User Manual

eNodTouch

Touch screen for eNod4 controllers



NU-eNodTouch-E-0314

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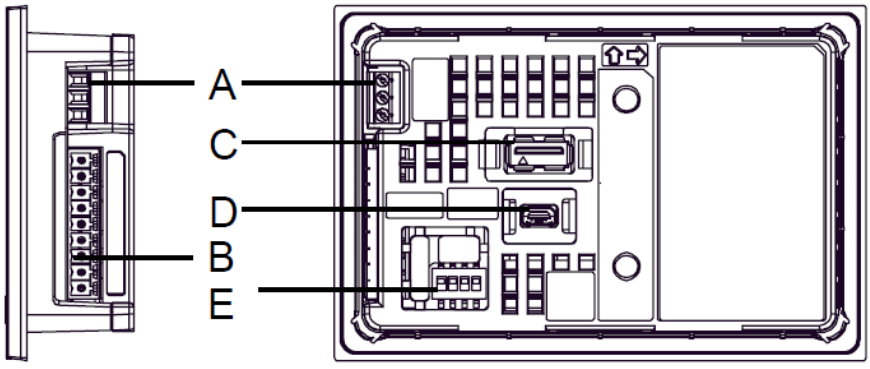
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1. Hardware

1.1. Presentation

eNodTouch, is a compact graphic operator interface with the following specifications:

Display type	Back lighted 3.4" STN Monochrome LCD
Resolution	W200 x H80 pixels
Display area	W80 x H40 mm
Display colours	Monochrome White/Red/Pink (16 Levels)
Backlight	White/Red LED
Brightness / Contrast	16 levels / 8 Levels
Touch Panel type	Resistive film, resolution 1024x1024
Touch panel service life	1,000,000 times or more
Input voltage	24VDC, 6.2W or less
Rated voltage	DC 19.2 to 28.8V
Insulation resistance	DC 500V, 10MΩ
Grounding	Grounding resistance of 100Ω, 2mm² or thicker wire
Dimension	W116.5 x H77.5 x D28mm
Weight	0,2 kg approx.
Panel cut dimension	W105 x H66 mm Panel thickness area: 1 to 5 mm
Surrounding air temperature	0 to +50°C
Ambient humidity	10 to 90 % RH (Wet bulb temperature: 39 °C or less - no condensation.)
Dust	0.1 mg/m³ or less (non-conductive levels)
Storage temperature	-20 to +60°C
Structure	IP65, on the front panel when properly installed in an enclosure
Cooling method	Natural air circulation
Serial Interface COM1	RS-422/485, Asynchronous Transmission, Data Length: 7 or 8 bit, Parity: none, Odd or Even, Stop Bit: 1 or 2 bit, Data Transmission Speed: 2,400 bps to 115.2 kbps, Communication Distance: 30 m or less
USB1 interface	Conforms to USB2.0 (Type A), Power Supply Voltage: DC 5 V ±5 %, Communication Distance: 5 m or less
USB2 interface	Conforms to USB2.0 (mini-B), Communication Distance: 5 m or less

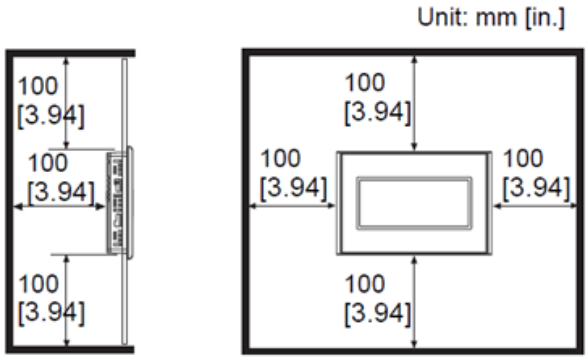


(A) Power Connector
(B) Serial Interface (COM1)
(C) USB (Type A) Interface (USB1)
(D) USB (mini B) Interface (USB2)
(E) DIP Switch (SW1)

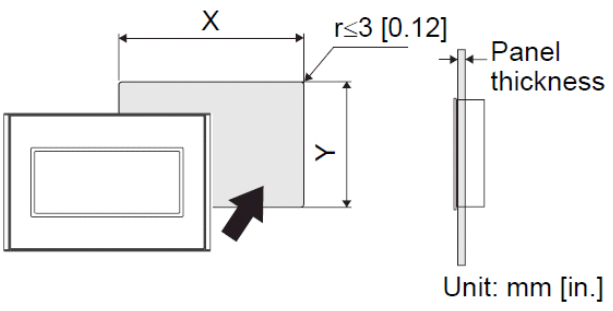
1.2. Installation

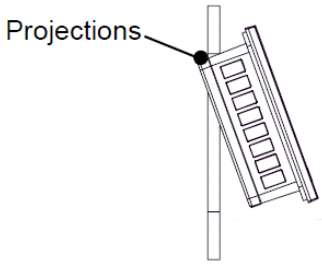
1.2.1. Installation requirements

- For easier maintenance, operation, and improved ventilation, be sure to install eNodTouch at least 100mm [3.94in.] away from adjacent structures and other equipment.
- Be sure that the surrounding air temperature and the ambient humidity are within their designated ranges. (Surrounding air temperature: 0 to 50°C, Ambient humidity: 10 to 90%RH, Wet bulb temperature: 39°C max.) When installing eNodTouch on the panel of a cabinet or enclosure, “Surrounding air temperature” indicates both the panel face and cabinet or enclosure’s internal temperature.



