ACE
Take control

ECOBITE 3

User manual

Version 10/2024

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1. General presentation

Ecobite 3 has been designed to easily and economically control the spreading of solid materials (salt, crushed stone, or sand) and liquids (brine or prewet solution). It allows for constant spreading, independent of the speed of the vehicle carrying the spreader.

1.1. Console

The Ecobite 3 console allows you to:

- select the type of solid material to spread (up to 4) and one type of liquid.
- define the spreading rate of solid materials (theoretically between 5 and 995 kg/km or g/m^2).
- adjust the spreading width (theoretically between 0.5 and 9.5 m).
- perform a blast at any time according to programmed parameters.
- define the prewet percentage (calcium chloride, sodium).
- unload the spreader.

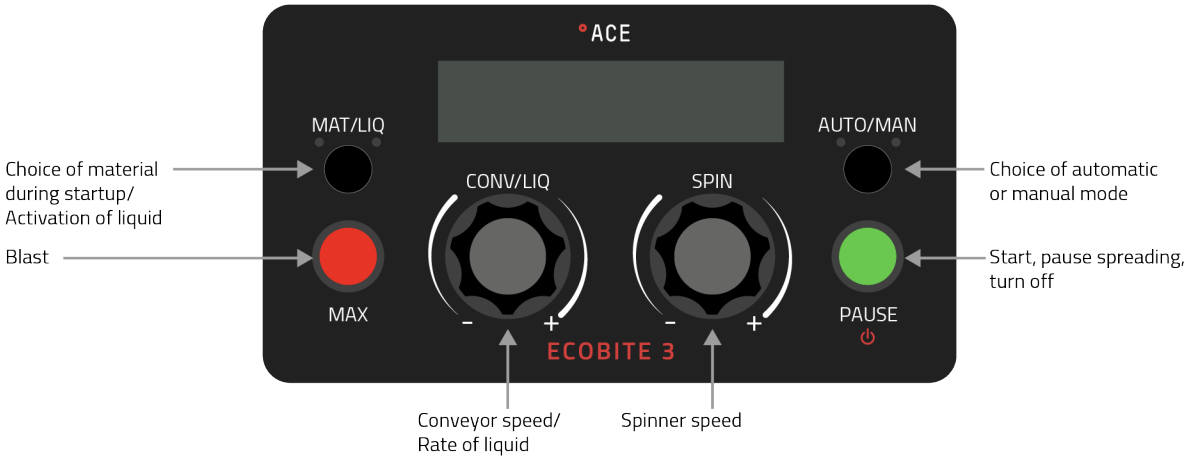
1.2. Reports

The Infobite software allows you to create reports for multiple vehicles and operators as well as to work in multi-user mode. It requires linking the Infobite GPS data collection system to the Ecobite. The system automatically transfers data when getting back to the garage.

The system is also compatible with most real-time GPS companies.

1.3. Modes of use

The Ecobite 3 controller works in three modes: operation, unloading, and configuration. This section presents a brief description of these modes.



Operation

The usual way of using the spreader. Automatic mode manages quantities and manual mode works in percentages.

Automatic mode : in closed-loop, changes in function of the chosen spreading rate. Linked to the vehicle's speed.

Manual mode : in open-loop, adjustment of the spreading rate between 0-100%. Not linked to the vehicle's speed

Unloading

In order to use unloading, the vehicle must be stationary.

Configuration

Allows you to perform the adjustments of the controller (calibration, certain parameter settings, and choice of specific operations). Even though the controller is preconfigured by default, you must calibrate it in order to spread accurate quantities and select operation parameters prior to the operator using the spreader. Refer to appendices 1 and 2, page 37.

2. Operation

The basic control functions for operating the controller are: start-up, selecting the material, starting and pausing spreading, shut-down, selecting the operation mode (optional), blasting and altered functioning.

NOTE: When the vehicle key is at the off position, the controller is not operational.

Starting operations

- To turn the controller on, presse on PAUSE.
- Upon starting, the controller displays the material type selected during last use. To select another type of material, press MAT/LIQ. This selection does not start the spinner.
- To start spreading, press PAUSE.
- To pause spreading, press PAUSE again. PAUSE is displayed on screen.
- To turn the controller off, hold PAUSE for 2 seconds or turn the vehicle off.

NOTE: To select either manual or automatic mode, press AUTO/MAN. According to your choice, AUTO or MANUAL is displayed on screen. In certain cases, selecting manual mode is not possible.

2.1. Activation of prewet

Once the controller is in operation, prewet can be activated by pressing MAT/LIQ. The LED light under LIQ will be turned on when prewet is in function.

How to change the prewet rate:

1. Hold MAT/LIQ pressed
2. Change the value with CONV/LIQ.

An alarm will sound along with an error message when liquids are empty or when the flow meter is malfunctioning.

2.2. Manual mode

In manual mode, the available speeds for the conveyor (between 0 and 100) and for the spinner (between 0 and 3.0m) are directly linked to the positions of the CONV/LIQ (conveyor) and SPIN (spinner) knobs.

The controller adjusts the electro-hydraulic valves in order for each movement of SPIN and CONV to be within their minimum and maximum values.

> By default, manual mode does not allow spreading while the vehicle is moving. For certain specific uses, it is possible to allow it (see MAN, page 31).

> In manual mode, the controller calculates the quantities spread. If you use it to unload your truck, this will cause errors in your spreading reports. This mode can be useful for certain diagnostics or specific cases.

2.3. Automatic mode

In automatic mode (AUTO/MAN button), the spreading rate is selected with the CONV/LIQ knob and the speed of the vehicle.

When spreading in kg/km, the spreading width remains independent of the vehicle speed, as in manual mode. When spreading in g/m^2, the spreading rate changes in function of the spreading width.

> It is recommended to use automatic in all normal spreading cases.

2.4. Blasting

Blasts are used to increase spreading over a short distance. By pressing once on MAX, a blast is activated. The programmed rate and width are displayed intermittently for the defined duration. In manual mode, the word MAX and the width value blink on screen for the duration of the blast.

To stop the blast before the defined duration, press a second time on MAX.

2.5. Altered functioning

The Ecobite 3 system is designed to ensure continuous operation even in the event of sensor failure. It also offers a specific signaling mode via the two material selection lights and sound signals.

Loss of the conveyor speed signal

The controller emits a rapid, repetitive beeping sound, and the light below MAT flashes quickly. The displayed spreading rate is zero, and then BDCONV (conveyor breakdown) appears, also indicated by the light below AUTO.

This mode allows the controller to carry out spreading operations without receiving a signal from the conveyor (sensor failure). Spreading remains proportional to the vehicle's movement and considers the selected rate and type of material by simulating the signal (much less accurate).

The controller returns to normal mode when powered off. It will automatically switch back to breakdown mode as long as the issue has not been resolved.

The light under MAT will continue to flash slowly to indicate the absence of the conveyor signal.

For liquid, same as for the conveyor, but indicated by the light under LIQ.

If the lights under MAT and LIQ stop flashing, the signal has been restored.

Maximum speed exceeded

The controller emits a slow repetitive beep. No message is displayed. This indicates that the vehicle speed exceeds the maximum programmed speed for spreading (refer to MAXSPD, page 14).

> Reduce vehicle speed.

Hydraulic capacity exceeded

The controller emits a fast repetitive beep and the LED under MAT flashes. The display indicates the real spreading rate, not the selected one. This indicates that the spreading hydraulic capacity is at its maximum. For the rate of prewet, there will only be a beep and the LED flashing under LIQ.

> Reduce vehicle speed or spreading rate.

3. Unloading

Before unloading:

- Halt the vehicle.
- Turn the controller off.

How to unload:

1. Press MAX. The controller displays UNLOADING.
2. Press PAUSE.
3. Adjust conveyor and spinner speeds with CONV/LIQ and SPIN.
4. To activate the liquid pump, press and hold MAT/LIQ and adjust the percentage.
5. To stop spreading, press PAUSE. The controller displays UNLOADING.
   or
   Press MAX to exit unloading mode and turn the controller off.

> When the vehicle key is at the off position, the controller is shut down.

4. Configuration

Configuration mode allows you to set specific parameters for the vehicle and for the desired spreading type. This must be done before the first use of the controller.

WARNING
When proceeding with configuration, the access to some menus may trigger the start of the conveyor, the spinner or the liquid pump due to the implementation of values programmed either by default or from the previous configuration. Make sure that the start of the conveyor and the spinner cannot cause any dangerous situations.

Configuration mode allows you to:

- perform calibration (recommended at the beginning of each winter or when a major change is made to hydraulics).
- configure the controller to address the operator's needs.
- provide some additional features.

4.1. Navigating in configuration mode

1. Turn on the controller.
2. Hold MAX and PAUSE for 2 seconds. The controller beeps to confirm that the system is in configuration mode and CONFIG is displayed on screen.
3. Turn CONV/LIQ to navigate in menus and options.
4. Turn SPIN to change values inside different menus and options.
5. Press PAUSE to select or validate and on MAX to cancel or come back.

> If the controller prompts you for an access code, this means the default one (1234) has been modified. If you have forgotten the access code, only an ACE technician can unlock the controller (see Contact, page 36).

4.2. Important procedures

The following procedures are important for initially setting up your controller. Explanations for each of these are found in the configuration menus section.

If you are consulting the electronic version of this manual, you can click on any procedure to skip to the right page.

4.2.1. Calibration

It is recommended to calibrate your controller in the following order and to have your calibration form at hand to note the values, see «Appendix 3: Calibration form», page 52.

> The values obtained during calibration will only remain valid as long as the gate height is maintained. It is recommended to add a visual marker to easily return it to the correct height after it is changed.

1: Adjustment of the signal/distance ratio

This can be done with the following functions:

1KM, page 12

KM/H, page 13

2: Adjustment of the conveyor hydraulics

This can be done with the following functions:

MIN, page 15

MAX, page 16

3: Adjustment of the spreading rate

This can be done with the following functions:

CALIBR, page 18

AUTO-C, page 22

4: Adjustment of prewet flow (if applicable)

This can be done with the following function:

PRW-M > CALIBR, page 25

5: Adjustment of the spreading width

This can be done with the following function:

WIDTH > CALIBR, page 28

4.3. Configuration menus (in order)

SPEED

The signal/distance ratio adjustment is made through the SPEED menu. This setting allows the controller to count the number of pulses that the transmission sends when the vehicle travels a given distance.

The accessible settings are SPDTST, DSTSET, SPDSET, and SPDSIM.

SPEED > SPDTST (SPEED TEST)

Allows you to verify the adjusted speed.

The controller displays the speed in km/h, which is read in real time. If the displayed speed is different from the actual vehicle speed, there are 2 methods to make the adjustment:

- The 1km or distance set method
- The KM/H or speed set method

Use only one of these methods.

SPEED > 1KM

Allows you to calibrate the speed in relation to distance.

> **IMPORTANT :**
> During calibration, it is important not to exceed the maximum number of pulses of 90 000.

To adjust:

1. Put the vehicle at the beginning of a measured kilometer.
2. Select 1KM and press PAUSE. The controller displays START.
3. Start the vehicle.
4. The controller counts and displays the pulses coming from the transmission.
5. Move the vehicle along the entire kilometer.
6. Once the kilometer is completed, note the number of pulses displayed on screen for the 1km and write it down in the calibration form, see «Appendix 3: Calibration form», page 52, and press PAUSE to save the adjustment.
7. The controller displays SAVED.

SPEED > KM/H

Allows you to calibrate to the actual vehicle speed.

To adjust:

1. Select KM/H.
2. The controller displays the speed in km/h already calibrated on the left and the adjustment value on the right.
3. Choose the adjustment speed with SPIN. It is recommended to set this to 40km/h or more to gain precision.
4. Start driving. When the real vehicle speed is stabilized with the adjustment speed on the odometer, press PAUSE to save.
5. The controller displays SAVED.

> When using the KM/H function to adjust the speed, you need to press MAT. TYPE to display 1KM or KM/H to view the number of pulses for 1km/h. Note the number of pulses displayed on screen for the 1km and write it down in the calibration form, see «Appendix 3: Calibration form», page 52, and press PAUSE to save the adjustment.

