RSW-2 GP

Manual for use and maintenance

RSW-2 GP

Silo Weighing Controller

Ag/MIS/UmGb-2623-07/18 Rev 1.4
P/N: 116172

Munters

RSW-2 GP

Manual for use and maintenance

Revision: 1.4 of 08.2022
Ag/MIS/UmGb-2623-07/18 Rev 4.9 (MIS)
Product Software: Version 7.02

This manual for use and maintenance is an integral part of the apparatus together with the attached technical documentation.

Munters reserves the right to effect modifications to the apparatus in accordance with technical and legal developments.

Index

Chapter *page*

1 INTRODUCTION ---- 5

1.1 Disclaimer ---- 5
1.2 Introduction ---- 5
1.3 Notes ---- 5

2 SAFETY ASPECTS ---- 6

2.1 Grounding ---- 6
2.2 Checking the Battery Level ---- 6

3 INTRODUCTION TO THE RSW-2 GP ---- 7

3.1 Display ---- 7
3.2 Keypad ---- 8
3.3 Hot Keys ---- 8
3.4 Hot Keys for Munters' Engineers ---- 9

4 CALIBRATION AND TESTING ---- 10

4.1 Initial Setup ---- 10
4.2 Calibration ---- 10
4.2.1 Silo Calibration With a Known Weight ... 11
4.2.2 Calibration Through Loading Process ... 12
4.2.3 Silo 1/2 Scale factor ... 13
4.3 Feed Time/Feed Quantity ---- 13
4.3.1 Configuring Feeding Schedule by Time ... 13
4.3.2 Configuring Feeding Scheduling by Time & Quantity of Food Distributed ... 13
4.3.3 Configuring the Feeding Days ... 14
4.3.4 Configuring Feed via Pulse ... 15
4.4 Test ---- 15
4.4.1 Relays ... 15
4.4.2 Silo 1 / 2 ... 15

5 USING THE CONTROLLER ---- 16

5.1 Control ---- 16
5.1.1 Augers Time ... 16
5.1.2 Operation Mode ... 16

5.1.3 System Parameters Definitions 17
5.2 Management ----- 17
5.2.1 Silo 1 Inventory 17
5.2.2 Silo 2 Inventory 17
5.2.3 Time / Date 17
5.2.4 Clear History 18
5.2.5 Alarm Reset 18
5.2.6 Alarm Time 18
5.3 History ----- 18
5.3.1 Feed Supply 18
5.3.2 Alarms 19
5.3.3 Events 19

6 SPECIFICATIONS ----- 20

6.1 Environmental Protection ----- 20

7 INSTALLATION ----- 21

7.1 Prerequisites ----- 21
7.2 Installation Instructions ----- 21
7.3 Connecting the Relays ----- 21
7.4 Wiring Diagrams ----- 22
7.4.1 RSW – RJB Wiring 23
7.4.2 Powering the RSW/RSLC Units 23
7.4.3 Wiring External Devices 26
7.4.4 Communication Wiring 27

8 TROUBLESHOOTING ----- 28

9 WARRANTY ----- 29

1 Introduction

1.1 Disclaimer

Munters reserves the right to make alterations to specifications, quantities, dimensions etc. for production or other reasons, subsequent to publication. The information contained herein has been prepared by qualified experts within Munters. While we believe the information is accurate and complete, we make no warranty or representation for any particular purposes. The information is offered in good faith and with the understanding that any use of the units or accessories in breach of the directions and warnings in this document is at the sole discretion and risk of the user.

1.2 Introduction

Congratulations on your excellent choice of purchasing an RSW-2 GP!

In order to realize the full benefit from this product it is important that it is installed, commissioned and operated correctly. Before installation or using the unit, this manual should be studied carefully. It is also recommended that it is kept safely for future reference. The manual is intended as a reference for installation, commissioning and day-to-day operation of the Munters Controllers.

1.3 Notes

Date of release: July 2011
Munters cannot guarantee to inform users about the changes or to distribute new manuals to them.

2 Safety Aspects

2.1 Grounding

- Always connect temperature and sensor shields to earth ground. Avoid mixing high voltage wiring with sensor and low voltage wiring.
- Keep the controller as far as possible from heavy contactor boxes and other sources of electrical interference.
- Do not connect communication wire shields, which go from one house to another at both ends. Connect them at one end only. Connection at both ends can cause ground loop currents to flow, which reduce reliability.
- The COM connection for communications is not the shield wire. The COM, RX and TX wires must connect to each other at all controllers.

2.2 Checking the Battery Level

- Check the battery once a year. The output must be 2.7 volts (minimum). Authorized personnel only must replace the battery if the output is below the minimum required level or every five years.

3 Introduction to the RSW-2 GP

The Munters RSW-2 (General Purpose) is a silo weighing control system. It includes silo scales enabling the poultry or swine farmer to accurately control feed deliveries, and feed inventory.

- Display, page 7
- Keypad, page 8
- Hot Keys, page 8
- Hot Keys for Munters' Engineers, page 9

3.1 Display

The **RSW-2** normally shows the following: **QTY-1** and **QTY-2** (amount of feed distributed), **DATE** (see **Figure 1**). If an alarm occurs the screen will alternately show an appropriate alarm message.
Press **MENU** to see the control menu. Press "MENU" again, to return to the standard display.

The Main Menu table in **Table 1** shows the entire menu structure for RSW-2.

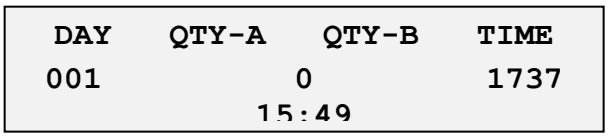


Figure 1: Standard display example

CONTROL	MANAGEMENT	HISTORY	TEST	CALIBRATION
AUGER TIME	SILO-1 MANAGEMENT	FEED SUPPLY	RELAYS	SILO-1
FEED CYCLE	SILO-2 MANAGEMENT	SILO-1 FILING	SILO-1	SILO-2
OPERATION TIME	TIME/DATE	SILO-2 FILING	SILO-2	SILO-1 FACTOR
SYSTEM PARAMETERS	CLEAR HISTORY	ALARMS		SILO-2 FACTOR
	NEW FLOCK	EVENTS		
	ALARM RESET			
	ALARM TIME			

Figure 2: Menu structure

3.2 Keypad

The keypad consists of eight keys. There are four cursor keys, "**MENU**", "**ENTER**", "**+**" and "**-**" keys.

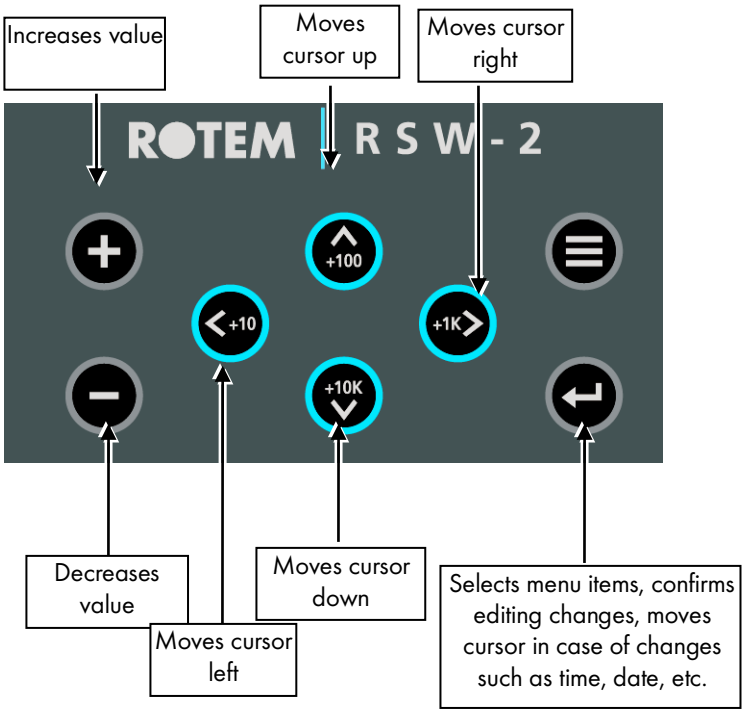


Figure 3: Keypad

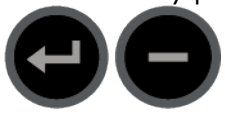
NOTE To increase/decrease at rates of 10, 100, 1K, or 10K hold down one of the four cursor keys and either the "+" or the "-" key to change the value.

