Rexroth
Bosch Group

CS 520

Spreader Controller Configuration Manual

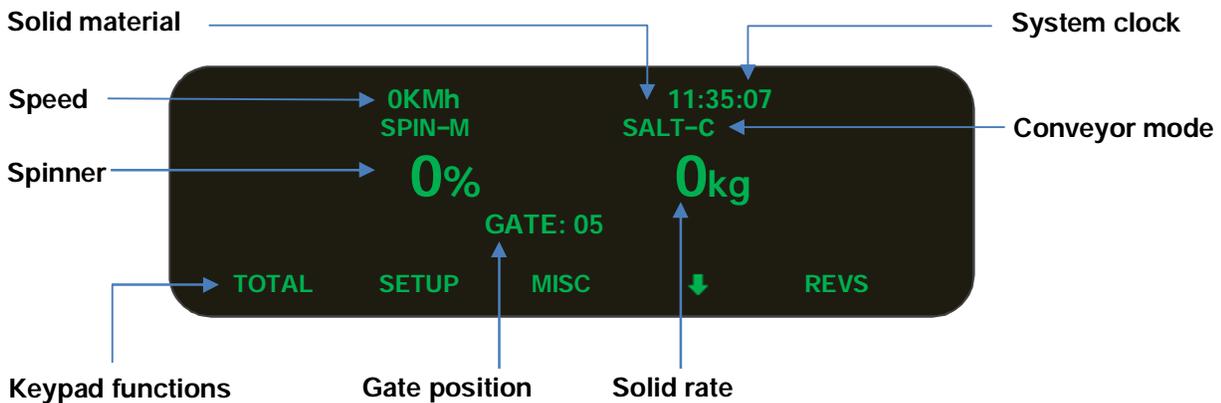**TABLE OF CONTENTS**

1   LAYOUT

CS 520 is a two function programmable controller, available in Manual, Closed or Open Loop mode, for the controlled application of granular solids in snow and ice control.

See Appendix for system layout in detail.

2   MAIN MENUS

When the truck is stopped or no ground speed signal is coming in, the screen below will be shown:

Key pads from left to right are for TOTAL, SETUP, MISC, ⬇SUBMENU and REVERSE. Pressing the touch panel pad enters the corresponding menu screen or holding REVS to reverse the conveyor.

TOTAL ---- trip and season totals, data display / save / load / log
SETUP ---- access to all settings of the system
MISC ---- adjust the brightness of screen or driver ID if AVL attached
⬇ ---- go to submenu to do speed simulation, gate adjustment and material change.
REVS ---- to reverse the conveyor

The screen below will show up when system is saving log data automatically, please keep the power on and let it finish by itself.

```
======================================
        Log  is  backing  up  …
        Pls   keep  power  on !
======================================
```
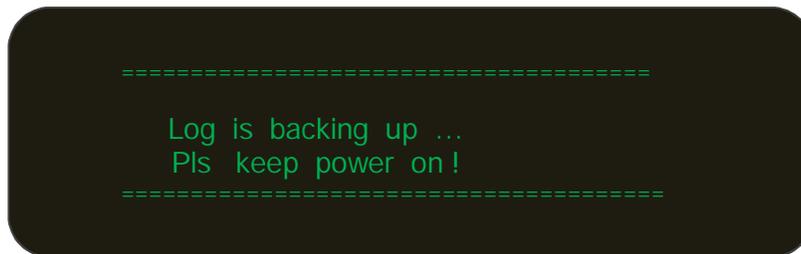
3   AUTHORIZATION VERIFICATION

To set up the CS-520, either a security USB or a password is needed according to the setting of LOCK feature in programming mode. This is to prevent unauthorized personnel from making adjustments to the system. After pressing the 'SETUP' button, the screen changes to "PLS insert USB" or the input of the password. If it is password verification, the screen below will be shown:

Firmware Version Number:

```
V.X
   Please Enter Code

   Code: 0 0 0 0 0 0

   ←        →        ↑        ↓        ENTER
```

The most right digit stays bright while the rests are dim, pressing the keypads left or right arrows to choose the digit and the up / down arrow to change character (This also applies to the settings of other features). After that, press **ENTER** to confirm the input. The default password is 000000, the user can change this password once in the setup screen.
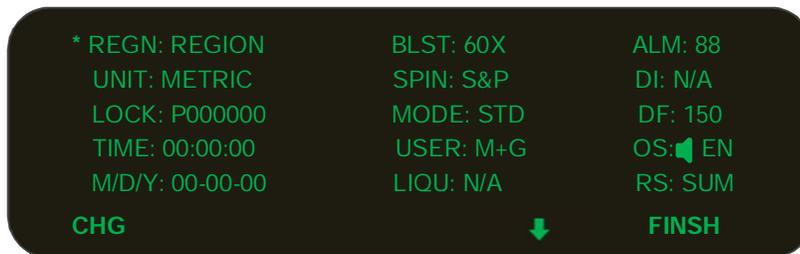
4   SYSTEM CONFIGURATION

If the password is correct or a program key is present, the setup screen below will be shown:

```
* REGN: REGION        BLST: 60X        ALM: 88
  UNIT: METRIC        SPIN: S&P        DI: N/A
  LOCK: P000000       MODE: STD        DF: 150
  TIME: 00:00:00      USER: M+G        OS:◀ EN
  M/D/Y: 00-00-00     LIQU: N/A        RS: SUM
  EXIT      NPAGE        ⬆        ⬇        ENTER
```

Press up / down arrow to navigate to the different features, the * symbol preceding the line will mark the active line. Press **ENTER** to edit / select the settings, some fields may also have a sub menu as indicated by the '**CHG'** icon. This is for editing the field. (See example of the editing of REGN below).
Press **NPAGE** to go to the next screen and **PPAGE** to the former one.