SPEED > SPDSIM (SPEED SIMULATOR)

Allows you to simulate the vehicle moving speed and send it to the controller.

IMPORTANT :
The configuration of the simulated speed is reset to zero (0) when shutting down the controller.

To enter simulated speed

1. Select SPDSIM. The controller displays 0.
2. Select the simulation speed in km/h.

OPER (OPERATION)

By default, the only operations available on an Ecobite 3 are spreading solids and prewet. To have access to road washing and DLA, as well as other options such as different sensors, you must link your controller to an ACE Vu screen. Certain external modules may be required.

OPER > **SPR+P** (SPREADING SOLIDS + PREWET)

OPER > SPR+P > **REFSPD** (REFERENCE SPEED)

Allows you to change the reference speed of manual mode (between 0 and 60 km/h).

OPER > SPR+P > **MAXSPD** (MAXIMUM SPEED)

Allows you to define the maximum spreading speed (between 0 and 99 km/h). If, during operation, the vehicle surpasses the maximum value defined, the controller beeps.

OPER > SPR+P > **SPRG** (PROGRAMMABLE STEPS FOR SOLIDS)

Allows you to make available programmable steps (rates) for solids.

OPER > SPR+P > **P-SPRG** (PROGRAMMABLE STEPS FOR PREWET)

Allows you to make available programmable steps (rates) for prewet.

HYDR (HYDRAULICS)

HYDR > **SPR** (SPREADING) **/ PREW** (PREWET)

Allows you to configure hydraulics for spreading solids and prewet.

HYDR > SPR OR PREW > **MIN** (MINIMUM OPENING OF HYDRAULIC VALVE OR LIQUID PUMP)

Allows you to adjust a minimum speed of the conveyor or liquid pump in order to reduce the delay as much as possible when beginning operations.

Must be adjusted with a low vehicle speed in order to have hydraulic capacity at a minimum. This will prevent the conveyor from stopping when the vehicle is rolling slowly.

To adjust the minimum valve opening:

1. Select SPR > MIN.
2. Turn CONV/LIQ to progressively increase tension.
3. When the conveyor starts to move, note the value between 8% and 50% on the left of the screen and the rpm value on the right on the calibration form see «Appendix 3: Calibration form», page 52.
4. Press PAUSE to save the minimum speed. If the controller produces 3 rapid beeps, this means the rpm are either at 0, or unstable.

To choose minimum prewet speed:

Same procedure as for the conveyor, but in PREW > MIN.

> Certain hydraulic systems require the conveyor to be running for the liquids to work. In this case, you can activate the conveyor by turning SPIN during the MIN/MAX adjustments for the liquids.

HYDR > SPR OR PREW > **MAX**
(MAXIMUM SPEED OF CONVEYOR OR LIQUIDS PUMP)

Allows you to set a maximum speed of the conveyor or liquid pump in order to avoid uselessly opening up the hydraulic valve.

It is important to set the MAX as high as possible to avoid hydraulic capacity alarms. It is not a limit, but rather a maximum capacity.

To adjust the maximum valve opening:

1. Select SPR > MAX.
2. Turn CONV/LIQ to progressively increase tension until the rpm value stops increasing.
3. Note the value from MIN to 99% that appears on the left of the screen and the rpm value on the right on the calibration form, see «Appendix 3: Calibration form», page 52.
4. Press PAUSE to save the maximum speed. If the controller produces 3 rapid beeps, this means the rpm are either at 0 or are unstable. In this case, it is recommended to redo the procedure. If the same happens again, make sure the conveyor sensor is functional.

To choose maximum prewet speed:

Same procedure as for the conveyor, but in PREW > MAX.

> Certain hydraulic systems require the conveyor to be running for the liquids to work. In this case, you can activate the conveyor by turning SPIN during the MIN/MAX adjustments for the liquids.

HYDR > SPR OR PREW > **BOOST**

Increases the energy sent to the conveyor or the pump for a certain duration to trigger a quick start as soon as the truck starts moving. You can choose how much energy between 0-40% in additional PWM to the MIN is used and for how long.

The duration can be adjusted between 0 and 10 seconds in steps of 0.5 seconds.

To configure the boost:

1. Select BOOST.
2. Turn CONV/LIQ to select desired speed.
3. Turn SPIN to select desired duration.
4. Press PAUSE to confirm your choices.

HYDR > SPR OR PREW > **M/PPR** (PULSES PER REV.)

Allows you to select the number of pulses for a complete motor rotation generated by the speed sensor of the conveyor's hydraulic motor (30 for ACE) or by the liquid pump's flow meter.

HYDR > SPR OR PREW > **POLAR** (POLARITY: NPN OR PNP SENSOR)

Allows you to choose between NPN or PNP sensors.

By default, ACE conveyor sensors are NPN and ACE flow meters are PNP.

HYDR > SPR OR PREW > **VALVE** (HYDRAULIC VALVE TYPE)

Allows you to select the model of valve used with the controller.

HYDR > SPR OR PREW > **FRQ HZ** (PWM OUTPUT FREQUENCY)

Allows you to select the frequency recommended by the manufacturer (225 Hz for ACE valves).

Select the frequency closest to the one recommended by the manufacturer of the hydraulic valve (14/28/56/112/225/450/900).

SOL-M (SOLID MATERIALS)

Allows you to configure the different solid materials: **SALT, SAND, MAT A and MAT B**

SOL-M > MATERIAL > **CALIBR** (CALIBRATION)

This function calibrates the flow rate for materials.

> **IMPORTANT**
> It is essential to make this adjustment for at least one of the materials that has a different trap height. For those that have the same height as the one for which the flow rate is calibrated, you can simulate the procedure without the calibration box and while being empty. Go all the way to the same number of rotations of the conveyor motor as for the material that has just been calibrated. You can use the AUTO-C function (see AUTO-C, page 22). Make sure you have the spreader calibration form at hand , see «Appendix 3: Calibration form», page 52

The calibration procedure consists in filling up a 1/4m³ bottomless box placed under the spinner.

To calibrate:

1. Select CALIBR. The controller displays START.
2. Start the conveyor by turning CONV/LIQ. Select a speed that represents what you would normally use when spreading.
3. When the box is full, turn CONV/LIQ to the left until the conveyor stops.
4. Note the cumulative value displayed on the right in the calibration form, in the number of revolutions column, see «Appendix 3: Calibration form», page 52.
5. Press PAUSE to save calibration.
6. The controller displays a default estimated value in kg for 1/4m³ of the calibrated material.
7. If this value is correct for your material, press PAUSE to confirm the weight in kg of the material that has just been unloaded.
8. If this value is incorrect, select the corresponding value for your material by turning CONV/LIQ, as well as SPIN for decimals. Note this value in the calibration form and press PAUSE to confirm.
9. Press MAT/LIQ and note the constant in the calibration form, in the calibration constant column.

To modify the calibration constant:

> Except for certain specific cases, you will not need to modify the constant. Modifying it can decalibrate your controller.

1. Press MAT/LIQ once.
2. Press PAUSE within a delay of two seconds. The first number of the constant will blink.
3. Modify its value with SPIN and confirm with PAUSE.
4. Repeat for the 4 other numbers.

> Make sure that the trap height is the one kept for the salt. It is possible to pause the calibration by turning CONV/LIQ to the left until the controller displays 0 to verify the filling of the box and restart it later if necessary. It is always possible to cancel the calibration in progress by pressing MAX. The controller displays the conveyor motor rotation in rpm on the left and the cumulative in number of revolutions on the right.

Default weight of materials for 1/4m³

Material	SALT	SAND	MAT A (50% salt and 50% sand)	MAT B 25% salt and 75% sand)
Default weight	325 kg	420 kg	370 kg	370 kg

SOL-M > MATERIAL > **TEST**

Allows you to make sure the calibration of the material was done properly.

To test :

1. Select TEST.
2. Enter the weight in kg of the material used for the test.
3. This amount should be the same as during calibration.
4. Press PAUSE.
5. Turn CONV/LIQ to select conveyor speed.
6. Turn SPIN to limit the speed of the spinner so materials fall inside the box.
7. When the amount discharged is the same as during calibration, the conveyor stops. TEST COMPLETE is displayed and the controller beeps.

> The box should be just full to the mark for the test to be conclusive.

SOL-M > MATERIAL > **MIN** (MINIMUM SPREADING VALUE)

Allows you to determine a minimum spreading value for each material.

When you enter this function, the current value is displayed. Choose and confirm the minimum spreading rate you desire.

SOL-M > MATERIAL > **MAX** (MAXIMUM SPREADING VALUE)

Allows you to determine a maximum spreading value for each material. The operator will not be able to surpass this limit.

When you enter this function, the current value is displayed. Choose and confirm the maximum spreading rate you desire.

SOL-M > MATERIAL > **ACTIVE** (ACTIVATE A MATERIAL)

For each material, ON or OFF determines whether it is available for spreading operations. By default, all 4 are active.

SOL-M > MATERIAL > **S-AUTO** (SCALE IN AUTOMATIC MODE)

Allows you to change the scale of variation of steps or increments for the spreading rate of a material in automatic mode.

SOL-M > MATERIAL > **S-MAN** (SCALE IN MANUAL MODE)

Allows you to change the scale of variation of steps or increments for the spreading rate of a material in manual mode.

SOL-M > MATERIAL > **SEDT** (EDIT 10 STEPS)

Allows you to edit up to 10 spreading rates. The default values can be modified.

> The SEDT function allows you to specify up to 10 steps per material if the SPRG function is active (see SPRG, page 14). To specify less than 10 steps, enter 0 as the last value. The table of default preset values is available in «Appendix 1: Configuration grid», page 37.

To modify steps :

1. The current value for the first step is displayed.
2. Turn SPIN to modify the value.
3. Press PAUSE to confirm and move on to the next step.

SOL-M > MATERIAL > **EPD M** (SPREADING MODE)

It is important to define what units you want the controller to use for each material.

In linear mode (kg/km), the controller does not take into account the selected width. In this mode, the flow rate is independent of the width. Therefore, if the operator must spread the same recipe over a larger area, they will have to change the width and the rate parameters (proportionally to the width increase).

In surface mode (g/m^2), the controller takes into account the selected width. It automatically links the spreader flow rate to the selected width. This creates more precise spreading rules.

To quickly see the type of spreading mode used:

Turn SPIN down to zero.

Of the 0.0 above SPIN flashes, the controller is set to g/m^2. This also indicates that at this width, no material is spread.

SOL-M > MATERIAL > **NAME**

Allows you to replace the material name with one of your choosing. That name must consist of a maximum of 6 alphanumeric characters. This modification only appears when in operation mode.

To modify:

1. The current name is displayed and the first character blinks.
2. Turn SPIN to change characters.
3. Press PAUSE to confirm and move to the next.

After all 6, the controller displays SAVED.

SOL-M > SALT > **AUTO-C** (AUTOMATIC CALIBRATION, SALT ONLY)

Allows you to make an automatic calibration of SAND, MAT A and MAT B. It considers the weight of each material and its calibration reference in relation to salt. You must have calibrated the salt prior. See CALIBR, page 18.

The following table presents the volume mass that the controller takes into account:

Volume mass for automatic calibration

Material	SALT	SAND	MAT A (50% salt and 50% sand)	MAT B (25% salt and 75% sand)
Default weight	1300 kg/m^3	1680 kg/m^3	1455 kg/m^3	1555 kg/m^3

To start calibration, select YES.

SOL-M > MATERIAL > **P-ACT** (ACTIVATION OF PREWET)

Allows you to activate or deactivate the prewet function. This can be done independantly for each material.

SOL-M > MATERIAL > **MIN-LT** (MINIMUM VALUE IN LITRES/TONNE)

Allows you to set a minimum value for the liquid in litres per tonne for a given material (between 0 and 230L).

SOL-M > MATERIAL > **MAX-LT** (MAXIMUM VALUE EN LITRES/TONNE)

Allows you to set a maximum value for the liquid in litres per tonne for a given material (between 0 and 230L).