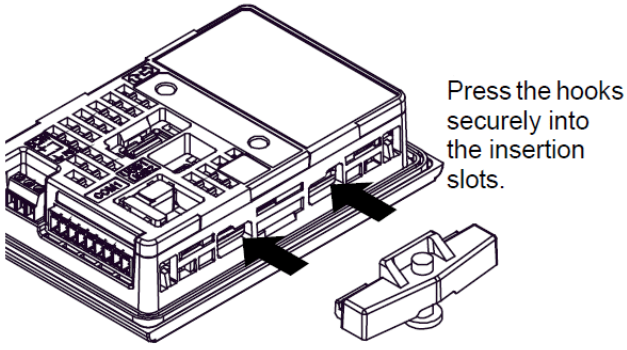
1.2.2. eNodTouch installation

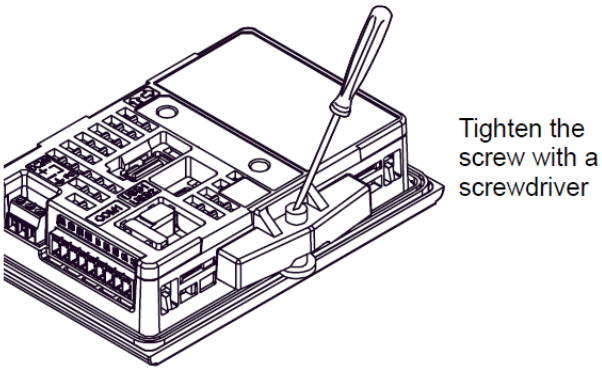




X	Y	Panel thickness	eNodTouch has two projections on the top to prevent falling during installation. Please insert the unit into the panel at an angle to avoid hitting the projections.
105.0 [4.13]	66.0 [2.60]	1.0 [0.04] To 5.0 [0.20]	

- Cut a hole in the panel according to the eNodtouch cutout dimensions.
- Confirm that the installation gasket is attached to eNodTouch unit and then place the unit into the Panel from the front.
- It is strongly recommended that you use the installation gasket, since it absorbs vibration in addition to repelling water.

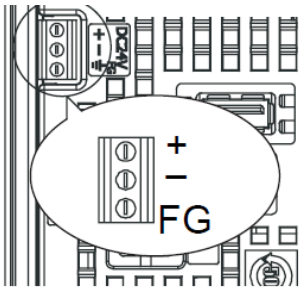




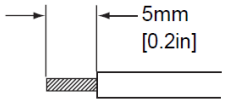
- Press the installation fastener hooks securely into the insertion slots on eNodTouch.
- Tighten the installation fasteners with a screwdriver. There are two insertion slots on both the top and bottom.

1.3. Electrical powering

- Supplying a power voltage other than that specified will damage the power source and the unit.
- When the FG terminal is connected, be sure the wire is grounded.



+	24V
-	0V
FG	Grounding Terminal connected to eNodTouch chassis
Conductor type	Simple Wire: 0.75 to 1.5mm2 Stranded Wire: 0.75 to 1mm2



1.4. RS485 interface for connection to eNod4

- The serial interface is not isolated. Always connect the SG (Signal Ground) of the unit to the connected device.
- SG (Signal Ground) and FG (Frame Ground) are connected internally

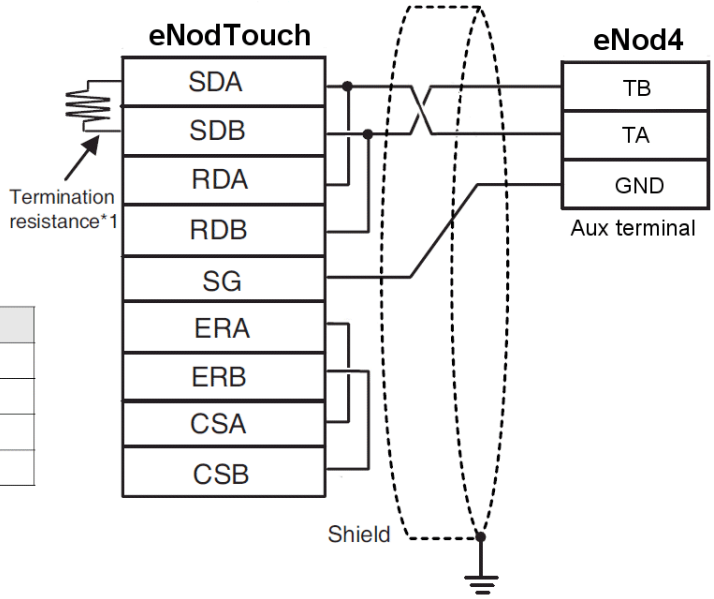
RS422/RS485 terminal Block	
Label	**Meaning**
CSB	Send Possible B (-)
CSA	Send Possible A (+)
ERB	Data Terminal Ready B (-)
ERA	Data Terminal Ready A (+)
SG	Signal Ground
RDB	Receive Data B (-)
RDA	Receive Data A (+)
SDB	Send Data B (-)
SDA	Send Data A (+)

- A terminating resistor can be inserted using the DIP Switch (4-bit) on the rear of the RS-422/485 type. Factory default settings are all set to “OFF” (no terminating resistor).

Important: If the distance between eNodTouch and eNod4 is short (<1m), don’t use terminating resistor on the eNodtouch side as well as the eNod4 side.