4.1   Setting the Region Name and Truck ID
REGN: To edit the REGION and TRUCK name

```
* REGN: REGION        BLST: 60X        ALM: 88
  UNIT: METRIC        SPIN: S&P        DI: N/A
  LOCK: P000000       MODE: STD        DF: 150
  TIME: 00:00:00      USER: M+G        OS:◀ EN
  M/D/Y: 00-00-00     LIQU: N/A        RS: SUM
  CHG                              ⬇        FINSH
```

Press ⬇ to switch between region and truck name. Press **CHG** to start to edit the region or truck name,
Then press **FINSH** button to quit editing.

4.2   Setting the UNIT
UNIT: To choose the system unit, metric or imperial.

4.3   Authorization method
LOCK: A valid USB programing key or six characters password can be chosen to verify the access to the setup screen.

4.4   Setting the Time
TIME: Clock time is formatted as: Hour: Minute: Second

4.5   Setting the Date
DATE: is formatted as Month: Day: Year

4.6   Blast Timer and Mode

BLST: The first two digits of 'BLST' is the blast timer in seconds & the last one digit is the mode of blasting.
F --- Blast disabled
C --- Blast at close loop with rate set at material screen.
S --- 100% output even at zero ground speed
X --- 100% output **except** at zero ground speed

The default setting for blast timer is 60 seconds.

4.7   Spinner Stop Mode

SPIN: Choose the spinner stop mode.
NEV --- spinner will always turn when the dial is set.
SPD --- spinner will start and stop with ground speed.
PSE --- spinner will only stop when the pause button is pressed.
S&P --- spinner will stop with ground speed and the pause button

4.8   System mode

MODE: Standard or Air Gate. (Air gate mode offers a 12 volt output signal with the change in materials.)

4.9   User Option

USER: This option determines what the truck driver is allowed to change.
N/A --- operator is **not** allowed to change either the gate setting or the materials.
M+G --- operator is allowed to change both the gate setting and materials.
GAT --- operator is only allowed to change gate setting.
MAT --- operator is only allowed to change the material.

4.10   Setting the Liquid

LIQU: CS-520 does not have this feature. (N/A will be present)

4.11   Alarm Speed

ALM: This is the ground speed at which a warning will be displayed on the screen. The "Alarm Speed" is not activated when the spread rate is set at zero or the controller is in the Pause mode.

4.12   Liquid level detection

DI: CS-520 does not have this feature. (N/A will be present)

4.13   Setting Dither Frequency

DF: Two options: 66 Hz and 150 Hz

4.14   Setting Beeping and Language

🔊 : Enable / disable the beeping as the feedback to touching of the pads.
 EN: Default language is English (En.) unit can switch to French. (Fr.)

4.15   Default Setting and Season Reset

RS: system parameters can be reset to factory defaults or season totals can be reset to zero.
SUM: reset season totals
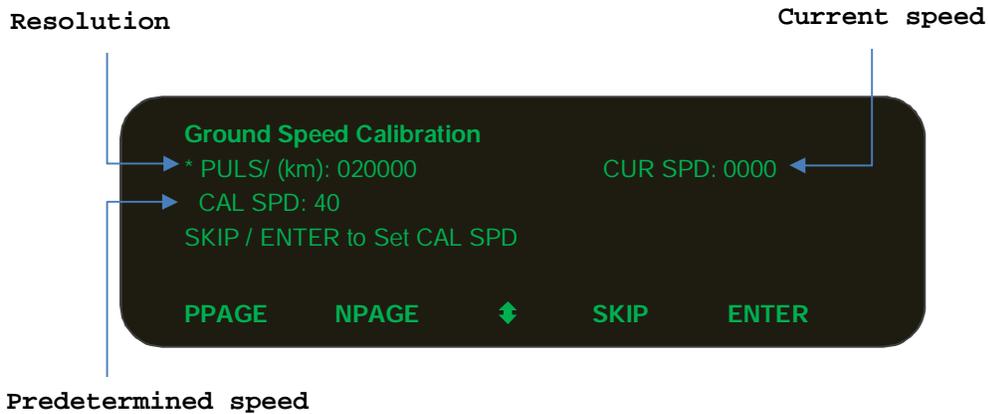PAR: reset all parameters to factor defaults

A text page will be shown to confirm the action.

5   GROUND SPEED CALIBRATION

There are two ways to input the ground speed calibration.

If the resolution is known, just manually input the pulses per KM or Mile.

The other way is to set a predetermined speed (speed the truck will be spreading at most often, is recommended). Follow the hints on the screen and allow the system to finish the speed calibration by itself.