SOL-M > MATERIAL > **SED-LT** (EDIT 5 STEPS IN LITRES/TONNE)

Allows you to set programmable steps for the liquid in litres per tonne.

To configure:

1. The current value for the first step is displayed.
2. Turn SPIN to modify the value.
3. Press PAUSE to save and move on to the next.

> To specify less than 8 steps, enter 0 as last value.

SOL-M > MATERIAL > **MIN-L%** (MINIMUM VALUE IN % OF SOLID)

Allows you to set a minimum value for the liquid in percentage for a given material (between 0 and 99%).

SOL-M > MATERIAL > **MAX-L%** (MAXIMUM VALUE IN % OF SOLID)

Allows you to set a maximum value for the liquid in percentage for a given material (between 0 and 99%).

SOL-M > MATERIAL > **SED-L%** (EDIT 5 STEPS IN %)

Allows you to set programmable steps for the liquid in percentage.

To configure:

1. The current value for the first step is displayed.
2. Turn SPIN to modify the value.
3. Press PAUSE to save and move on to the next.

> To specify less than 5 steps, enter 0 as last value.

SOL-M > MATERIAL > **%REDUC**
(REDUCTION OF SPREADING RATE WHEN PREWET IN FUNCTION)

When this function is activated:

When spreading solids with liquids, the % of liquids is substracted to the % of solids.

Ex : spreading rate of 300kg with liquids if %REDUC is set to 10% = the spreading rate becomes 270kg.

A period (.) is displayed after the spreading rate to indicate that this mode is in function.

PRW-M (PREWET MATERIAL)

Allows you to configure prewet.

PRW-M > **CALIBR** (CALIBRATION)

To calibrate prewet:

> Before starting the liquid calibration, it is advisable to unload the solid material to avoid damages since it requires running the conveyor.

> Make sure you have a container for the liquid whose volume you know in liters, e.g., a 20-liter bucket.

1. Select CALIBR. The controller displays START.
2. Place the liquid calibration container under the nozzles (it is important to keep the truck nozzles to have the real system pressure).
3. Start the conveyor by turning SPIN to get hydraulic flow to the liquid unit. Select a conveyor speed that roughly corresponds to the flow rate generally used in operation. No conveyor speed value is displayed on the screen. It must be adjusted visually.
4. Turn CONV/LIQ to activate the liquid.
5. When the liquid container is full, turn CONV/LIQ to the left until the liquid pump stops.
6. Note the value that appears on the right of the screen in the calibration sheet in the «Number of revolutions» column, see «Appendix 3: Calibration form», page 52.
7. Press PAUSE to record the calibration.
8. The controller displays a default value of 20 liters.
9. If this value is incorrect, choose the value corresponding to your liquid container by turning CONV and note this value in the calibration sheet. PAUSE to confirm.
10. Press MAT/LIQ and note the constant in the calibration sheet in the calibration constant l/p column.

PRW-M > **TEST**

Allows you to verify if the prewet calibration in the previous step worked correctly.

To perform the test:

1. Select TEST.
2. Enter the amount in liters that will be used for the test. This amount should be the same as the one defined during calibration.
3. Start the conveyor by turning SPIN to get hydraulic flow to the liquid unit. Select a conveyor speed that roughly corresponds to the flow rate generally used in operation. No conveyor speed value is displayed on the screen. It must be adjusted visually.
4. Turn CONV/LIQ to select the speed of the liquid pump.
5. When the amount of liquid discharged equals the calibration amount, the conveyor stops. The screen displays TEST COMPLETE and an audible signal is emitted.

> The container must be filled up to the mark for the test to be conclusive.

PRW-M > **ACTIVE** (USE OF PREWET)

Allows you to activate or deactivate the use of prewet for all solid materials.

PRW-M > **SAU-LT** (SCALE IN AUTOMATIC MODE IN LITRES/TONNE)

Allows you to change the steps for prewet in litres per tonne in automatic mode.

PRW-M > **SAU-L%** (SCALE IN AUTOMATIC MODE IN % OF SOLID)

Allows you to change the steps for prewet in percentage in automatic mode.

PRW-M > **S-MAN** (SCALE IN MANUAL MODE)

Allows you to change the steps for prewet in percentage in manual mode.

PRW-M> **MEASU-U** (MEASURING UNIT)

Choice of L/T or % for prewet.

PRW-M > **LIQ>KG** (LIQUID DENSITY)

Allows you to change liquid density between 1.000 and 2.000kg.

PRW-M > **NAME** (NAME OF MATERIAL)

Allows you to change the name of the material. That name must consist of a maximum of 6 alphanumeric characters. This modification only appears when in the operation mode.

To modify:

1. The current name is displayed and the first character blinks.
2. Turn SPIN to change characters.
3. Press PAUSE to confirm and move to the next.

After all 6, the controller displays SAVED.

WIDTH (SPINNER)

Allows you to configure the spinner.

WIDTH > **CALIBR** (CALIBRATION)

The adjustment of the spreading width is done by calibrating the spinner.

> It is recommended to do the calibration with salt for the width to be as accurate as possible. Be mindful of where you want the salt to fall (position and rotation of the spinner).

> Start by selecting the minimum and maximum widths to calibrate. By default, they are set to 0.5m and 3m. However, they can be changed in order to reflect the widths you are likely to use in your operations.

1. Turn CONV/LIQ to bring materials to the spinner.
2. Turn SPIN to adjust to speed of the spinner until you reach the minimum width (ex. 0.5m in diameter, so 0.25m on each side of the spinner). Press PAUSE to save this value.
3. Repeat for the maximum width.
4. Press PAUSE. the controller displays SAVED.

> During the adjustment, the controller displays the energy sent to the solenoid section of the spinner. This value appears on the right of the display at the time of the operation. Note the value for both widths in spinner calibration, see «Appendix 3: Calibration form», page 52.

WIDTH > **TEST**

Allows you to make sure the previous calibration has been done accurately.

1. Turn CONV/LIQ to bring materials to the spinner.
2. Turn SPIN to select a width and verify that is is accurate by using a measuring tape on the ground.

WIDTH > **MIN/W** (MINIMUM WIDTH)

Allows you to determine the minimum spreading width.

WIDTH > **MAX/W** (MAXIMUM WIDTH)

Allows you to determine the maximum spreading width.

WIDTH > **BOOST**

Increases the energy sent to the spinner for a certain duration to trigger a quick start as soon as the truck starts moving. You can choose how much energy is used and for how long.

To configure:

1. Turn CONV/LIQ to select the energy boost.

> The energy is added to the MIN of the spinner.

2. Turn SPIN to select the duration.

> Can be set between 0 and 10 seconds in increments of 0.5 seconds.

WIDTH > **STOP**

When this function is set to ON, the spinner spins only when the conveyor is working. When it is set to OFF, the spinner will constantly spin when the controller is in operating mode.

> Certain valve models need the spreader to be working for the spinner to work. In this case, it is not possible for the spinner to spin when the vehicle is stopped.

WIDTH > STEP

Allows you to select the scale of variation of spreading widths in increments of either 0.5m or 1m.

MAX (MAX BUTTON)

Allows you to configure blasting.

MAX > SALT/SAND/MAT A/MAT B

Allows you to select the spreading rate and width during blasts for each material.

To configure:

1. Turn CONV/LIQ to select spreading rate.
2. Turn SPIN to select width.

MAX > MAXMAN (CONV. AND SPIN. VALUES)

Allows you to select the spreading rate and width during blasts in manual mode.

To configure:

1. Turn CONV/LIQ to select spreading rate.
2. Turn SPIN to select width.

MAX > DURATION

Allows you to select the duration of blasts.

> Values range from 0:00 to 99:59.

To configure:

1. Turn CONV/LIQ to select minutes.
2. Turn SPIN to select seconds.

MAX > **MIN/S** (MINIMUM SPEED)

Blasts don't necessarily produce enough materials when the vehicle is rolling too slowly, even at a high spreading rate. In this case, the controller simulates a minimum speed to trigger the blast.

You can set minimum vehicle speed for blasts to between 0 and 50km/h. This value is set by default to 20km/h.

MAX > **CONT** (CONTINUE)

Allows you to continue blasting even if the vehicle is stopped.

MODE

MODE > **MAN**

Allows you to make manual mode:

- **INACTIVE :** never available.
- **STOP :** available when the vehicle is stopped (speed under 3km/h).
- **ALWAYS :** always available for normal spreading operations. Takes quantities into account.

MODE > **SILENT CVLQ MAX**

Allows you to activate an alarm when the hydraulic capcity of the conveyor and the liquid pump is reached.

MODE > MAN LQ TRB PAUSE

If this function is activated:

When the system stops receiving a signal from the liquid flow sensor, it will go up to 100% of its hydraulic capacity. After this, if no signal is recovered, the pump will pause itself to avoid breaking.

If this function is deactivated:

The system will go into breakdown mode and the pump will continue to work. You must manually verify whether the liquid is still flowing.

> If the liquid is not flowing, turn the pump off to avoid breaking.

If the liquid is still flowing, the problem is probably due to a defective sensor. You will be able to continue using the pump.

IN/OU (INPUTS/OUTPUTS)

EN/SO > OUT 4

The Out 4 ouput allows you to send a 12vdc signal to an accessory external to Ecobite in function of the following selected element:

KM/H : signal sent if the vehicle speed goes over the allowed maximum speed.

100% : signal sent if the conveyor goes up to 100% of its capacity.

KM+100 : signal sent if the goes up to 100% of its capacity or if the vehicle speed goes over the allowed maximum speed.

ALIM : signal sent if the controller is turned on.

MANIMAX : signal sent if the vehicle speed is over 3km/h.

SPR-ON : signal sent if the conveyor is spreading solids (for basic GPS).

CODE

Allows you to set a 4 number code to enter configuration menu. The default code 1234 is not required to enter configuration menu, but all other codes will be.

To configure:

1. Turn SPIN to select the first number between 1 and 9.
2. Press PAUSE to confirm and move to the next.
3. After the confirmation of the fourth number, re-enter code.

FACTORY

FACTORY > #SERIE (SERIAL NUMBER)

Displays the controller's serial number.

FACTORY > #EPAND (SPREADER NUMBER)

Displays the number of the spreader. This number is necessary to link the controller to a GPS system. It is made of 8 characters.

> If the controller displays NONE, this function is deactivated. You can activated it with a code in the GPSACT function below. This code can be obtained by contacting your distributor or ACE (see Contact, page 36).

FACTORY > GPSACT (ACTIVATION OF GPS PORT)

Allows you to activate the RS-232 port of the GPS.

> You can get an activation code by contacting your distributor or ACE (see Contact, page 36).

1. Turn SPIN to select the first character (from 1 to F).
2. Press PAUSE to confirm and move to next character.
3. Repeat until final character.
4. After confirmation of 6th character, the spreader number is displayed and the GPS port is activated.

FACTORY > **GPSPTC** (GPS PORT PROTOCOL)

Allows you to choose between the ACE and ACE-NFEN-15430-1 protocols.

FACTORY > **PRW ST** (DIAGNOSTICS OF 12 VOLT OUTPUTS)

This menu provides errors of the controller's electrical outputs for diagnostics.

FCV, FSP et FLQ are 7.5 amp mini fuses. They must be changed manually. They correspond to the 12 V power supply to the coils of the hydraulic valve (conv, spin and prewet).

SCV, SLQ, SVI et S01 auto-reset fuses included in the controller's electronic curcuit. They reset themselves after a certain amount of time if the short-circuit is resolved. They correspond to the 12 V power supply of the sensors.

- SVC = conveyor sensor
- SLQ = prewet sensor
- SVI = vehicle speed sensor
- S01 = OUT#4 output

OK = no error

F = in short-circuit

01 = number of errors

RESCNT = Error counters reset to 0 (YES or NO).

FACTORY > **FACTORY**

Allows you to reset all controller data to default values be selecting YES.

> **IMPORTANT**
> When you reset the controller, all configured parameters and operation data will be lost.

