 Display			See 5.5.4.2.2
3 Pulser			See 5.5.4.2.3
4 Unit Setup			See 5.5.4.2.4
5 Volume Limit			See 5.5.4.2.5
6 Hose Expansion			See 5.5.4.2.6
7 Cents Overshoot			See 5.5.4.2.7
8 Preset Overshoot			See 5.5.4.2.8
9 Leak Detection			See 5.5.4.2.9
10 EC and TC Enable			See 5.5.4.2.10
11 Optional Function			See 5.5.4.2.11
12 Volume Scaling			See 5.5.4.2.12
13 Lifetime Volume			See 5.5.4.2.13
↑↓ num, press OK2/2			

5.5.4.2.1 Rounding type

Infrared signal	Battery	Remark
Rounding Type		Rounding rule for amount values.
⊙ 1		round the least significant digit .
○ 5		The calculator rounds the last digit to the nearest value or 0 or 5.
○ 10		
		The calculator rounds the one but last digit one up when the last digit is 5 or higher. The last digit will be set to zero.
↑↓ SEL to input 1/1		Example: Suppose the real amount is 12.9492 A rounding type of 1 by 1 will result in 12.95, 5 by 5 will result in 12.95 and 10 by 10 in 12.90



5.5.4.2.2 Display

Infrared signal	Battery	Remark
Display		Display
Comma Amount: 2		Comma Amount: digits displayed in the amount.
Comma Volume: 2		Comma Volume: digits displayed in the volume.
Comma Unit Price: 3		Comma Volume: digits displayed in the unit price.
Comma Density: 0		Comma Density: digits displayed in the density
Scaling Unitprice: 0		Scaling Unit Price: This determines if the unit will be displayed in liters, cent-liter, etc
[Comma Symbol]		[Comma Symbol]
◊. ⊙ ,		Allows you to configure the display in format as Comma or Dot. For example 1.44 or 1,44(comma)
↑↓ SEL to input	1/1	

5.5.4.2.3 Pulser

Infrared signal	Battery	Remark
Pulser		Pulser
Normal Speed: 2		Normal Speed is meant to define pulser hide value for 40 L per minute
High Speed:4		High Speed is meant to define pulser hide value for 80 L per minute
Max Pulse Err: 3		Max Pulse Err: The user can set the max error allowed.
Idle Vol.: 20		Idle Vol: 20cl before error “idle volume detected” can be set between 0-50cl (advice not to set below 20cl)
↑↓ SEL to input	1/1	

5.5.4.2.4 Unit Setup

Infrared signal	Battery	Remark
Unit Setup		Unit Setup
[Volume Unit]		[Volume Unit] There are three possible options
⊙ Liter		Liter (Default)
◊US Gallon		US Gallon
◊UK Gallon		UK Gallon
[Amount Unit]		[Amount Unit] There are two currencies possibilities
Euro		Euro or RMB
[Temp. Unit]		[Temp. Unit] There two options
⊙ C		Celsius
◊ F		Fahrenheit
↑↓ SEL to input	1/1	



5.5.4.2.5 Volume limit

Infrared signal	Battery	Remark
Volume Limit		Volume Limit
FIP: 1		For extra information about Volume Limit
Prod Product: 1		FIP: Selects one of the available FIPs
Value: 900,00		Prod: Product “x” is a default product name, once the name is defined differently it will appear that way, i.e like “Diesel”.
		Value: The maximum liters that can be delivered during a delivery
↑↓ SEL to input	1/1	

5.5.4.2.6 Hose expansion

Infrared signal	Battery	Remark
Hose Expansion		Hose Expansion. Functionality to prevent “non zero display” problems which can be caused during pressurizing of the system after evaporation of fuel in the line between volume meter and nozzle.
FIP: 1		FIP: Selects one of the available FIPs
Prod Product: 1		Prod: Product “x” is a default product name, once the name is defined differently it will appear that way, i.e like “Diesel”.
Value: 8		Value: Range is Min 0 and Max 20 cl
Time:300 msec		Time Range is Min 0 and Max 1999 msec
↑↓ SEL to input	1/1	