Resolution   **Current speed**

```
Ground Speed Calibration
* PULS/ (km): 020000              CUR SPD: 0000
  CAL SPD: 40
SKIP / ENTER to Set CAL SPD


   PPAGE      NPAGE        ⬍      SKIP       ENTER
```

Predetermined speed

After the predetermined speed is set up, the controller will jump to the following screen and the text message "Run CAL SPD & press START" will flash.

```
Ground Speed Calibration
* PULS/ (km): 020000              CUR SPD: 0000
  CAL SPD: 40
Run CAL SPD & press START


   ABORT              START
```
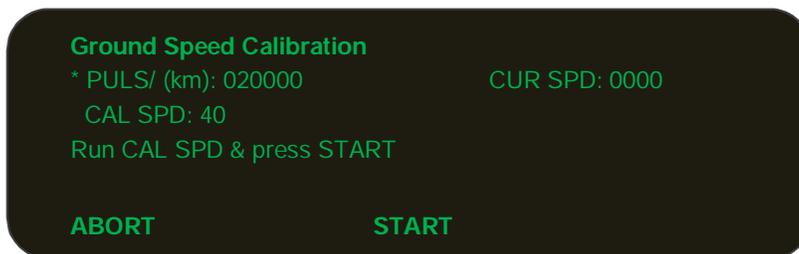
Drive the vehicle and hold the vehicles speed (as indicated on the speedometer) at the value you entered in the CAL SPD field. Press the **START** button.
Hold the vehicles speed at this rate and after 5 seconds, the system will record the pulse resolution automatically.
The speed calibration is now completed.

6 HYDRAULIC VALVE CONFIGURATION

The left side of screen is used to set up the valve configuration.

```
* CONVEYOR ⬍              1   SALT ⬍
  MODE: AUTO              BLAST: 0270 M99%
  SENSOR: 0050            RATE1: 0032
  NULL: 15.0 60.0         WT/REV: 1.00
  GAIN: 60%               CAL GATE: 05
     AUTONULL                AUTOCAL
  PPAGE        ⬌        ⬆        ⬇        ENTER
```

6.1   Valves

When * is in front of CONVEYOR, press Enter to select the valves. Choose valves to edit between conveyor and spinner.

```
* SPINNER    ⬍
  MODE: MANUAL

  NULL: 15.0 75.0
  BLAST: 0 0 0


  PPAGE                 ⬆        ⬇        ENTER
```
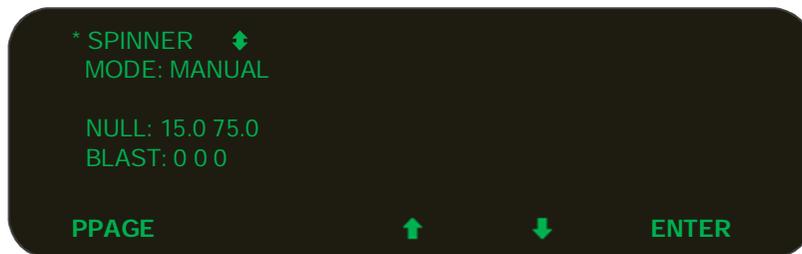
6.2   Mode

Conveyor has five modes: close loop (auto), open loop, manual 12V triggered, manual speed or manual.

Spinner can only work under manual mode.

If the Closed loop mode is selected for Conveyor, it is able to run Auto Null.

--- Manual Mode-(M)
This mode allows the driver to manually control the spread rate. Each setting on the Conveyor Dial 1–9 is a percentage of maximum valve null setting. The display will show "M" beside solid material name on the operation screen.

--- 12 Volt Triggered Manual Mode-(T)
In addition to manual mode operation, this mode allows the controller to start and stop the spreader based on a 12V input signal. The display will show "T" on the screen.

--- Ground Speed Triggered Manual Mode-(G)
In addition to manual mode operation, this mode will start and stop the spreader based on ground speed input. The display will show "G" on the screen.

--- Open Loop Mode-(O)

This mode utilizes the ground speed sensor only to regulate the amount of material that will be dispensed off the vehicle. There are 9 configurable application rate settings available. The display will show "O" on the screen.

--- Closed Loop Mode-(C)
This mode utilizes both a conveyor and ground speed sensor to regulate the amount of material that will be dispensed off the vehicle. There are 9 configurable application rate settings available. The display will show "C" on the screen.

6.3   Sensor

Determine the number of pulses per revolution of conveyor motor you are using, and enter this value in the 'sensor' field, when closed loop mode is selected. During nulling or auto-nulling, this line will show the actual conveyor speed.

6.4   Null

1. Press **ENTER** to manually null the minimum and maximum current (in %) to the valve solenoids.

WARNING: Once selected the conveyor or spinner has the ability to turn, and caution must be exercised.

2. Use up and down arrows to adjust the speed so that the motor just begins to turn.
3. Press ⬌ to end 'Minimum' value editing and switch to the 'Maximum' value.
4. Do the same for "Maximum" except adjust the motor to a safe maximum speed or until the RRM readout stops to increase.

6.5   Auto-nulling

The nulling of the valve solenoids for the minimum and maximum values can also be accomplished automatically. Providing a conveyor sensor is being used in the system.
Press the **ENTER** to start the auto-null process, the text "Auto-nulling" will flash on the screen during procedure.
Auto-null will end after recording the minimum and maximum null values.

6.6   Gain

This is the percentage of valve output increase, introduced on the conveyor during start up, when the vehicle starts to move, to overcome hydraulic motor pulsing and provide for instant, continuous movement of the conveyor.