5. Warranty

Accent Contrôles Électroniques Inc. (ACE) warrants to buyers of electronic products and accessories manufactured by ACE that they are not defective and are free of manufacturing or material defects.

The warranty obligations of ACE toward the buyer are limited to, at the the sole discretion of ACE, repair or replace parts or products in question; which, under normal usage conditions and maintenance, are proved defective in either material or labour.

Claims under this warranty will be valid only if the buyer notifies ACE, in writing, of the discovery of the defects in question and this in a time period not exceeding twenty four (24) months from the date of the product expedition by ACE.

On ACE's request, the buyer has to return to the manufacturor or to a service center designated by ACE, and this prepaid, parts or product for which a warranty claim is made.

The buyer will be responsible for risks of loss and damage of products and parts, so returned.

In case of warranty acceptance, ACE covers the costs of returning parts or product.

ACE's warranty does not cover:

- Wear and tear, abuse, misuse, overload, or changes.
- Costs for transportation, installation, replacement, repair outside the factory or any other costs related to the return of the product to ACE or to an authorized service center.
- The responsibility for direct, indirect, or consequential or incidental damages, or any delays.

No employee or representative of ACE is allowed to modify any warranty in any way nor provide any other warranty without these changes be made in writing and signed by a an ACE executive officer.

6. Contact

For questions regarding Ecobite 3, Infobite, or any other inquiry, do not hesitate to contact us. Visit our website or call us:

ACE, Accent Contrôles Électroniques Inc.

29, rue Giroux

Québec (Québec) Canada, G2B 2X8

Telephone : (418) 847-6344

aceelectronic.ca

7. Appendix 1: Configuration grid

Table 1 : Spreader

Brand	Type	Year	Number	Controller	Serial number

Date of configuration	Name of programmer
Comments	

Table 2: Settings independent of chosen spreading mode

Menu	Sub-menu	Function	Parameter	Default settings		Possible settings	Choice
				Québec	Ontario		
OPER	SPR+P	REFSPD	Reference speed of manual mode	45	45	0-60 km/h	
		MAXSPD	Speed alarm	60	60	0-99 km/h	
		SPRG	Programmable steps for solid materials	NON	YES	YES-NO	
		P-SPRG	Programmable steps for prewet	NON	YES	YES-NO	
HYDR	SPR	MIN	Conveyor startup	23.5 %	23.5 %	8.0 – 50.0 %	
		MAX	Conveyor speed limit	80.0 %	80.0 %	MIN – 80.0 %	
		BOOST	Start and length of boost	5.0 % 1.0 sec.	5.0 % 1.0 sec.	0 – 40.0 % 0 – 10 sec.	
		M/PPR	Conveyor sensor pulses	30	30	10 – 100	
		POLAR	Conveyor sensor polarity	NPN	NPN	NPN – PNP	
		VALVE	Hydraulic valve type	ACE	ACE	ACE/57-11/40-08/ 23-05/CUSTOM	
		FRQ HZ	Recommended frequency	240	100	30/60/80/100/120/240/480/900	
	PREW	MIN	Liquid pump startup	18.0 %	18.0 %	8.0 – 50.0 %	
		MAX	Liquid pump speed limit	35.0 %	35.0 %	MIN – 98.0 %	
		BOOST	Start and length of boost	2.0 % 1.0 sec.	2.0 % 1.0 sec.	0 – 40.0 % 0 – 10 sec.	
		M/PPR	Prewet sensor pulses	30	30	10 – 100	
		POLAR	Prewet sensor polarity	PNP	NPN	NPN – PNP (ACE : PNP / REXROTH : NPN)	
		VALVE	Hydraulic valve type	ACE	ACE	ACE/57-11/40-08/ 23-05/CUSTOM	
		FRQ HZ	Recommended frequency	240	100	30/60/80/100/120/240/480/900	

Table 2: Settings independent of chosen spreading mode (continued)

Menu	Sub-menu	Function	Parameter	Default setting		Possible settings	Choice
				Québec	Ontario		
WIDTH		MIN/W	Minimum width	0	0	0 – 3.0 M	
		MAX/W	Maximum width	3	3	0 – 9.0 M	
		BOOST	Start and length of boost	2.0 % 0.5 S	2.0 % 0.5 S	0 – 40.0 % 0 – 10 S	
		STOP	Auto stop	ON	ON	ON or OFF	
		STEP	Steps of variation	0.5	0.5	0.5 – 10	
MODE		MAN	Manual mode	ARRÊT	Stop	Inactive – Stop – Always	
		SILENT CVLIQ MAX	Hydraulic capacity alarm	NON	NO	YES-NO	
		MAN TRB LQ PAUSE	Liquid pump pause if reservoir empty	OUI	YES	YES-NO	
CODE			Code for limiting access to configuration	1234	1234	1(1 to 9) - 2(1 to 9) - 3(1 to 9) - 4(1 to 9)	

Table 3: Configuration of salt

Menu	Sub-menu	Function	Parameter	Default setting		Possible settings	Choice
				Québec	Ontario		
SOL-M	Salt	MIN	Minimum rate	50	50	0 – 995 KG	
		MAX	Maximum rate	350	350	MIN – 995 KG	
		ACTIVE	Material available	OUI	YES	YES-NO	
		S-AUTO	Scale in automatic mode	10	10	5 – 10 – 25 – 50 – 75 – 100	
		S-MAN	Scale in manual mode	5%	5%	1% - 5% - 10%	
		SEDT	10 pre-programmable steps	65 85 /	100 130 /	150 170 195 0 0 0 /	
		EPD M	Spreading mode	KG/KM	KG/KM	KG/KM - G/M2	
		NAME	Name of material	SEL	SALT	6 characters	
		P-ACT	Use of prewet	OUI	YES	YES-NO	
		MIN-LT	Minimum liquids in L/T	0	0	0 – 230 litres	
		MAX-LT	Maximum liquids in L/T	99	99	MIN – 230 litres	
		SED-LT	5 pre-programmable steps in L/T	39 /	55 /	78 0 0 /	
		MIN-L%	Minimum value in % of solid	0	0	0 – 99 %	
		MAX-L%	Maximum value in % of solid	30	30	MIN – 99 %	
		SED-L%	5 pre-programmable steps in %	1 /	5 /	0 0 0 /	
		%REDUC	Reduction of solids when prewet activated	0	0	0 – 99 %	

39. Appendix 1: Configuration grid

Table 4: Configuration of sand

Menu	Sub-menu	Function	Parameter	Default setting		Possible settings	Choice
				Québec	Ontario		
SOL-M	SAND	MIN	Minimum rate	200	200	0 – 995 KG	
		MAX	Maximum rate	700	700	MIN – 995 KG	
		ACTIVE	Material available	OUI	OUI	YES-NO	
		S-AUTO	Scale in automatic mode	50	50	5 – 10 – 25 – 50 – 75 – 100	
		S-MAN	Scale in manual mode	5%	5%	1% - 5% - 10%	
		SEDT	10 pre-programmable steps	300 / 400	600 / 800	900 / 0 / 0 / 0 / 0 / 0	
		EPD M	Spreading mode	KG/KM	KG/KM	KG/KM - G/M2	
		NAME	Name of material	SABLE	SAND	6 characters	
		P-ACT	Use of prewet	OUI	YES	YES-NO	
		MIN-LT	Minimum liquids in L/T	0	0	0 – 230 litres	
		MAX-LT	Maximum liquids in L/T	99	99	MIN – 230 litres	
		SED-LT	5 pre-programmable steps in L/T	12	20	27 / 0 / 0	
		MIN-L%	Minimum value in % of solid	0	0	0 – 99 %	
		MAX-L%	Maximum value in % of solid	30	30	MIN – 99 %	
		SED-L%	5 pre-programmable steps in %	1	5	0 / 0 / 0	
		%REDUC	Reduction of solids when prewet activated	0	0	0 – 99 %	

Table 5: Configuration of MAT A

Menu	Sub-menu	Function	Parameter	Default setting		Possible settings	Choice
				Québec	Ontario		
SOL-M	MAT A	MIN	Minimum rate	150	150	0 – 995 KG	
		MAX	Maximum rate	500	500	MIN – 995 KG	
		ACTIVE	Material available	OUI	YES	YES-NO	
		S-AUTO	Scale in automatic mode	50	50	5 – 10 – 25 – 50 – 75 – 100	
		S-MAN	Scale in manual mode	5%	5%	1% - 5% - 10%	
		SEDT	10 pre-programmable steps	300 400	600 800	900 0 0 0 0 0	
		EPD M	Spreading mode	KG/KM	KG/KM	KG/KM - G/M2	
		NAME	Name of material	MAT A	MAT A	6 characters	
		P-ACT	Use of prewet	OUI	YES	YES-NO	
		MIN-LT	Minimum liquids in L/T	0	0	0 – 230 litres	
		MAX-LT	Maximum liquids in L/T	99	99	MIN – 230 litres	
		SED-LT	5 pre-programmable steps in L/T	12	20	27 0 0	
		MIN-L%	Minimum value in % of solid	0	0	0 – 99 %	
		MAX-L%	Maximum value in % of solid	30	30	MIN – 99 %	
		SED-L%	5 pre-programmable steps in %	1	5	0 0 0	
		%REDUC	Reduction of solids when prewet activated	0	0	0 – 99 %	

41. Appendix 1: Configuration grid

Table 6: Configuration of MAT B

Menu	Sub-menu	Function	Parameter	Default setting		Possible settings	Choice
				Québec	Ontario		
SOL-M	MAT B	MIN	Minimum rate	150	150	0 – 995 KG	
		MAX	Maximum rate	500	500	MIN – 995 KG	
		ACTIVE	Material available	OUI	YES	YES-NO	
		S-AUTO	Scale in automatic mode	50	50	5 – 10 – 25 – 50 – 75 – 100	
		S-MAN	Scale in manual mode	5%	5%	1% - 5% - 10%	
		SEDT	10 pre-programmable steps	300 / 400	600 / 800	900 / 0 / 0 / 0 / 0 / 0	
		EPD M	Spreading mode	KG/KM	KG/KM	KG/KM - G/M2	
		NAME	Name of material	MAT B	MAT B	6 characters	
		P-ACT	Use of prewet	OUI	YES	YES-NO	
		MIN-LT	Minimum liquids in L/T	0	0	0 – 230 litres	
		MAX-LT	Maximum liquids in L/T	99	99	MIN – 230 litres	
		SED-LT	5 pre-programmable steps in L/T	12	20	27 / 0 / 0	
		MIN-L%	Minimum value in % of solid	0	0	0 – 99 %	
		MAX-L%	Maximum value in % of solid	30	30	MIN – 99 %	
		SED-L%	5 pre-programmable steps in %	1	5	0 / 0 / 0	
		%REDUC	Reduction of solids when prewet activated	0	0	0 – 99 %	

Table 7: Configuration of blasts

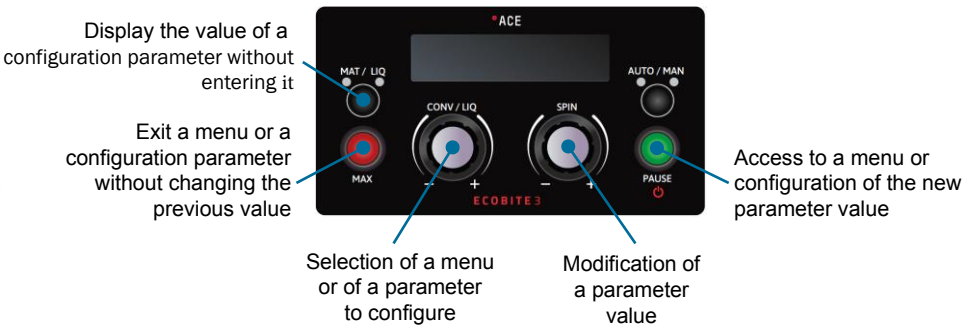
Menu	Sub-menu	Function	Parameter	Default setting		Possible settings	Choice
				Québec	Ontario		
MAX		SALT	Blast rate	350 kg	350 kg	0 – 995 kg	
			Blast width	3.0 m	3.0 m	0.2 – 9.5 m	
		SAND	Blast rate	700 kg	700 kg	0 – 995 kg	
			Blast width	3.0 m	3.0 m	0.2 – 9.5 m	
		MAT A	Blast rate	500 kg	500 kg	0 – 995 kg	
			Blast width	3.0 m	3.0 m	0.2 – 9.5 m	
		MAT B	Blast rate	500 kg	500 kg	0 – 995 kg	
			Blast width	3.0 m	3.0 m	0.2 – 9.5 m	
		MAXMAN	% of conveyor during blast	80.0 %	80.0 %	23.5 % - 99.9 %	
			Blast width	3.0 m	3.0 m	3.0 m	
		DURATION	Blast length	20 sec.	20 sec.	0 – 99 min. / 0 – 59 sec.	
		MIN/S	Minimum simulated speed	20 km/h	20 km/h	0 – 50 km/h	
		CONT	Continue blasting when vehicle is stopped	ON	ON	ON / OFF	

