

SIEMENS



Weighfeeders

SITRANS WW100

Operating Instructions

Edition

05/2015

Safety Guidelines

Warning notices must be observed to ensure personal safety as well as that of others, and to protect the product and the connected equipment. These warning notices are accompanied by a clarification of the level of caution to be observed.

Qualified Personnel

This device/system may only be set up and operated in conjunction with this manual. Qualified personnel are only authorized to install and operate this equipment in accordance with established safety practices and standards.

Unit Repair and Excluded Liability:

- The user is responsible for all changes and repairs made to the device by the user or the user's agent.
- All new components are to be provided by Siemens.
- Restrict repair to faulty components only.
- Do not reuse faulty components.

Warning: Cardboard shipping package provides limited humidity and moisture protection. This product can only function properly and safely if it is correctly transported, stored, installed, set up, operated, and maintained.

This product is intended for use in industrial areas. Operation of this equipment in a residential area may cause interference to several frequency based communications.

Note: Always use product in accordance with specifications.

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Weighfeeders SITRANS WW100

Operating Instructions

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Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

DANGER

indicates that death or severe personal injury **will** result if proper precautions are not taken.

WARNING

indicates that death or severe personal injury **may** result if proper precautions are not taken.

CAUTION

indicates that minor personal injury can result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

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Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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Introduction

Note

The Siemens weighfeeder is to be used only in the manner outlined in this instruction manual.

1.1 The manual

This instruction manual covers the operation, installation, and maintenance of the Siemens weighfeeder. Specific information for your weighfeeder model is also included with the product such as testing documents.

The drive system for the servo gear motor of the SITRANS WW100 is a Sinamics S110 control unit. All instruction manuals pertaining to the drive components can be found in the companion manual appendix on the documentation CD.

Follow these operating instructions for quick, trouble-free installation, and maximum accuracy and reliability of your device.

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Safety information

2.1 Safety and general precautions

 WARNING

ALWAYS STOP the belt, lock-out, and/or place a "Do Not Energize" tag on the main disconnect before working on or around the weighfeeder.

 WARNING

Always follow established safe operating practices when working on or around the weighfeeder, especially in wet environments and when adjacent to conductive steel mounting framework.

Note

A weighfeeder can be dangerous. Pinch points exist along the conveyor belt line.

Secure the weighfeeder when:

- replacing the belt
- working on or around the load cell(s)
- working on or around the speed sensor
- working on or around the drive components
- working on or around the motor
- placing or removing the calibration test chain

Description

SITRANS WW100 is a high-accuracy, low capacity weighfeeder for minor ingredient additives.

The unique long length platform weigh bridge mounts directly to a corrosion-resistant platform load cell. An adjustable mechanical shear gate profiles the material and fixes the correct material bed depth for a given material application. The belt speed can be automatically adjusted to attain the correct feed rate.

SITRANS WW100 comes with a weigh bridge, speed sensor, variable frequency drive (if ordered), and calibration test chain (if ordered). An integrator is required to complete the system.

3.1 Weighfeeder operation

Weighfeeders weigh bulk material while it is conveyed. An accurate rate of flow and totalized weight measurement is received without interrupting the flow of material in process. A weighfeeder can also control the rate of flow of the conveyed product.

In-motion weighing requires accurate transmission of the product load to load cells. The resulting voltage signal corresponding to weight is transmitted to the integrator and becomes one of the two inputs required for integration.

Unlike static weighing, in-motion weighing integration requires a second input: a pulse signal proportional to the speed of the conveyor belt. Each belt speed sensor pulse represents a fixed distance of belt travel.

Since the force measured by the load cell is represented as weight per unit length, it can be multiplied by the distance of belt travel (one speed sensor pulse) to provide product weight for that segment of the belt ($\text{lbs/ft} \times \text{ft} = \text{lbs}$, or $\text{kg/m} \times \text{m} = \text{kg}$).

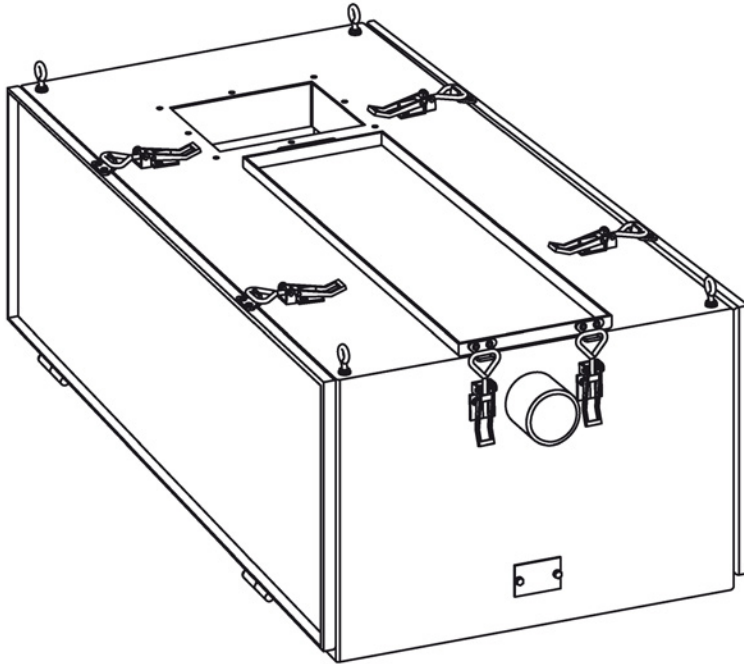
Adding the samples provides total throughput weight of product across the scale. With proper scaling and calibration, the total weight can be displayed in kilograms, pounds, short tons, long tons, metric tons, or other appropriate units.

This weighfeeder is designed for assembly for both left and right side belt change. The unit can be dis-assembled and re-assembled on the opposite side with the same components.

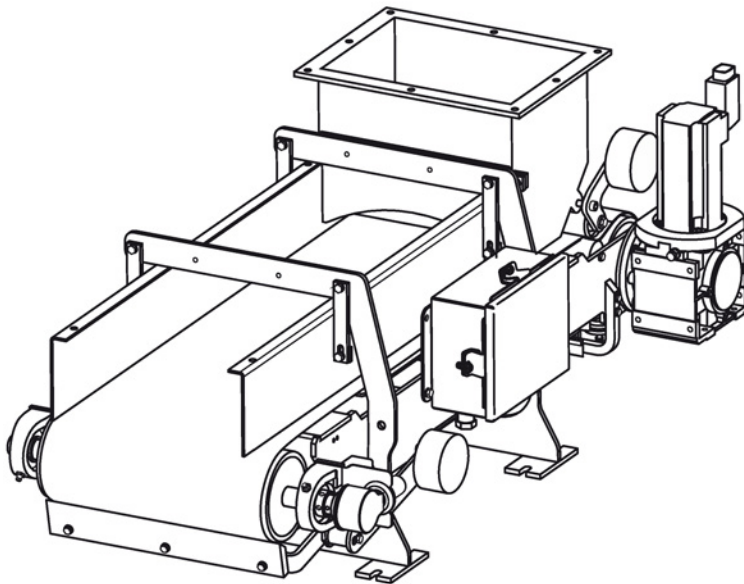
Description

3.1 Weighfeeder operation

Enclosed unit



Open unit



Note

When lifting the weighfeeder, connect to the lifting points at the top of the unit or structural frame, and follow local governing code for lifting/hoisting.

Perform a thorough and systematic inspection of containers immediately upon receipt of your Siemens weighfeeder. The containers are packed to separate each item and provide protection during shipping.

Note

Do not remove equipment from shipping crates or boxes until you check for possible shipping damage. Contact the carrier immediately if damage is noted.

Your weighfeeder has been designed, assembled, and factory tested for your specific application.

Note

- The frame of the weighfeeder needs to be grounded to ensure accurate signal processing to the integrator.
 - Do NOT remove the tagged load cell shipping bolt(s) until the installation is complete to prevent load cell damage.
 - Do NOT weld on or near the weighfeeder while the load cell is connected to the electronic integrator. Damage to the integrator may result if the load cell is not disconnected from the integrator.
 - Follow a scheduled, preventative maintenance program to ensure optimum performance and long equipment life.
-

4.1 Installation steps

Note

- Only qualified personnel are authorized to install and operate this equipment. Installation shall be in accordance with local regulations, standards and established safety practices. Read and understand the instructions before installing, operating or maintaining the equipment.
 - Flexible in-feed connections are REQUIRED for all applications. Flexible discharge connections are also recommended.
-

4.1 Installation steps

1. Construct the necessary support framework to provide a sturdy, rigid base. Vibration isolators are recommended if the location is subject to moderate or heavy vibration.
2. Align the in-feed section of the weighfeeder with the discharge of the feed device. Prevent twisting or misalignment that could induce stress on the weighing section.
3. Install a gasket between the flanges for dust control.
4. Securely fasten the unit to the rigid, level structure constructed in step 1. Use a level for verification and shim as necessary. Prevent any twisting of the frame that may affect weighfeeder performance.

Note

The inlet and discharge of the weighfeeder will not support load.

5.

Note

If your system has a permanently lubricated gear motor, then disregard this step, and proceed directly to step 6.

Check the gear reducer oil level. For further details, see the gear reducer information under **Maintenance**.

6. A de-dust port may be provided at the discharge end of enclosed units. If no de-dust system is required, this port should be closed.
7. Connect the proper electric supply to the motor and/or motor controller. The AC or DC motor controller (if present) must be grounded to minimize noise to the electronic integrator. Refer to the applicable wiring diagram to make all electrical connections between the electronic integrator and the weighfeeder.

Note

Units with a plugged discharge switch should refer to the wiring diagram included in the CLS100 manual.

8. Remove only the tagged shipping bolt that is attached to the load cell. This bolt supports the weighbridge during transport and installation.

Note

DO NOT loosen or tighten the overload bolt—it has been factory set to minimize the possibility of load cell damage resulting from incidental overload.

9. Before starting the weighfeeder, make a final check to see that the conveyor belt is free of all tools and foreign objects, and that the infeed/skirtboards are not pinching against the belt.

4.2 Electrical installation for servo driven models

Note

- The frame of the weighfeeder needs to be grounded to ensure accurate signal processing to the integrator.
- Refer to the electrical connection diagrams provided in the Appendix for several different S110 connection scenarios, and for hand held controller (start, stop, speed control, auto/man mode, and e-stop) connection.
- The communication cable (green) and power cable (orange) must connect the servo motor to the S110 to operate. The power (orange) cable has identifying markings on the shield to ensure the connections match.

WARNING

If the emergency stop is independent from the integrated safety feature on the control unit, wire or jumper the digital inputs to complete the circuit. See connection diagrams provided in the Appendix (Page 45).

4.2.1 Configuring the Sinamics S110 Drive

4.2.1.1 Initial setup

WARNING

- New devices are shipped with factory default values in Non-Volatile MEMORY!
- P977 should be used with CAUTION when saving the Application Data to the Micro Memory Card.
- If the project has not been loaded in the Non-Volatile MEMORY, your application software on the MICRO MEMORY CARD will be overwritten and LOST!

Important Command and Drive Data Set Notes

The following acronyms are referenced through the documentation required for the startup of your Sinamics S110 Drive and WW100 Weighfeeder:

Acronym	Full term	Definition
<i>CDS</i>	Command Data Set	Any parameters that may be changed or viewed and are associated with the Control Unit. This parameter set can be associated with any type of control mode change such as enable signals, control functions, inputs and outputs, etc.
<i>DDS</i>	Drive Data Set	Any parameters that may be changed or viewed and are associated with the Drive Unit. This parameter set effectively changes the characteristics or dynamics of the motor, gearbox and belt speed of the WW100 Weighfeeder.

The most common change for this application would be the maximum RPM (Belt Speed) of the weighfeeder (P2000), and possibly the Reversal of Belt Direction (P1113), if required.

The Design Speed (P14-BW500) of the weighfeeder application will be referenced when calculating the programmable maximum speed. Further details of the Design Speed and applicable settings can be found in P2000 - Maximum RPM (Page 17).

Powering Up the Sinamics S110 Drive and Control Unit

Once all the necessary hardware and electrical connections (Drive Cliq Cable and Motor Power cable) have been installed, the system can be powered up. See the connection diagrams in the Appendix (Page 45).

Note

- With only the 24 V DC power source active, the control unit and display will be maintained. However, faults or alarms may occur due to the loss of the Main AC power source to the PM340 module. The unit may require a Power cycle to clear the Faults or Alarms.
 - Turn off the 24 Volt DC supply and let the system power down. Turn main AC power source on then turn the 24 VDC supply on.
-

1. Apply the main power to the PM340 Power module.
The drive will perform its boot sequence and the RDY LED should be a steady green when completed.
If any errors display during the initial power up, refer to Faults and Alarms (Page 22).
2. Remove all power sources from the Power module and Control module, Main AC and 24 V DC.
Ensure device powers down completely.

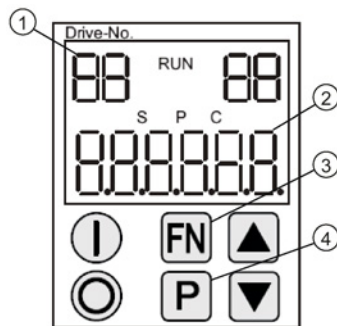
Loading the Software Application Data Set

The following procedure defines the specific steps required to download the application software from the Micro Memory Card (MMC) to the Non-Volatile Memory (ROM). Perform a RAM-to-ROM save function within the CU305DP control unit, and back up the changed Application Data to the MMC card.

1. **Ensure all power sources to the drive are switched OFF.**
2. Insert the pre-programmed MMC into the card slot located below the BOP Display and ensure the card locks into place.
3. Apply main AC Power first and then the 24 Volt DC Power to the Drive.
The CU305DP will recognize the card, and automatically load or overwrite the Data Set 0 to the CU305 Non-Volatile memory. **This procedure will only work for DataSet 0; no other data sets will be affected.**

S110 Display

The keypad will be shipped in a separate carton with Part Number: **6SL3055-0AA00-4BA0**, which will have to be installed onto the CU305DP Control Module.



- ① Drive number: there are two drive data sets, each with their own set of parameters.
 - 01 = Command Data Set
 - 02 = Drive Data Set
 - ② Parameter/value
 - RUN mode
 - EDIT mode
 - ③ Function key
 - ④ Parameter key
4. The data is read and loaded to memory prior to performing a Run-up sequence of the drive. This procedure will take approximately 30 – 60 seconds longer at power up.