6.7   Blast in Spinner

This is to set the blast rate of the spinner based on the percentage of its maximal output. The default value is zero, which means the spinner will not blast while the conveyor is blasting.

7   MATERIAL CONFIGURATION

There are four solid material under the standard mode and two solid materials with air gate mode. Within the valves configuration page, the right side of the screen is for the corresponding material configuration.

```
 * CONVEYOR ⬍           1  SALT ⬍
   MODE: AUTO           BLAST: 0270 M99%
   SENSOR: 0050         RATE1: 0032
   NULL: 15.0 60.0      WT/REV: 1.00
   GAIN: 60%            CAL GATE: 05
      AUTONULL             AUTOCAL
   PPAGE        ⬌        ⬆       ⬇      ENTER
```

Using ⬌ or ⬇ move from conveyor configuration to material configuration.

7.1   Material Name

Press **ENTER** to input the different solid material names.

```
   CONVEYOR ⬍         *  1  SALT ⬍
   MODE: AUTO            BLAST: 0270 M99%
   SENSOR: 0050         RATE1: 0032
   NULL: 15.0 60.0      WT/REV: 1.00
   GAIN: 60%            CAL GATE: 05
      AUTONULL             AUTOCAL
   CHG                   ⬆       ⬇      FINSH
```

Use up / down arrow to view each material's settings and press **FINSH** to select the material.
If **CHG** is pressed, the system will start to edit the material names. (to a maximum of 4 characters)

After you finish editing the material name, press **DONE**.

7.2   BLAST RATE

BLAST: The first number is the blast rate for blast in closed loop and the next one is the percent of manual blast.

7.3   APPLICATION RATES

RATE: There are 9 settings of the application rate for each material when the conveyor works in open or close loop mode.
Press **ENTER** and then the **up / down** arrows to browse the rate setting values, and press **CHG** to edit the current rate value.

7.4   WT/REV

This setting refers to the weight of material being discharged from the main conveyor / auger for every revolution of the conveyor motor.

Note: This number will automatically be generated as a result of the weight / rev. calibration process (AUTOCAL) or you can input this value manually.

7.5   CAL GATE

Enter the correct gate setting at which the current solid material was calibrated at.
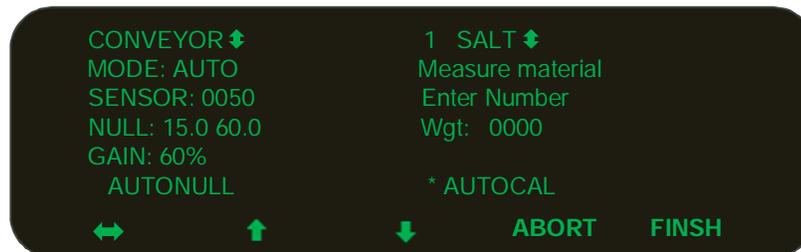

7.6   AUTOCAL

Here is where you can perform the material calibration if the controller is set to 'Auto' or 'Open'
1. Place an adequate catch container under the spreader discharge chute.
2. Make sure that you have sufficient material in the hopper, ensure the conveyor or auger has been loaded, hopper is full of material and the system is safe to run.
3. Set the gate position. (ensure you enter this value in the CAL GATE field)
4. Press **ENTER** to proceed.
5. Turn the CONV knob to any position to start the material discharging.
6. Press **FINSH** when the desired amount of material is reached.

```
CONVEYOR ⬍            1  SALT ⬍
MODE: AUTO           BLAST: 0270 M99%
SENSOR: 0050         RATE1: 0032
NULL: 15.0 60.0      WT/REV: 1.00
GAIN: 60%            CAL GATE: 05
   AUTONULL            * AUTOCAL

  Turn Knob to run           ABORT    FINSH
```

After pressing **FINSH**, the screen will jump to the material weight input screen, enter the weight of the material that was dispensed, the controller will calculate the WT/REV and the result will be displayed on the screen.

```
CONVEYOR ⬍            1  SALT ⬍
MODE: AUTO           Measure material
SENSOR: 0050         Enter Number
NULL: 15.0 60.0      Wgt:   0000
GAIN: 60%
   AUTONULL            * AUTOCAL

    ⬌         ⬆         ⬇     ABORT    FINSH
```

8   DATA SAVING / LOADING / DISPLAYING

8.1   Save parameters to the system

All the changes made to the parameters will be updated and saved after pressing **EXIT** on the setup screen, the system will also give a text message screen as shown below.
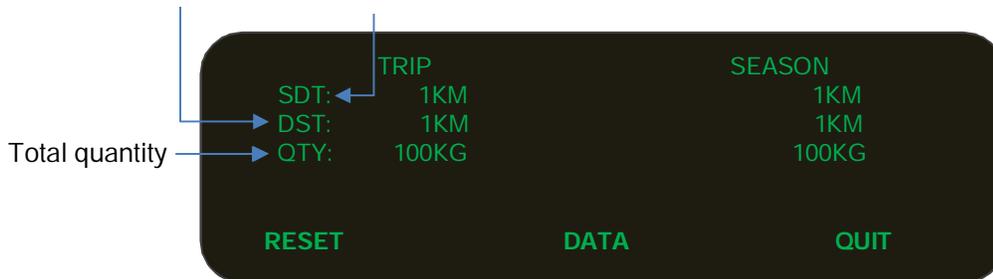
```
================================
   SAVE CONFIGURATION

   KEEP POWER ON!

================================
```
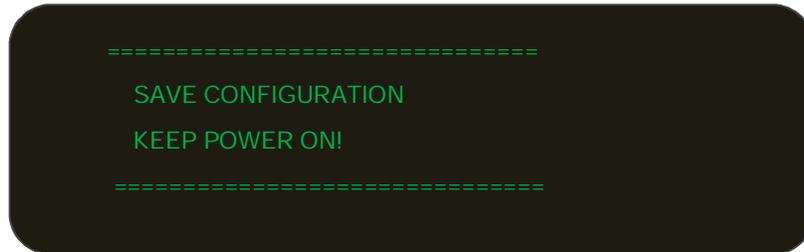
8.2   Display the trip and season totals