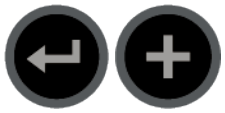
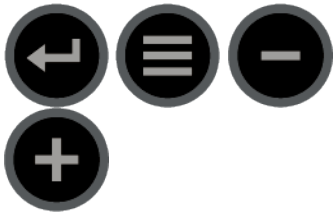
Table 1: Summary of factors

CURSOR	FACTOR
Left	10
Up	100
Right	1000
Down	10000

3.3 Hot Keys

Table 2: Available hot keys

Action	Keys to Press	Explanation
Communication	Simultaneously press 	Brings up the communication status. You must connect a wire between the RX and TX and switch the J1 jumpers to Dir before checking the communication.

Action	Keys to Press	Explanation
Weight and time	Simultaneously press 	Shows the weight in both silos and the time. If filling is in progress, LOAD appears instead of TIME.
Relay test	Simultaneously press 	The user can see which relays are closed. (*) Relay is closed. (-) Relay is open.
Software version	Simultaneously press 	Identifies the firmware within the RSW-2. The controller's software version number is displayed.
Display data regarding Silo 1 and Silo 2	Simultaneously press 	Displays the inventory and data regarding silos (See Table 4).
Cold Start	Turn the unit **OFF** and **ON** again, the message "**RUN**" appears. Simultaneously press all four buttons.  "**COLD**" appears on the display.	Returns values of all parameters to factory default and erases the history. Run Cold Start only after changing software (EEPROM) in the RSW-2 or if there is a serious problem with the unit. BEFORE performing a Cold Start, write down all the variables, hidden parameters, tables, and all other user programmed variables to be able to reenter the variables and data. After Cold Start, calibrate the feed parameter so that you can receive the silo factors, or insert all factors manually.

3.4 Hot Keys for Munters' Engineers

- First row refers to Silo 1.
- Second row refers to Silo 2.
- Figure ending with Z is the A/D reading; when empty it displays "A/D empty."
- Figure ending with A is the average A/D reading.
- Figure ending with W is the silo weight

Table 3: Hot Keys for Munters engineer's use

	A/D	Average A/D	Silo Weight
Silo 1	4000Z	7938A	1790W
Silo 2	4000Z	4387A	1176W

4 Calibration and Testing

CAUTION *It is essential to go by the following steps according to their order. If in one section a failure of any kind occurs, first fix the problem and only then continue.*

Check all the transducer's connections and make sure which silo is connected/disconnected.

Make sure both **Silo 1** and **Silo 2** (options 4.2 and 4.3, see **Table 1**) consist of stable values and do not suffer from noise or disturbance or a stacked valve.

4.1 Initial Setup

- **Relays:** Go to Relays (option 4.1, see Table 1) and ensure that all the relays are connected properly.
- **Inventory Update:** Update Silo 1 inventory and Silo 2 inventory tables (options 2.1 and 2.2, see Table 1). After running Cold Start (refer to Cold Start, page 9) the inventory's value can be random; update the silo's inventory.
- **Time/Date:** Go to Time/Date (option 2.3, see Table 1). Update the hour and the date.
- **Calibration Number Update:** Update calibration number of every silo either calibrating the silo or by inserting a calibration number in the calibration group (one of the stages contains an inventory update).

This chapter details the following menus:

- Calibration, page 10
- Feed Time/Feed Quantity, page 13
- Test, page 15

4.2 Calibration

This section deals with system calibration. Usually, system calibration is performed once, during installation. To calibrate the silo scales, an accurate weight of at least either 100 pounds or 50 Kg is required.

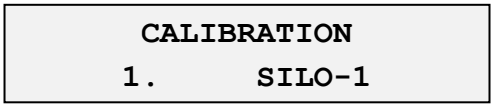
1. Press **MENU**
2. Select **CALIBRATION** (Option 5, see Display).

- Silo Calibration With a Known Weight
- Calibration Through Loading Process
- Silo 1/2 Scale factor

4.2.1 Silo Calibration With a Known Weight

To calibrate silo scale:

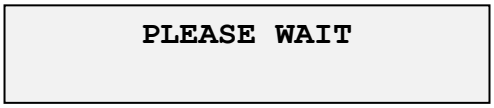
1. Press **MENU** and **Right** cursor four times.



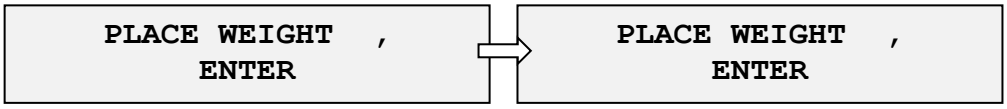
2. Press **ENTER**.

3. Press **ENTER** again (the controller takes the tare).

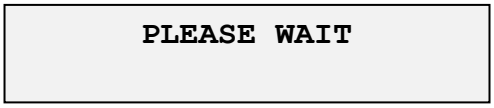
A message "Please wait" appears. Wait until screen changes.



4. Place a known weight on the scale and enter in its value.
5. Press **ENTER**.

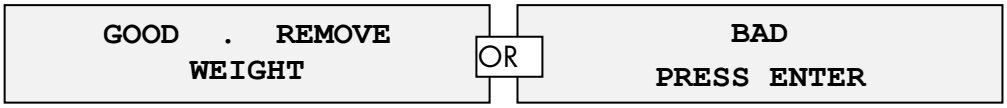


6. A message "Please wait" appears. Wait until screen changes.



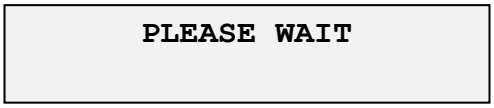
A success or a failure message appears.

NOTE If a failure message is received, ensure that the wire connections are correct and calibrate again.

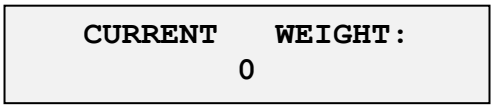


7. Remove the weight and press **ENTER**.

A message "Please wait" appears. Wait until screen changes.



8. Type the total net feed in Silo 1 and press ENTER.



4.2.2 Calibration Through Loading Process

To calibrate through silo loading:

1. Press **MENU** and right cursor four times.

```
CALIBRATION
1.     SILO-1
```

2. Press **ENTER**.

```
PRESS  ENTER  FOR  TARE
     REGISTRATION
```

3. Press **ENTER** (the controller takes the tare).

A message "Please wait" appears. Wait until screen changes.

```
PLEASE WAIT
```

4. Start loading Silo 1.
5. After loading is completed, disconnect the truck-loading pipe and enter the total loaded weight [Make sure loaded weight is more than **System Parameters** - MIN. FILLING].
6. Press **ENTER**.

```
PLACE WEIGHT  ,
     ENTER
```

A message "Please wait" appears.

```
PLEASE WAIT
```

A message "Good, remove weight press enter" appears.

NOTE If weight is not removed, the controller automatically regards this calibration as a "filling calibration" and adds the weight to the total feed of the silo.

```
GOOD
PRESS ENTER
```

7. Press **ENTER**.

A message "Please wait" appears. Wait until screen disappears.

```
PLEASE WAIT
```

The message "Current weight" appears.