Note

When this step is complete, the display will register a F01650 fault.

This indicates that the drive is requesting an acknowledgement that the Emergency Stop Safety circuitry has been checked and is working. This fault can be acknowledged by pressing the **FN** key.

5. Once the fault has been cleared, the display will indicate a **0.0** value in the parameter/value field ②; this is the actual RPM display of the motor.
6. Once all necessary equipment has been connected and all sources of power applied for the activation of the inputs and outputs, the drive unit should now be ready to activate.
 - At this point, the **WW100 may begin to move** if the drive enables are set and if the Signal Source voltage (i.e. Potentiometer) or the Analog input has a potential higher than zero (0) volts!
 - The application will be set for a maximum motor speed of 2500 RPM, approximately 50 FPM or 0.254 meters/second. Refer to P2000 - Maximum RPM (Page 17) to effectively set the maximum RPM for the application.

Test the functionality of the drive and weighfeeder. Also note the direction of belt travel; if incorrect, refer to P1113 (Page 19) to invert the signal for belt direction.

Note

Please refer to Additional notes and important information (Page 20) for details on required enable signals.

4.2.1.2 Switching units

Note

While commissioning using the BOP 20 interface standard equipment, there are two data sets to consider when changing parameters:

- The drive unit or **DDS** (Drive Data Set) will be identified as 02.
- The Control unit **CDS** (Command Data Set) will be identified as 01.

This data set is indicated in the drive number field ②. Each unit has its own set of parameters and is only available when in that specific display mode.

The following diagram illustrates how to switch from one unit to another using the BOP Keypad.



1. While holding the **FN** key, press one of the arrow keys (**▲** or **▼**). This will allow you to change from Unit 01 to 02 as indicated by the flashing display.
2. Scroll to the appropriate selection using the arrow keys.
3. Once you have chosen the appropriate unit, press the **P** key to acknowledge the selection: the display will stop flashing.

4.2.1.3 P0003 - Expert mode

P0003 must be set to EXPERT MODE to access/modify parameter settings.

1. Set S110 display to drive number 01 (see Switching units (Page 16)).
2. Use **▲** or **▼** arrows to navigate to P0003.
3. Press **P** so the current parameter value is displayed.
4. Press **FN** to activate **edit mode** (display will flash).
5. Use **▲** or **▼** arrows to set the value to 3.
6. Press and hold **P** for 3 seconds to save.

You now have access to all of the parameter sets for both the Control Unit and Drive Unit.

4.2.1.4 Parameters

Note

In order to access or modify the parameter settings, P0003 must be set to **EXPERT MODE** (see P0003 - Expert mode (Page 17)).

P2000 - Maximum RPM

Sets the maximum motor RPM.

The factory default value of the Drive configuration RPM is 6000. At the Siemens factory, we have set this to a maximum of **2500** as the weighfeeder should not exceed the corresponding belt speed of approximately **50 ft/min** or **0.254 meters/second**.

The application for which this weighfeeder will be used has been engineered by a software tool at Siemens. From the data provided, certain parameters are generated identifying the **Design Rate**, **Design Speed**, and **Design Load**. You are interested in the **Design Speed**: this will aid in setting the Maximum RPM – P2000.

Calculating P2000

Design Speed **P14** refers to Parameter **14** of the Siemens integrator.

Imperial:









$$\text{P2000} = \text{Design Speed (P14-BW500)} * \text{k Factor (47.28702)}$$

Metric:

$$\text{P2000} = \text{Design Speed (P14-BW500)} * \text{k Factor (9308.468)}$$


Here are a few examples with both metric and imperial application data.

Design Speed	k Factor	P2000	Design Speed	k Factor	P2000
ft/min.	imperial	CU305DP	m/sec.	metric	CU305DP
10	47.28702	472.870	0.05080	9308.458	472.870
22	47.28702	1040.31	0.11176	9308.458	1040.31
35	47.28702	1655.05	0.17780	9308.458	1655.05
50	47.28702	2364.351	0.25400	9308.458	2364.351

1. Set S110 display to drive number 02 (see Switching units (Page 16)).
2. Use  or  arrows to navigate to P2000. The value should read 2500 after the application software has been loaded.
3. Press  to access and view the current setting.
4. To change this value, press the  key The display will begin to flash. Sequentially pressing the  key will increment the display to the next higher digit.
5. Use  or  arrows to set the RPM value (as calculated above).
6. Press  to accept the new value and exit **edit** mode (display will stop flashing).

Note

Although this value has been changed, it has only been saved in RAM memory. A RAM to ROM must be performed in order to be maintained.

7. To save this new setting, press and hold  for 3 seconds. The display will begin to flash indicating the RAM to ROM function is active. This will perform a RAM to ROM backup of all parameters.








P1113 - Belt direction

P1113 – SetPoint Inversion Parameter. Drive 02 parameter

If the belt is travelling in reverse, change P1113 setting to alternate value.


The design of the WW100 weighfeeder is such that the servo Gear motor can be mounted on either the left or right hand side of the weighfeeder. Given the versatility of the configuration, it is necessary for the motor shaft output to be reversible. Therefore, parameter P1113 can be set to accommodate a forward or reverse operation. However, one must note that the BOP display for RPM may reflect a **negative - 0.00 value**. This is not a concern to the operator or maintenance staff for regular operation of the drive.

If the weighfeeder is set up and you realize the belt is traveling in the reverse direction, proceed as follows:

1. Set S110 display to drive number 02 (see Switching units (Page 16)).
2. Use  or  arrows to navigate to P1113.
3. Press  so the current parameter value is displayed.
4. Press  to activate **edit mode** (display will flash).
5. Use  or  arrows to set the value to either 0 or 1 (whichever is the alternate).
6. Press  to accept the new value, and exit **edit mode** (display will stop flashing).

Note

Although this value has been changed, it has only been saved in RAM memory. A RAM to ROM must be performed in order to be maintained.


7. To save this new setting, press and hold  for 3 seconds. The display will begin to flash indicating the RAM to ROM function is active. This will perform a RAM to ROM backup of all parameters.

Saving parameter changes

Note






When you make changes to a parameter with the BOP, they are maintained only in the RAM memory so that if the power is cycled prior to performing a Save Function, your changes will be lost. To avoid this, save the data set either to the ROM-Non Volatile Memory, or both the ROM and Micro Memory Card. Both options are described below.

RAM to ROM

At any point during the commissioning, the data can be saved to non-volatile memory. This is initiated by **pressing and holding the  key for three seconds**. The display will begin to flash, indicating the **RAM to ROM** function is active.

When complete, the display will stop flashing and remain solid.

RAM to ROM and Micro Memory Card, P977=1.

1. Set S110 display to drive number 01 (see Switching units (Page 16)).
2. With the **Power ON**, insert the Micro Memory Card into the card slot below the BOP Display and ensure the card locks into place.
3. Use  or  arrows to navigate to P0977.
4. Press  so the current parameter value is displayed. The default value is 0. Any other value initiates a function within the CU305DP Control Unit.
5. Use  or  arrows to set the value to 1.

The display will begin to flash indicating that the save function is active. The Data Set currently active in the RAM will be saved to the ROM (Non-Volatile Memory) as well as the MMC card.

Note

This type of saving will overwrite any existing Data Set with the index of **0** on the Micro Memory Card. You should only have a Data Set with an index of **0**.

4.2.1.5 Additional notes and important information**Inputs and outputs**

All inputs and outputs are identified on the schematics act as discreet I/O to the CU305DP Control Module. All related functions for the I/O are programmed internally to the Control Unit, therefore, requiring specific **States** and or **Change in States** for proper drive functionality.

Please review the electrical schematics to understand what inputs are required for Hand or Automatic mode enable signals as well as the Analog Speed reference signals.

Each of the labeled inputs has been programmed into an **AND/OR** gate function, and therefore is required for operation of the drive. A brief description below will help explain the input requirements:

Label	Input	Description
Hand	DI 0 (X133.1)	Manual Mode, Local Operation only. Potentiometer Control.
Off	-----	Not connected. No Mode signal present!
Automatic	DI 1 (X133.2)	For DCS or PLC Master Control.
DCS Enable	DI 2 (X133.3)	Required for DCS or PLC Master Control.
Stop	DI 3 (X133.4)	Maintained Active High Input.
Start	DI 8 (X132.1)	Momentary Low to High Input to set RS Flip Flop.
Emerg. Stop Ch 1.	DI 16 (X130.1)	Required Active HIGH Input for Motor Control
Emerg. Stop Ch 2.	DI 17- (X130.3)	Required Active HIGH Input for Motor Control

Manual Mode:

Requires only the Hand input HIGH and an analog reference signal.

Automatic Mode:

Requires the Automatic and DCS enable inputs HIGH and an analog reference signal.

Resolution of the Analog Input

This is extremely important when determining the maximum speed of the weighfeeder. Set P2000 according to the calculated results or within 15% of this value. This will optimize the resolution of the analog control signal. The better the resolution, the better the control function for maintaining Rate, Load, or Speed.

You may also consider increasing the RPM (Design Speed) of the drive. Depending on the setup of the application, maximum speed vs. maximum loading, this will accommodate material shortages in a shearing application and allow for infrequent increases in speed to maintain a programmed Rate or Load.

Emergency Stop Wiring Overview

As detailed in the electrical schematics, the Emergency Stop circuit is a critical component of the drive and its operating state. The Sinamics S110 Drive has built-in Safety Integrated Functions. When wired correctly, this circuit functions as a Category 3 safety stop for the drive and corresponding motor. At the same time, the circuit performs an additional dual purpose function for the application.

- First The drive realizes a change in state of the dual channel input. If either of these inputs are lost, the drive brings the motor shaft to a controlled stop via the **Safe Torque Off** mode.
- Second The purpose of the dual channel input is to monitor both the Positive and Common channel of the DC power source. In turn, the dual channel digital output of F-DO 0(16) is wired in series to the corresponding control relays (refer to schematics) which function as a cutout of the Mains Power in the event of an Emergency Stop situation.

Faults and Alarms

The **FN** key has been programmed as a Fault Acknowledgment input. Most faults not requiring a power cycle can be acknowledged by pressing the **FN** key.

System Faults: faults that will cause the drive to shut down and remain down until the condition causing the fault has been cleared. Once the condition has been cleared, the fault must be acknowledged.

System Alarms: alarms that will not affect the functioning of the Drive but only be displayed. These will continue to be displayed until the condition clears. Once the condition is cleared, the alarm will clear from the display.

A complete list of the faults and alarms can be found in the following manuals, which are included on the CD supplied with the WW100 Weighfeeder.

S110_FH3_Funct_Man.pdf Sec. 5.3 Page 102 General Information – Properties Of.

S110_FH6_Funct_Blocks.pdf Sec. 4.0 Page 151 Overview of Faults and Alarms, List

S110_LH7_List_Man.pdf Sec. 3.0 Page 796 Overview of Faults and Alarms, List

Each of these manuals explains in detail the conditions, potential causes, possible remedies, and methods of acknowledging and/or the requirements to do so. In any case, a fault or alarm may be searched by the actual fault number to investigate a possible cause and remedy in each of the manuals.

Calibrating

After the weighfeeder has been properly installed, calibration of the weighing system must be done in conjunction with the integrator. Refer to the integrator instruction manual for programming and calibration.

A test sheet has been provided with the weighfeeder detailing the entries used during factory calibration.

The calibration is initially done using the supplied test chain. (For models with skirtboard covers, the cover will need to be removed for test chain calibration. The shear gate may also need to be raised to apply the calibration chains to the belt.) Material tests are recommended to achieve maximum accuracy.

5.1 Test load

The test load value for the weighfeeder is based on the number of chain strands.

chain strand(s)	test load
1	2.41 kg/m (1.62 lbs/ft)
2	4.82 kg/m (3.24 lbs/ft)
3	7.23 kg/m (4.86 lbs/ft)

5.2 Zero

Perform the zero calibration as described in the Calibration section of the integrator manual.

Note

This calibration should be at least three belt revolutions or five minutes, whichever is longer.

5.3 Span

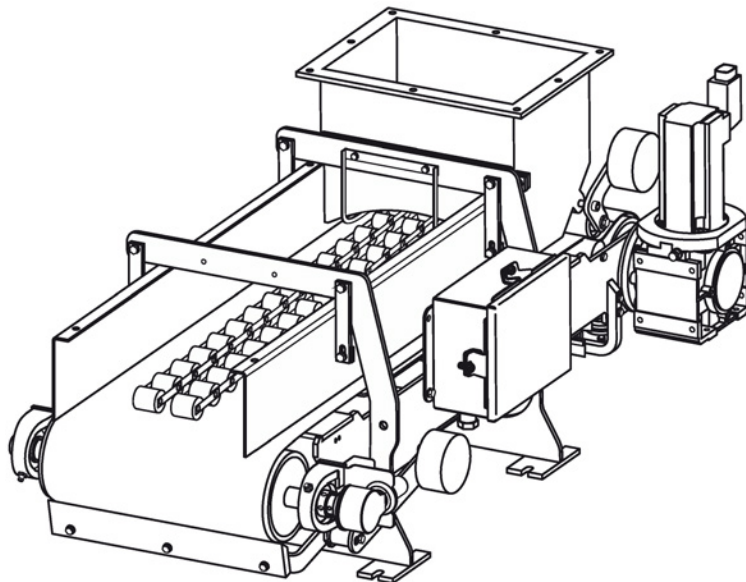
The test load used in the calibration procedure is the test chain provided that mounts to the conveyor leg with two mount screws.

Perform the span calibration as described in the Calibration section of the integrator instruction manual.