*1

DIP Switch No.	Set Value
1	OFF
2	OFF
3	ON
4	ON



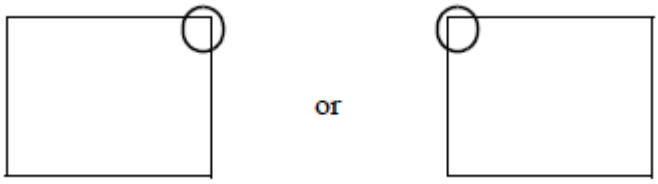
2. Off-Line setting

Offline mode provides access to system settings, self diagnostics, and so on. Use offline mode to set up the display unit before use.

2.1. Entering Offline mode

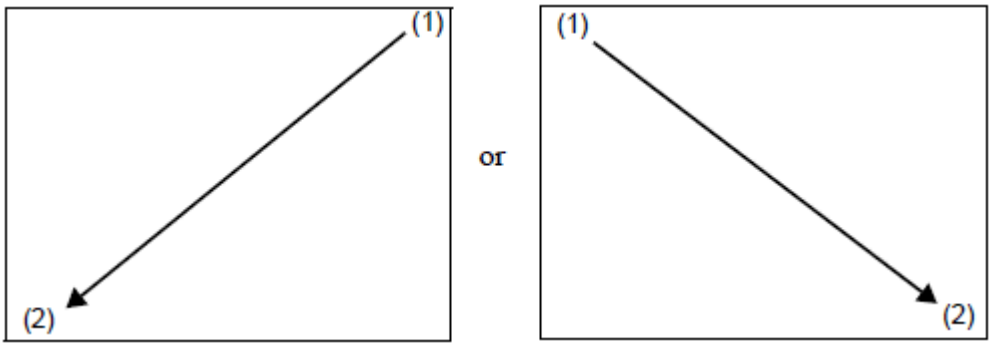
At Power ON

Touch the upper right corner or upper left corner (within 40 pixels of the edges) of the panel for at least 3 seconds soon after the startup screen is displayed.



When Operating

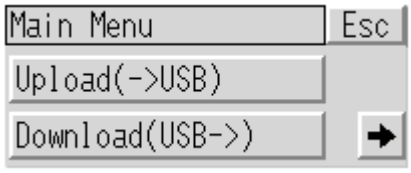
Touch the upper right then bottom left corners, or the upper left and bottom right corners of the panel (within a 40 pixel area) in 0.5 seconds.



When the system menu is displayed, touch the [Offline] button



- Touch [Offline] to go to Offline mode
- Touch [USB] to start the USB memory loader tool, allowing you to upload or download eNodTouch software from USB port.

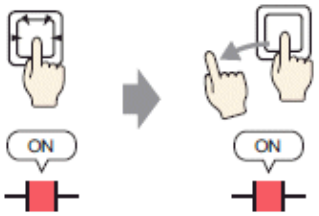
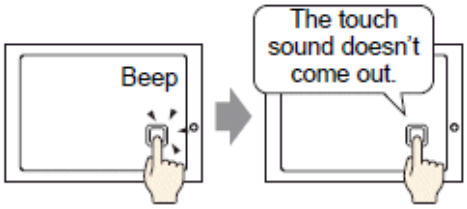


2.2. Offline mode operations

After entering in Offline mode, eNodTouch displays a menu allowing consulting and modifying the eNodTouch settings



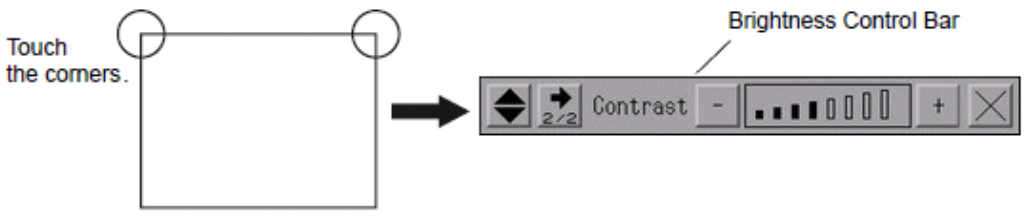
2.2.1. Main unit Menu

Menu Input	Parameter	Description	Default
Screen setting	Initial screen Number	Number of the screen that displays at startup	**1**
	Standby mode setting	Select the standby mode from [None], [Screen OFF], or [Screen Change].	**[None]**
	Standby Mode time	set the time from 1 to 255 minutes after which the screen is cleared	**1**
	Change to Screen N° in Standby Mode	Related to [Screen Change] Standby mode	**1**
Operation Settings	Touch Panel Detection	To detect touch on touching (ON) or Releasing (OFF) the panel 	**ON**
	Touch Buzzer Sound	Enable/Disable the in-built Buzzer sound upon a touch 	**Disable**
Display setting	Show Brightness / contrast control bar	Specify whether to display on touch the Control Bar to adjust brightness and contrast.	**Enable**
	D-Script_debug Function		**Enable**
Menu and Error	System Language		**English**
	Show System Menu		**Lower Part**
	Show Error Online		**[None]**
	Error Display Position		**Lower Part**

Note: **Never change the parameters in grey**

2.2.2. Brightness/contrast control

- To display the Brightness / Contrast Control Bar on the display unit, enable the setting [Show Brightness/Contrast Control Bar] in [Display Settings] (§2.2.1)
- Touch the upper right then left corners, or the Bottom left and right corners of the display in 0.5 seconds.



- To end Brightness/Contrast Control mode, touch the [x] on the Brightness/Contrast Control Bar.