NOTE If there was any amount of feed in the silo prior to the calibration, the total net feed weight appears. Any manual changes in inventory, if necessary, are made in this stage.

```
CURRENT  WEIGHT:   3000
 CONFIRM   OR   CHANGE
```

*NOTE There is a history log with all previous fillings amounts in "**Silo 1 Filling**" or "**Silo 2 Filling**" menus in **3.2** and **3.3**. In "**Silo 1 Inventory**" and "**Silo-2 Inventory**" the total weight of the silo can be found.*

4.2.3 Silo 1/2 Scale factor

This section details the parameter found in this section.

- **Factor**: Calibration number.
- **%**: Any changes in the "%" results in a proportionally inverse change in the factor of its matching percentage.
- **Offset**: Shifts the A/D valve of the channel.

For example: Current offset = 2000 and its A/D value or reading is 3403. Increasing the offset by 1000 (making it 3000) also increases the A/D value by 1000. This means the A/D is 4403, where the silo's inventory remains unchanged.

NOTE This is used if a load cell has been connected to the system and its A/D value is either very low (about 0) or very high. (In such cases, "offset" is set to a negative value).

4.3 Feed Time/Feed Quantity

RSW-2 GP enables

- Configuring Feeding Schedule by Time
- Configuring Feeding Scheduling by Time & Quantity of Food Distributed
- Configuring the Feeding Days
- Configuring Feed via Pulse

The following section details how to configure these functions.

4.3.1 Configuring Feeding Schedule by Time

By default RSW-2 GP controls feed distribution by time only. After configuring this parameter, feed distribution is between the From and To times every day.

To configure the schedule:

1. Go to *Control* > *Augers Time*.

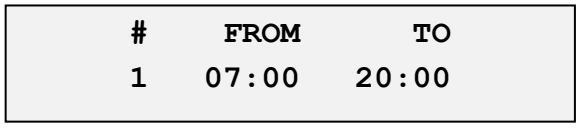


Figure 4: Augers Time Example

2. Enter the **From** and **To** times.
3. Press **Enter**.

The feeding times are configured.

4.3.2 Configuring Feeding Scheduling by Time & Quantity of Food Distributed

The following section details how to limit feed distribution by both time and quantity. After configuring this parameter, feed distribution begins at the From time and continues:

until the To time **OR**

until the auger distributes the quantity specified
In the example below, feed distribution starts at 7:00 AM.

To configure the schedule:

1. Go to *Control* > *System Parameters* > *Feed by Quant*.
2. Press 
3. Press **Enter**.

The following screen appears:

```
      SYSTEM PARAMETERS
  11                    FEED
     CYCLE              NO
```

Figure 5: Feed Cycle Screen

4. Press  to select **Yes**.
   - When set to No (default), birds are fed every day according to the schedule and quantity chosen in Augers Time.
   - If you select Yes, birds are fed on selected day(s). Refer to Configuring the Feeding Days, page 14.
5. Go to *Control* > *Augers Time*

```
  #     FROM            TO            QTY
        1    07:00           20:00
                    2000
```

Figure 6: Augers Time and Quantity Example

6. Enter the **From, To** times and the feed quantity.
7. Press **Enter**.

The feeding times and quantity are configured.

4.3.3 Configuring the Feeding Days

This screen determines the day on which the birds are fed.

*NOTE This screen is enabled only if **Feed by Quantity** and **Feed Cycle** are set to **Yes** . Refer to Configuring Feeding Scheduling by Time & Quantity of Food Distributed, page 13.*

To configure the daily feeding schedule:

1. Go to *Control* > *Feed Cycle*.
2. Use the arrow key to move the cursor.
3. Press **Enter** to change that day's settings.
4. Press **Menu** to save and exit.

4.3.4 Configuring Feed via Pulse

The following section details how to configure the RSW-2 GP to control feed via pulses. If required, the connect the RSW-2 GP to a controller such that the controller's history records the feed data.

NOTE This section requires RSW-2 GP software 7.02 and higher.

To configure feed via pulse:

1. Go to *Calibration* > *Feed 1 per Pulse*.
2. Enter the number of kilograms/pounds per pulse.
3. Go to *Calibration* > *Feed 2 per Pulse*.
4. Enter the number of kilograms/pounds per pulse.

The RSW-2 now distributes feed via a pulse.

To connect the RSW-2 GP to a controller (refer to):

1. Connect the RSW-2's Relay 4 (Silo 1) to a digital sensor input connector.
2. Connect the RSW-2's Relay 6 (Silo 2) to a digital sensor input connector.
3. In a Platinum controller:
   a. Set two digital inputs to feed.
   b. In the *Service* > *Feed Calibration* screen:
      - Enter the number of kilograms/pounds per pulse. This number must be the same as the number entered in the RSW-2.
      - Set the method to **Pulse**.

Platinum History records the data.

4.4 Test

This section details how to test certain RSW-2 GP elements.

- Relays
- Silo 1 / 2

4.4.1 Relays

Use this to control each relay manually. The **RSW-2 GP** does not operate automatically in the test mode. Use the Left and Right Cursor keys to move the cursor to the relay number you wish to change. Press **ENTER** key to toggle the relay on and off.

4.4.2 Silo 1 / 2

This menu item shows the internal machine numbers for present scale readings. If you know the weight at two points, you can calculate the conversion factors for the load cells. During normal operations, the numbers should be changed to reflect the silo's average weight at the moment of weighting.

5 Using the Controller

- Control, page 16
- Management, page 17
- History, page 18

Press "ENTER" after every button you press; otherwise the information is not saved.
If you need to move the cursor to another column to provide information, use the "ENTER" button.
If buttons are not in use for a few minutes, the screen returns to the main screen.

5.1 Control

This choice serves as a Control data diary.

1. Press **MENU**.
2. Press the right cursor key until Control appears.

- Augers Time
- Operation Mode
- System Parameters Definitions

5.1.1 Augers Time

This function sets the daily schedule for Augers 1 & 2. Use UP and DOWN arrow keys to navigate between Auger 1 to Auger 2.

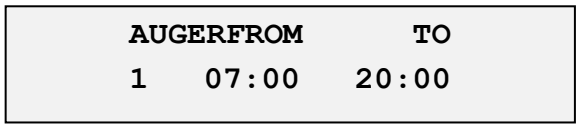


Figure 7: Augers time example

5.1.2 Operation Mode

This selection enables the user to switch between operation modes "Auto" and "Stop" by using the "+" and "-" keys.

AUTO: Automatic operation
STOP: This mode stops the unit, including the Augers.
NOTE STOP mode is used especially in emergency cases and between flocks.

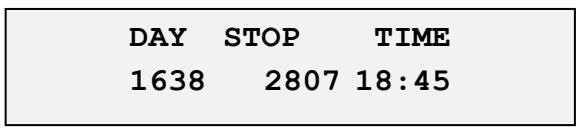


Figure 8: Operation mode (stop example)

5.1.3 System Parameters Definitions

1. **Minimum Emptying Quantity**: Minimum feed supply during emptying, adding to the feed consumption table. (Default: 10 Kg)
2. **Minimum Filling Quantity**: Minimum feed quantity to start automatically with filling feed procedure (150 Kg minimum). (Default: 1000 Kg)
3. **Resume Time**: Delay time between end of filling and start of emptying. (Default: 5 min)
4. **Low Feed in Silo 1**: If the remaining quantity of feed in Silo 1 is below this limit, alarm "SILO-A LOW LIMIT" starts (Default: 0).
5. **Low Feed in Silo 2**: If the remaining quantity of feed in Silo 2 is below this limit, alarm "SILO-B LOW LIMIT" starts (Default: 0).
6. **Fill Detect**: Determines weight to stop auger during filling time.
7. **House**: Concerns communication: house number (Default: 0)
8. **Password**: Concerns communication: password. (Default: 0)
9. **Baud Rate**: Concerns communication: baud rate. (Default: 9600)
10. **Weight Unit**: Measurement unit: Kg or Lb (Default: Kg)

5.2 Management

This function enables you to determine several basic parameters.