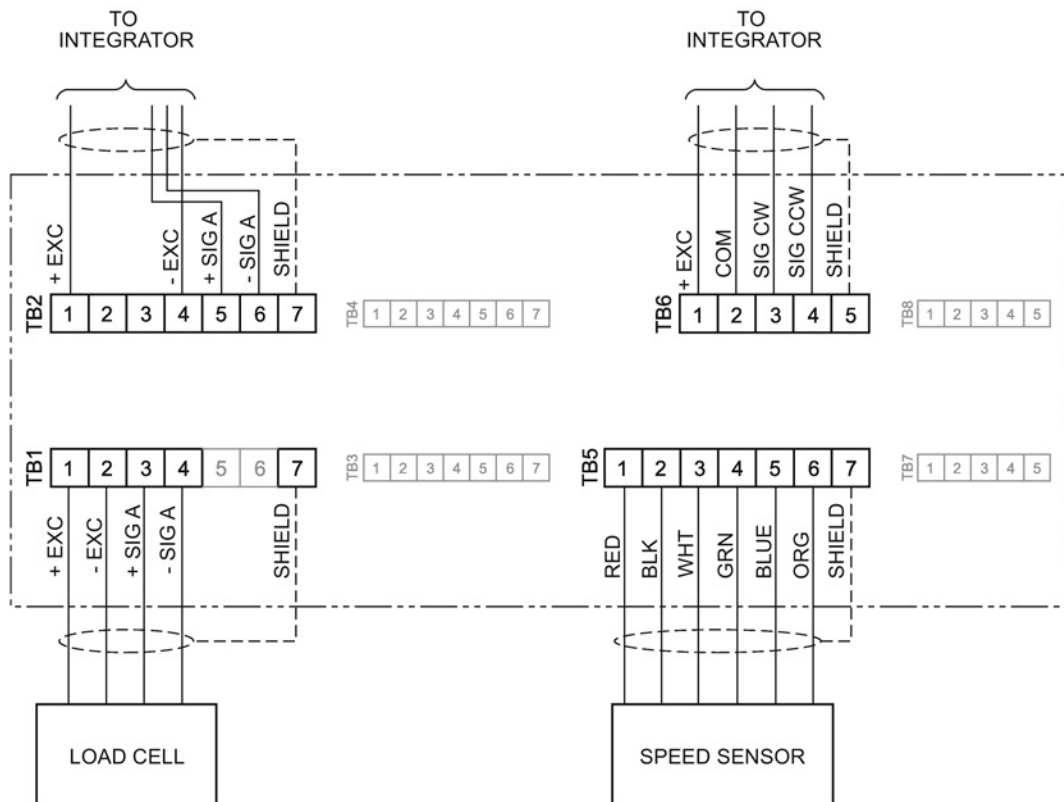
Note

This calibration should be at least three belt revolutions or five minutes, whichever is longer.

Refer to the illustration below for calibration chain placement. After the span calibration has been completed, remove the test chain and store it.



Connecting



Note

Load cell sense lines

When sense lines (purple and blue) are included with a load cell, they must be terminated with EXC (+ to +, - to -) or cut and covered, but not wrapped together as this will short the cell.

SEN + = purple

SEN - = blue

Note

Standard wiring shown, consult wiring diagrams for optional electrical connections. On hazardous rated versions the termination box may not be included with the weighfeeder, or may appear different than shown.

Commissioning

Your weighfeeder has been factory run-in for a minimum of four hours; it should require little adjustment. However, periodic inspections of the belt tracking are recommended.

Start the belt and observe rotation.

 WARNING
--

Turn off and lock out all power sources before correcting rotation. On AC motors, reverse 2 of the 3 motor wires.

Start the belt again, and observe the machine as it is running. If the belt is not tracking correctly, or is travelling off center, see Belt tracking (Page 30).

7.1 Shear gate

Note

Disregard for horseshoe-style infeeds.

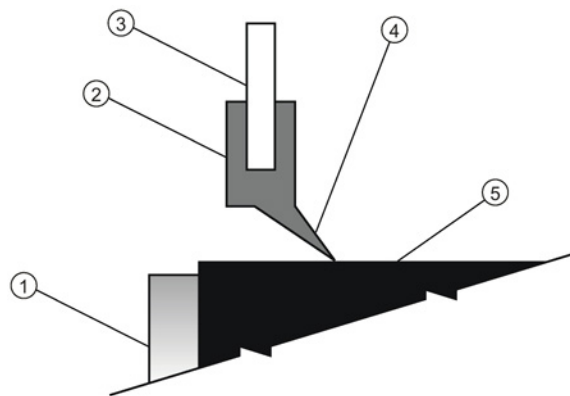
The shear gate on the inlet of the weighfeeder needs to be set to allow the maximum feed rate capacity required. Consult your Siemens representative if feed rate changes are required.

7.2 Skirtboards

The skirtboards have been factory set to proper specifications. Note that near the inlet, the skirtboards are very close to the belt. However, toward the discharge end of the weighfeeder, the skirtboards are 3 to 5 mm (1/8 to 3/16") higher off the belt. This relieving effect minimizes the possibility of material becoming lodged between the skirtboard and the belt.

Periodic adjustments of the skirtboards should not be necessary but if adjustment is required, set the skirtboards at the heights described above.

Your system has been supplied with soft PVC seal strips if the product being conveyed is a fine powder and can fluidize, or is dusty. Position the seal strips on the belt as shown. If these strips are not required, or if the material being conveyed is prone to sticking, clumping, or stacking on the edge of the strip, the strips should be removed.



- ① Pulley
- ② Seal strip
- ③ Skirtboard

- ④ Do not force seal strip against belt
- ⑤ Belt

7.3 Changing the conveyer belt

 WARNING

ALWAYS STOP the belt, lock-out, and/or place a "Do Not Energize" tag on the main disconnect before working on or around the weighfeeder.

Depending on the size of the weighfeeder, several personnel may be required to remove and re-install the belt.

1. On enclosed models, open and remove the access and non-access side panels.
2. Mark the current position of the telescoper for reference. This will be a reference when you re-install the belt. Loosen the telescopers to remove tension from the belt.
3. Rotate the belt tension roller up against the back of the infeed and support it during belt change. This tensioner may need to be removed for ease of belt change. It is located at the infeed end of the weighfeeder.
4. To make the belt change easier, remove the belt scraper counterweight located at the discharge end of the conveyor.
5. Move the belt out from the side guide roller.
6. From the access side of the weighfeeder at the discharge end, grab the edge of the belt and gently pull it over the side rail, making sure that the leading edge of the belt does not catch on any components.
7. Repeat the previous step on the inlet end of the weighfeeder. Again, be careful not to cut or scrape the belt on any components.
8. When both ends have been pulled to the outside of the side rail, grab the belt in the middle and slowly remove it. As you are removing the belt, mark the direction the belt was rotating, as this will allow you to re-install it in the same direction. Take care when storing the belt to prevent kinks or other damage.
9. With the belt removed, inspect the weighfeeder for material buildup, lodged particles, and signs of wear, paying close attention to the weighing section. Take care when cleaning the weighing section, as 6 kg (15 lbs) (or less) pressure placed on the weighbridge could cause load cell damage.
10. Reverse steps to re-install the same belt.

Note

- On a new replacement belt, there may be an arrow printed on the underside of the belt. This arrow indicates what direction the belt should rotate when it is installed. If there is no arrow, rotation of the belt may be in either direction. Whenever a new belt is installed, perform the belt tracking procedure (see Belt tracking (Page 30)).
 - New belts should be un-rolled and allowed to relieve any kinks or bends: this will help tracking and weighing accuracy.
-

7.4 Belt tension

The ideal belt tension for any weighfeeder is just enough tension to prevent the belt from slipping on the drive pulley. The tension minimizes the effect of the belt on weighing accuracy. Often, the sole cause of an inaccurate weighfeeder is excessive belt tension.

Belt tension can vary depending on the application. As a general guideline, the bottom of the belt should be taut and running parallel with the top strand of the belt. However, some applications may require more or less tension due to varying belt loading and other operating characteristics. The belt plow should be adjusted to contact the clean side of the belt, without applying extra tension.

7.5 Belt tracking

Before attempting to track the belt, be sure:

- belt scraper is in place
- belt tension is near guidelines suggested in Belt tension (Page 30).
- weighfeeder is level and true
- installation has not warped or twisted the frame
- head and tail pulley are square to the frame and parallel to each other
- plow is contacting underside of the belt, belt is engaged with guide rollers.

Note

- Do not adjust belt tracking rollers, they have been factory set.
 - Belt plow blades are adjustable vertically for proper contact to the belt.
-

Turn on the weighfeeder and observe its tracking line on the head and tail pulleys. If the belt is drifting toward one side of the weighfeeder, then adjust the telescoper on either side of the machine (see Telescoper adjustment (Page 31)).

7.6 Telescoper adjustment

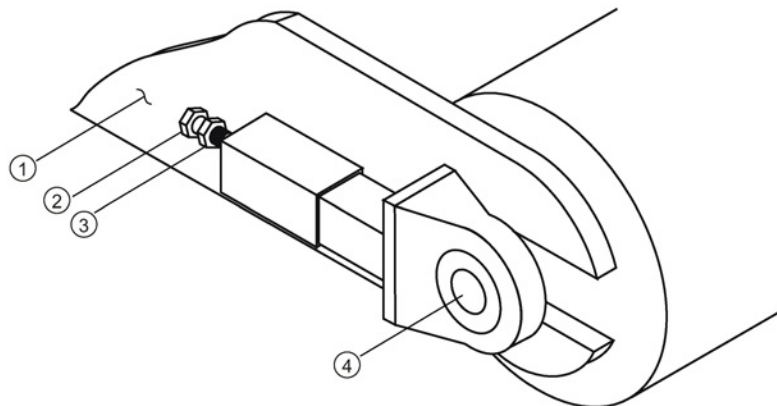
1. Determine which side of the weighfeeder you want to adjust. Compressing the telescoper on one side will cause the belt to drift toward that side of the weighfeeder. Conversely, extending the telescoper will cause the belt to drift away from that side of the weighfeeder.
2. Loosen the jam nut.
3. Turn the adjusting screw in the desired direction. Often, only a small amount of adjustment (1 turn or less) will be required.
4. Observe the results of the adjustment and then readjust, if necessary.

Steps 2 and 3 may need to be repeated to obtain perfect belt tracking.

Note

As you extend or compress the telescoper, you may be changing the belt tension. If belt tension has increased (or decreased) considerably while attempting to track the belt, then compress (or extend) both telescopers and complete the belt tracking process again. To avoid this problem, extend one telescoper while compressing the other to obtain proper belt tracking.

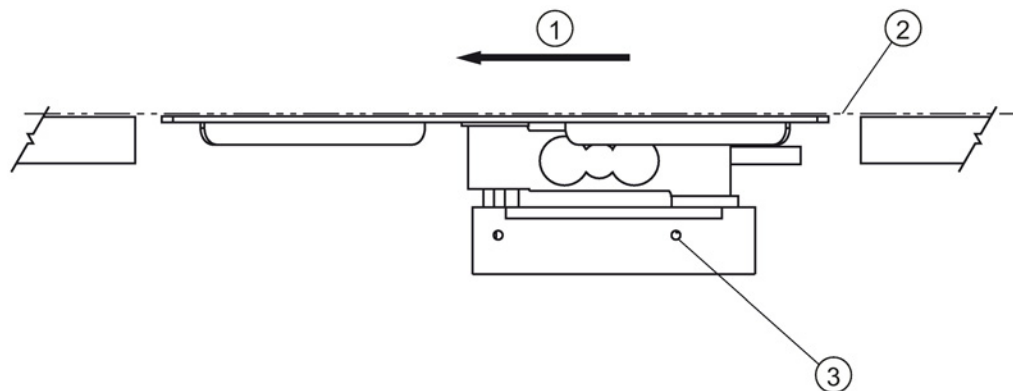
5. Re-tighten the jam nut located on the telescoper to maintain the new telescoper position after completing the tracking procedure.
6. If you are having problems tracking the belt, consult your Siemens representative. Common causes of belt tracking problems are: uneven or improperly distributed product loading, twisted frame, or product buildup on head or tail pulleys.



- | | | | |
|---|-----------------|---|--------------|
| ① | Side rail | ③ | Jam nut |
| ② | Adjusting screw | ④ | Driven shaft |

7.7 Weigh deck alignment

Precise deck alignment is very important to achieve maximum accuracy of the weighing system. A misaligned deck will result in unwanted forces being applied in the weighing area, causing calibration and measurement errors. Verify that the weigh deck is aligned properly. Use a spirit level to level the load cells.



- ① Belt direction
- ② Alignment string/wire
Run string to ensure alignment is $+1/32"$ ($+0.8$ mm) to $0"$ (0 mm) aligned with approach and retreat slider beds.
- ③ Load cell base locking screws

7.8 Quick startup overview

1. Verify that the weighfeeder is installed properly as described in Installing (Page 11). Verify that the belt is tracking and the shear gate (if used) is properly set.
2. Verify that the weighfeeder, integrator/controller, and variable speed drive (AC or DC, if present) are all properly wired.
3. Refer to the supplied integrator/controller information for calibration and configuration information.

7.9 Load cell replacement

WARNING

ALWAYS STOP the belt, lock-out, and/or place a "Do Not Energize" tag on the main disconnect before working on or around the weighfeeder.

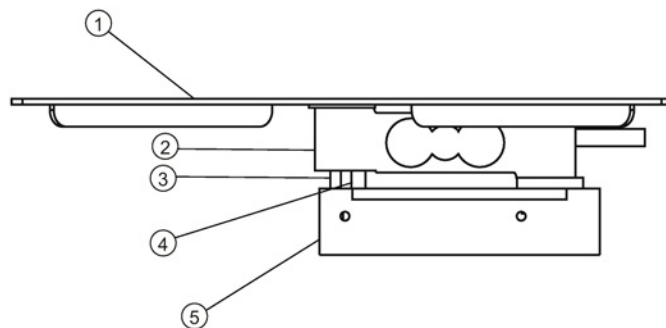
If a load cell on the weighfeeder has been damaged and is not functioning, or if you are changing the capacity, you will need to replace one or all load cells.

Note

Please read and understand all of the instructions before proceeding with the replacement. Contact your Siemens representative for assistance if you have any questions or problems.

7.9.1 Removing old load cell

1. Confirm the new replacement load cell is correct and functional. Using a digital volt meter or ohm meter, verify that the resistance of the new load cell matches the resistance printed on the specification sheet that comes with the load cell. If the resistances do not match, the load cell may be damaged. Consult your Siemens representative.
2. Disconnect the load cell being replaced from the junction box. Verify that the load cell is connected according to the interwiring diagram supplied with this manual. Disconnect the load cell from the load cell junction box. Free the load cell cable from the weighfeeder so it is hanging free from the load cell.
3. Install the shipping bolt (tagged) through the bottom load cell mount and into the load cell. Tighten the shipping bolt until the load cell bottoms out on the overload bolt.
4. Remove the belt.
5. Remove the top load cell mounting bolts. For nickel plated cells remove the threaded bushing from the load cell for the replacement.
6. Remove the weigh deck.
7. Remove the two bottom load cell mounting bolts.
The load cell is now held in place only by the shipping bolt.
8. Remove the shipping bolt, and slide the load cell off the mount.