2.2.3. Device/PLC Menu

Menu Input	Parameter	Description	Default
Communication	SIO Type	Set the Communication type	**RS422/485 (2wire)**
	Speed	Communication Speed : Should be set according to eNod4 communication settings	**9600**
	Data Length		**8**
	Parity		**[None]**
	Stop Bit		**2**
	Flow Control		**[None]**
	Time out (s)		**2**
	Retry		**1**
	Wait to send (ms)		**10**
Device	Device Name		**eNod4**
	Slave Address	eNod4 slave address : Should be set according to eNod4 communication settings	**1**
	Max. Query Read Input Reg.		**30**
	Max. Query Read Holding Reg.		**30**
	Max. Query Write Holding Reg.		**30**
Driver Info	Manufacturer		**Schneider Electric SA**
	Series		**MODBUS SIO Master**
	N° of Device		**1**

Note: Never change the parameters in grey

2.2.4. Password menu

Menu Input	Parameter	Description	Default
System Password	System Password	The password setting is used when changing to the Initialize Memory or offline mode screens.	-
Security Password	Security Password	Not used	-

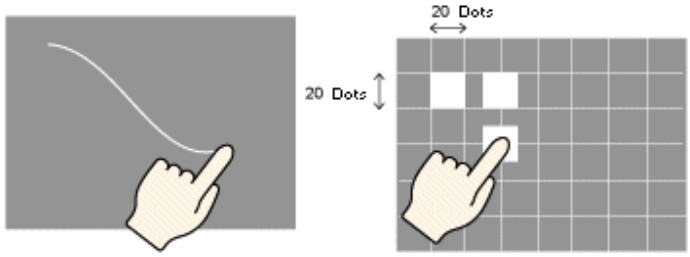
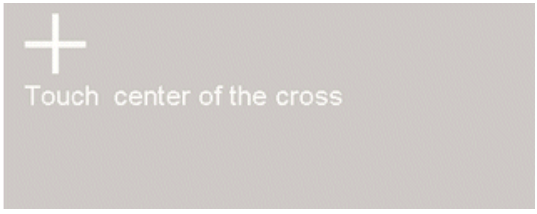
Note: Never change the parameters in grey

2.2.5. Initialize menu

Menu Input	Action
User memory	Deletes all data in the display unit's internal memory. Enter System password to operate, or 1101 (default password)
Backup Data	Clears all the data stored in the display unit's backup memory. Enter System password to operate, or 1101 (default password)

Note: Never use the commands in grey: You'll lost the SCAIME eNodtouch application

2.2.6. Maintenance menu

Menu Input	Action
Check Pattern	Check the drawing function. Confirms whether the liquid crystal display (LCD) displays correctly 
Check Touch Panel	Touch panel check. Checks that the touched area lights up correctly. 
Calibration	Correct an analog touch panel. Continue touching until the crosshatch moves or disappears. 
Check com	Check the send and receive lines of network communication

3. On-Line Functioning

3.1. Startup screens

- At Power-On, the connection screen is displayed while eNodTouch try to communicate with connected eNod4 device.
- If the connection screen is displayed more than 5 seconds or if the communication error screen is displayed, consider the connection cannot be established: check the RS485 wiring (§1.4) and check the eNod4 and eNodTouch communication settings (§2.2.3).



Connection screen



Communication error screen

- When connection is well established with compatible eNod4 model, the following screen is displayed during 3 seconds.

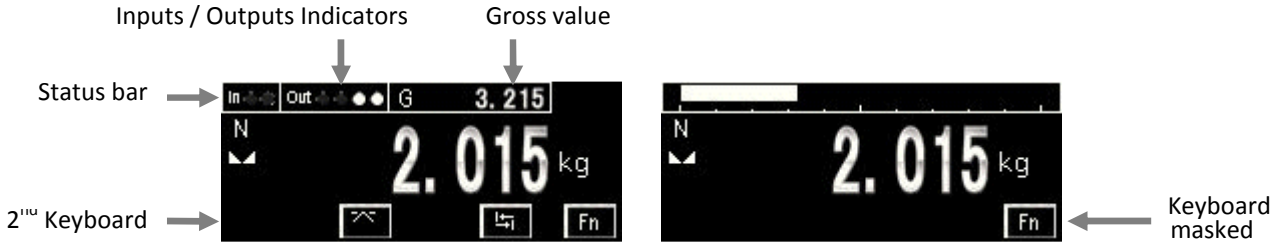


eNod4 model and firmware version

3.2. Main screen

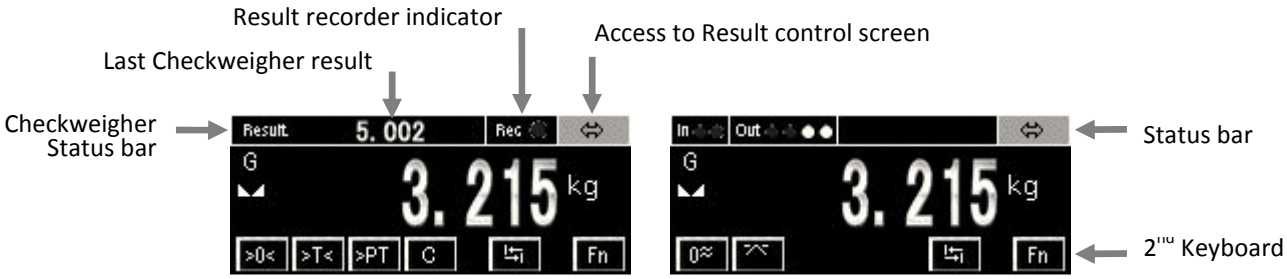
3.2.1. Transmitter mode (eNod4-T, eNod4-C, eNod4-D)