1. Press **MENU**.
2. Press the right cursor until MANAGEMENT appears.

- Silo 1 Inventory
- Silo 2 Inventory
- Time / Date
- Clear History
- Alarm Reset
- Alarm Time

5.2.1 Silo 1 Inventory

For each silo there is a column representing the weight of the feed in the silo ('Silo Weight'). It is possible to change and correct the quantities. The user is asked to confirm by selecting this quantity ('YES' choice). Otherwise, the number remains the same.

5.2.2 Silo 2 Inventory

For each silo there is a column representing the weight of the feed in the silo ('Silo Weight'). It is possible to change and correct the quantities. The user is asked to confirm by selecting this quantity ('YES' choice). Otherwise, the number remains the same.

5.2.3 Time / Date

The **RSW-2 GP** keeps time in military, 24-hour format. The date format is dd/mm/yy. The internal battery maintains the correct time for up to three years without power.

5.2.4 Clear History

Select **YES** by using the '+' key to begin updating a new flock. The RSW-2 GP automatically erases history data and starts the growth cycle over. When pressing 'Yes' another line appears. This line enables the user to clear the silo supply by pressing ENTER. Otherwise, click **ESC** to exit this table.

5.2.5 Alarm Reset

This function silences the alarm; however the alarm remains active until the problem is dealt with.

5.2.6 Alarm Time

The RSW-2 GP enables individual enable times for the alarm relay. Unless programmed, the alarms are not recorded. Disabling all alarms during sleeping hours is possible. Table 6 summarizes all possible alarm messages.

Table 4: Available alarm messages

Alarm	Message	From (HH:MM)	To (HH:MM)
SILO 1 FAILURE	SILO 1 FAILURE		
SILO 2 FAILURE	SILO 2 FAILURE		
LOW FEED 1	LOW FEED IN SILO 1		
LOW FEED 2	LOW FEED IN SILO 1		

5.3 History

This function serves as a history diary.

NOTE The data viewed in this function is read-only.

1. Press **MENU**.
2. Press the right cursor until HISTORY appears.

- Feed Supply
- Alarms
- Events

5.3.1 Feed Supply

The **RSW-2 GP** maintains a complete daily feed consumption record for the entire flock growth period. View the data with this menu item, which shows the daily data.

Feed consumption for both silos is displayed.

The table displays a date, the amount of feed delivered on that date, and the total amount in the silo.

Pressing on the left arrow displays the Silo 1 data.
Pressing on the right arrow displays the Silo 2 data.
NOTE The silo inventory is recorded at every update.

5.3.2 Alarms

The **RSW-2 GP** maintains a record of the last 20 alarms.

On the first screen the table displays the alarm notice and on the second screen the table displays the date and time. Use the left and right arrow keys to move between screens.

This item shows the time and alarm code for each of these alarms (see **Table 8**).

Table 5: 20 Last alarms (example)

**	Message	Time	Day
1	SILO 1 FAIL		
2	SILO 2 FAIL		
3	LOW FEED 1		
4	LOW FEED 2		
5	MEMORY FAIL		
6	CARD FAIL		
..20			

5.3.3 Events

The Events table displays defined events. On the first screen the table displays the event and on the second screen the table displays the date and time. Use the left and right arrow keys to move between screens. The **RSW-2 GP** maintains a record of the last 20 events.

Table 6: 20 Last alarms (example)

**	Message	Time	Day
1	Power Up		
2	Power Down		
3	Power Up		
4	Power Down		
5	Power Up		
6	Power Down		
..20			

6 Specifications

Input Voltage Supply	Single phase: 110 VAC (USA & Canada)
	Single phase: 240 VAC (Outside the US & Canada)
	0.315 Amp, 50 - 60 Hz
Relays Outputs	5 Amp. Normally Open Relays
Alarm Output	NO and NC Pilot Duty
Operating Temperature Range	0° to +50° C (32° to 122° F)
Enclosure	Water and dust tight (IP55)
Fuses	Main Fuse: 0.315 Amps Slow, Relays Fuse: 5 Amps Slow

6.1 Environmental Protection

Recycle raw materials instead of disposing as waste. The controller accessories and packaging should be sorted for environmental-friendly recycling. The plastic components are labeled for categorized recycling.

7 Installation

CAUTION Only an authorized electrician may install the RSW-2 GP. To avoid electrical shock and damage, disconnect the power.

CAUTION To avoid exposing the RSW-2 GP to harmful gases or high humidity, install the unit in the service room.

CAUTION Installation Category (Over voltage Category) III
5 Amps circuit breaker should protect the power supply to the controller.

7.1 Prerequisites

- To ensure EMI and lightning protection for the power input, install the RSW-2 GP along with an **RPLP-1** (power line protector).
- In case of noisy power lines, an isolated transformer is required.
- Do not install the units near high power lines (for example auger's power, variable speed, dimmers, etc.) or any noisy units. Keep at least 0.5-meter distance between the RSW-2 GP and noise source.
- Use shield cables in the installation.

7.2 Installation Instructions

1. Open the RSW-2 GP by loosening the two screws to the front left- side.
2. Route the required cables through the cable holder at the bottom of the unit. Connect the wires as seen in the wiring diagrams.
3. Ground the cables on the **RSW-2 GP** side and place them at least 0.5 meters from noise sources of high-power cables.
4. Close **RSW-2 GP** lid carefully and tightly. Use RTV silicon or equivalent sealant to seal the cable holders.
5. Activate the **RSW-2 GP** for a few hours and check for proper operation.

7.3 Connecting the Relays

1. Connect Relay 1 to Auger 1 (Silo 1).
2. Connect Relay 4 and 8 to a controller digital input (option; refer to Configuring Feed via Pulse, page 15).

NOTE Relays 3, 4, and 5 are not in use.

3. To enable a power alarm, make a connection between N.C and COM.

NOTE You can use the following signals for external feeding systems:
Relay 6 remains open during the filling process.
Relay 7 opens when the feed level drops below the low feed system parameter.
Digital inputs are not in use.

7.4 Wiring Diagrams

- RSW – RJB Wiring
- Powering the RSW/RSLC Units
- Wiring External Devices
- Communication Wiring