- | | |
|-----------------|--------------------------|
| ① Weigh deck | ④ Shipping bolt |
| ② Load cell | ⑤ Bottom load cell mount |
| ③ Overload bolt | |

Note

Load cell may appear different than shown.

7.9.2 Installing new load cell

1. Slide the new load cell into position.
Carefully thread the load cell shipping bolt. Do not overtighten the bolt.
2. Install the two bottom load cell mounting bolts and tighten them by hand.
The load cell should now be resting against the overload bolt.
3. Install the two top/front load cell mounting bolts. Tighten them by hand.
4. Start with the bottom load cell mounting bolts and tighten them to the torque value indicated in the load cell instructions. Now tighten the two top/front load cell mounting bolts to the same torque value.
5. Remove the shipping bolt.
6. Route the load cell cable to the junction box and connect the load cell according to the supplied interwiring diagram.

Note

Once the load cell has been replaced, check the weigh deck alignment with the approach and retreat slider beds.
Alignment should be +1/32" (+0.8 mm) to 0" (0 mm).

7.9.3 Recalibration

1. Power up the integrator and using the appropriate integrator menu, verify that the new load cell(s) are operating correctly.
2. Zero calibrate the unit using the integrator manual for reference. Record zero calibration procedure results.
3. Span calibrate the unit using the integrator manual for reference. Record span calibration procedure results.
4. Re-check zero calibration. Run another zero calibration and record the results. Verify that the zero repeated to the same value recorded in step 2.
5. Confirm calibration with material test as described in the integrator manual, if possible, before placing the weighfeeder back in operation.

 **WARNING**

ALWAYS STOP the belt, lock-out, and/or place a "Do Not Energize" tag on the main disconnect before working on or around the weighfeeder.

8.1 Preventative maintenance

The maintenance schedule below is recommended to maintain top performance and accuracy of the system. Weighfeeders mounted in severe weather or dusty conditions may require a more rigorous maintenance schedule.

Make sure the weigh deck is aligned with the approach and retreat sections for accurate weighing. Periodic measurement to verify alignment is recommended.

8.1.1 Recommended preventative maintenance schedule

Item	Required Maintenance	Frequency	Comments
Weigh Section	Blow or brush off any material building up on load cell area.	Weekly	More frequently in dirty environments
Belt Tracking	Visually inspect to assure that conveyer belt remains trained.	Daily	-----
Integrator controller	Span check	Monthly	Use calibration chain
Calibration span check	Verify belt zero	Daily, at least once/week	See Calibration section of Integrator manual
Bearings	Inspect and lubricate as required	Every 10,000 hours	Use application specific grade grease (see notes below)
Electric gear motor	Check oil level in gearbox	Monthly	Fill as necessary
Belt	Check for holes, wearing, frays, or other damage	Weekly	Replace as required
Belt side rollers, scraper, plow	Check for wear and proper belt contact	Weekly	Clean and replace as required
Belt tensioner roller	Ensure roller rotates freely and remove material buildup	Weekly	Replace as required
Infeed seal strips	Check for holes, wearing, frays or other damage	Weekly	Replace as required
Pulleys	Check lagging for wear	Every 10,000 hours	Inspect and replace as necessary

Note

- In extraordinary climatic or environmental conditions, special lubricants may be required.
- In corrosive environments, more frequent lubrication is required to purge contaminants.

8.2 General maintenance

The equipment should be cleaned periodically and any excess accumulation of product should be removed to minimize potential damage to the mechanical components and scale accuracy.

Abrasions, cuts, or ragged edges on the belt will create performance problems. Replace the belt if it becomes ragged or torn.

8.3 Lubrication

All head and tail pulley bearings are pre-greased at the factory. These bearings should be field greased periodically. Lubrication frequency may vary; dry, dusty applications may warrant weekly greasing, while less harsh applications may need greasing only once or twice a year. Do not exceed 10,000 hours of operation between re-greasing.

If there is a gear reducer supplied with your weighfeeder, it has an initial break-in period. After the first 250 hours of operation, the gear box(es) should be drained and refilled to the proper level(s). Subsequent oil changes should be done every 2500 hours. See the gear reducer manual for further details.

The tensioner roller uses a sealed bearing, so greasing is not necessary.

If there is a gear motor (motor and reducer all in one housing) supplied with your unit, it is permanently lubricated. No lubrication is necessary.

8.4 Weighfeeder storage recommendations

If a weighfeeder will be stored for a period of three months or more, follow the guidelines below.

8.4.1 Load cell care

The load cell shipping bolt(s) should be installed whenever the weighfeeder is moved as an extra safety measure during the storage period. Do not forget to remove the shipping bolt(s) upon re-installation.

8.4.2 Gear reducer

Uncouple the gear reducer from the weighfeeder drive shaft and the motor and grease all shaft surfaces liberally with an appropriate lubricant to help with reassembly.

In addition, fill the gear reducer with an appropriate gear oil to prevent oxidation. When the equipment is re-installed, completely drain this gear oil and then refill the reducer to the appropriate level.

8.4.3 Electrical

To prevent oxidation, place a desiccant or moisture removal material in all electrical junction boxes and component cabinets. This includes the load cell junction box, the integrator cabinet, and the motor speed controller enclosure (if present).

8.4.4 Lubrication

Grease all greasable points.

8.4.5 Belt care

Reduce belt tension to a minimum to prevent belt damage and re-adjust belt tension at re-installation.

Note

Do NOT store the weighfeeder in direct sunlight, as this will cause premature breakdown of the belt.

Troubleshooting

9.1 Mechanical troubleshooting

Review mechanical installation procedures and perform a thorough visual inspection to be sure the operating error is caused by a mechanical problem. Then review and check the common problems listed below.

Note

If you have difficulty determining the cause of the problem, contact your Siemens representative. Be sure to have the Model Number and Serial Number of your system and all of the calibration and setup parameters available before calling.

9.1.1 Zero Drift, non-repeatability, or non-linearity

Check for the following conditions:

- weigh deck alignment
Verify weigh deck alignment is as accurate as possible. Improper alignment is the most common mechanical problem affecting scale accuracy. Contact your Siemens representative if you find a problem here.

Note

Alignment should be +1/32" (+0.8 mm) to 0" (0 mm) aligned with approach and retreat slider beds.

- material buildup on weigh section or pulleys, or between the weigh deck and weighfeeder frame
- belt mis-tracking
- belt too tight
- load cell bolts loose
- speed sensor, pulley, or idler slippage
- load cell shipping bolt (tagged) never removed
- head or tail pulley too high or low, relative to slider bed alignment. The head and tail pulleys should be at least 1/8" lower than the approach and retreat slider beds

Technical data

10.1 Specifications

Accuracy	± 0.5% to 0.25%	
	<i>Accuracy subject to: On factory approved installations, the weighfeeder system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity, and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt, or at least ten minutes running time, whichever is greater.</i>	
Operating range	10 to 100%	
Capacity	45 kg/h ... 18 t/h (100 lbs/h ... 20 STPH)	
Belt speed	0.005 ... 0.36 m/s (1 ... 70 fpm)	
Operating temperature	-10 to +40 °C (+14 to +104 °F)	
Material temperature	-40 to +125 °C (-40 to +257 °F)	
Construction materials	Mild steel or stainless steel [304 (1.4301) or 316 (1.4401)]	
Load cells	One single point, nickel-plated platform IP66 (standard)	
	17-4 PH (1.4568) stainless steel construction for corrosive and washdown environments (optional) IP68	
	Non-linearity:	± 0.03%
	Non-repeatability:	± 0.02%
Speed sensor	Optical encoder, driven pulley mounted	
Framework	Precision machined, stainless or mild steel	
	Cantilevered design for easy belt replacement	
Pulleys	102 mm (4") diameter with 6 mm (1/4") neoprene lagging for maximum traction	
Belting	2-ply Polyester carcass with polyurethane top cover and static control, with endless finger splice for maximum weighing consistency (standard)	
	1-ply Thermoplastic carcass with polyurethane top cover and static control with endless finger splice for maximum weighing consistency optional	
	2-ply Silicone carcass with polyurethane top cover and static control, with endless finger splice for maximum weighing consistency, high temperature optional	
Belt support	Stainless steel pans eliminate material buildup	
Belt tension	Counter-weighted stainless steel tensioning idler for consistent tension, required for high accuracy weighing	

10.1 Specifications

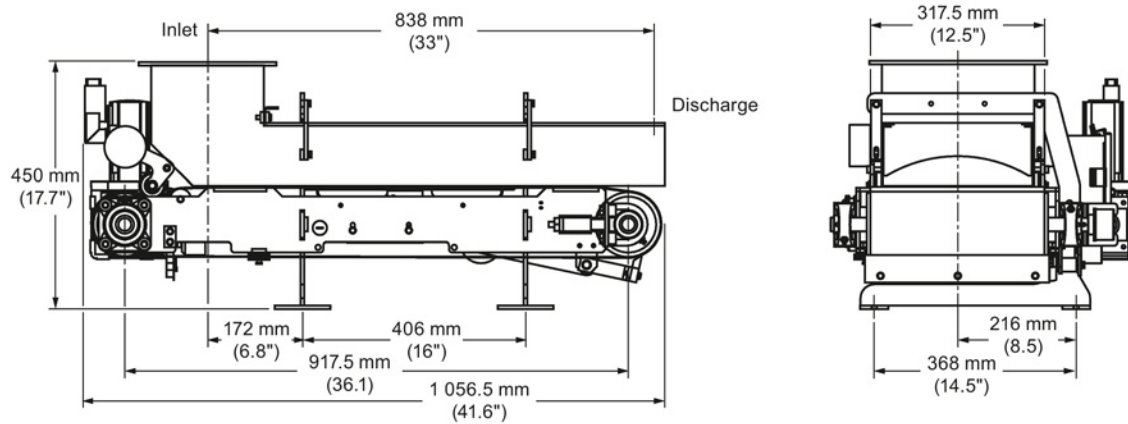
Belt cleaning	UHMW blade type with counterweight at the head pulley for cleaning product side of belt
	UHMW blade type return plow at tail pulley
	Optional belt cleaning brush on product side of belt
Drive	Standard - 0.24 kW (0.32 hp) drive servo motor with direct coupled flange mounted gear reducer 45.6 Nm (404 in-lbs), 2.1 service factor minimum
	Optional - 0.56 kW (0.75 hp) AC drive motor with direct coupled flange mounted gear reducer 81 Nm (717 in-lbs), 3.12 service factor minimum
Shipping weight	Open: 91 kg (200 lbs)
	Enclosed: 181 kg (400 lbs) maximum
Approvals	CE, RCM
	For use in hazardous rated areas, select hazardous location options Note that only electrical components are rated and entire weighfeeder is not.
	Stainless steel options meet USDA and FDA requirements for food processing.

Note

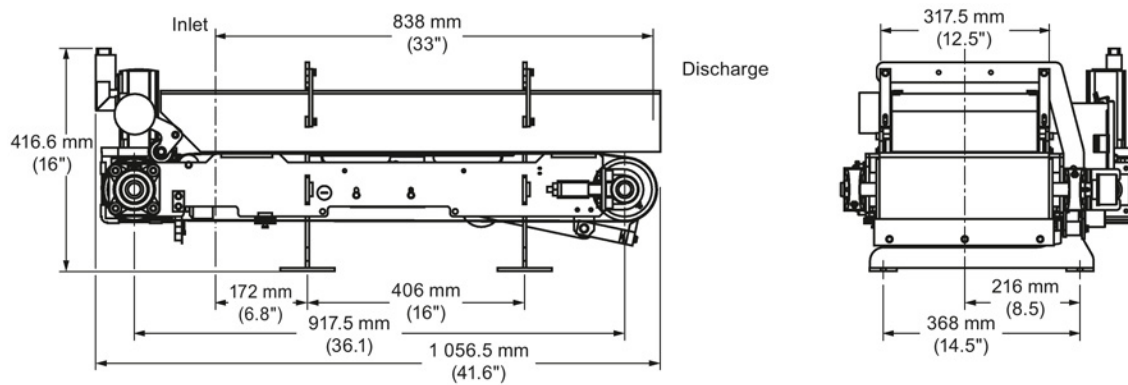
Skirtboard seal stripping is not FDA or USDA approved material, and should be removed for critical food applications.

Dimension drawings

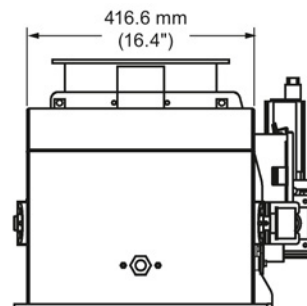
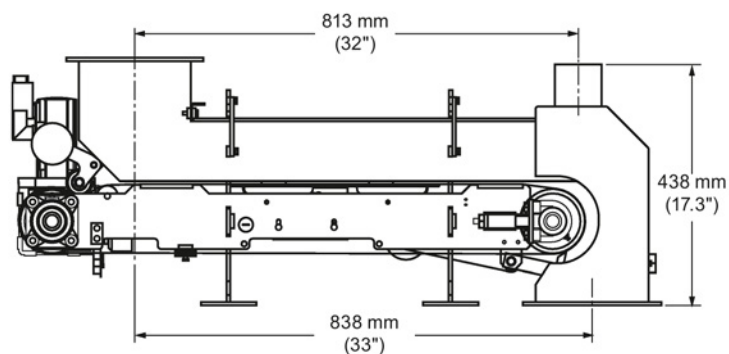
11.1 Open unit



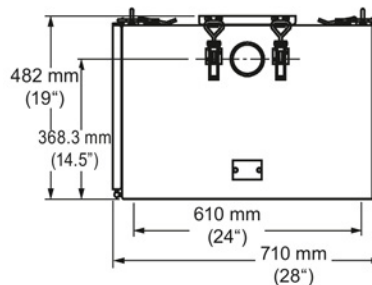
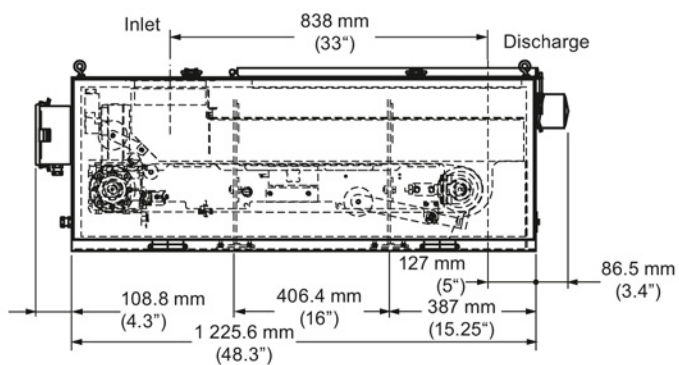
11.2 Open horseshoe