When the truck is stopped (no ground speed present), Press **TOTAL** to display the trip and season totals.

Total distance   Total spreading distance

```
            TRIP              SEASON
    SDT:        1KM               1KM
    DST:        1KM               1KM
    QTY:      100KG             100KG


      RESET              DATA              QUIT
```

Total quantity

Pressing **RESET** will clear the TRIP TOTALS, while the SEASON TOTALS can only be cleared in the program setup screen.

8.3   Save parameters to USB

Press **DATA,** insert program key and follow the hints on screen. Once "USB FOUND" appears, pressing **SPARA** will save all the parameters on the USB key with the file name that includes the Region and Truck ID names.

```
LOGGING DATA or PARAMETERS

      INSERT USB



  SPARA      LPARA           LOG      QUIT
```
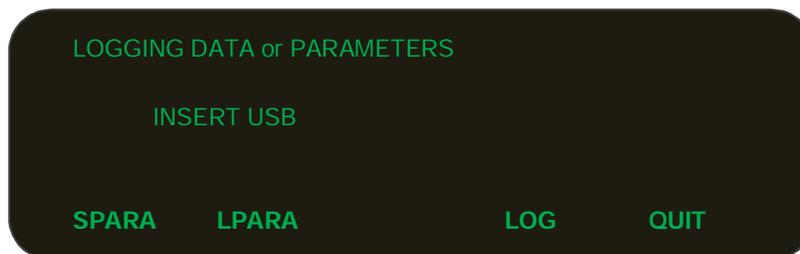
8.4 Loading parameters from USB key to Controller

It is also possible to load saved parameters from a USB key to the controller on the screen. By pressing **LPARA**, the screen (as shown below) will list all the saved parameters files on the USB key.

```
 * REGION_TURC01           REGION_TURC06
   REGION_TURC02           REGION_TURC07
   REGION_TURC03           REGION_TURC08
   REGION_TURCK04          REGION_TURC09
   REGION_TURCK05
                      1 --- 10
   QUIT      NPAGE      ↑        ↓        SELCT
```

Use up / down arrow to navigate and press **SELCT** to load the desired parameter file.

```
   Load REGION_TURC01 ?



              YES                NO
```
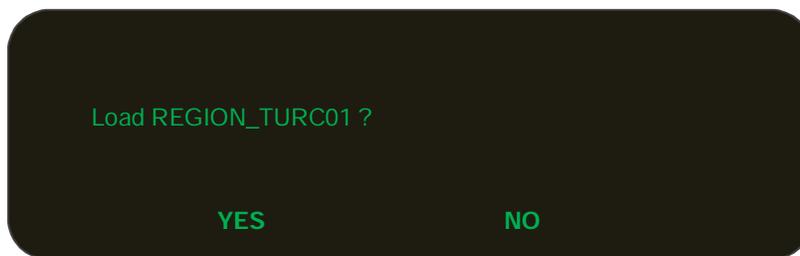
Press YES, the controller will display 'LOADING', when complete touch 'QUIT' and then 'QUIT' again. Touch the 'SETUP' button, then the 'EXIT' button and power the display off. This procedure confirms all the parameters will be refreshed to the controller's memory.

8.5 Save Controller Logging Data to USB Key

When the truck is stopped, Press **TOTAL** first, then press **DATA,** insert the log key and press **LOG**, The screen text will show "SAVING…" which will disappear after it saves the spreading log information to the USB key. (This will also clear the logged data from the controller). Touch 'QUIT' and then 'QUIT' again. Insert the USB key into a laptop and open the CS-530 logging Excel desktop software. The logging information will have the file name "data_REGN_TRID.txt", and it will be date and time stamped.

9 SUB Menus

9.1 *SPEED SIMULATION*

When the truck is stopped (ground speed = 0), press ⬇ to enter the screen as shown below.

```
              0KMh              11:35:07
              SPIN-M            SALT-C
               0%               0kg
                    GATE: 05
  SMSPD        ⬆              ⬌GAT    ⬌MAT
```

Press **SMSPD** to enter speed simulation mode.

```
  SIM         0KMh              11:35:07
              SPIN-M            SALT-C
               0%               0kg
                    GATE: 05

              ⬆                ⬇      STOP
```

- Make sure that the vehicle is stationary (ground speed = 0)
- Press UP and DOWN buttons to adjust the simulated ground speed value.
- WARNING: In simulated mode the conveyor and or spinner has the ability to turn, and caution must be exercised.
- Turn the dials to verify the system is working.
- NOTE: Under the simulation mode, the system still counts the spreading information into log file, so please clear that by resetting the screen totals and retrieving logging data with USB log key.