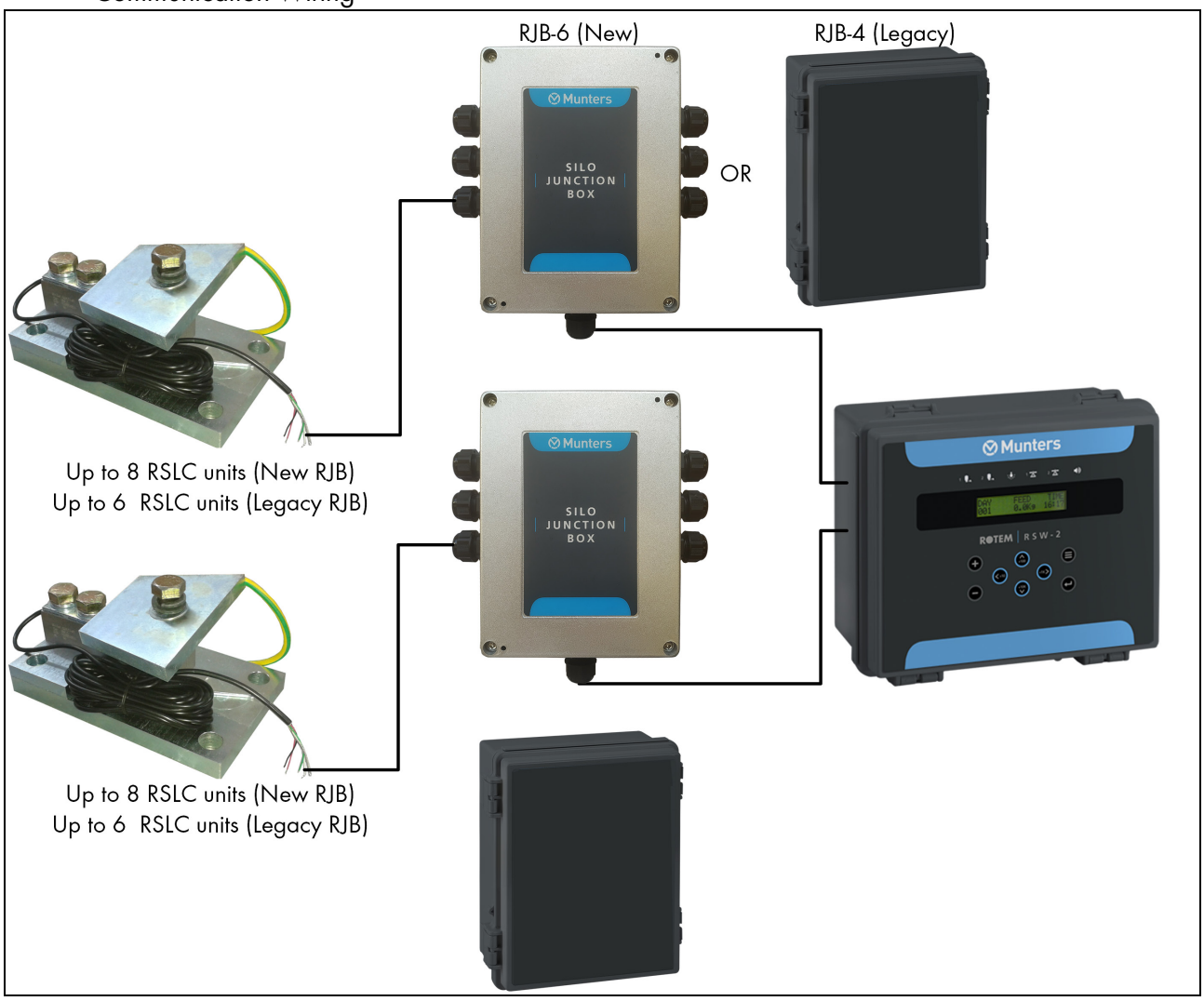


Figure 9: RSW – RJB – RSLC Block Diagrams

For details on the RJB – RSLC wiring, refer to the relevant manual.

7.4.1 RSW – RJB Wiring

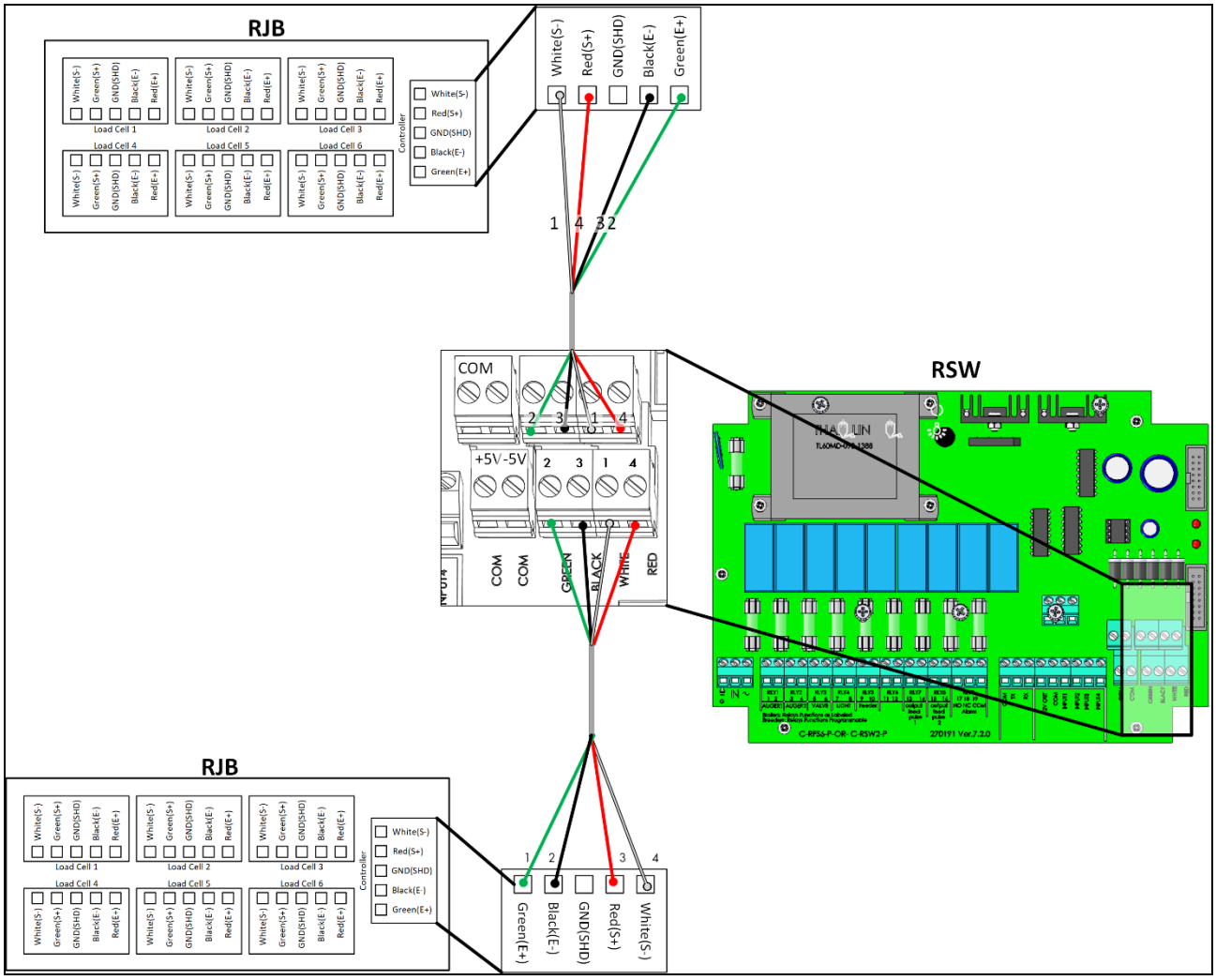


Figure 10: RSW-2 RJB Wiring Diagram

NOTE There can be up to 100 meters of the supplied black/gray cable between the RSW and the RJB.

Number	Wire
1	White
2	Green
3	Black
4	Red

7.4.2 Powering the RSW/RSLC Units

- The RSW-2 input power is 110 or 240 VAC.
- RSLC:
  - The RSW-2 can power up to six (6) RSLC units internally (Figure 11).
  - When seven (7) or eight (8) RSLC units are connected an RSW-2/RJB, an **additional** external power source (SILO-PS) is required (Figure 13).
- In both cases, jumpers must be set correctly (Figure 12 and Figure 14).