11.3 Open dust hood



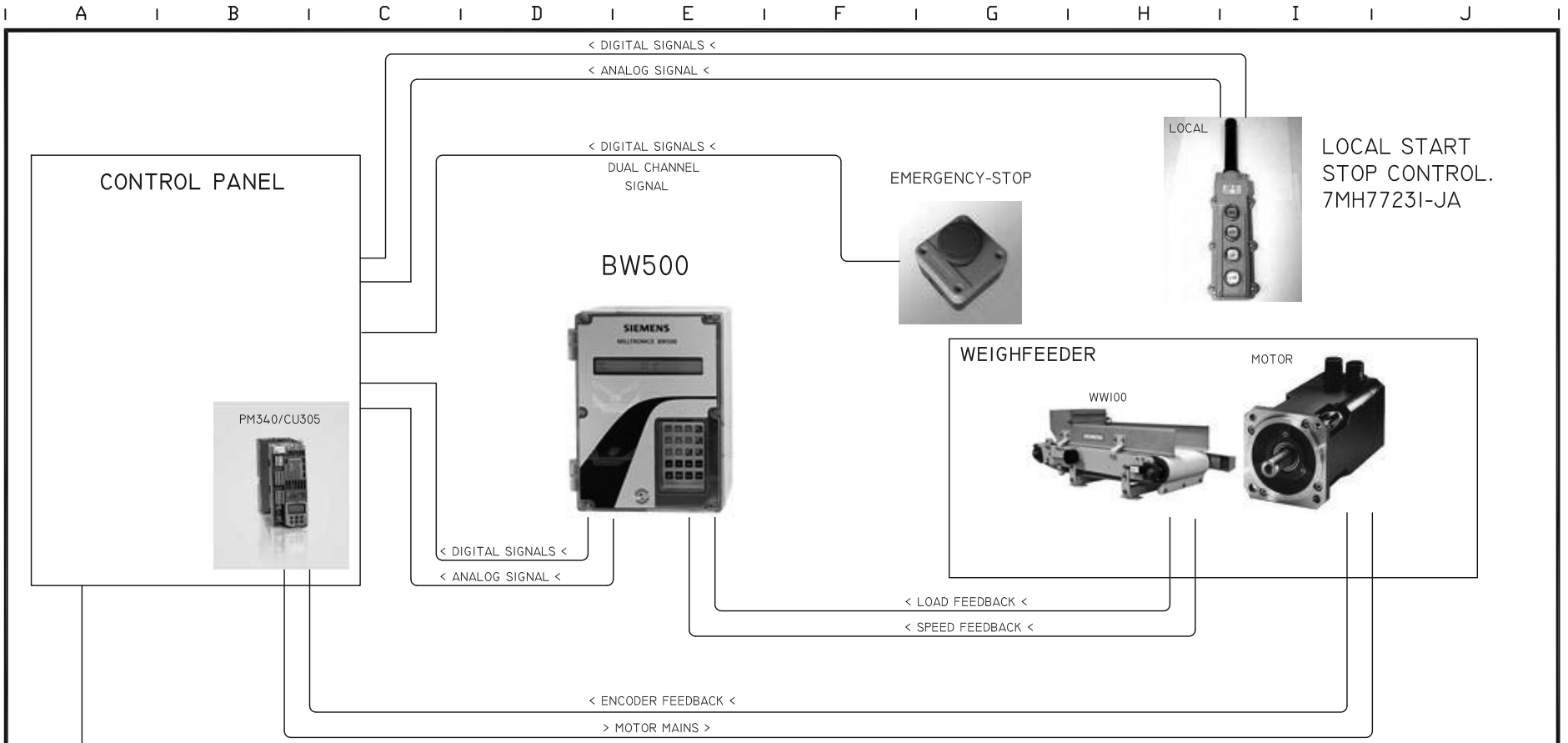
11.4 Enclosed unit



A

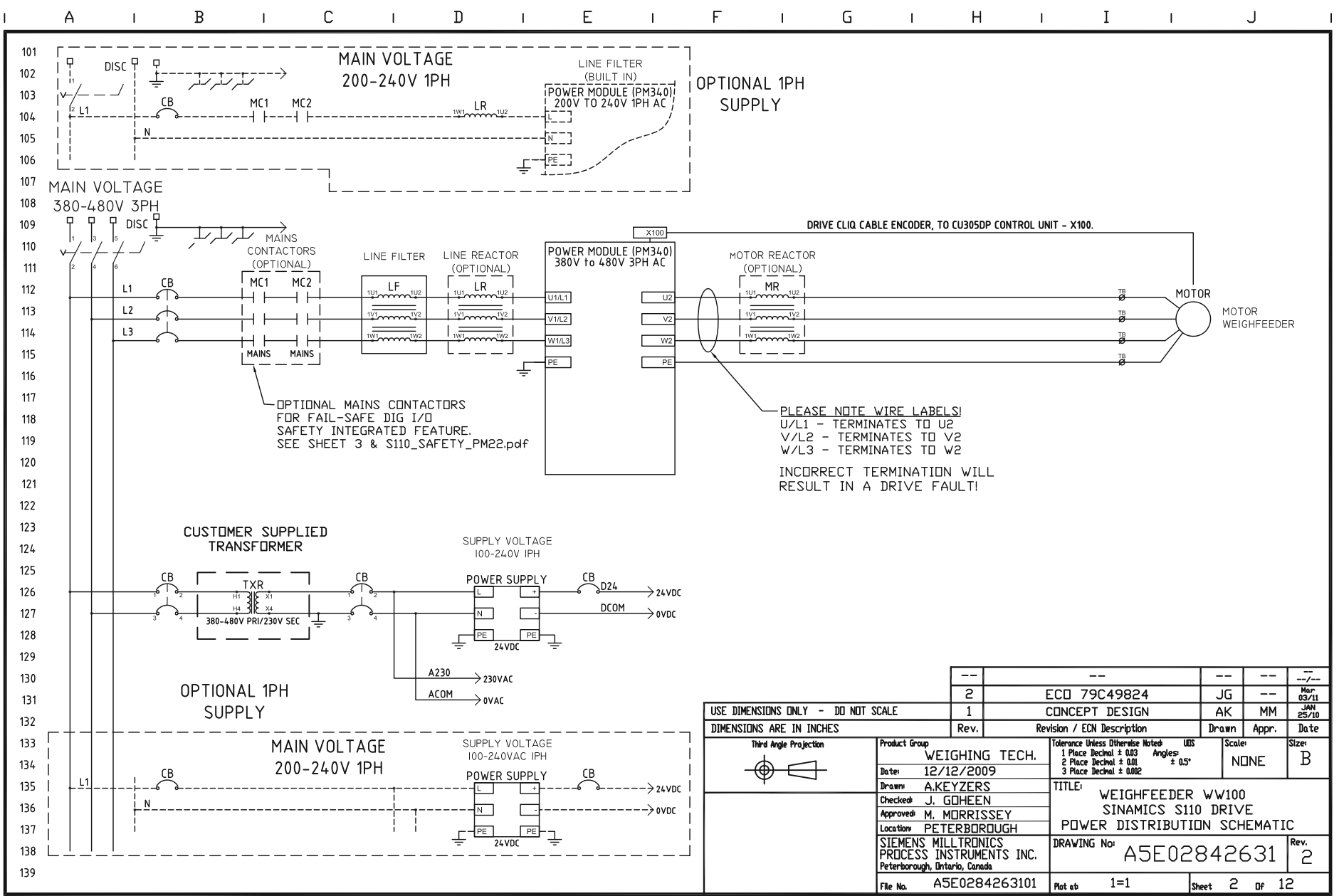
Appendix - Connection diagrams

System connection diagrams on following pages.



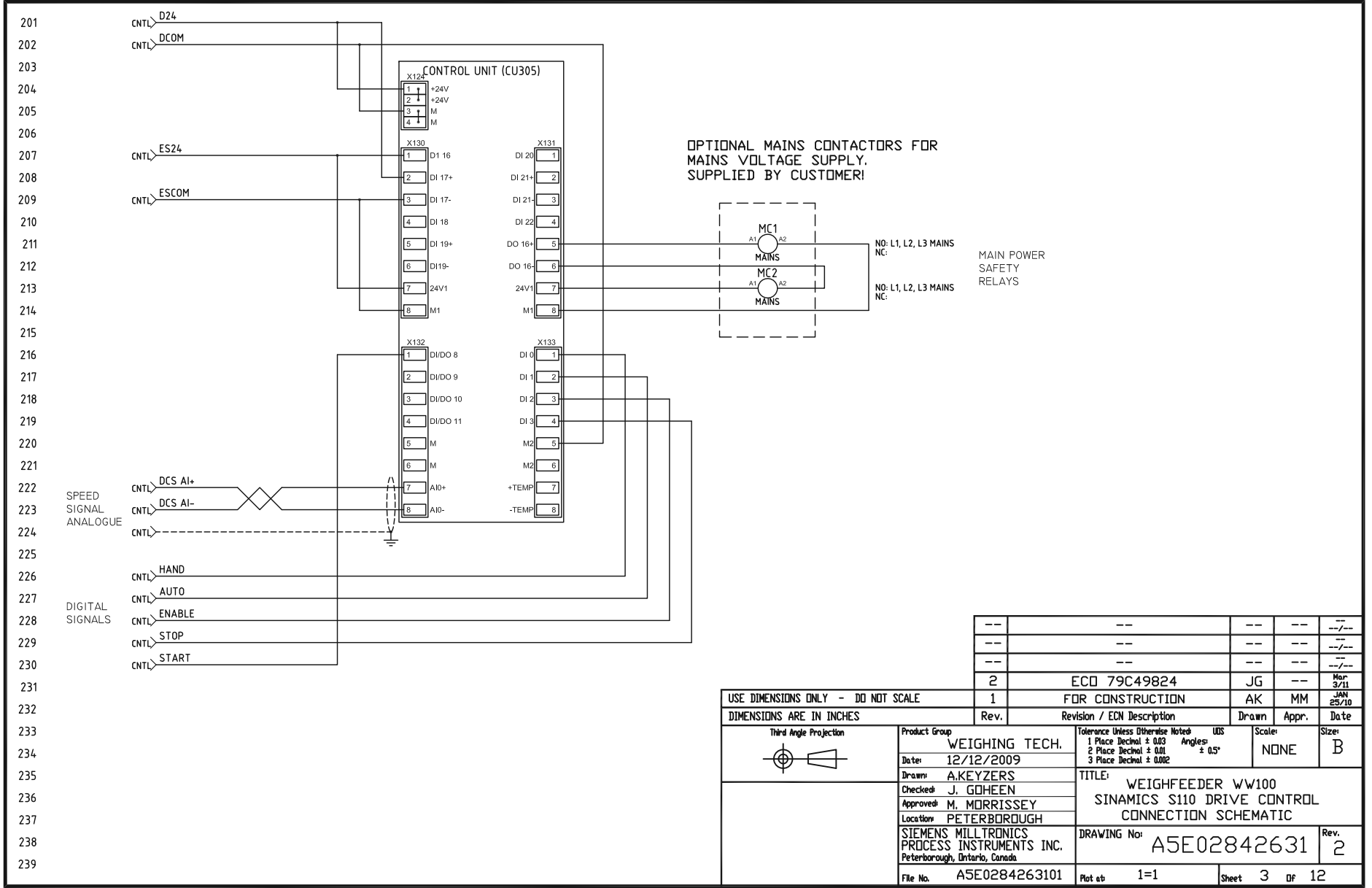
MAIN FRAME
DCS / PLC

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1	FOR CONSTRUCTION	AK	MM	JAN 25/10		
USE DIMENSIONS ONLY - DO NOT SCALE		Rev.	Revision / ECN Description	Drawn	Appr.	Date
		Product Group	WEIGHING TECH.	Tolerance Unless Otherwise Noted		Scale
Date:	12/12/2009	1 Place Decimal ± 0.03	Angles: ± 0.5°	NONE		Size: B
Drawn:	AKEYZERS	2 Place Decimal ± 0.01	3 Place Decimal ± 0.002			
Checked:	J. GOHEEN	TITLE: WEIGHFEEDER WW100 LAYOUT				
Approved:	M. MORRISSEY	CABLING LAYOUT				
Location:	PETERBOROUGH	DRAWING No: A5E02842631				
SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada		Rev.	2			
File No.	A5E0284263101	Plot at	1=1	Sheet	1 of 12	