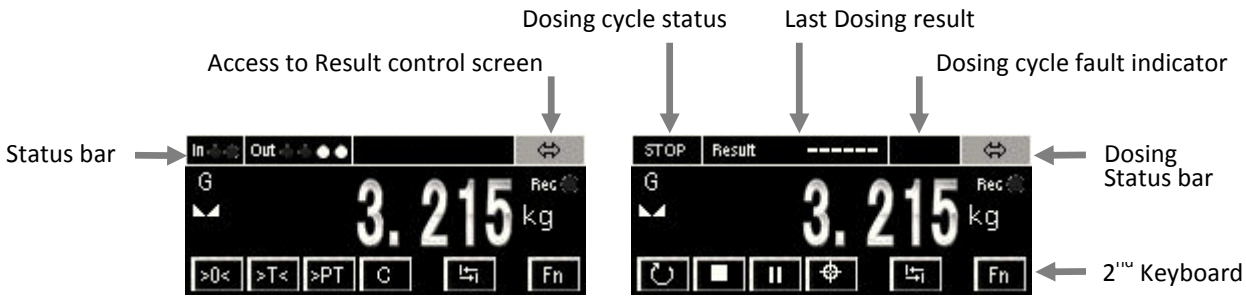
- To switch from the Bar graph to the Status bar, touch the Weight value area
- To switch from the main keyboard to the 2nd keyboard, touch 

3.2.2. Checkweigher mode (eNod4-C)



- To switch from the Bar graph to the Status bar, touch the Weight value area
- To switch from the main keyboard to the 2nd keyboard, touch 

3.2.3. Dosing mode (eNod4-D)



- To switch from the Bar graph to the Status bar, touch the Weight value area
- To switch from the main keyboard to the 2nd keyboard, touch 
- To enter in the Quick Access Menu for dosing data adjustment, touch 

3.2.4. Keyboard functions

eNod4 model	Keyboard touch	Action
Main Keyboard		
All	>0<	ZERO function : possible only under stability condition, according to stability criterion
	>T<	TARE function : possible only under stability condition, according to stability criterion
	>PT	PRESET TARE function
	C	CANCEL TARE function
		Shift to 2nd keyboard
	Fn	Enter to Setup menu
2nd Keyboard		
All		Access to thresholds adjustment screen
eNod4-C	0≈	DYNAMIC ZERO function : Zero calculation (measurement averaging) without stability condition
eNod4-D		START DOSING: Start the dosing cycle if starting conditions are satisfied. Invisible if dosing cycle is ongoing.
		STOP DOSING : Stop the dosing cycle, the dosing counter is not incremented
		SUSPEND DOSING: Visible only if dosing suspension setting is enabled. Allow to restart a suspended dosing cycle without checking starting conditions
		MANUAL EMPTYING: Visible only in filling mode with Manual Emptying mode. Allows to activate the emptying logical output during the emptying phase
		Enter in the Quick Access Menu for dosing data adjustment, see §3.8

3.3. Result displaying and storage (eNod4-C, eNod4-D)

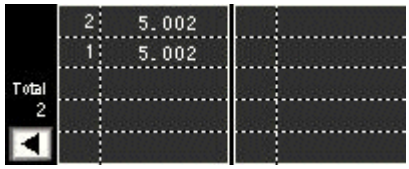
- The Result screen can be displayed from the main screen with ⇔ touch.
- The Result screen shows information related to the result of checkweighing cycle (eNod4-C) or Dosing cycle (eNod4-D): Last result value and statistics (Number of cycle, Result standard deviation and result average).
- From this screen, it is also possible to control a recorder to memorize up to 1000 results with the possibility to transfer these stored results on USB key in .CSV format.



Recorder stopped **Recorder running**

Important note about the recorder:

- When the recorder is running, only the main screen and the result screen are accessible to enable this recording.
- As a consequence, some touch keys giving access to other screens are no longer visible (eg. Access touch to settings menu). To make these buttons visible again, stop the results recorder.

Keyboard touch	Action
	START recorder
	STOP recorder
	Access to a screen displaying the table of stored results 
	Access to a screen allowing the Transfer of stored results to an USB key, under .CSV file. 
Indicators	
	Indicate the recorder running.
	Indicate the maximum recorder capacity (1000 results) is reached

3.4. Main setup menu

- eNodTouch setup menu allows to display and modify all the eNod4 parameters. For more information about parameters, consult eNod4 software manuals.
- Setup menu access can be secured by password (see § 3.4.1). In that case, the following screen is displayed:



- After entering a valid password (or 5555 if you've forgot your password), the following menu is displayed:



eNod4-T: Transmitter mode



eNod4-C: Checkweigher mode

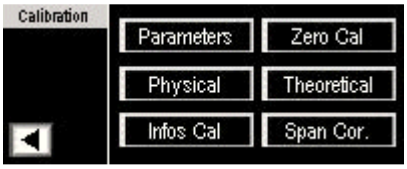


eNod4-D: Dosing mode

3.4.1. eNodTouch setup

Parameter	Possible Value	Description
		
Language	[Fr], [En]	Change the language of eNodTouch software
Keyboard mask	[Yes], [No]	Enable/Disable keyboard display on main screen
Password	[Yes], [No]	Enable/Disable access protection to setup menu
	4 Char	Password value - 5555 (default value) is always valid