5.5.4.2.7 Cents overshoot

Infrared signal	Battery	Remark
Cents Overshoot		Functionality to hide additional pulses when customer wants to end at a round value. I.e.: due to bended hoses additional pulses can be received after finishing the transaction and customer takes nozzle out of the car.
Digits to Mask :0		Digits to Mask: The digits that could be masked so that the customer could not see the difference.
Masking Timeout: 0		Masking Timeout: the time that amount is masked shown to the customer.
Max Mask Pulses: 0		Max Mask Pulse: These are the pulses not displayed for the customer.
↑↓ SEL to input	1/1	



5.5.4.2.8 Preset overshoot

Infrared signal	Battery	Remark
Preset Overshoot		Preset Overshoot
Max Mask Pulses: 2		Max Mask Pulse: These are the pulses not displayed for the customer Max Check value:
Max Check Value: 3		
↑↓ SEL to input 1/1		

5.5.4.2.9 Leak detection

Infrared signal	Battery	Remark	
Leak Detection		Leak Detection	
⊖ Disabled			
○ Enabled			
↑↓ SEL to input 1/1			

In case leak is enabled:

Infrared signal	Battery	Remark	
Leak Detection		Leak Detection	
[Detection type]			
⊖ Prefilling Request		Before filling starts do a leak test on request of POS	
○ Prefilling Nozzle		Before filling starts do a leak test on nozzle taken	
○ Postfilling		Leak test after the nozzle has been stowed	
Leak Test Vol		How much leak volume allowed during leak test	
Leak Fatal Vol:		How much cumulative leak volume allowed for all tests	
Leak counter max		How many deliveries' allowed with leak	
↑↓ SEL to input 1/1			

5.5.4.2.10 EC and TC enable

Infrared signal	Battery	Remark
EC and TC enable		Electronic Calibration and Temperature Compensation
Pulser : MPC_A1		Select for which pulser to enable/disable
[Temp. Compensation]		Temperature compensation
⊖ Disabled ○ Enabled		
[E. Calibration]		Electronic Calibration
⊖ Disabled ○ Enabled		
		Note: these settings can only be changed in coldstart



↑↓ SEL to input 1/1	

5.5.4.2.11 Optional functions

It is a legal requirement in some countries, to protect the calculator configuration and database information by a key-lock, a PIN code only is not sufficient / permitted. Logically this protection is handled via one hardware input on the calculator. This input can be switched in several ways (e.g. key-switch, detection whether the calculator door is open, ...). The physical location of this IO is on a GPI(O) channel, either on the mainboard or slave IO board. The IO setup scheme defines this physical location (see separate IO setup specification). Alternatively, a setup switch on the main board can be used. Which input the calculator should react to (GPIO or setup switch) is chosen in the menu. Readout of the hardware IO is interpreted that if the input is open, the lock is applied. When the input is read as closed, the lock is not applied (unlocked). This prevents unlocked access by simply unplugging the GPIO rather than operating the switch as it is intended.

Reaction on the readonly IO by the menu handling is stated in the table below:

Readonly IO change or state	Entering Optional Functions menu	Optional Functions menu is current menu	Button setup change (only possible in writable mode)	Browse to other menu
Read-only	Menu is opened in read-only mode	If the menu was writable, it remains writable, otherwise it will be set read-only ^(*)	Menu is refreshed and stays in writable mode as it was	Menu is opened in read-only mode
Writable	Menu is opened in writable mode			

^(*) If a change in button setup would mean that the menu becomes read-only, the physical GPIO might as well be on a SIO board that is not fitted. For this reason, the operator has the chance to revert his button-setup choice because this menu does not get read-only right-away.

This menu will be part of the Setup / System Setup / Country Setup / Optional Functions menu and can only be accessed when the setup menu is entered with modify rights (coldstart switch had been switched prior to entering the setup level PIN). This will ensure this setting can only be changed by breaking a seal.