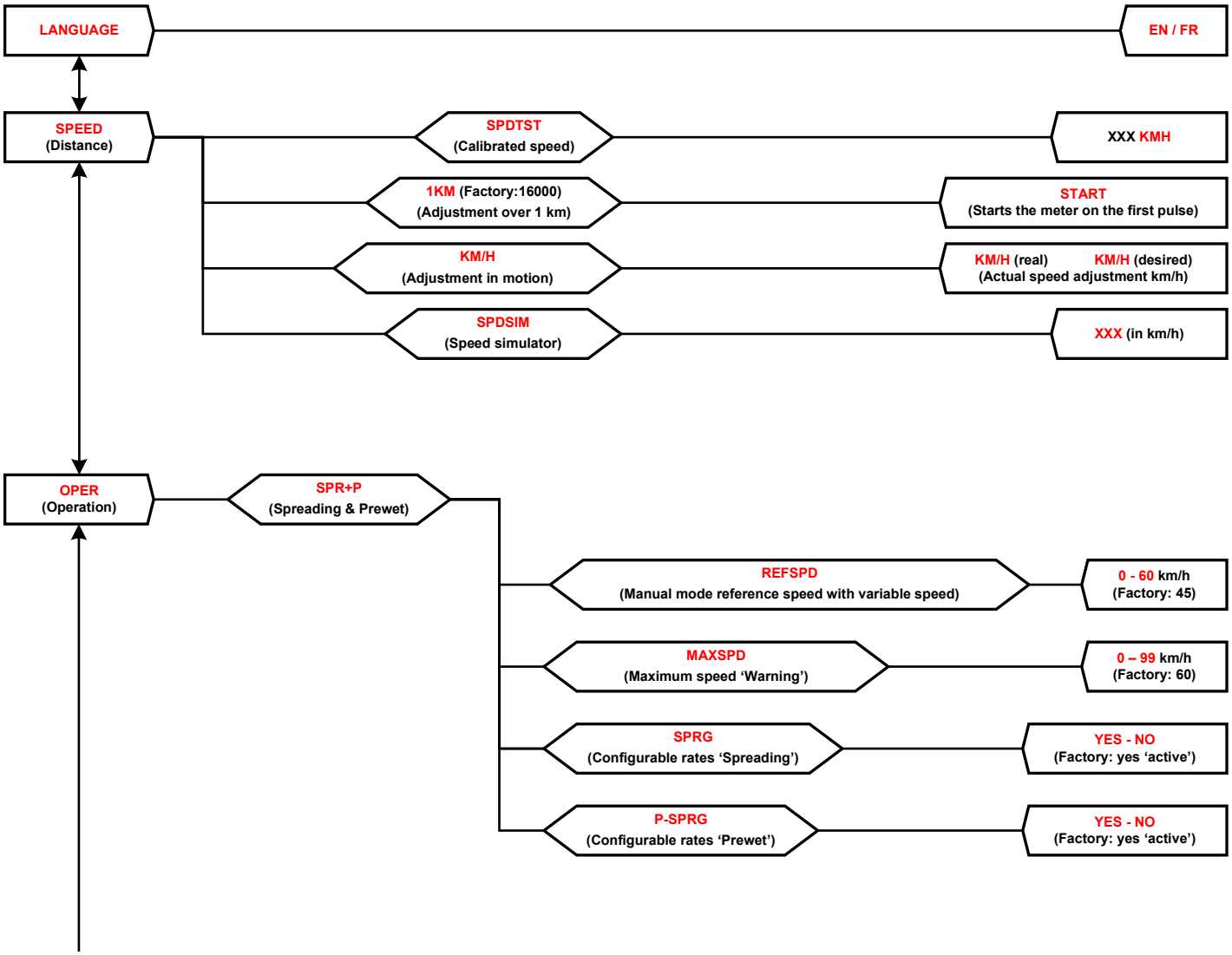
8. Appendix 2 : Configuration menu

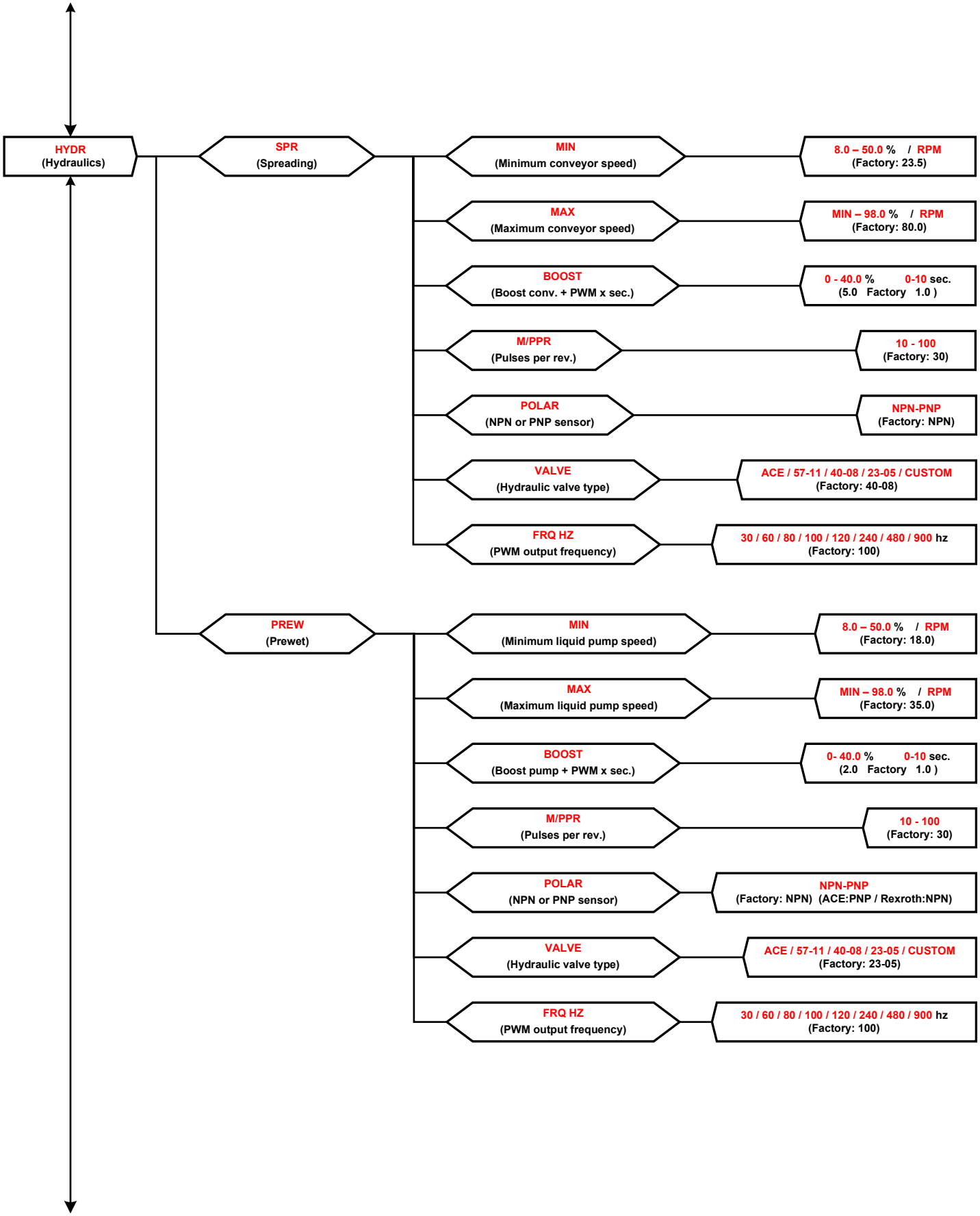
Configuration menus and available parameters for the ECOBITE 3.