9.2 *Gate Adjustment*

Depending on the setting of the USER options in the setup screen, GAT and MAT may show up on the sub menus.
If, GATE is there, press ⬌GAT to enter the gate adjustment screen.

```
              0KMh              11:35:07
              SPIN-M            SALT-C
               0%               0kg
                    GATE: 05
  SMSPD        ⬆              ⬌GAT    ⬌MAT
```

Change the gate value as required and press the **FINSH** button to exit.

9.3   Material change

Depending on the setting of the USER options in the setup screen, GAT and MAT may show up on the sub menus.
If, MAT is there, press ⬌MAT to enter the material adjustment screen.

```
       0KMh              11:35:07
       SPIN–M            SALT–C
        0%                0kg
              GATE: 05

   SMSPD      ⬆           ⬌GAT    ⬌MAT
```

Press **SOLID** to change solid material

```
       0KMh              11:35:07
       SPIN–M            SALT–C
        0%                0kg
              GATE: 05

                    SOLID        FINSH
```

NOTE: A reminder screen for the calibrated gate setting of the new solid material selected will show for 5 seconds.

9.4   Air Gate

If "air gate" mode is the chosen in the setup screen, it will show the "AIRGT" menu instead of "GAT" and/or "MAT".

```
       0KMh              11:35:07
       SPIN–M            SALT–C
        0%                0kg
              GATE: 05

   SMSPD      ⬆            AIRGT
```
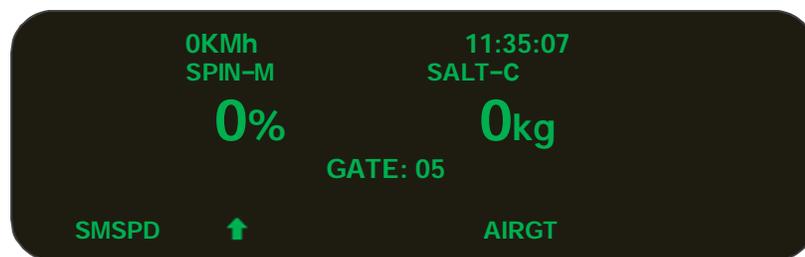
Press the **AIRGT** button to enter the air gate adjustment screen. Press the ⬌ button to switch between low gate and high gate. The chosen gate setting is highlighted.

NOTE: When you switch the gate setting the material will also change from material 1 (low gate) and material 3 (high gate).

```
          0KMh              11:35:07
          SPIN-M           SALT-C
            0%               0kg
          LOW   GATE: 05    HIGH

                  ⬌                    ENTER
```
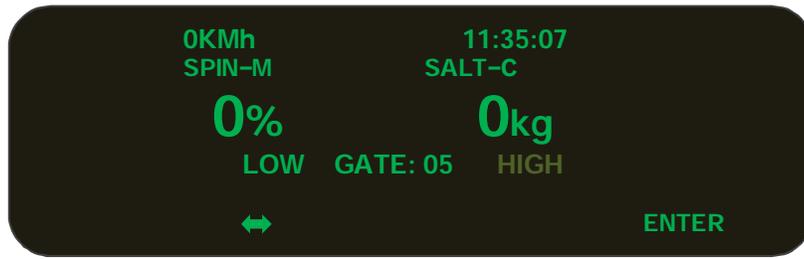
Press **ENTER** again to exit.

10   ERRORS

The controller continuously checks for errors during operation. E.g. the below screen shows that the ground speed is too high. (operator is driving faster than the programmed maximum speed setting)

```
          Warn:  OVERSPEED
          Please Slow Down Truck
```

An audible alarm and error message will display on screen for 4 seconds when an error occurs, then it will go off and could come back on 3 minutes later if the error is not resolved. Others more serious errors will stay on the screen until the controller power is cycled or the error is resolved.

Error Messages	Suggested Solution	Cycle Power Needed?
BLAST2LONG	Turn off blast	No
OVERSPEED	Slow down, reset max speed	No
SPIN OUTPUT	Check cables, replace coil	Yes
CONV OUTPUT	Check cables, replace coil	Yes
NO CONVEYOR	Check cable/sensor	No, switches to open loop
COIL SHORT	Check cables, replace coil	Yes

11 UNLOAD

To unload remaining material after completion of the spreading operation, activate by pressing both the conveyor and the spinner dials simultaneously when spinner and conveyor rates are zero.
(Note: The vehicle must be stationary.)
WARNING: Once selected the conveyor or spinner has the ability to turn, and caution must be exercised.

```
0KMh              11:35:07
SPIN-M            SALT-C
   10%               10%
        UNLOADING
          GATE: 05
```

Turn the dials until the desired speed is achieved. Press both the conveyor and the spinner dials simultaneously to exit unload mode. Moving the vehicle will suspend the unload process. It will automatically resume when the truck is stopped again.