Infrared signal	Battery	Remark
Optional Function		Optional Function
[Function]		
Configure Key-lock		Key-lock. This protects access to the calculator via a hardware input.
⊙ Disabled		No protection
○ Enabled		Protect (calculator becomes read-only)
		Note: The keylock is an normally closed input.
↑↓ SEL to input 1/1		

In case Enabled

Infrared signal	Battery	Remark
Optional Function		Optional Function
[Function]		
Configure Key-lock		Enabled == protected
○ Disabled		
⊙ Enabled		
[Physical]		Switch is connected via GPIO (which depends on button setup) When choosing <i>GPIO</i> , also the button setup can be chosen. In warmstart, also an indication of the menu being read-only or unlocked is stated and changes to the button-setup will take effect immediately.
○ GPIO		
⊙ Setup Switch		Use the onboard (EIO/CIO) switch
[menu readonly]		Indication reflects the actual state of the associated GPIO
Button setup: 1		
↑↓ SEL to input 1/1		

5.5.4.2.12 Volume Scaling

This menu is added to communicate volumes in a different scaling format using the UDC forecourt protocol.

Infrared signal	Battery	Remark
Volume Scaling		Volume Scaling
[Volume times 10]		
[Delivery Volume]		Whether or not to apply scaling on delivery volume to the FCC via the UDC protocol
○ Disabled		
⊙ Enabled		
[Totals Volume]		Whether or not to apply scaling on total volumes to the FCC via UDC protocol
○ Disabled		
⊙ Enabled		
↑↓ SEL to input 1/1		

5.5.4.2.13 Lifetime Volume

This menu is added to switch on and off the administration of lifetime volume for all pulsers. When enabled, the lifetime volume can be requested using the F4 function key when not in a menu session and the dispenser is idle.

Infrared signal	Battery	Remark
Optional Functions		Lifetime Volume store setting
[Function]		
[Lifetime Volume]		



○ Disabled	Whether or not each pulser should store its lifetime volume
⊙ Enabled	
↑↓ SEL to input 1/1	

5.5.4.3 Hydraulic Setup

This selection is needed only when a cold-start with “**calculator defaults**” must be done. When a cold-start with “**factory defaults**” is performed, the correct hydraulic configuration is already available.

Infrared signal	Battery	Remark
Hydraulic Setup		Hydraulic Setup
[Setup ID]		Setup ID:
Q510-5N2		See 5.5.4.3.1
HYM Setup		See 5.5.4.3.2
Pump Setup		See 5.5.4.3.3
VHS Setup		See 5.5.4.3.4
↑↓ press OK 1/1		

5.5.4.3.1 Example Setup ID:

How to change to “Q24-VNB.2X.VNA”

- Press <√> to clear, press <#> to go into alphanumeric mode.
- Press <7> 3X = “Q”, press <2> = “Q2”, press <4> (“Q24”)
- Press <1> 2X = “Q24-“, press <8> 4X = “Q24-V”
- Press <6> 3X = “Q24-VN”, press <2> 3X = “Q24-VNB”
- Press <1> 3X = “Q24-VNB.”, press <2> = “Q24-VNB.2”
- Press <9> 3X = “Q24-VNB.2X”, press <1> 3X = “Q24-VNB.2X.”
- Also type “VNA” as above.
- Use <OK> to accept entrance.
- After the hydraulic setup has changed, automatically the HYM Setup menu is shown (See 5.5.4.3.2).

5.5.4.3.2 HYM setup

Infrared signal	Battery	Remark
Hydraulic Setup		HYM Hydraulic Setup
[Pure High Speed]		The menu shows an overview of all HYM configurations and per HYM side a setting denoting if the nozzles are to be interpreted as ‘pure highspeed’ type, meaning that nozzle’s flow is always 80 l/min high-speed. This pure highspeed setting will only be applied on nozzles of type NS/HS (normal).
[A B:HYM Assignment]		
1□ □:NS/HS(AB)		
2□ □:NS/HS(AB)		
3□ □:NS/HS(AB)		
4□ □:NS/HS(AB)		
5 :Empty		
SEL to input 1/1		