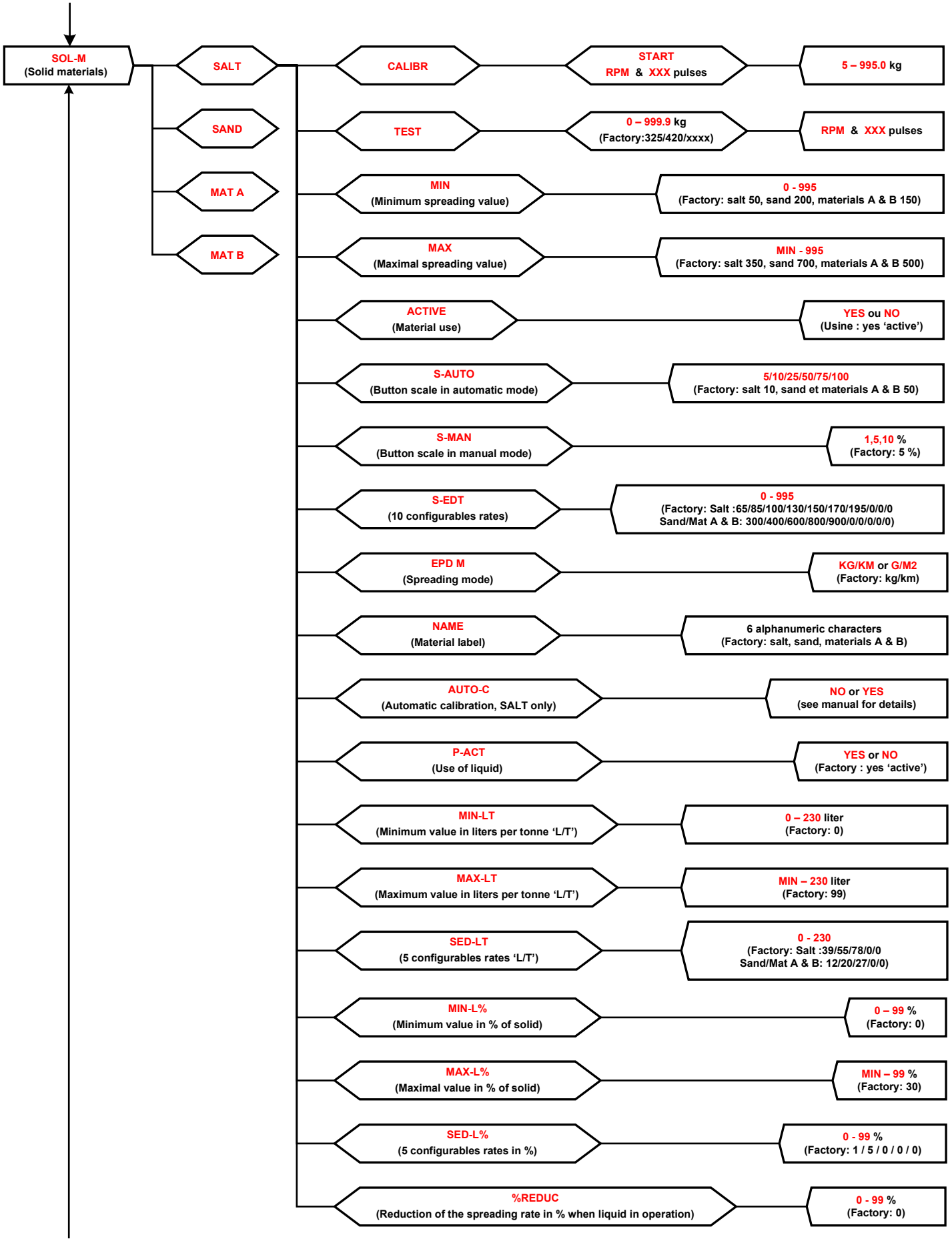
Access to the configuration

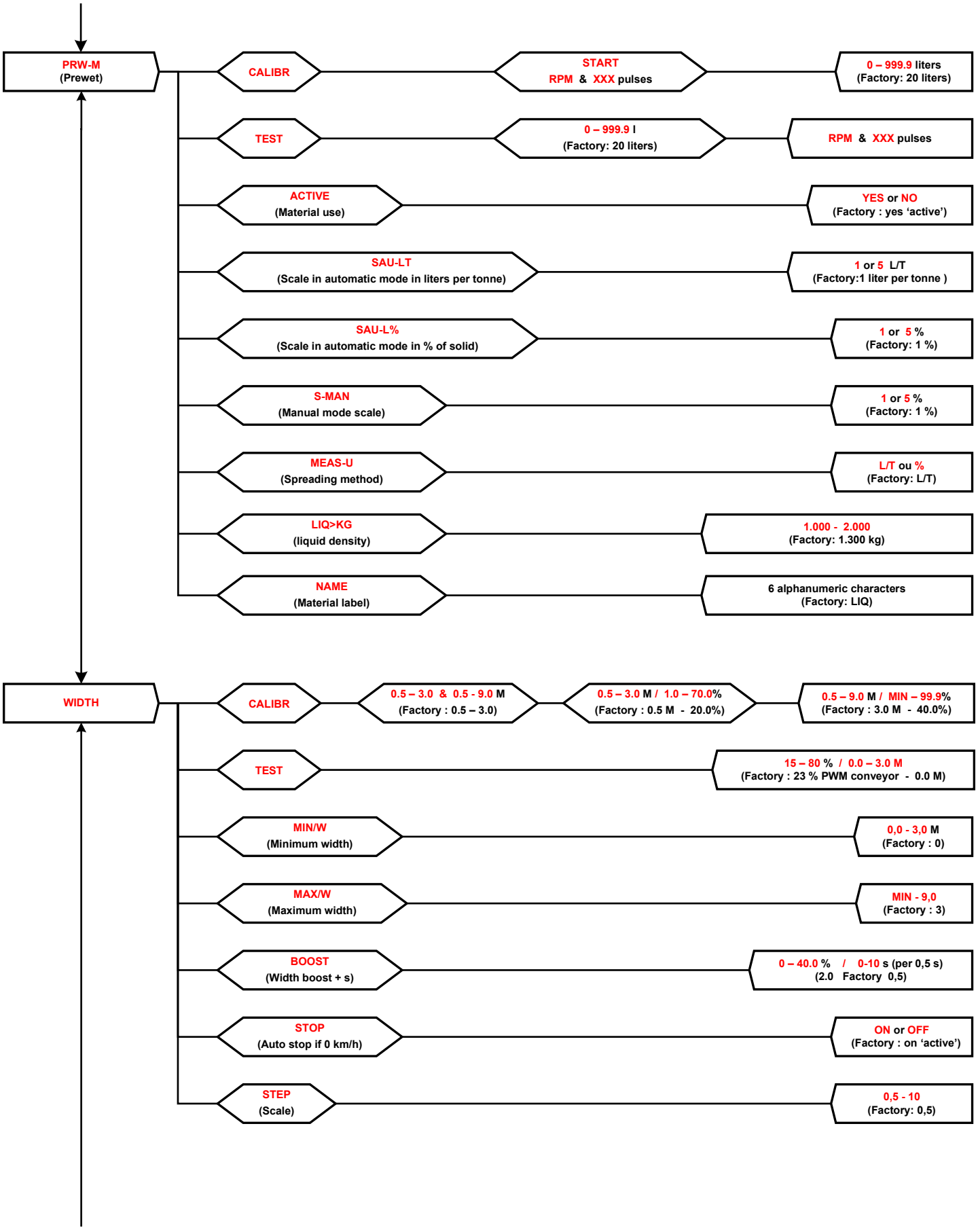
The 1234 access code (by default) is not requested to access the configuration menu, but any other one will be needed.

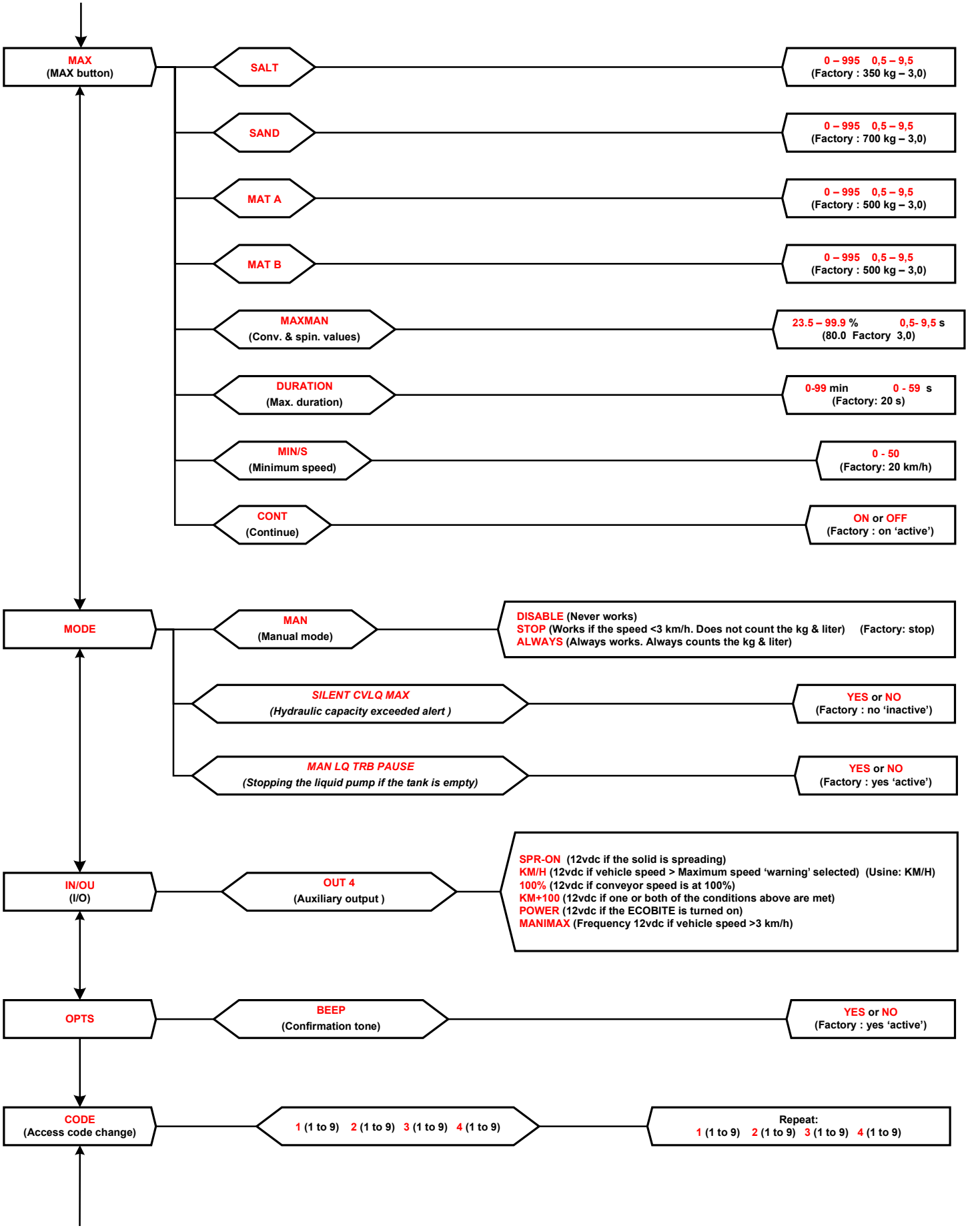


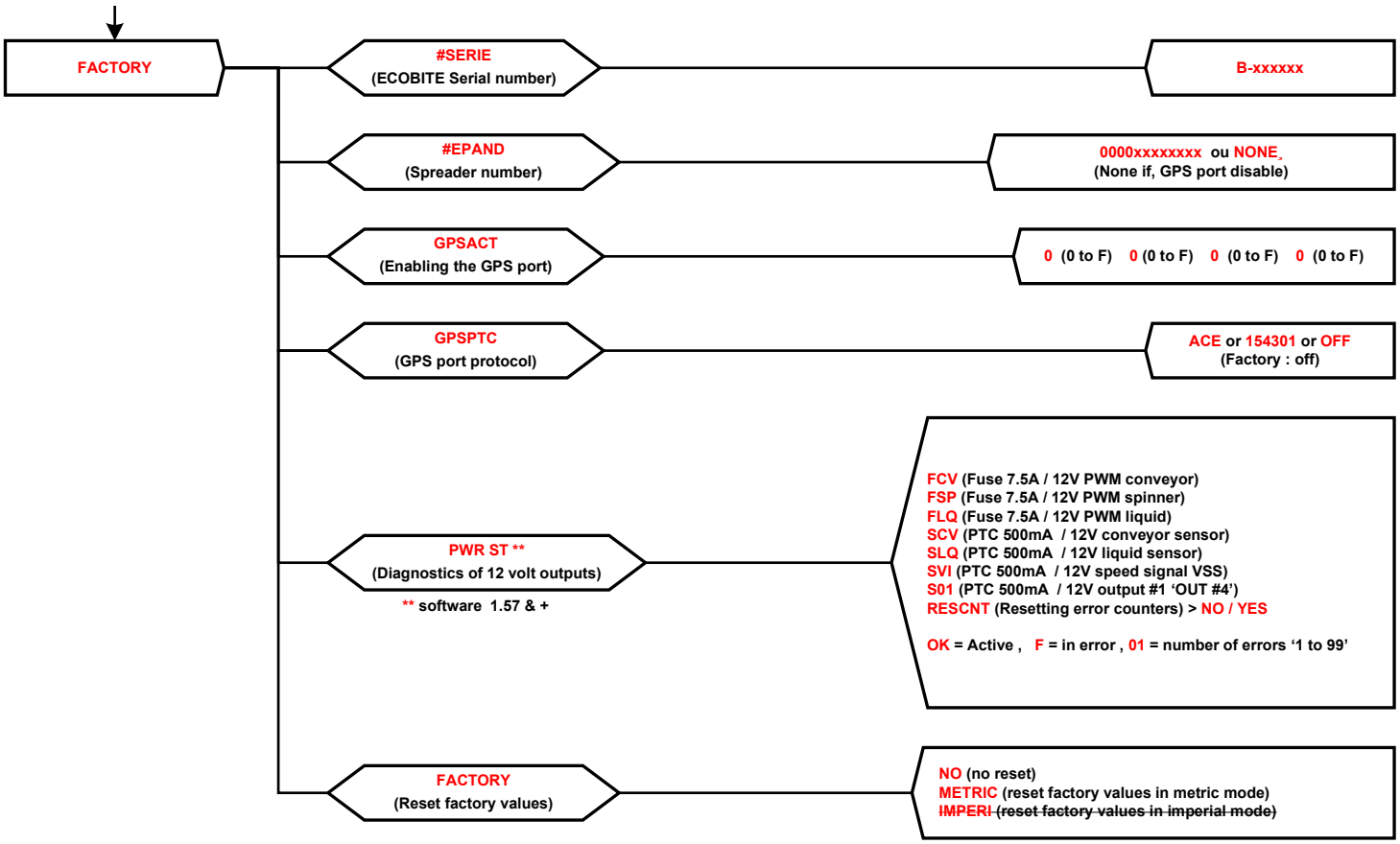



HYDR
(Hydraulics)
SPR
(Spreading)
MIN
(Minimum conveyor speed)
8.0 – 50.0 % / RPM
(Factory: 23.5)
MAX
(Maximum conveyor speed)
MIN – 98.0 % / RPM
(Factory: 80.0)
BOOST
(Boost conv. + PWM x sec.)
0 - 40.0 % 0-10 sec.
(5.0 Factory 1.0)
M/PPR
(Pulses per rev.)
10 - 100
(Factory: 30)
POLAR
(NPN or PNP sensor)
NPN-PNP
(Factory: NPN)
VALVE
(Hydraulic valve type)
ACE / 57-11 / 40-08 / 23-05 / CUSTOM
(Factory: 40-08)
FRQ HZ
(PWM output frequency)
30 / 60 / 80 / 100 / 120 / 240 / 480 / 900 hz
(Factory: 100)
PREW
(Prewet)
MIN
(Minimum liquid pump speed)
8.0 – 50.0 % / RPM
(Factory: 18.0)
MAX
(Maximum liquid pump speed)
MIN – 98.0 % / RPM
(Factory: 35.0)
BOOST
(Boost pump + PWM x sec.)
0- 40.0 % 0-10 sec.
(2.0 Factory 1.0)
M/PPR
(Pulses per rev.)
10 - 100
(Factory: 30)
POLAR
(NPN or PNP sensor)
NPN-PNP
(Factory: NPN) (ACE:PNP / Rexroth:NPN)
VALVE
(Hydraulic valve type)
ACE / 57-11 / 40-08 / 23-05 / CUSTOM
(Factory: 23-05)
FRQ HZ
(PWM output frequency)
30 / 60 / 80 / 100 / 120 / 240 / 480 / 900 hz
(Factory: 100)