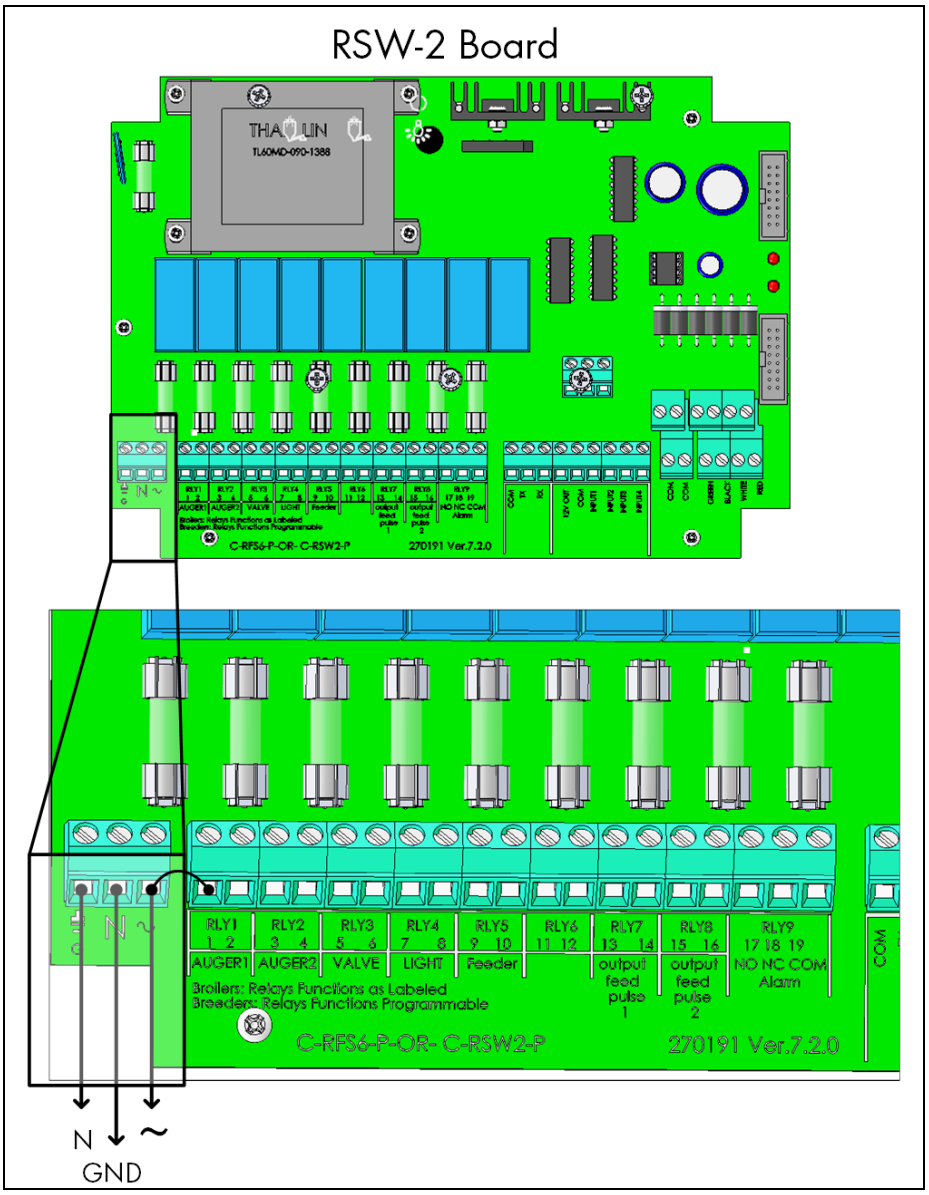


Figure 11: Internal Power Supply Wiring Diagram

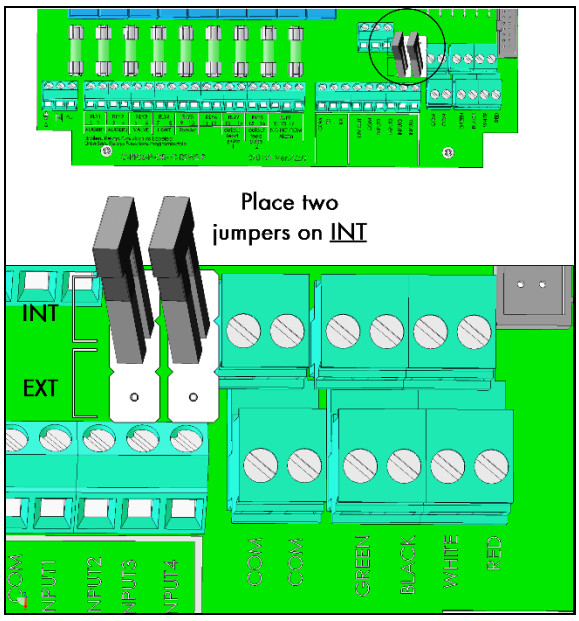


Figure 12: RSW-2 Jumpers set to Internal Power Supply

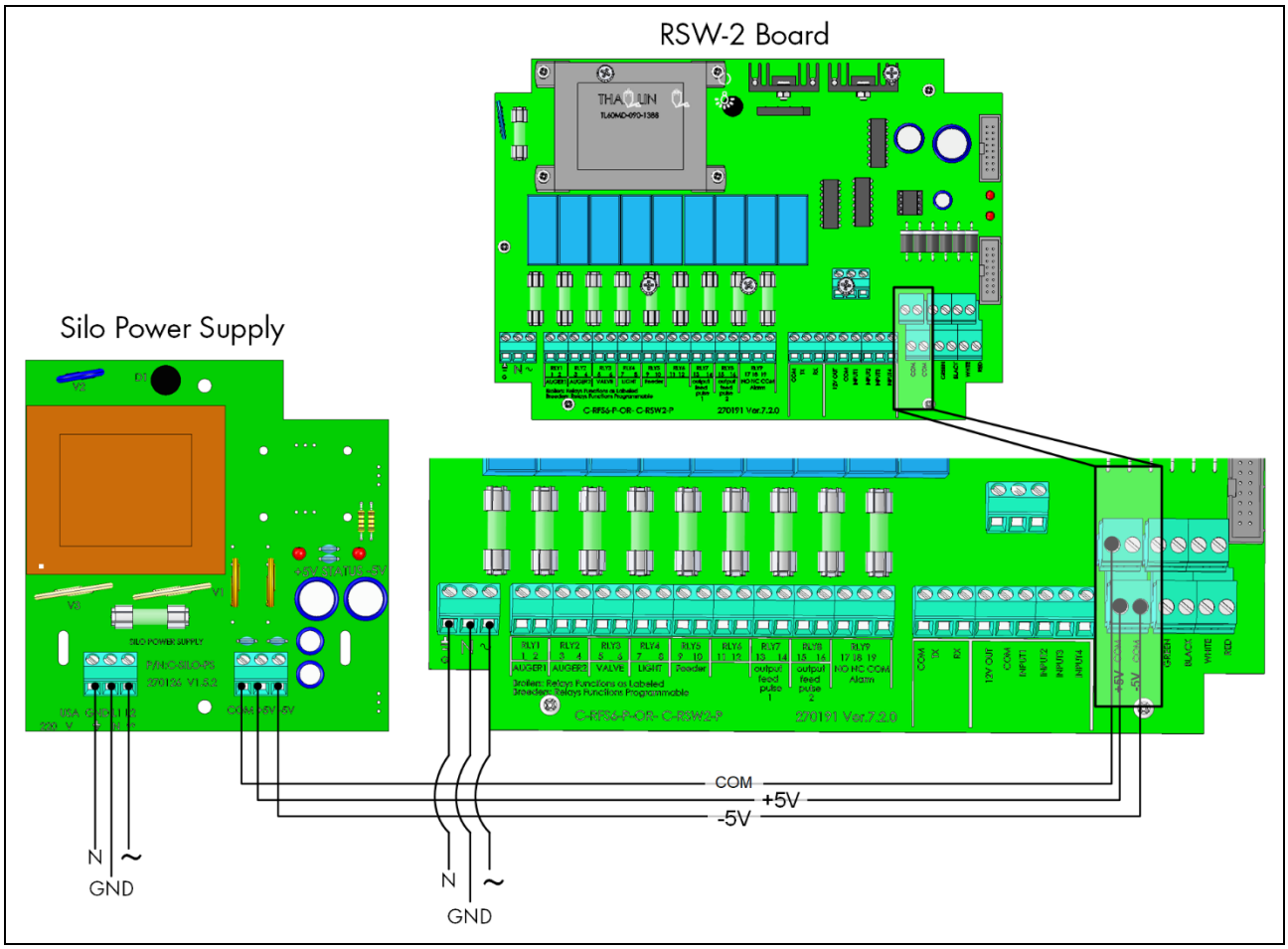


Figure 13: External Power Supply Wiring Diagram

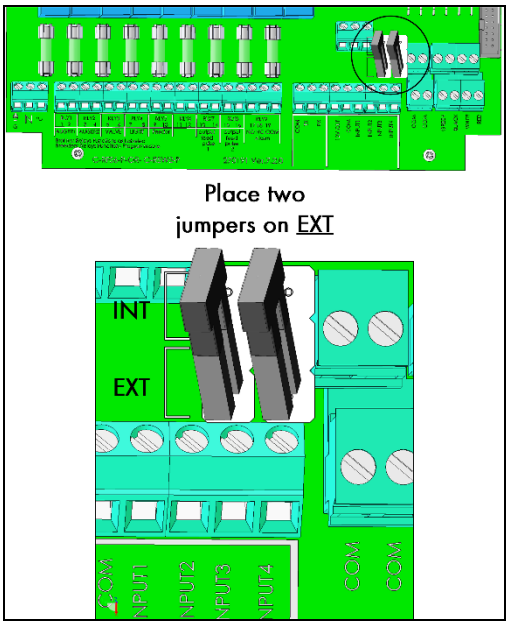


Figure 14: RSW-2 Jumpers set to External Power Supply)