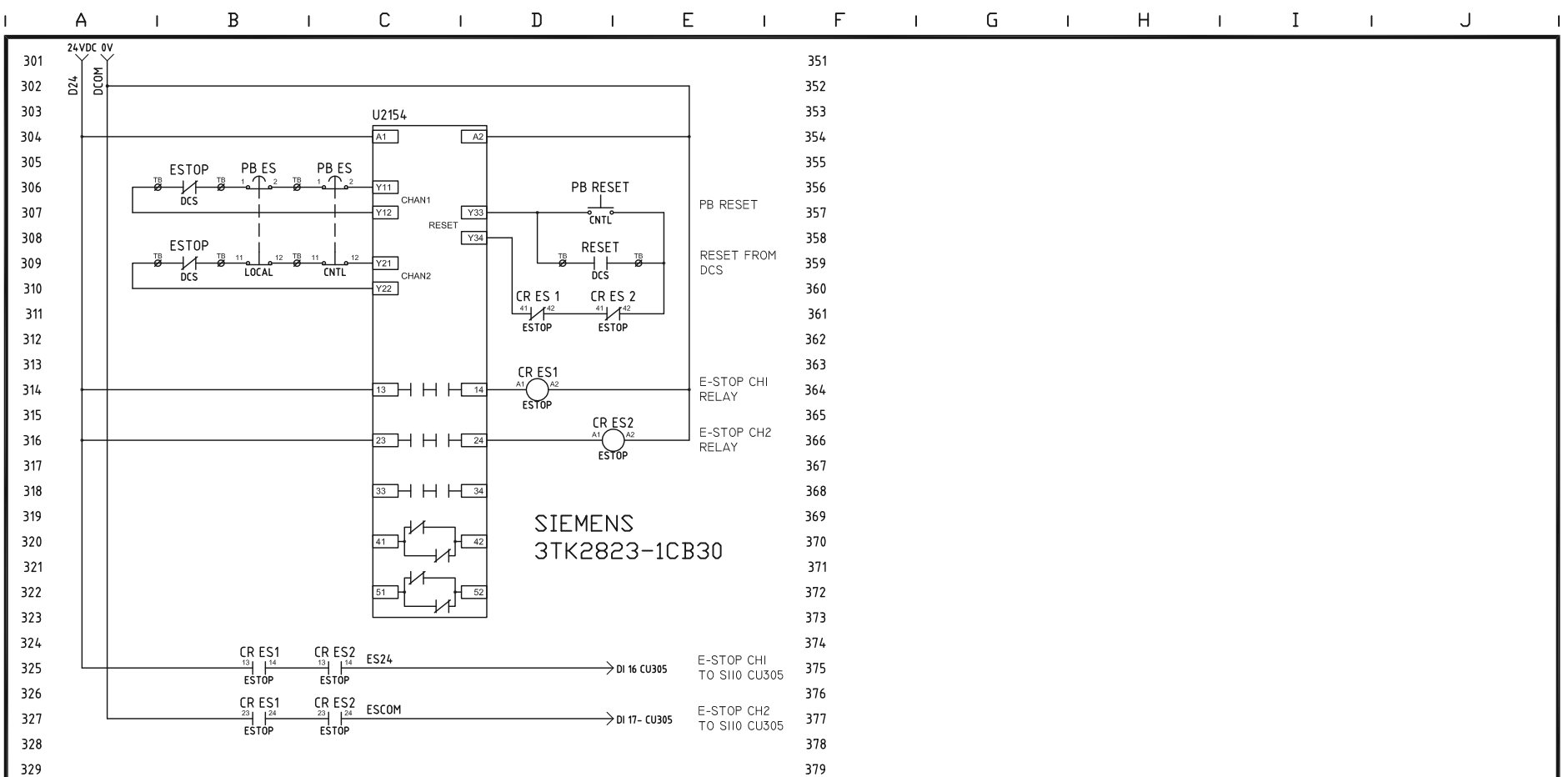
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DIMENSIONS ARE IN INCHES		Rev.		Revision / ECN Description		Date	
Third Angle Projection		Product Group		Tolerance Unless Otherwise Noted		Scale	
		WEIGHING TECH.		1 Place Decimal ± 0.03		NONE	
		Date: 12/12/2009		2 Place Decimal ± 0.01		Angles: ± 0.5°	
		Drawn: AKEYZERS		3 Place Decimal ± 0.002			
		Checked: J. GOHEEN		TITLE: WEIGFEEDER WW100 SINAMICS S110 DRIVE POWER DISTRIBUTION SCHEMATIC			
		Approved: M. MORRISSEY					
		Location: PETERBOROUGH		DRAWING No:		Rev.	
		SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada		A5E02842631		2	
		File No. A5E0284263101		Plot at 1=1		Sheet 2 of 12	

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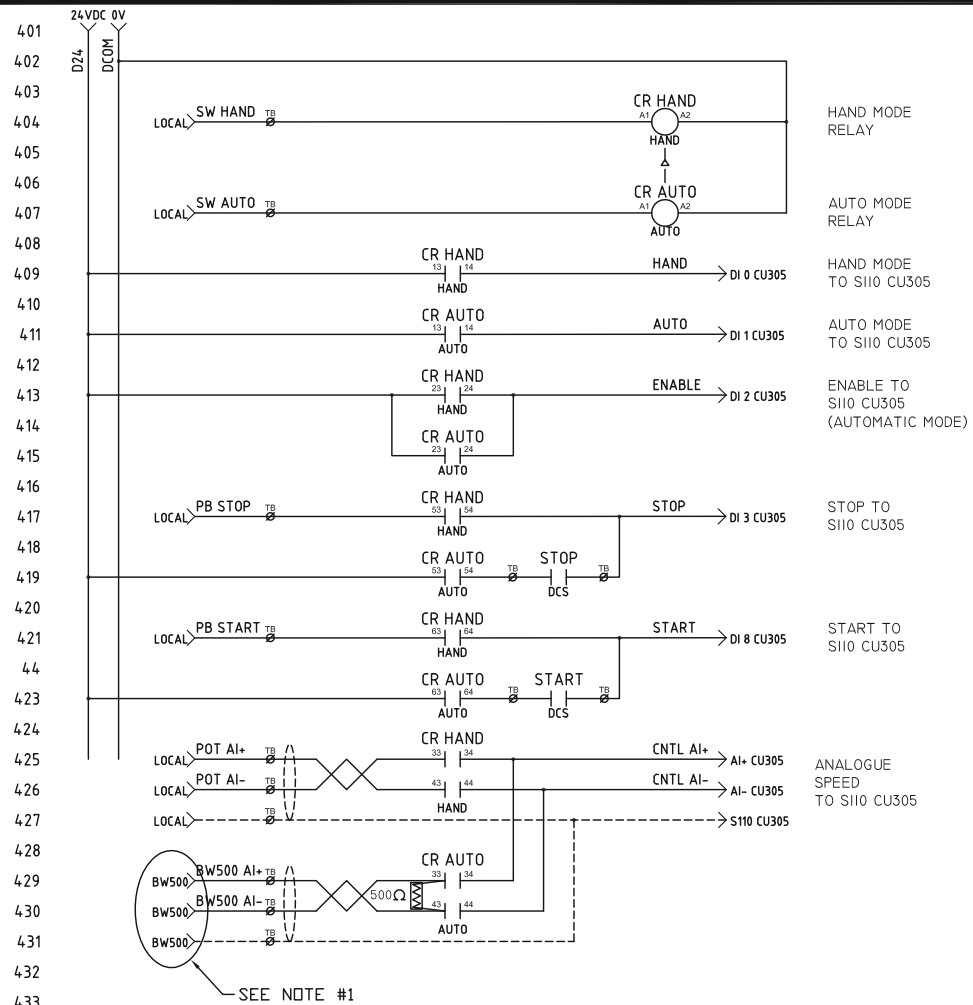
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	Date:	12/12/2009		1 Place Decimal ± 0.03 2 Place Decimal ± 0.01 3 Place Decimal ± 0.002		Angle: ± 0.5°
Checked:		J. GOHEEN		TITLE: WEIGHFEEDER WW100 SINAMICS S110 DRIVE CONTROL CONNECTION SCHEMATIC		
Approved:		M. MORRISSEY				
Location:		PETERBOROUGH		DRAWING No: A5E02842631		
SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada		Rev. 2		File No. A5E0284263101		
Plot at 1=1		Sheet 3 of 12				



Notes.

- EMERGENCY STOP RELAY MAY BE REQUIRED FOR LOCAL ELECTRICAL CODES.
- ALL EQUIPMENT SHOWN IS SUPPLIED BY THE END USER.

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2	ECO 79C49824	JG	---	Mar 03/11		
1	FOR CONSTRUCTION	AK	MM	JAN 25/10		
USE DIMENSIONS ONLY - DO NOT SCALE		Rev.	Revision / ECN Description	Drawn	Appr.	Date
DIMENSIONS ARE IN INCHES						
		Product Group	WEIGHING TECH.	Tolerance Unless Otherwise Noted		Scale
		Date:	12/12/2009	1 Place Decimal ± 0.03 2 Place Decimal ± 0.01 3 Place Decimal ± 0.002		Angle: ± 0.5°
		Drawn:	AKEYZERS	TITLE:		Size:
		Checked:	J. GOHEEN	WEIGHFEEDER WW100		B
		Approved:	M. MORRISSEY	CONTROL PANEL E-STOP		
		Location:	PETERBOROUGH	CONNECTION SCHEMATIC		
		SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada	DRAWING No:	A5E02842631	Rev.	2
		File No.	A5E0284263101	Plot at	1=1	Sheet 4 of 12

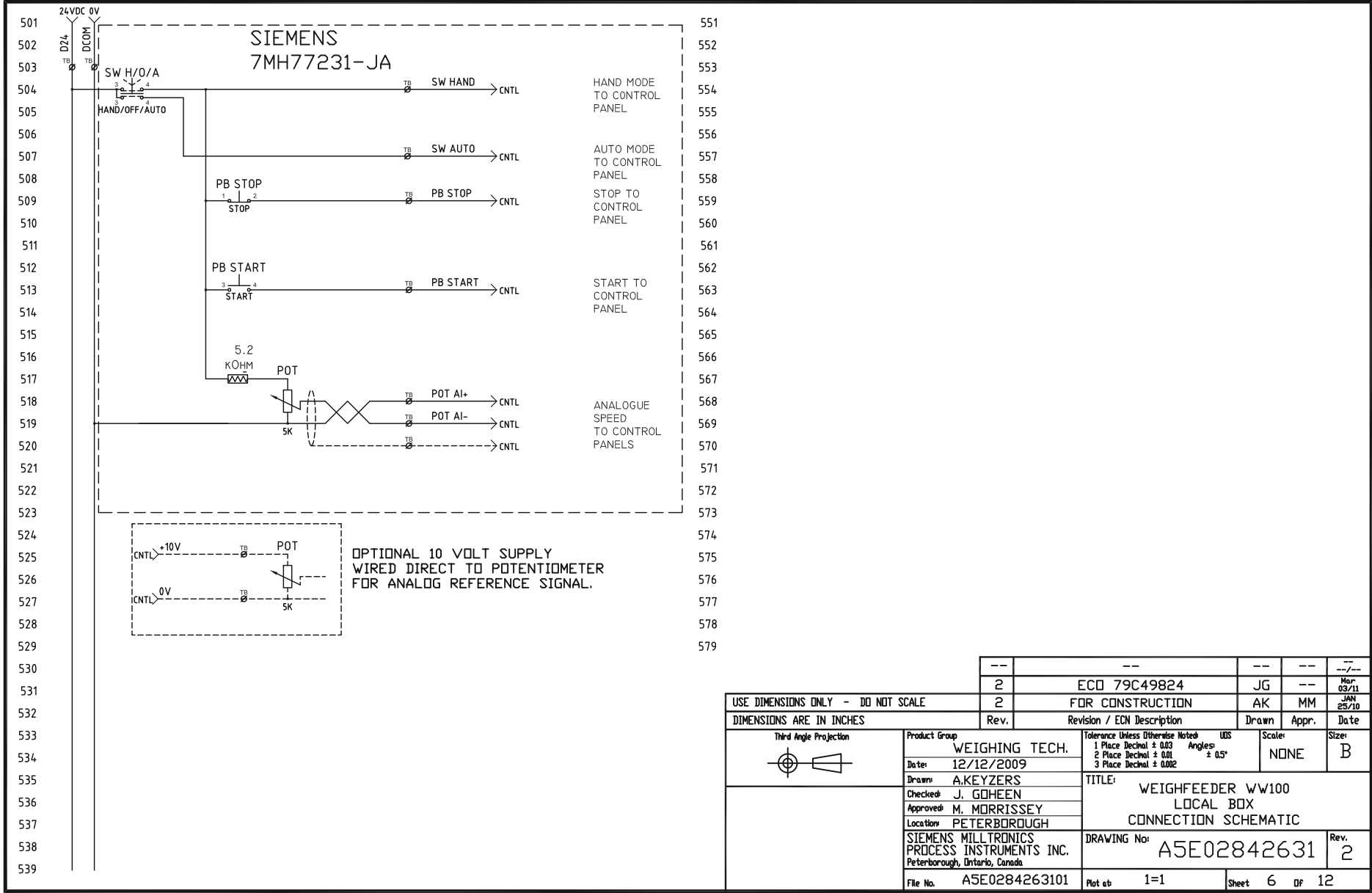


401	24VDC 0V	451
402	D24	452
403	DCOM	453
404	LOCAL SW HAND TB	454
405		455
406		456
407	LOCAL SW AUTO TB	457
408		458
409	CR HAND 13 14	459
410	HAND	HAND MODE TO S110 CU305
411	CR AUTO 13 14	460
412	AUTO	AUTO MODE TO S110 CU305
413	CR HAND 23 24	461
414	HAND	ENABLE TO S110 CU305 (AUTOMATIC MODE)
415	CR AUTO 23 24	462
416	AUTO	463
417	LOCAL PB STOP TB	464
418	CR HAND 53 54	465
419	HAND STOP TB	466
420	CR AUTO 53 54	467
421	AUTO STOP TB DCS	468
422		469
423	LOCAL PB START TB	470
424	CR HAND 63 64	471
425	HAND START TB	START TO S110 CU305
426	CR AUTO 63 64	472
427	AUTO START TB DCS	473
428		474
429	LOCAL POT AI+ TB	475
430	LOCAL POT AI- TB	476
431	LOCAL BW500 AI+ TB	477
432	LOCAL BW500 AI- TB	478
433	LOCAL BW500 TB	479

- Notes.
1. ANALOG CONTROL SIGNAL REFERENCED AS BW500 0-20 MILLI-AMP OUTPUT!
 2. ALL CONTROL RELAYS AND CONTACTORS SUPPLIED BY THE CUSTOMER.
 3. ANY AND ALL CONTROL SIGNALS SHARING THE SAME TERMINATION POINT SHOULD BE ISOLATED.