SOL-M
(Solid materials)
SALT
SAND
MAT A
MAT B
CALIBR
START
RPM & XXX pulses
5 – 995.0 kg
TEST
0 – 999.9 kg
(Factory:325/420/xxxx)
RPM & XXX pulses
MIN
(Minimum spreading value)
0 - 995
(Factory: salt 50, sand 200, materials A & B 150)
MAX
(Maximal spreading value)
MIN - 995
(Factory: salt 350, sand 700, materials A & B 500)
ACTIVE
(Material use)
YES ou NO
(Usine : yes 'active')
S-AUTO
(Button scale in automatic mode)
5/10/25/50/75/100
(Factory: salt 10, sand et materials A & B 50)
S-MAN
(Button scale in manual mode)
1,5,10 %
(Factory: 5 %)
S-EDT
(10 configurables rates)
0 - 995
(Factory: Salt :65/85/100/130/150/170/195/0/0/0
Sand/Mat A & B: 300/400/600/800/900/0/0/0/0/0)
EPD M
(Spreading mode)
KG/KM or G/M2
(Factory: kg/km)
NAME
(Material label)
6 alphanumeric characters
(Factory: salt, sand, materials A & B)
AUTO-C
(Automatic calibration, SALT only)
NO or YES
(see manual for details)
P-ACT
(Use of liquid)
YES or NO
(Factory : yes 'active')
MIN-LT
(Minimum value in liters per tonne 'L/T')
0 – 230 liter
(Factory: 0)
MAX-LT
(Maximum value in liters per tonne 'L/T')
MIN – 230 liter
(Factory: 99)
SED-LT
(5 configurables rates 'L/T')
0 - 230
(Factory: Salt :39/55/78/0/0
Sand/Mat A & B: 12/20/27/0/0)
MIN-L%
(Minimum value in % of solid)
0 – 99 %
(Factory: 0)
MAX-L%
(Maximal value in % of solid)
MIN – 99 %
(Factory: 30)
SED-L%
(5 configurables rates in %)
0 - 99 %
(Factory: 1 / 5 / 0 / 0 / 0)
%REDUC
(Reduction of the spreading rate in % when liquid in operation)
0 - 99 %
(Factory: 0)


PRW-M
(Prewet)
CALIBR
START
RPM & XXX pulses
0 – 999.9 liters
(Factory: 20 liters)
TEST
0 – 999.9 l
(Factory: 20 liters)
RPM & XXX pulses
ACTIVE
(Material use)
YES or NO
(Factory : yes 'active')
SAU-LT
(Scale in automatic mode in liters per tonne)
1 or 5 L/T
(Factory:1 liter per tonne)
SAU-L%
(Scale in automatic mode in % of solid)
1 or 5 %
(Factory: 1 %)
S-MAN
(Manual mode scale)
1 or 5 %
(Factory: 1 %)
MEAS-U
(Spreading method)
L/T ou %
(Factory: L/T)
LIQ>KG
(liquid density)
1.000 - 2.000
(Factory: 1.300 kg)
NAME
(Material label)
6 alphanumeric characters
(Factory: LIQ)
WIDTH
CALIBR
0.5 – 3.0 & 0.5 - 9.0 M
(Factory : 0.5 – 3.0)
0.5 – 3.0 M / 1.0 – 70.0%
(Factory : 0.5 M - 20.0%)
0.5 – 9.0 M / MIN – 99.9%
(Factory : 3.0 M - 40.0%)
TEST
15 – 80 % / 0.0 – 3.0 M
(Factory : 23 % PWM conveyor - 0.0 M)
MIN/W
(Minimum width)
0,0 - 3,0 M
(Factory : 0)
MAX/W
(Maximum width)
MIN - 9,0
(Factory : 3)
BOOST
(Width boost + s)
0 – 40.0 % / 0-10 s (per 0,5 s)
(2.0 Factory 0,5)
STOP
(Auto stop if 0 km/h)
ON or OFF
(Factory : on 'active')
STEP
(Scale)
0,5 - 10
(Factory: 0,5)


MAX
(MAX button)
SALT
0 – 995 0,5 – 9,5
(Factory : 350 kg – 3,0)
SAND
0 – 995 0,5 – 9,5
(Factory : 700 kg – 3,0)
MAT A
0 – 995 0,5 – 9,5
(Factory : 500 kg – 3,0)
MAT B
0 – 995 0,5 – 9,5
(Factory : 500 kg – 3,0)
MAXMAN
(Conv. & spin. values)
23.5 – 99.9 % 0,5- 9,5 s
(80.0 Factory 3,0)
DURATION
(Max. duration)
0-99 min 0 - 59 s
(Factory: 20 s)
MIN/S
(Minimum speed)
0 - 50
(Factory: 20 km/h)
CONT
(Continue)
ON or OFF
(Factory : on 'active')
MODE
MAN
(Manual mode)
DISABLE (Never works)
STOP (Works if the speed <3 km/h. Does not count the kg & liter) (Factory: stop)
ALWAYS (Always works. Always counts the kg & liter)
SILENT CVLQ MAX
(Hydraulic capacity exceeded alert)
YES or NO
(Factory : no 'inactive')
MAN LQ TRB PAUSE
(Stopping the liquid pump if the tank is empty)
YES or NO
(Factory : yes 'active')
IN/OU
(I/O)
OUT 4
(Auxiliary output)
SPR-ON (12vdc if the solid is spreading)
KM/H (12vdc if vehicle speed > Maximum speed 'warning' selected) (Usine: KM/H)
100% (12vdc if conveyor speed is at 100%)
KM+100 (12vdc if one or both of the conditions above are met)
POWER (12vdc if the ECOBITE is turned on)
MANIMAX (Frequency 12vdc if vehicle speed >3 km/h)
OPTS
BEEP
(Confirmation tone)
YES or NO
(Factory : yes 'active')
CODE
(Access code change)
1 (1 to 9) 2 (1 to 9) 3 (1 to 9) 4 (1 to 9)
Repeat:
1 (1 to 9) 2 (1 to 9) 3 (1 to 9) 4 (1 to 9)


FACTORY
#SERIE
(ECOBITE Serial number)
B-xxxxxx
#EPAND
(Spreader number)
0000xxxxxxxx ou NONE
(None if, GPS port disable)
GPSACT
(Enabling the GPS port)
0 (0 to F) 0 (0 to F) 0 (0 to F) 0 (0 to F)
GPSPTC
(GPS port protocol)
ACE or 154301 or OFF
(Factory : off)
PWR ST **
(Diagnostics of 12 volt outputs)
** software 1.57 & +
FCV (Fuse 7.5A / 12V PWM conveyor)
FSP (Fuse 7.5A / 12V PWM spinner)
FLQ (Fuse 7.5A / 12V PWM liquid)
SCV (PTC 500mA / 12V conveyor sensor)
SLQ (PTC 500mA / 12V liquid sensor)
SVI (PTC 500mA / 12V speed signal VSS)
S01 (PTC 500mA / 12V output #1 'OUT #4')
RESCNT (Resetting error counters) > NO / YES
OK = Active , F = in error , 01 = number of errors '1 to 99'
FACTORY
(Reset factory values)
NO (no reset)
METRIC (reset factory values in metric mode)
IMPERI (reset factory values in imperial mode)

9. Appendix 3: Calibration form

Owner:		Date :
Organization:		
Contact:		
Address:		
Email:	Phone:	

Truck brand and unit:					
Spreader brand and capacity:					
Controller brand and serial number:		MAN mode:		CODE:	

1) SPEED CALIBRATION:

Distance (DIST) menu	Method used	1KM:	KM/H:
	Number of pulses for 1 KM (default: 16000) :		
	Test: speed obtained at 50 km/h:		

2) CONTROLLER CALIBRATION (empty spreader, vehicle motor = 1500 rpm):

Solid menu (HYDR - SPR)	MIN % (default: 23.5%):			RPM:	
	MAX % (default: 80%):			RPM:	
	BOOST (default: 5% / 1,0 sec.):	%		SEC.:	
	MOTOR PULSES (default: 30):			MAX speed:	
Prewet menu (HYDR - PREW)	MIN % (default: 18%):			RPM:	
	MAX % (default: 35%):			RPM:	
	BOOST (default: 2% / 1,0 sec.):	%		SEC.:	
	MOTOR PULSES (default: 30):			MAX speed:	

3) CALIBRATION OF MATERIALS (spreader at 50%):

MENU	Name displayed	Gate height	Nb of revolutions	Measured weight (litres for liq.)	Calibration constant	Default constant	Prop. of mix (%)
SALT						40.00	
SAND						51.69	
MAT A						42.71	
MAT B						45.29	
LIQUID						-------	

4) CALIBRATION OF SPINNER:

WIDTH menu	Calibration (CALIBR) (default: 20/40)		0.5m :	%	3.0m :	%
	Max width (MAX/W) (default: 3,0)					
	Boost (default: 2.0/0,5)	%		SEC. :		

5) DONE BY:

Organization:	
Calibration done by:	
Address:	
Email:	Phone:
SIGNATURE:	

53. Appendix 3: Calibration form

10. Appendix 4: Technical specs

Table 1: Generalities

Input	14.4 VCC (10.8VCC minimum)
Ground	Negative pole
Maximum consumption	20 A
Dimensions (W x H x D)	153 x 85 x 50 mm (6 x 3.25 x 2 inches)
Weight	596 g
Operating temperature	-40°C to 75°C (-40°F to 167°F)
Humidity	95% (25°C to 55°C)