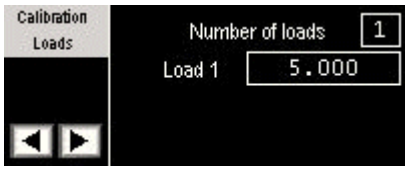
3.4.2. Calibration setup



Parameter	Possible Value	Description
Calibration Parameters		



Range	0 – 1 000 000	Maximum weighing capacity
Division	1, 2, 5, 10, 20, 50	Difference between two consecutive indicated values
Decimals	0-7	Position of decimal point
Unit	4 visible char	Weight measurement unit (g, kg, t, lb…) displayed on main screen
Physical calibration		







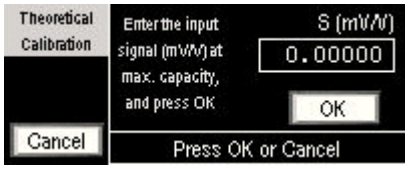
Number of loads	1, 2, 3	Number of calibration loads used during the physical calibration.
load 1/2/3	1 – 1 000 000	Weight values corresponding to each calibration segment.
Zero Calibration		

Allows acquiring stable measurement with no load on the scale to set the calibration Zero



Theoretical calibration		

An automatic scaling to migrate from the factory calibration to the user calibration.

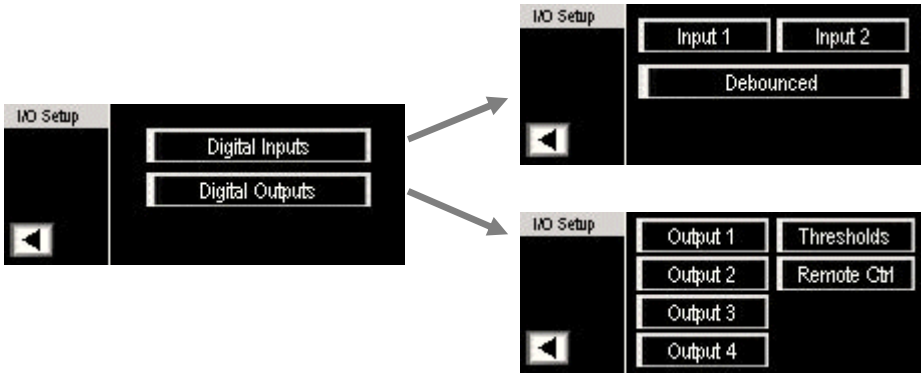


S (mV/V)	0 – 6.00000	Load cell sensitivity in mV/V at maximum capacity
Span Calibration correction		

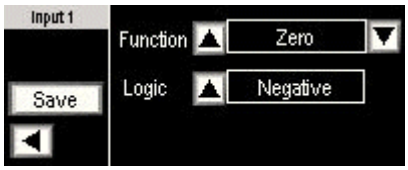


Span. cor	0.9 – 1.100000	Allows to adjust initial calibration
Calibration g	>0 (9.805470)	Allows compensating the gravity difference between calibration place and using place.
Use g	>0 (9.805470)	

3.4.3. I/O Setup

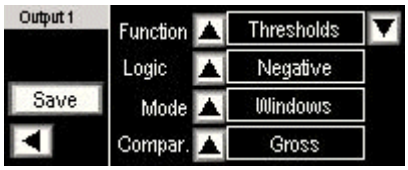


Parameter	Possible Value	Description
Input 1-2 Parameters		





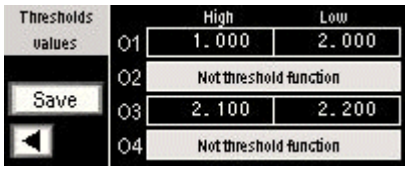
Function	Function assigned to the related input : None, Zero, Tare, Clear, Start cycle, stop cycle, Suspend cycle, Dynamic Zero, Manual emptying	
Logic	[Positive]-[Negative]	defines the edge (or level) that triggers input function
Debounced time	0 - 65535	Minimum required time of the logical inputs before their activation
Output 1-4 Parameters		



Function	Function assigned to the related output : None, Thresholds, Stability, Coarse feed, High feed, fine feed, Cycle ongoing, result available, Out of tolerance, Dosing fault, Input copy, Remote control	
Logic	[Positive], [Negative]	Defines idle output state.
Mode	[Windows], [Hysteresis]	Thresholds functioning principle
Comparison	[Gross], [Net], [result]	Comparison value for thresholds control

Thresholds control

Allows modifying the Threshold values of the concerned outputs.



Remote Control

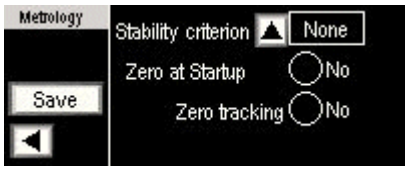
Allows fixing the level [On], [Off], of the concerned outputs.



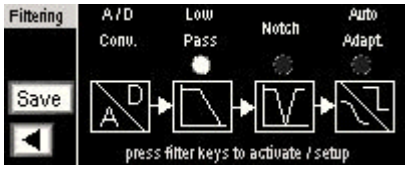
3.4.4. Configuration Setup



Parameter	Possible Value	Description
Metrology Parameters		

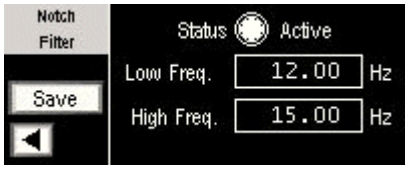


Stability criterion	None, 0.25 0.5, 1, 2d	Defines a stability interval, related to scale interval.
Zero at Startup	[Yes], [No]	Enable the Automatic Zeroing at power-on
Zero Tracking	[Yes], [No]	Enable the Zero tracking function
Digital Filtering parameters		