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2	ECO 79C49824	JG	MM	Mar 03/11			
1	FOR CONSTRUCTION	AK	MM	JAN 25/10			
USE DIMENSIONS ONLY - DO NOT SCALE		Rev.	Revision / ECN Description	Drawn	Appr.	Date	
DIMENSIONS ARE IN INCHES							
Third Angle Projection		Product Group	WEIGHING TECH.	Tolerance Unless Otherwise Noted		Scale	Size
		Date:	12/12/2009	1 Place Decimal ± 0.03		NONE	B
		Drawn:	A.KEYZERS	2 Place Decimal ± 0.01			
		Checked:	J. GOHEEN	3 Place Decimal ± 0.002		Angle: ± 0.5°	
		Approved:	M. MORRISSEY	TITLE: WEIGHFEEDER WW100 CONTROL PANEL SIGNAL CONNECTION SCHEMATIC			
		Location:	PETERBOROUGH	DRAWING No: A5E02842631			
		SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada		Rev. 2			
		File No. A5E0284263101	Plot at 1=1	Sheet 5 of 12			

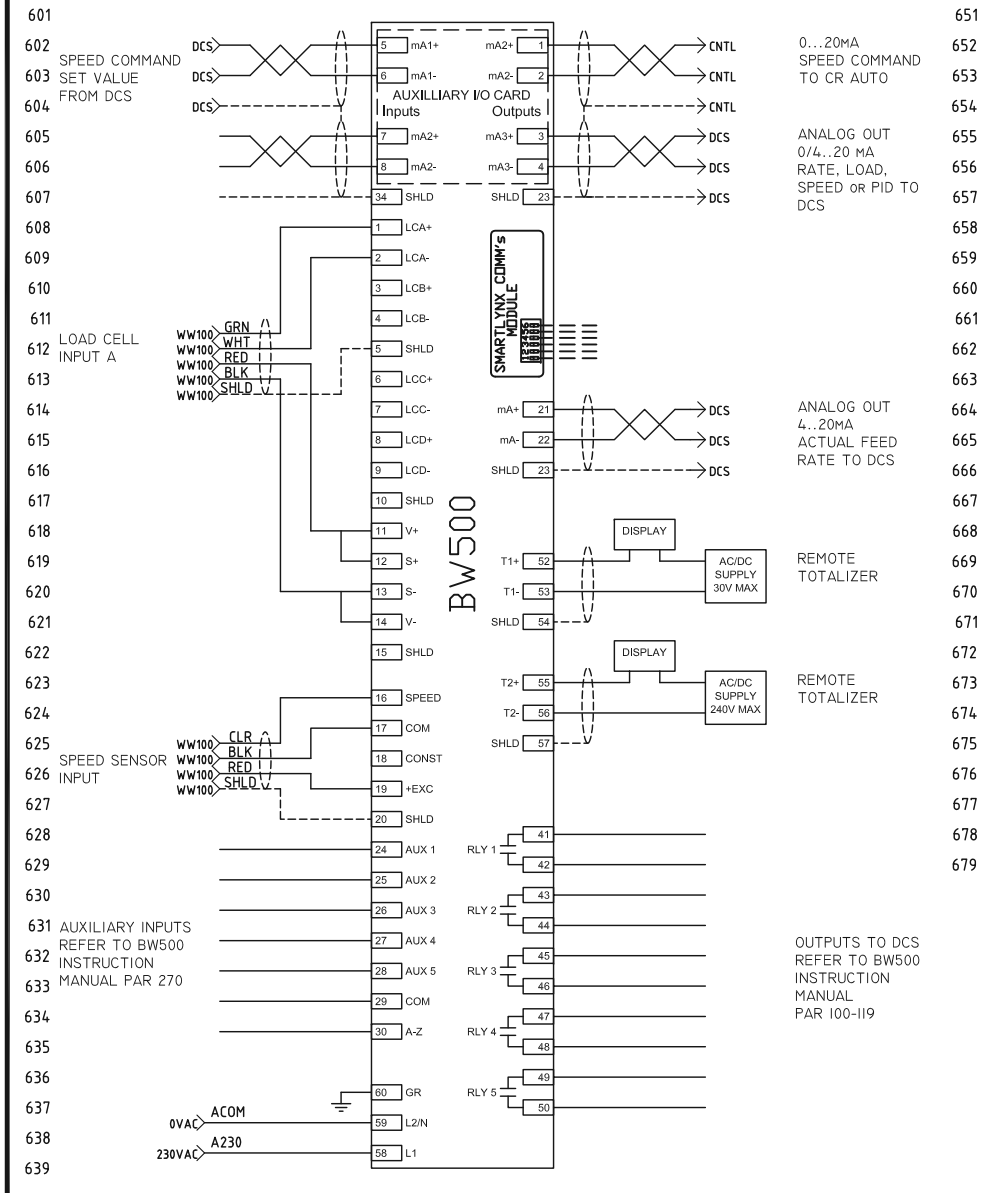
A I B I C I D I E I F I G I H I I I J I



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2		ECO 79C49824		JG		Mar 03/11	
2		FOR CONSTRUCTION		AK		MM JAN 25/10	
DIMENSIONS ARE IN INCHES		Rev. Revision / ECN Description		Drawn		Appr. Date	
Third Angle Projection		Product Group WEIGHING TECH.		Tolerance Unless Otherwise Noted: UDS		Scale: NONE	
		Date: 12/12/2009		1 Place Decimal ± 0.03		Angles: ± 0.5°	
		Drawn: AKEYZERS		2 Place Decimal ± 0.01			
		Checked: J. GOHEEN		3 Place Decimal ± 0.002			
		Approved: M. MORRISSEY		TITLE: WEIGHFEEDER WW100 LOCAL BOX CONNECTION SCHEMATIC			
		Location: PETERBOROUGH					
		SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada		DRAWING No: A5E02842631		Rev. 2	
		File No. A5E0284263101		Plot at 1=1		Sheet 6 of 12	



601
602 SPEED COMMAND
603 SET VALUE
604 FROM DCS
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612 LOAD CELL
613 INPUT A
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626 SPEED SENSOR
627 INPUT
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631 AUXILIARY INPUTS
632 REFER TO BW500
633 INSTRUCTION
634 MANUAL PAR 270
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0...20MA
SPEED COMMAND
TO CR AUTO

ANALOG OUT
0/4...20 MA
RATE, LOAD,
SPEED OR PID TO
DCS

ANALOG OUT
4...20MA
ACTUAL FEED
RATE TO DCS

REMOTE
TOTALIZER

REMOTE
TOTALIZER

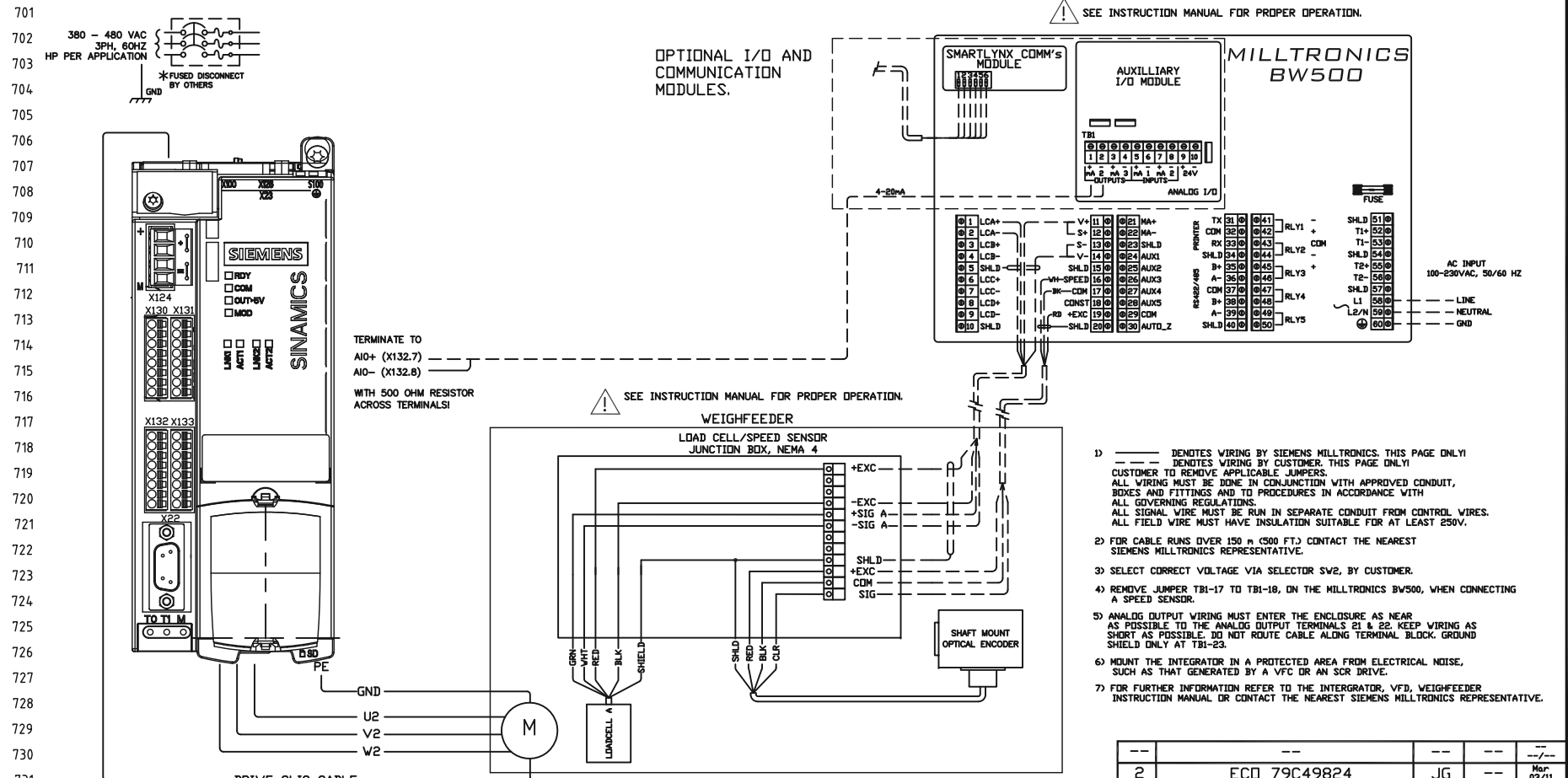
OUTPUTS TO DCS
REFER TO BW500
INSTRUCTION
MANUAL
PAR 100-119

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Notes.

1. AUXILLIARY I/O CARD IS REQUIRED FOR PID CONTROL FROM THE BW500.
2. FOR SMARTLYNX COMMUNICATION OPTIONS PLEASE REFER TO THE BW500 MANUAL, PROFIBUS DP, ALLEN BRADLEY REMOTE I/O, DEVICENET.
3. MILLI-AMP OUTPUT 1: RATE, LOAD or SPEED ONLY!
4. MILLI-AMP OUTPUT 2 & 3 (AUX. I/O CARD): RATE, LOAD, SPEED AND PID!

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2	ECO 79C49824	JG	MM	Mar 03/11			
1	FOR CONSTRUCTION	AK	MM	JAN 25/10			
USE DIMENSIONS ONLY - DO NOT SCALE		Rev.	Revision / ECN Description	Drawn	Appr.	Date	
		Product Group WEIGHING TECH.		Tolerance Unless Otherwise Noted 1 Place Decimal ± 0.03 2 Place Decimal ± 0.01 3 Place Decimal ± 0.002		Scale: NONE	Size: B
Date: 12/12/2009		Drawn: AKEYZERS		TITLE: WEIGHFEEDER WW100 BW500 CONNECTION SCHEMATIC			
Checked: J. GOHEEN		Approved: M. MORRISSEY		Location: PETERBOROUGH			
SIEMENS MILLITRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada		DRAWING No: A5E02842631		Rev. 2			
File No. A5E0284263101		Plot at 1=1		Sheet 7 of 12			



SEE INSTRUCTION MANUAL FOR PROPER OPERATION.

SEE INSTRUCTION MANUAL FOR PROPER OPERATION.

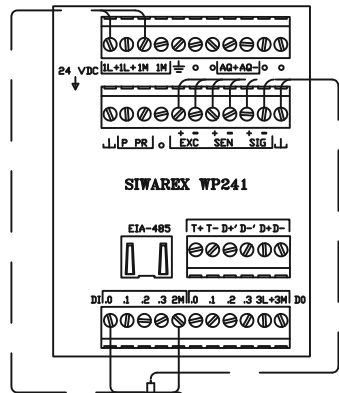
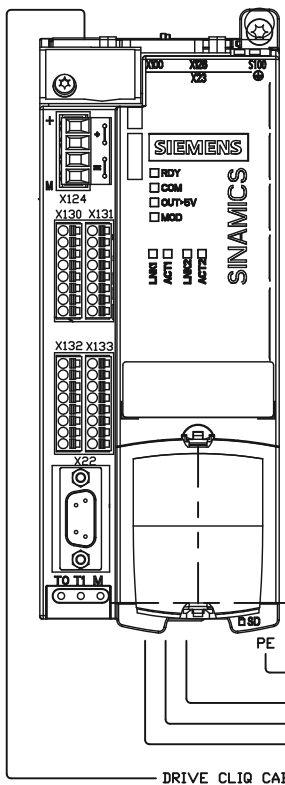
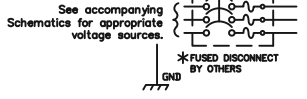
- 1) --- DENOTES WIRING BY SIEMENS MILLTRONICS. THIS PAGE ONLY
- 2) --- DENOTES WIRING BY CUSTOMER. THIS PAGE ONLY
- 3) CUSTOMER TO REMOVE APPLICABLE JUMPERS.
- 4) ALL WIRING MUST BE DONE IN CONJUNCTION WITH APPROVED CONDUIT, BOXES AND FITTINGS AND TO PROCEDURES IN ACCORDANCE WITH ALL GOVERNING REGULATIONS.
- 5) ALL SIGNAL WIRE MUST BE RUN IN SEPARATE CONDUIT FROM CONTROL WIRES.
- 6) ALL FIELD WIRE MUST HAVE INSULATION SUITABLE FOR AT LEAST 250V.
- 7) FOR CABLE RUNS OVER 150 m (500 FT.) CONTACT THE NEAREST SIEMENS MILLTRONICS REPRESENTATIVE.
- 8) SELECT CORRECT VOLTAGE VIA SELECTOR SW2, BY CUSTOMER.
- 9) REMOVE JUMPER TBI-17 TO TBI-18, ON THE MILLTRONICS BW500, WHEN CONNECTING A SPEED SENSOR.
- 10) ANALOG OUTPUT WIRING MUST ENTER THE ENCLOSURE AS NEAR AS POSSIBLE TO THE ANALOG OUTPUT TERMINALS 21 & 22. KEEP WIRING AS SHORT AS POSSIBLE. DO NOT ROUTE CABLE ALONG TERMINAL BLOCK. GROUND SHIELD ONLY AT TBI-23.
- 11) MOUNT THE INTEGRATOR IN A PROTECTED AREA FROM ELECTRICAL NOISE, SUCH AS THAT GENERATED BY A VFC OR AN SCR DRIVE.
- 12) FOR FURTHER INFORMATION REFER TO THE INTERGRATOR, VFD, WEIGHFEEDER INSTRUCTION MANUAL OR CONTACT THE NEAREST SIEMENS MILLTRONICS REPRESENTATIVE.

	CABLE
LOAD CELL	20 GA. 6-COND.
SPEED SENSOR	18 GA. 3-COND.
4-20 mA	18 GA. 2-COND.