Table 2: Solenoid valve outputs

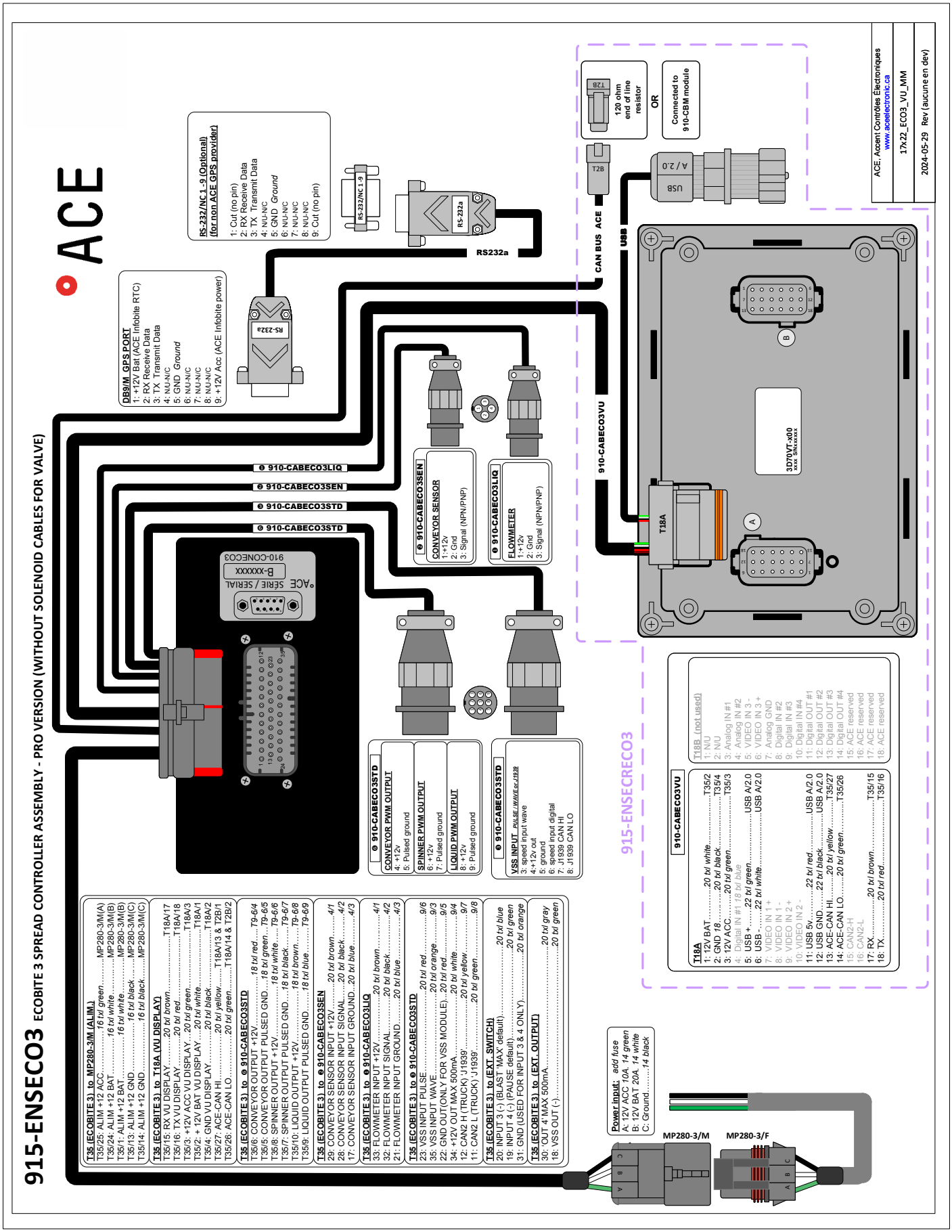
Maximum power per output	5,0 A (7,5A fuse per output in the box)
Signal type of outputs	Pulse width modulation (PWM)
Output frequency	225 Hz (other frequencies available)
Type of connector provided	DIN 43650 / ISO 4400 (EN 175301-803)

Characteristics as well as presentation may be modified without prior notice.

WARNING

- To avoid any short circuits, disconnect the negative terminal of the battery before installation.
- The system's maximum consumption is 20 amps. Ensure that the black ground wire and the white positive wire can handle this load.
- Ensure that all wires and cables are properly routed and secured to prevent damage due to excessive heat or wear from friction.
- Never cut the insulation of the controller's power cable to share power with another device. Excessive voltage drops may cause the Ecobite to malfunction.
- Use dielectric grease for all outdoor electrical connections to prevent future corrosion risks.
- Use the console's mounting holes; do not drill holes in the console housing.
- Specific length cables are available upon request; do not cut or modify the controller's electrical cables.

11. Appendix 5: Electrical plan

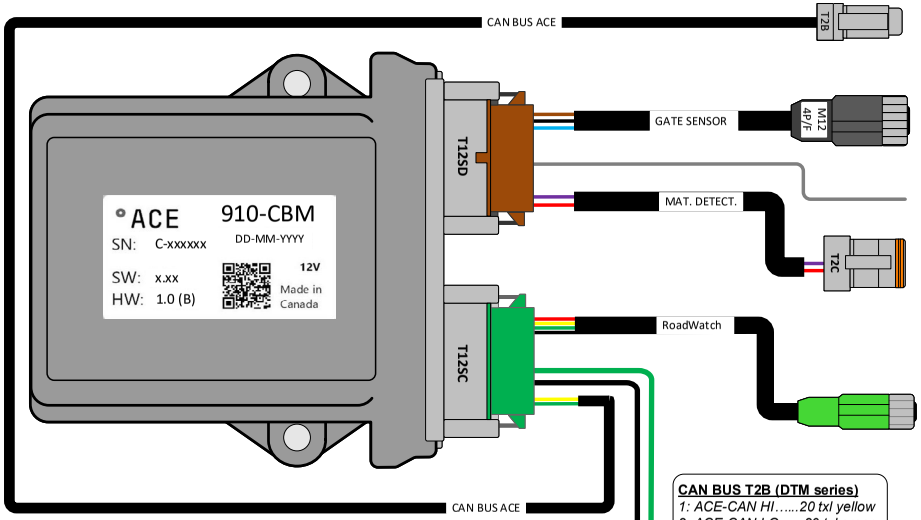


910-CBM HW: 1.0(B)

Power input: *add fuse 10A*
12V ACC *10A. 14 green*
Ground……..*14 black*

T12SD (Brown)
1: PWM 1 GND OUT ……
2: PWM 2 GND OUT ……
3: GATE HEIGHT IN……*22 txl black*……M12/3
4: SPINNER POS. ……*18 txl gray*……
5: MAT.DETECT IN……*18 txl purple*……T2C/1
6: 12V BAT IN…..*add fuse 10A(only if PWM used)*
7: GND IN PWM……Gnd truck *(only if PWM used)*
8: 12V OUT (500mA max)…..*18 txl red*……T2C/2
9: GND OUT Gate height……*22 txl blue*……M12/4
10: 12V OUT (500mA max)..*22 txl brown*…..M12/1
11: 12V OUT (7.5A fuse in box)……
12: 12V OUT (7.5A fuse in box)……

T12SC (Green)
1: GND IN……*18 txl black*……Gnd truck
2: ACE-CAN LO…..*20 txl green*……T2B/2
3: 12V OUT (500mA max) ……
4: 0-5/0-10V Analog IN (or ACE-CAN-L)……
5: GND RW……grey……M8/5
6: J1708-A/RS485 RW…….*blue* ……M8/3
7: J1708-B/RS485 RW……*black*……M8/4
8: 12V RW (500mA max)..*white*……M8/2
9: 0-5/0-10V Analog IN (or ACE-CAN-H)……
10: GND sensor OUT……
11: ACE-CAN HI…..*22 txl yellow*……T2B/1
12: 12V ACC IN….*18 txl green*……add fuse10A



T2B (DTM series)
1: ACE-CAN HI….20 txl yellow….T12SC/11
2: ACE-CAN LO….20 txl green….T12SC/2

M12 4P/F
1: Acc 12V (500mA max)……22 txl brown….T12SD/10
2: N/C
3: Gate return (0-5 vdc)……22 txl black……..T12SD/3
4: Ground……..22 txl blue……..T12SD/9

Spinner position locator , Gray

T2C (DT series)
1: Mat. detector (return)….18 txl purple….T12SD/5
2: Acc 12V(500mA max)……18 txl red…..T12SD/8

M8 6P Roadwatch
1: N/C…… brown
2: Acc 12V (500mA current limited)….white….T12SC/8
3: J1708 A (High)……..blue……T12SC/6
4: J1708 B (Low)……..black…..T12SC/7
5: Ground……..grey……T12SC/5
6: N/C……pink

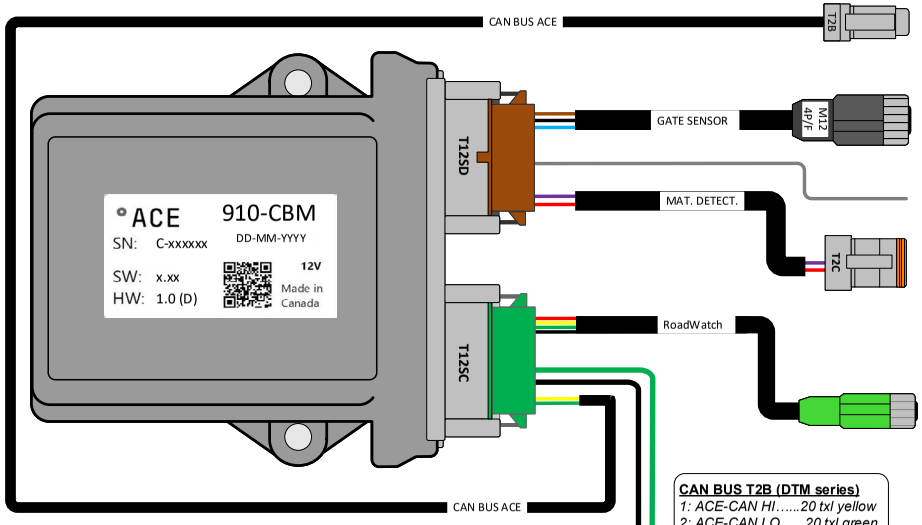
CAN BUS T2B (DTM series)
1: ACE-CAN HI……20 txl yellow
2: ACE-CAN LO……20 txl green

910-CBM HW: 1.0(D)

Power input: *add fuse 10A*
12V ACC *10A. 14 green*
Ground……..*14 black*

T12SD (Brown)
1: PWM 1 (+) ……
2: PWM 2 (+) ……
3: GATE HEIGHT IN……*22 txl black*……M12/3
4: SPINNER POS. ……*18 txl gray*……
5: MAT.DETECT IN……*18 txl purple*……T2C/1
6: 12V 500mA out
7: GND out
8: 12V OUT (500mA max)…..*18 txl red*……T2C/2
9: GND OUT Gate height……*22 txl blue*……M12/4
10: 12V OUT (500mA max)..*22 txl brown*…..M12/1
11: 12V IN PWM2……add fuse 7.5A
12: 12V IN PWM1……add fuse 7.5A

T12SC (Green)
1: GND IN……*18 txl black*……Gnd truck
2: ACE-CAN LO…..*20 txl green*……T2B/2
3: 12V OUT (500mA max) ……
4: 0-5/0-10V Analog IN (or ACE-CAN-L)……
5: GND RW……grey……M8/5
6: J1708-A/RS485 RW…….*blue* ……M8/3
7: J1708-B/RS485 RW……*black*……M8/4
8: 12V RW (500mA max)..*white*……M8/2
9: 0-5/0-10V Analog IN (or ACE-CAN-H)……
10: GND sensor OUT……
11: ACE-CAN HI…..*22 txl yellow*……T2B/1
12: 12V ACC IN….*18 txl green*……add fuse10A



T2B (DTM series)
1: ACE-CAN HI….20 txl yellow….T12SC/11
2: ACE-CAN LO….20 txl green….T12SC/2

M12 4P/F
1: Acc 12V (500mA max)……22 txl brown….T12SD/10
2: N/C
3: Gate return (0-5 vdc)……22 txl black……..T12SD/3
4: Ground……..22 txl blue……..T12SD/9

Spinner position locator , Gray

T2C (DT series)
1: Mat. detector (return)….18 txl purple….T12SD/5
2: Acc 12V(500mA max)……18 txl red…..T12SD/8

M8 6P Roadwatch
1: N/C…… brown
2: Acc 12V (500mA current limited)….white….T12SC/8
3: J1708 A (High)……..blue……T12SC/6
4: J1708 B (Low)……..black…..T12SC/7
5: Ground……..grey……T12SC/5
6: N/C……pink

CAN BUS T2B (DTM series)
1: ACE-CAN HI……20 txl yellow
2: ACE-CAN LO……20 txl green

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17x22_CBM_B_D_MM

2024-05-29 Rev (aucune en dev)