12 SPREADING SCREEN

When truck is moving, system will display the spreading screen.

```
30KMh             11:35:07
SPIN-M            SALT-C
  0%             30kg
        GATE: 05

             STAT      REVS
```

Pressing **STAT** will go to the diagnosis screen which displays the power voltage, actual conveyor RPM and rate.

```
VOLTAGE: 12V
CONVRPM:      0        CONV_ACTU:   0



                        QUIT
```
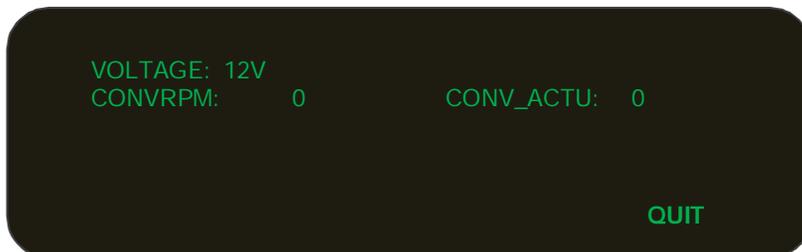
Press and hold the **REVS** to change the direction of the conveyor / auger (if equipped). Release the button to resume normal spreading.

13 PAUSE / BLAST

The two knobs for spinner and conveyor are also labelled as 'pause' and 'blast'. Press down the Pause button (spinner) to pause spreading, and press again to resume spreading. If the controller is in pause mode when powered off, the controller will start back up in pause mode once powered back on.

Press down the blast button (conveyor) to increase the spreading output, and press again or wait for the blast timer to time out to resume the regular spreading rate.
Remote pause / blast is optional by connecting a momentary switch to the digital inputs on the sensor lead cable.
When the blast timer is set to zero seconds in the setup screen, both the blast knob and the remote blast switch work on the momentary mode, holding the switch or knob to activate blasting, release to stop blasting.

If the blast timer is **not** set to zero seconds in the setup screen, the knob and switch will work on the latched mode. Press down the blast knob once to blast, blasting will stop once the timeout is reached or by pressing the knob again will stop blasting before the timeout is reached. The remote blast switch works in the same manner. Both the blast knob and the remote blast switch can work together, you can turn on blasting using the knob and turn off from the remote blast switch, or vice versa.

For pause mode, it can be activated / deactivated in parallel either from the pause knob or remote pause switch.

14 UPDATE FIRMWARE

Copy the latest .bin file to the root directory of a USB Program Key and rename it to **Rexroth.bin**. With the controller powered "off" insert the USB key into the USB port and then power "on" the controller, the controller will upgrade the firmware automatically. Unplug the USB stick once **"Verified"** is shown on the display screen. If **"Verified failed"** appears on the display, copy the **Rexroth.bin** file to the root directory of a blank USB key and try again.

15 LOGGING REPORT

15.1 Import the logging data to computer

Once logging data is saved on the USB memory key (see section 8.5), it can be viewed on a computer with the CS-530 Desktop Excel tool (CS530Logging_v3.3.xlsm).

Open the CS530Logging_v3.0.xlsm on your desktop and press the "Import Log Data" icon, the computer will check to see if a USB log key is present. If log files are found, the truck log data files will be imported into and displayed in the Region and Truck data field as well as in the data zone. A new dialog window will also pop up to indicate the completion of the file import.
NOTE: The original log files will be deleted from the USB key.

Data Zone

15.2 Select Report

All the logging data will be displayed in the data zone. It is also possible to select the logging data involving multiple trucks under a single region.

When selecting data, if the **All Data** option is selected and no specific truck is selected, then all the trucks in that region will be used. Further filtered reports can be done by selecting truck name, date and time when **Specific** is selected.

•To select the start and end of the date and hours

•**Specific** allows you to choose records within a selected timing frame

15.3 View Report

The logging reports will be displayed on the sheet called "Report" by clicking on 'Display Truck' after choosing the criteria from the above sections. For example, here you can select region "Toroto" and truck "TUCK03".

CS530 Logging V3.0

Import Log Data

REGION	TRUCK	• All Data	From	3/7/2017	Midnight
TOROTO WELLND BURLIN MAKHAM	TUCK03 TUCK04	○ Specific	To	4/13/2017	Midnight
			Delete Truck		Display Truck

Region	Truck	Date	Start Time (secs)	Solid Material	Total Time (secs)	Total Distance (ml)	Spread Distance (ml)	Total Solid (lb)
TOROTO	TUCK03	03-08-2017	08:59:46	MAT4	00:57:25	42.81	42.67	4101
TOROTO	TUCK03	03-08-2017	09:57:11	SAND	00:09:53	5.83	5.74	1117
TOROTO	TUCK03	03-08-2017	10:31:52	MIXD	00:01:42	1.03	1.00	117
TOROTO	TUCK04	03-08-2017	10:33:51	MIXD	00:35:31	23.06	23.01	3005
WELLND	TUCK01	03-08-2017	08:59:46	MAT4	00:57:25	42.81	42.67	4101
WELLND	TUCK01	03-08-2017	09:57:11	SAND	00:09:53	5.83	5.74	1117
WELLND	TUCK01	03-08-2017	10:31:52	MIXD	00:01:42	1.03	1.00	117
WELLND	TUCK02	03-10-2017	09:04:24	MIXD	00:23:14	11.80	11.78	1551
WELLND	TUCK02	03-10-2017	09:27:38	MAT4	00:09:29	5.09	5.05	477
BURLIN	TUCK01	03-08-2017	08:59:46	MAT4	00:57:25	42.81	42.67	4101
BURLIN	TUCK01	03-08-2017	09:57:11	SAND	00:09:53	5.83	5.74	1117
BURLIN	TUCK01	03-08-2017	10:31:52	MIXD	00:01:42	1.03	1.00	117
BURLIN	TUCK02	03-08-2017	10:33:51	MIXD	00:35:31	23.06	23.01	3005