A/D converter parameters

Rejection	[50Hz]-[60Hz]	The A/D converter have In-built adjustable low-pass filter with frequency rejection of 50 Hz or 60 Hz harmonics.
Frequency	6 – 1600 Hz	Filtered measurement frequency is adjustable from 6.25 to 1600 Hz

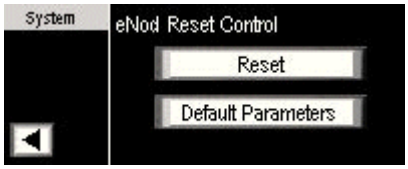
Bessel low-pass filter parameters

Filter Order	0, 2, 3, 4	For the suppression of periodic vibrations, a Bessel low-pass digital filter can be applied as an output of the A/D converter. Minimum cut-off frequency value depend on the A/D converter rate: 0.10 Hz for 6.25 meas/s, 4 Hz for 400 meas/s
Cut-Off Frequency	0.1 to 200Hz	

Notch Filter parameters

High & Low Frequency	0.1 to 200Hz	Frequency band to attenuate with the digital Notch filter
Reset, factory setting		

Allows resetting eNod4 or making eNod4 come back to factory settings

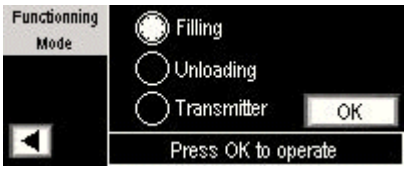


3.4.5. Function mode setup (eNod4-C & eNod4-D)

- According to the eNod4 model, the following screen is displayed to select the functioning mode



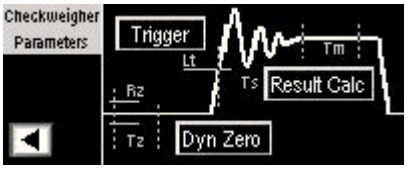
eNod4-C

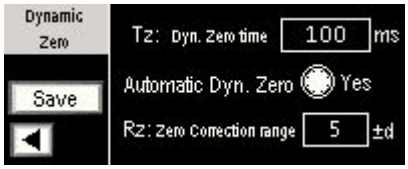


eNod4-D

3.5. Checkweigher Setup menu (eNod4-C)

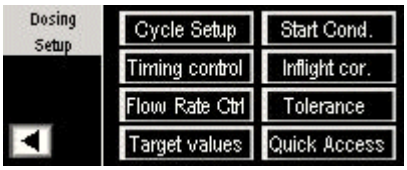
- Detailed explanations on checkweigher functioning and parameters could be found into eNod4-C manuals
- The following setup menu allows modifying the parameters related to checkweigher mode.



Parameter	Possible Value	Description
Dynamic Zero parameters		
		
Dyn. Zero time	0 – 65535 ms	The 'Dynamic zero' function is the acquisition of a zero without stability criterion, obtained by averaging measurements during the specified time.
Automatic Dyn. Zero	[Yes], [No]	Automatic zero correction allows to dynamically track the Zero evolution. When enabled, an average Zero value is continuously calculated, using the 'Dyn Zero time' and 'Zero Correction range' parameters.
Zero correction range	0 – 255d	
Checkweigher Trigger level parameter		
		
Checkweigher start Level	0 – Max. capacity	The weight determination cycle can be started by a trigger level, when the load cell signal reaches the specified value.
Result calculation settings		
		
		
Stabilization time	0 – 65535 ms	During this time, measurements are not taken into account for result calculation
Measuring time	0 – 65535 ms	During that time the signal is taken in account to calculate the result.
Result correction	0.9 – 1.100000	Eventually used to adjust the checkweigher result.

3.6. Dosing Setup menu (eNod4-D)

- Detailed explanations on Dosing functioning and parameters could be found into eNod4-D manuals
- The following setup menu allows modifying the parameters related to dosing (Filling or Unloading) mode.



3.6.1. Dosing Cycle Setup

Parameter	Possible Value	Description
Dosing cycle parameters		







▶ **Page 1/3**

Feeds sequence	eNod4-D could manage up to 3 feeds: High Feed (HF), Coarse Feed (CF), Fine Feed (FF). The number and order of used feeds during a cycle is configured by this parameter.	
Auto. TARE at Start	[Yes], [No]	If enable, TARE function is operated after each dosing cycle start

▶ **Page 2/3**

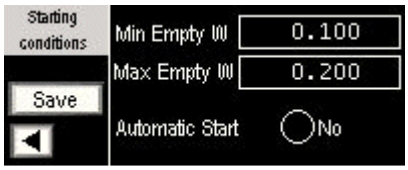
Emptying / reloading	[No], [At End], [At Start]	define the activation / deactivation and position of emptying (Reloading in unloading mode) option
Emptying mode	[Auto], [Manual]	In filling mode, define the emptying mode: In manual mode, emptying start after input 'Manual Emptying' activation
Emptying end level	0 – 1 000 000	The 'emptying' output is disabled if the net value becomes inferior to this level and if the 'emptying holding time' has elapsed.
Reloading Min Level	0 – 1 000 000	Output assigned to the reloading function is activated if the gross measurement is less than reloading Min Level, until the measurement become greater than reloading max Level.
Reloading Max Level	0 – 1 000 000	

▶ **Page 3/3**

Dynamic mode	[Yes], [No]	Selecting this option replaces the stability condition for taking tare / results by averaging measurements over the 'Calc time Tare/Result'.
Activ FF if OUT-	[Yes], [No]	In filling mode, this option automatically restart the Fine Feed if dosing result is below low tolerance
Suspend/Resume cycle allowed	[Yes], [No]	Allows SUSPEND and RESUME cycle. It makes possible to restart a dosing cycle when starting weight is greater than "empty max. weight".