7.4.3 Wiring External Devices

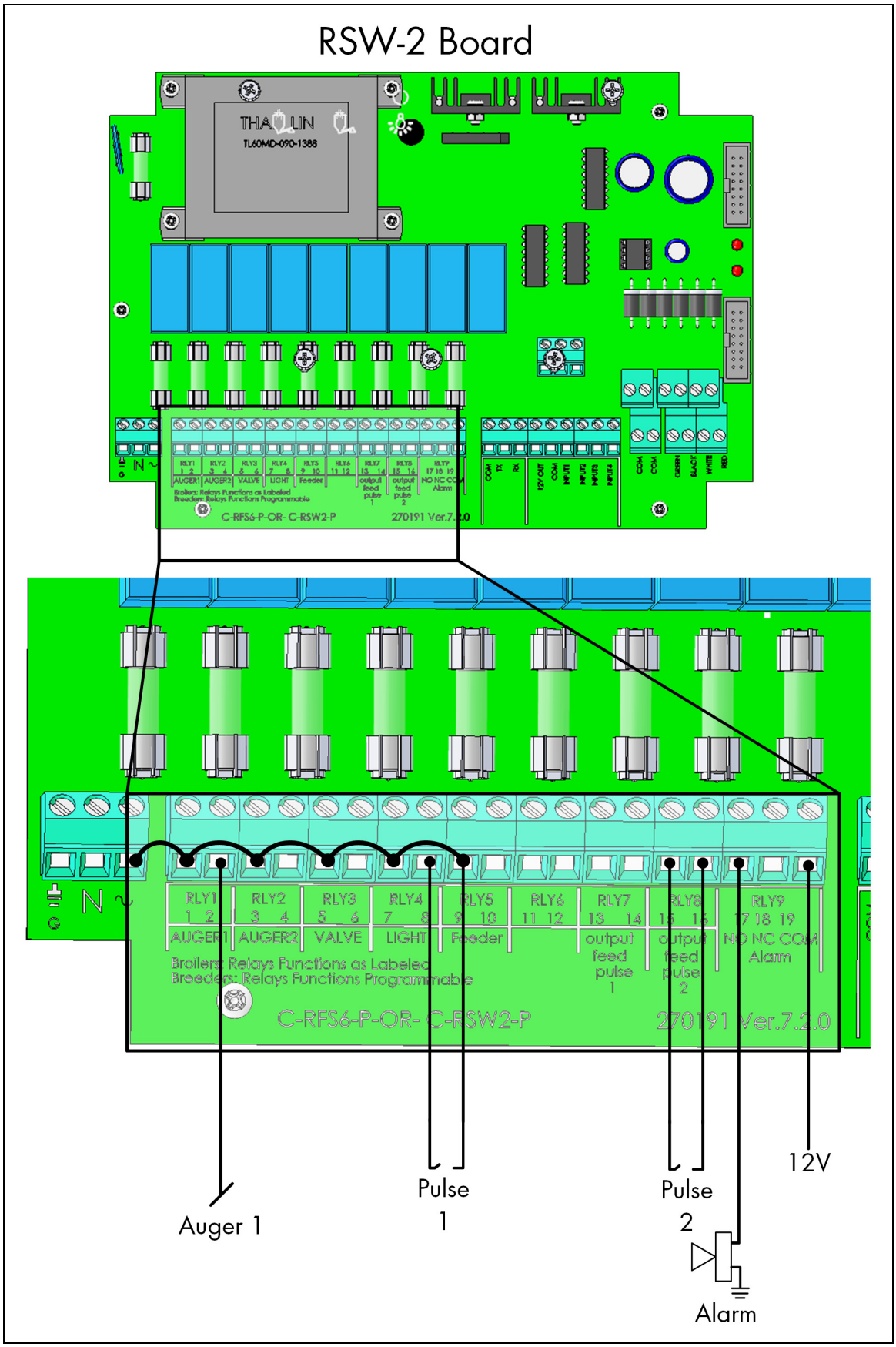


Figure 15: Relay Devices

7.4.4 Communication Wiring

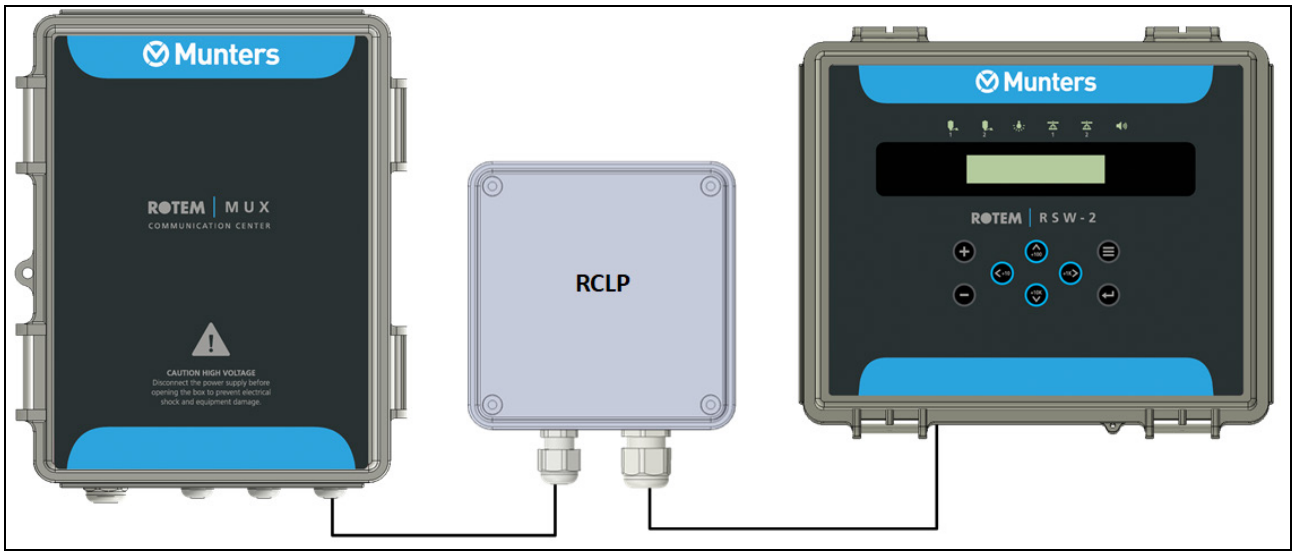


Figure 16: RSW-2 Communication Block Diagram

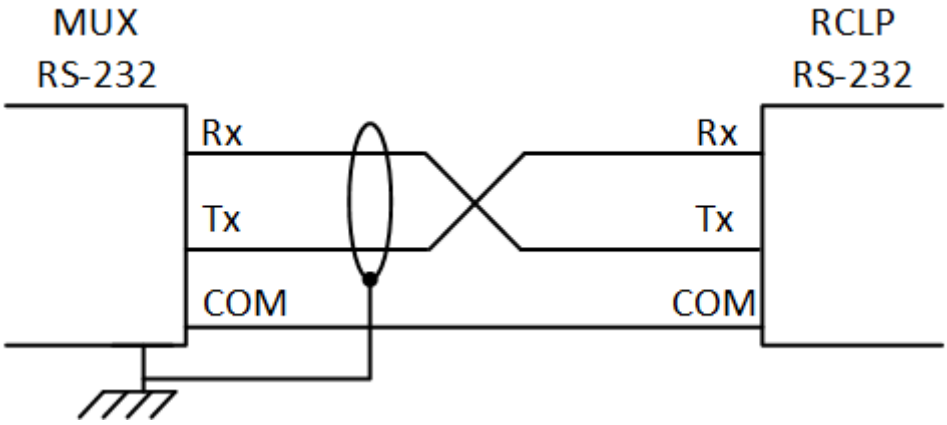


Figure 17: MUX to RCLP Wiring Diagram

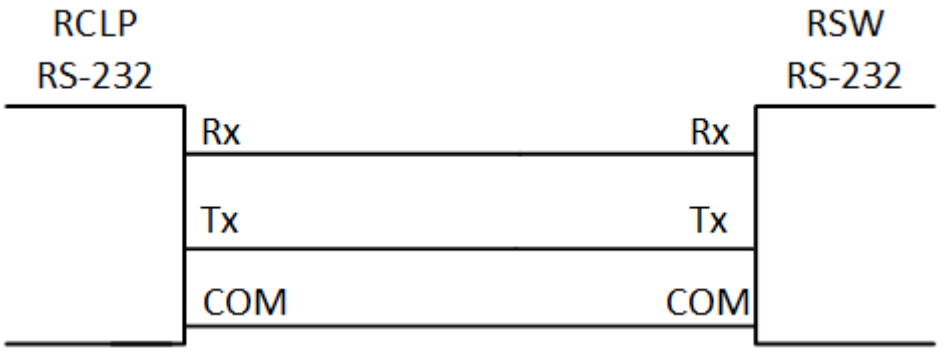


Figure 18: RCLP to RSW-2 Wiring Diagram

- Notes:
  - Connect the cable shields only at one end only of every section of the MUX-232 cable, as illustrated and in each house.
  - Cross wire once only!
  - Refer to the MUX manual and RCLP manual for details on installing those units.

8 Troubleshooting

#	Problem Description	Troubleshooting
1	Installation and filling feed has been done but silo stops weighing.	If the display of Silo 1 does not show A/D '65536' counts on 16 bits, lower the offset (see the RJB/RSLC manual) until this number changes. After receiving numbers shown on the screen, reducing the numbers should be done according to: • [65536 – (number of Kg missing in the silo * Silo 1 Scale Factor)] • After reinstalling and emptying the silo, the A/D reading should be around 1000 counts (near zero); use the offset feature to get it. • If the display shows '0', increase it by using offset feature.
2	The controller display shows "disconnected" (or Error) and the test menu shows 65,536 or 0 rather than a voltage measurement that is required to identify the error.	1. Check if RJB-4 receives voltage from controller (green and black wires from controller should be approximately 10 DCV). If it is not receiving, check wire connections on the controller's side. 2. Check load cells (see and RJB/RSLC manual for further explanation). Take **White** and **Green** wires from each load cell and check their voltage using a digital multi meter (the amount is not important but it must be identical throughout load cells with a difference of up to 2 mV). If difference is more than 2 mV there is a problem with one of the load cells. The range of voltage should be between 0 to 20 mV depending on the silo load. 3. In some cases, when the prior test is not effective and voltage between **Black** (common) wire and **White**, and between **Black** and **Green**, wires must be checked (amount of voltage **must** be between 4-4.5V and identical throughout load cells).

9 Warranty

Warranty and technical assistance

Munters products are designed and built to provide reliable and satisfactory performance but cannot be guaranteed free of faults; although they are reliable products they can develop unforeseeable defects and the user must take this into account and arrange adequate emergency or alarm systems if failure to operate could cause damage to the articles for which the Munters plant was required: if this is not done, the user is fully responsible for the damage which they could suffer.

Munters extends this limited warranty to the first purchaser and guarantees its products to be free from defects originating in manufacture or materials for one year from the date of delivery, provided that suitable transport, storage, installation and maintenance terms are complied with. The warranty does not apply if the products have been repaired without express authorisation from Munters, or repaired in such a way that, in Munters' judgement, their performance and reliability have been impaired, or incorrectly installed, or subjected to improper use. The user accepts total responsibility for incorrect use of the products.