5.5.4.3.3 Pumps setup



Infrared signal	Battery	Remark
Pump Setup		Pump Setup
1 Pump 1		See 5.5.4.3.3.1
2 Pump 2		See 5.5.4.3.3.1
SEL to input	1/1	

5.5.4.3.3.1 Pump setup

Infrared signal	Battery	Remark
Pump 1 Setup		Pump 1 Setup
Num of Prods: 5		Set number of products
Num of Disps: 1		Set number of display's (Satellite)
OIML Test Time: 10		Set OIML display test time (seconds)
[Density Display]		
<input type="radio"/> Enable <input checked="" type="radio"/> Disable		Enable Density display (only for LCD775)
Master display type		Select display type for main display
<input type="radio"/> LCD664		
<input type="radio"/> LCD775		
<input checked="" type="radio"/> VGA		
Unitprice Num: 1		Number of unitprice displays on master display NOTE: Not used for VGA
<input checked="" type="radio"/> Left to Right		Unitprice displays left to right
<input type="radio"/> Right to Left		Unitprice displays right to left
Slave display type		Select display type for slave display. NOTE: currently a mix with VGA is not allowed.
<input type="radio"/> LCD664		
<input type="radio"/> LCD775		
<input checked="" type="radio"/> VGA		
Unitprice Num: 1		Number of unitprice displays on slave display. NOTE: Not used for VGA
<input checked="" type="radio"/> Left to Right		Unitprice displays left to right
<input type="radio"/> Right to Left		Unitprice displays right to left
SEL to input	1/2	

5.5.4.3.4 VHS setup

Infrared signal	Battery	Remark
VHS Setup		VHS Setup
[Max Flow Check]		
30 * sec		
[SHS 0 Flow Check]		
60 * sec		
[Meter No Run Check]		
50 L/min		
SEL to input	1/1	



5.5.4.4 I/O Configuration

Infrared signal	Battery	Remark
IO Configuration		IO Configuration
[Nozzle Contacts]		[Nozzle Contacts]. This setting is only for normal fuel nozzle contacts. For LPG nozzles the setting is done in the LPG menu (see 5.4.4.3)
☉Close ○Open		Normally Closed or Normally Open
Button Setup: 1		Button Setup: Basic configuration for your input/output definitions. This defines the function for each input/output. (see TQC GPIO setup drawing 943757 for details)
↑↓ SEL to input 1/1		

5.5.4.5 Dispenser ID

Infrared signal	Battery	Remark
Dispenser ID		Dispenser ID Version 07.005.00 and newer: Can be changed in Setup RW access level (warmstart) Older versions: Can only be changed during a coldstart. This number is set in the factory. The number should match the dispenser serial number stated on the metal typeplate / sticker.
SN: 123456789012		
↑↓ SEL to input 1/1		

5.5.5 EMT Setup

Infrared signal	Battery	Remark
EMT Setup		EMT Setup Here it is possible to enable the possibility to activate the counters displayed on the dispenser
⊙ Disabled		
○ Enabled		
↑↓ SEL to input 1/1		

When EMT enabled:

Infrared signal	Battery	Remark
EMT Setup		EMT Setup
○ Disabled		
☉ Enabled		
[Assignment per]		
○ Prod		EMT per product
☉ Meter		EMT per meter
[Resolution]		
☉ 1		
○ 0,1		
○ 0,01		



↑↓SEL to input 1/1	
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5.5.6 Meter Setup

Infrared signal	Battery	Remark
Meter Setup		Meter Setup
Meter: 1		Shows the selected meter
[Meter Type]		This is the identification of the meter.
TQM		TQM
Max Flow Rate: 80		Max Flow rate: The maximum flow rate in the meter selected
Pulse Weight: 1		Pulse Weight: This is the volume of the type of meter selected, for example 5cl or 8cl per pulse
EC Factor: 1,0000		EC Factor: Electronic compensation factor
↑↓ num, press OK1/1		