3.6.2. Starting conditions setup

Parameter	Possible Value	Description
Starting Conditions		





▶ **Filling mode**

Min. empty weight	± 500 000	Allow empty packing presence verification at the start of cycle: Min empty weight < Gross measurement <Max empty weight. If Min empty weight = Max empty weight = 0: No verification
Max. empty weight		
Automatic start	[Yes], [No]	Filling cycle starts automatically when the gross weight is between the 'Min. empty weight' and 'Max. empty weight'.

▶ **Unloading mode**

Residual weight	0 – 1 000 000	eNod4-D refuse 'start cycle' and reports a dosing error if gross measurement <(target weight + residual weight).

3.6.3. Dosing Timing Setup

Parameter	Possible Value	Description
Timing parameters		







▶ **Page 1/3**

Start cycle delay	0 – 65535 ms	This stabilization time precedes the tare execution.
Meas. Stab delay		This stabilization time follows the FF stop. After this delay, a new dosing result is calculated by eNod4 –D under stability conditions.
End of cycle delay		This waiting time occurs after Emptying/Reloading. A dosing cycle is considered complete after this delay.

▶ **Page 2/3**

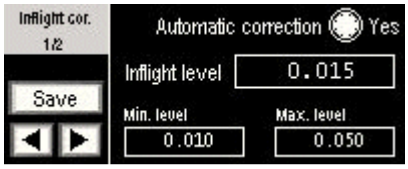
HF / CF / FF masking time	0 – 65535 ms	During this delay, flow rate and level control are disabled to mask the dynamic effects caused by the related feed activation.

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Emptying / Reloading Holding time	0 – 65535 ms	Defines how long the 'emptying / Reloading' output remains active after the ending of Emptying (or reloading) conditions.
Calculation time for Tare / result		Max. time to search stability for Tare or Result determination. In dynamic mode, Time to calculate Tare or Result
Dynamic Zero time		time for average calculation used for 'Dynamic Zero' command

3.6.4. In-flight correction Settings

Parameter	Possible Value	Description
In-flight correction parameters		





▶ **Page 1/2**

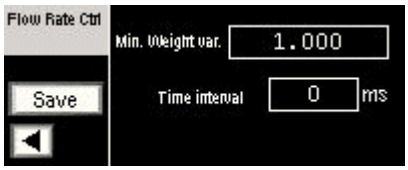
Automatic correction	[Yes], [No]	If enable, In-flight level is automatically corrected at each end of cycle.
In-Flight weight Level	±500 000	In-flight Level corresponds to the weight of product that carries on falling after the FF output is disabled. Its value can be automatically corrected.
Min / Max In-Flight level	±32768	Min In-flight Level < In-flight Level < max In-flight Level. If this condition is not satisfied, In-flight is not changed. If these levels are zero, there is no control of limits. But regardless of these limitations, the value calculated automatically is limited to FF level.

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Correction %	0 – 100 %	If Automatic correction enabled, the correction formula is: In-flight = In-flight + (Dosing result – Target weight) x Correction %.
X3 correction if Out of Tolerance	[Yes], [No]	If the Dosing result is out of Tolerance, 'Correction %' is multiplied by 3 (limited at 100 %) inside the correction formula.

3.6.5. Flow rate control settings

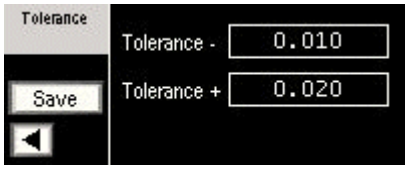
Parameter	Possible Value	Description
Flow rate control parameters		



Min. weight variation	0 – 65535	Enable if time interval >0. If during 'Time interval', the net measurement has been change of less than the 'minimal weight variation', then the cycle is stopped and a flow rate error is detected.
Time Interval	0 – 65535 ms	

3.6.6. Dosing Tolerance control

Parameter	Possible Value	Description
Tolerance control parameters		



Tolerance – and +	0 – 65565	Define the acceptable range for dosing results. An output assigned to the 'out of tolerances' is set active if the dosing result is not within the range.

3.7. Dosing Target values

- Target adjustment screen can be displayed from the Setup menu or directly from the main screen with  touch.
- According to the Feed sequence setting, the following screen are displayed:

Parameter	Possible Value	Description
Target values Adjustment		



CF only



CF-FF
(CF+FF)-FF



FF-CF-FF
FF-(CF+FF)-FF



HF-CF-FF
(HF+CF+FF)-(CF+FF)-FF
(HF+CF)-CF-FF

Target weight	0 – 1 000 000	Target weight represents the value to reach at the end of the dosing process.
CF to FF Level	0 – 1 000 000	Used in sequences using at least 2 or 3 feeds. Defines the transition threshold, relative to the target weight, between the Coarse feed and Fine Feed phase.
FF to CF Level		Used in sequences where FF comes before a CF phase. Defines the transition threshold, relative to the target weight, between the Fine Feed and Coarse Feed phase.
HF to CF Level		Used in sequences using 3 feeds. Defines the transition threshold, relative to the target weight, between the High Feed and Coarse Feed phase.

3.8. Configuration of Quick Access menu



- Allows selecting the dosing data accessible by the  touch, from the main screen (§3.2.3 and §3.2.4).
- With the example shown above, the  touch will open the following menu :