The warranty on products from outside suppliers fitted to RSW-2, (for example RSW-2 GP's, sensors, cables, etc.) is limited to the conditions stated by the supplier: all claims must be made in writing within eight days of the discovery of the defect and within 12 months of the delivery of the defective product. Munters has thirty days from the date of receipt in which to take action and has the right to examine the product at the customer's premises or at its own plant (carriage cost to be borne by the customer).

Munters at its sole discretion has the option of replacing or repairing, free of charge, products which it considers defective, and will arrange for their despatch back to the customer carriage paid. In the case of faulty parts of small commercial value which are widely available (such as bolts, etc.) for urgent despatch, where the cost of carriage would exceed the value of the parts, Munters may authorise the customer exclusively to purchase the replacement parts locally; Munters will reimburse the value of the product at its cost price.

Munters will not be liable for costs incurred in demounting the defective part, or the time required to travel to site and the associated travel costs. No agent, employee or dealer is authorised to give any further guarantees or to accept any other liability on Munters' behalf in connection with other Munters products, except in writing with the signature of one of the Company's Managers.

WARNING: *In the interests of improving the quality of its products and services, Munters reserves the right at any time and without prior notice to alter the specifications in this manual.*

The liability of the manufacturer Munters ceases in the event of:

- dismantling the safety devices;
- use of unauthorised materials;
- inadequate maintenance;

- use of non-original spare parts and accessories.

Barring specific contractual terms, the following are directly at the user's expense:

- preparing installation sites;
- providing an electricity supply (including the protective equipotential bonding (PE) conductor, in accordance with CEI EN 60204-1, paragraph 8.2), for correctly connecting the equipment to the mains electricity supply;
- providing ancillary services appropriate to the requirements of the plant on the basis of the information supplied with regard to installation;
- tools and consumables required for fitting and installation;
- lubricants necessary for commissioning and maintenance.

It is mandatory to purchase and use only original spare parts or those recommended by the manufacturer.
Dismantling and assembly must be performed by qualified technicians and according to the manufacturer's instructions.

The use of non-original spare parts or incorrect assembly exonerates the manufacturer from all liability.

Requests for technical assistance and spare parts can be made directly to the nearest Munters office.

Munters

Aq/MIS/UmGb-2623-07/18 Rev 1.4