5.5.7 Product Setup

Infrared signal	Battery	Remark
Prod Setup		Product Setup
Prod: Product 1		Product : selects 1 to 8. depending on configuration.
FuelType: Unleaded 95		FuelType : It shows the name of the product chosen
Density: 745		Density: It shows the product's density
Alpha: 0,001213		Alpha: It shows the product's Alpha
Koe:		In case of bio fuel
↑↓ SEL to input 1/1		

5.5.8 System Access

Infrared signal	Battery	Remark
System Access		System Access
1 Level 5 PIN Code		See 5.5.8.1, only when using "PIN Only" access type
2 Revert Default PIN		See 5.5.8.2, only when using "PIN Only" access type
3 Setup Device		See 5.5.8.3
4 Whitelist Update		See 5.5.8.4, only when using "Whitelist" access type
↑↓ num, press OK 1/1		



5.5.8.1 Level 5 PIN code

This menu will only be shown for “PIN Only” access type

Infrared signal	Battery	Remark
Level 5 PIN Code		Level 5 PIN Code
[Enter New PIN]		[Enter New Pin]
*****		The PIN Code must be typed here
[Re-Enter New PIN]		[Re-Enter New Pin]
*****		Confirm the new PIN code
↑↓ SEL to input 1/1		

5.5.8.2 Resume Def Code

This menu will only be shown for “PIN Only” access type

Infrared signal	Battery	Remark
Revert Default PIN		Setup default defined PIN code per menu level
<input type="checkbox"/> Operation		This menu allows resetting the PIN codes to their default values ("restore factory settings").
<input type="checkbox"/> Management		
<input type="checkbox"/> Maintenance		
<input type="checkbox"/> Configuration		
↑↓ SEL to input 1/1		

5.5.8.3 Setup device

Infrared signal	Battery	Remark
Setup Device		Setup Device
⊙HHT		There are two ways of setting the dispenser. In Europe the default is the Hand Held terminal(HHT) ,keypad is not implemented
○ Keypad		
↑↓ SEL to input 1/1		

5.5.8.4 Whitelist Update

This menu is only shown when using the “Whitelist” access type.

Infrared signal	Battery	Remark
Whitelist Update		<p>Expects the file /home/TQC/Transfer/WhiteList.xml to be present (use FTP to get the file there)</p> <p>An SD card is inserted and has a directory structure /mnt/sdcard/home/TQC/Transfer/xxx/WhiteList.xml</p> <p>Offers a selection of all Whitelists found on the SD card</p> <p>Starts the update process. The will also end the menu session.</p>
[Update from]		
○ RAM		
⊙ SD Card		
Texaco		
Update		
Press Key 1/1		



After the update is successful, the following screen is automatically shown:

Infrared signal	Battery	Remark
Whitelist Update		
Update Successful		
Press C to exit		
Press Key	1/1	

5.6 Quit

Quit exits the main menu application on the Hand Held Terminal. In Warmstart, when the user logged in as Maintenance RW or higher level, there is a menu shown before the dispenser comes operational (since V07.005.00). Note: this menu is skipped when the no action timer expired.

Infrared signal	Battery	Remark
Exit Configuration		
1 Backup Config		Update the last known good configuration Actually quit the menus immediately
2 Quit Now		
C to return	1/1	

When quitting the menu. In the LCD or VGA display there will be a message saying that the system is getting back to operational mode.

Infrared signal	Battery	Remark
Quitting Setup		
Parse Setup		
Finished Config		
Standby...	1/1	

It takes about 5-7 sec. When the switch Setup in the TQC hardware is enabled (Facing upwards). Then a message should be displayed in this screen to disable it and then it will get to operational status. When an auto-configure was performed where at least one device failed to software update, the TQC Application will reboot to resolve the CAN software update problem.

Infrared signal	Battery	Remark
OK: Configuration / Login		Configuration (PIN Only) or Login (Whitelist) When the option Quit was chosen. Then this window popped up. This is the first screen shown when the device is turned on
F1:		
F2:		
F3:		
F4:		
F5:		
F6:		
F7:		
F8:		



Press Key	1/1	
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