Main_Data Report ⊕

•Click **Display Truck** and it will go to the Report Sheet

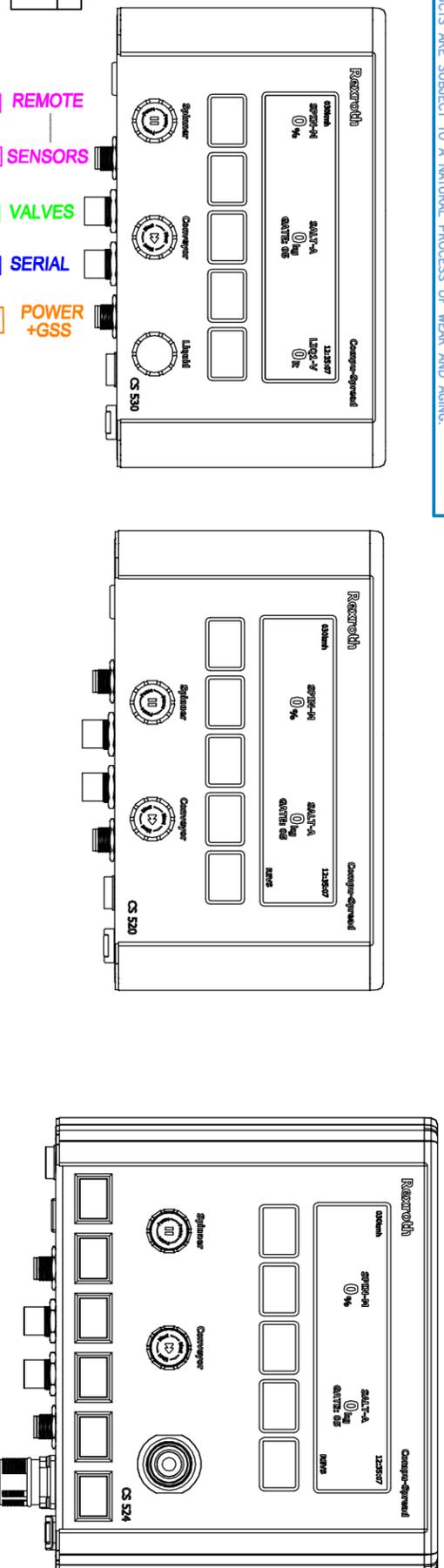| Region	Truck	Date	Start Time (secs)	Solid Material	Total Time (secs)	Total Distance (ml)	Spread Distance (ml)	Total Solid (lb)
TOROTO	TUCK03	03-08-2017	08:59:46	MAT4	00:57:25	42.81	42.67	4101
TOROTO	TUCK03	03-08-2017	09:57:11	SAND	00:09:53	5.83	5.74	1117
TOROTO	TUCK03	03-08-2017	10:31:52	MIXD	00:01:42	1.03	1	117
				SubTotal	01:09:00	49.67	49.41	5335

Main_Data **Report** ⊕

15.4 Delete Truck

Truck data or region can be erased by clicking "Delete Truck". A warning message will pop up to confirm the operation.

USB FLASH DRIVE (KEY)

CS-520 PROG- R987449776
CS-520 LOG- R987449777
CS-530 PROG- R987444135
CS-530 LOG- R987444126

OPTIONAL: REMOTE CABLE: R987249059

SWITCH: R913050642

REMOTE
SENSORS
VALVES
SERIAL
POWER +GSS

OPTIONAL: IF OPERATING IN CLOSED LOOP

OPTIONAL: AVL SERIAL CABLE R987448072

Rexroth
CS 530

Rexroth
CS 520

Rexroth
CS 524

SENSORS
R987410172
3M (10')

VALVES
R987410247
6M (20')

POWER
R987410173
3M (10')

CSS
LSS

R987376742
OPTIONAL INLINE SENSOR NETWORK
USED FOR SENSORS THAT
REQUIRE A PULL-UP RESISTOR
(MANDATORY FOR WHITE MOTORS)

SPINNER
CONVEYOR
REVERSE
LIQUID
CS-530 only

GSS
+VBATT
GROUND

VEHICLE SPEED
CABLE (2M)
R987376770

OPTIONAL:
IF OPERATING IN OPEN
OR CLOSED LOOP

3-BLUE = GND
4-BLACK = PULSE

VALVE EXTENDER (IF REQUIRED)
R987379961 (5M)
R987376748 (10M)

LIGHTED
SENSOR CABLE
3M   R987379519
      (43-18890)
5M   R987379520
      (43-19138)
10M   R987379517
      (43-18895)
15M   R911373271
      (43-19207)

SCB / M4 VALVE

I.N.
REVDT
DRAWN BY: T.GIES
APR6/16
SHEET SIZE:

DESIGN ENG.: T.GIES
APR6/16

CUSTOMER:

DRAWN BY: T.GIES

REV.: #2

SIZE

SCALE: SCALE

CS-520/530/524
OPEN/CLOSED_LOOP

DRAWING NO.: CS-5XX_CLP

CS-520/530/524_SYSTEM
LAYOUT

Rexroth
Bosch Group

#	REV.	REVISION	BY	DATE
1				
#				
#				
#				