USE DIMENSIONS ONLY - DO NOT SCALE		1	ECO 79C49824	JG	MM	Mar 03/11
DIMENSIONS ARE IN INCHES		Rev.	Revision / ECN Description	Drawn	Appr.	Date
Third Angle Projection	Product Group	WEIGHING TECH.		Tolerance Unless Otherwise Noted	Scale	Size
	Date:	12/01/10		1 Place Decimal ± 0.03	None	B
	Checked:	J. GOHEEN		2 Place Decimal ± 0.01		
	Approved:	G. MCGREGOR		3 Place Decimal ± 0.002		
	Location:	M. MORRISSEY		Angles: ± 0.5°		
		PETERBOROUGH				
	SIEMENS MILLTRONICS	DRAWING No:		A5E02842631		Rev.
	PROCESS INSTRUMENTS INC.					2
	Peterborough, Ontario, Canada	File No.	A5E0284263101	Plot at	1=1	Sheet 8 of 12

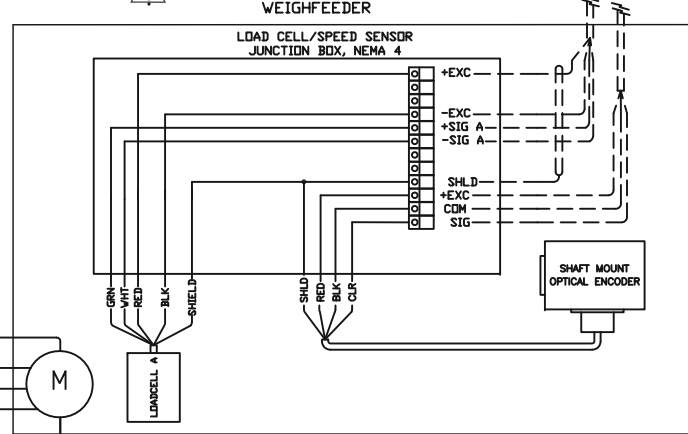
701
702 380 - 480 VAC
703 3PH, 60HZ
704 HP PER APPLICATION
705 *FUSED DISCONNECT
706 BY OTHERS
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SEE INSTRUCTION MANUAL FOR PROPER OPERATION.



SEE NOTES #3 & #4.

SEE INSTRUCTION MANUAL FOR PROPER OPERATION.



- 1) --- DENOTES WIRING BY SIEMENS MILLTRONICS. THIS PAGE ONLY
 --- DENOTES WIRING BY CUSTOMER. THIS PAGE ONLY.
 CUSTOMER TO REMOVE APPLICABLE JUMPERS.
 ALL WIRING MUST BE DONE IN CONJUNCTION WITH APPROVED CONDUIT, BOXES AND FITTINGS AND TO PROCEDURES IN ACCORDANCE WITH ALL GOVERNING REGULATIONS.
 ALL SIGNAL WIRE MUST BE RUN IN SEPARATE CONDUIT FROM CONTROL WIRES.
 ALL FIELD WIRE MUST HAVE INSULATION SUITABLE FOR AT LEAST 250V.
- 2) FOR CABLE RUNS OVER 150 m (500 FT.) CONTACT THE NEAREST SIEMENS MILLTRONICS REPRESENTATIVE. RE: SENSE JUMPERS.
- 3) APPROX. 15 CM OF THE CABLE MUST BE EXPOSED IN THE AREA OF THE CABLE TO BE FASTENED TO THE SHIELDING CLAMP.
- 4) PLEASE REFER TO WP241 MANUAL FOR PROPER SHIELDING OF CABLING.
- 5) INSTALL A JUMPER TBI-3 TO TBI-4 FOR SINGLE LOAD CELL INPUT.
- 6) MOUNT THE INTEGRATOR IN A PROTECTED AREA FROM ELECTRICAL NOISE, SUCH AS THAT GENERATED BY A VFD OR AN SCR DRIVE.
- 7) FOR FURTHER INFORMATION REFER TO THE INTEGRATOR, VFD, WEIGHFEEDER INSTRUCTION MANUAL OR CONTACT THE NEAREST SIEMENS MILLTRONICS REPRESENTATIVE.

MOTOR AND DRIVE CLIQ CABLES ARE SUPPLIED WITH WEIGH FEEDER. CORRECT CABLE LENGTHS MUST BE SPECIFIED WHEN ORDERING!

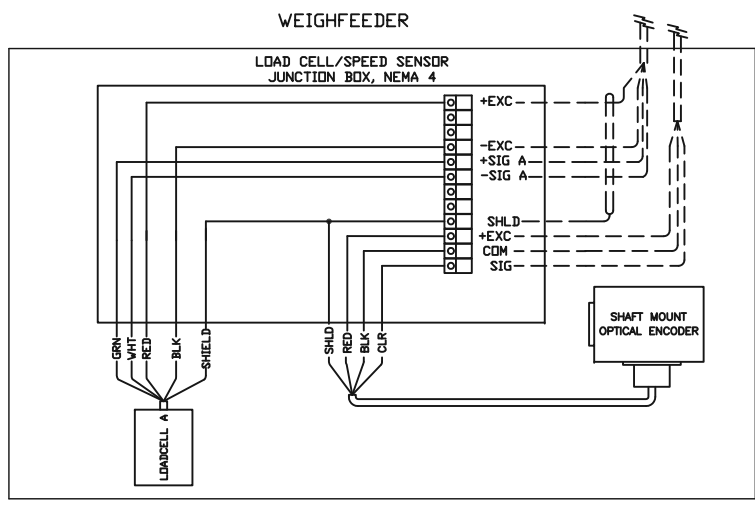
MOTOR POWER CABLE CONNECTS TO PM340 U2, V2, W2 and PE. CONDUCTORS ARE LABELLED FOR CLARITY!

DRIVE CLIQ CABLE IS PRE-CONFIGURED WITH FACTORY TERMINATORS! DO NOT CUT OR REMOVE THESE CONNECTORS!

	CABLE
LOAD CELL	20 GA. 6-COND.
SPEED SENSOR	18 GA. 3-COND.
4-20 mA	18 GA. 2-COND.

USE DIMENSIONS ONLY - DO NOT SCALE		2	ECO 79C49824	JG	---	---
DIMENSIONS ARE IN INCHES		1	FOR CONSTRUCTION	JG	MM	JAN 25/10
Rev.	Revision / ECN Description	Drawn	Appr.	Date		
Third Angle Projection	Product Group WEIGHING TECH.	Tolerance Unless Otherwise Noted 1 Place Decimal ± 0.03 2 Place Decimal ± 0.01 3 Place Decimal ± 0.002	Scale NONE	Size B		
	Date: 12/01/10	Angles: ± 0.5°				
	Drawn: J. GOHEEN	TITLE: WEIGHFEEDER WW100 BW100 INTERCONNECT SCHEMATIC				
	Checked: G. MCGREGOR					
	Approved: M. MORRISSEY					
	Location: PETERBOROUGH					
	SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada	DRAWING No:	A5E02842631		Rev.	2
File No.	A5E0284263101	Plot at	1=1	Sheet	9	of 12

SEE INSTRUCTION MANUAL FOR PROPER OPERATION.

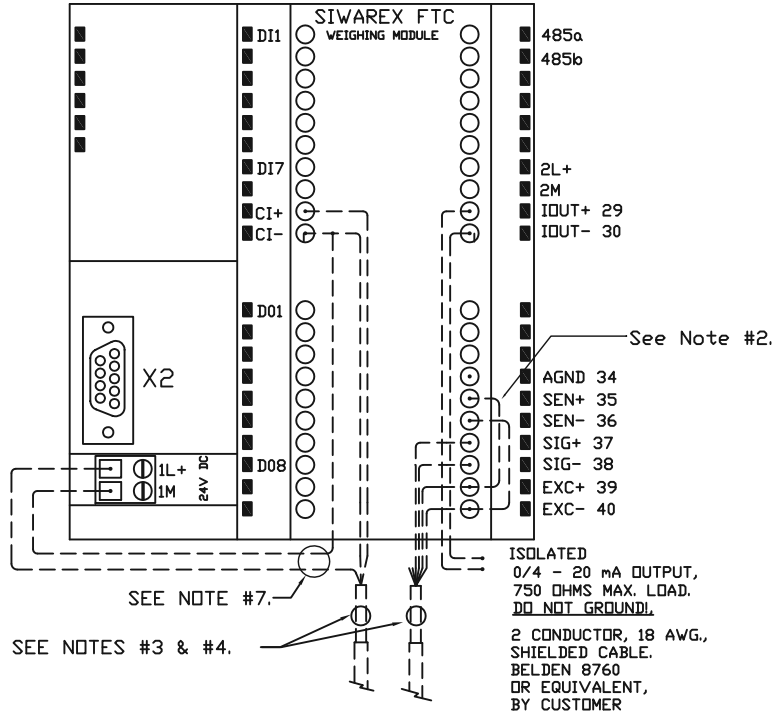


	CABLE
LOAD CELL	20 GA. 6-COND.
SPEED SENSOR	18 GA. 3-COND.
4-20 mA	18 GA. 2-COND.

- NOTES:**
- 1) ——— DENOTES WIRING BY SIEMENS MILLTRONICS. THIS PAGE ONLY!
 - - - DENOTES WIRING BY CUSTOMER. THIS PAGE ONLY!
 CUSTOMER TO REMOVE APPLICABLE JUMPERS.
 ALL WIRING MUST BE DONE IN CONJUNCTION WITH APPROVED CONDUIT, BOXES AND FITTINGS AND TO PROCEDURES IN ACCORDANCE WITH ALL GOVERNING REGULATIONS.
 ALL SIGNAL WIRES MUST BE RUN IN SEPARATE CONDUIT FROM CONTROL WIRES.
 - 2) FOR CABLE RUNS OVER 150 m (500 FT.) USE 6 CONDUCTOR, 20 AWG, SHIELDED BELDON 9260 OR EQUIVALENT, REMOVE THE JUMPERS ON THE SIWAREX FTC TERMINALS 35/39 & 36/40 IF INSTALLED.
 RUN ADDITIONAL WIRES FROM:
 SIWAREX FTC TERMINAL 35 TO STRINGER MOUNTED JUNCTION BOX AND TERMINATE WITH LOAD CELL RED WIRE.
 SIWAREX FTC TERMINAL 36 TO STRINGER MOUNTED JUNCTION BOX AND TERMINATE WITH LOAD CELL BLACK WIRE.
 - 3) APPROX 1.5 CM OF THE CABLE MUST BE EXPOSED IN THE AREA OF THE CABLE TO BE FASTENED TO THE SHIELDING CLAMP.
 - 4) PLEASE REFER TO FTC MANUAL FOR PROPER SHIELDING OF CABLING.
 - 5) ANALOG OUTPUT WIRING MUST ENTER THE ENCLOSURE AS NEAR AS POSSIBLE TO THE ANALOG OUTPUT TERMINALS. KEEP WIRING AS SHORT AS POSSIBLE. DO NOT ROUTE CABLE ALONG TERMINAL BLOCK.
 - 6) FOR FURTHER INFORMATION REFER TO THE SIWAREX FTC MANUAL, AND ASSOCIATED SPEED SENSOR MANUALS, OR APPROPRIATE BELT SCALE INSTRUCTION MANUAL. OR CONTACT THE NEAREST SIEMENS MILLTRONICS OR SIWAREX REPRESENTATIVE.
 - 7) SPEED SENSOR EXCITATION WIRED DIRECT TO +24 VOLT FTC SUPPLY.
 SENSOR SIGNAL WIRED BACK TO CI+ (9). CI- (10) WIRED BACK TO SUPPLY GND & SPEED SENSOR GND TO FORM A COMMON GND.
 - 8) THE SIWAREX FTC MODULE ONLY MONITORS THE LOAD AND SPEED SENSOR SIGNALS FROM THE WEIGH FEEDER.
 ALL CONTROL ALGORITHMS, I.E. - PID CONTROL LOOP, ARE PERFORMED IN THE SIEMENS PLC AS A FUNCTION BLOCK



SEE INSTRUCTION MANUAL FOR PROPER OPERATION.

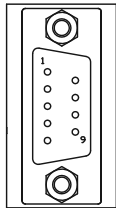


SEE NOTE #7.
 SEE NOTES #3 & #4.

ISOLATED
 0/4 - 20 mA OUTPUT,
 750 OHMS MAX. LOAD.
 DO NOT GROUND!
 2 CONDUCTOR, 18 AWG,
 SHIELDED CABLE.
 BELDEN 8760
 OR EQUIVALENT,
 BY CUSTOMER

USE DIMENSIONS ONLY - DO NOT SCALE	Rev.	Revision / ECN Description	Drawn	Appr.	Date
2	1	ECO 79C49824	JG	MM	Mar 03/11
DIMENSIONS ARE IN INCHES		Rev.		Date	
		Product Group	Tolerance Unless Otherwise Noted		Scale
		WEIGHING TECH.	1 Place Decimal ± 0.03		NONE
		Date: 12/01/10	2 Place Decimal ± 0.01		Size: B
		Drawn: J. GOHEEN	3 Place Decimal ± 0.002		
		Checked: G. MCGREGOR	Angles: ± 0.5°		
		Approved: M. MORRISSEY	TITLE: WEIGHFEEDER WW100		
		Location: PETERBOROUGH	FTC INTERCONNECT		
		SIEMENS MILLTRONICS	SCHEMATIC		
		PROCESS INSTRUMENTS INC.	DRAWING No: A5E02842631		Rev. 2
		Peterborough, Ontario, Canada			
File No. A5E0284263101		Plot at 1=1	Sheet 10 of 12		

X126 PROFIBUS INTERFACE. S110 EQUIPMENT MANUAL SEC. 6.3.5.1

	DESIGNATION	TECHNICAL SPECIFICATION	
	1	RESERVED, DO NOT USE	
	2	M	
	3	1RS_DP	GROUND TO P24_SERV
	4	1RTS_DP	RS485 DIFFERENTIAL SIGNAL
	5	1M	REQUEST TO SEND
	6	1P5	GROUND TO 1P5
	7	P24_SERV	5 V POWER SUPPLY FOR BUS TERM., EXTERNAL, SHORT CIRCUIT PROOF
	8	1XRS_DP	24 V FOR TELESERVICE, SHORT CIRCUIT PROOF, 150 mA MAX.
	9	RESERVED, DO NOT USE	RS-485 DIFFERENTIAL SIGNAL

NOTES.

1. THE INFORMATION PROVIDED ON THIS SHEET HAS BEEN EXTRACTED FROM THE S110 EQUIPMENT MANUAL. PLEASE REFER TO THIS MANUAL FOR ADDITIONAL INFORMATION.
2. ALSO REFER TO THE FH3 FUNCTION MANUAL SEC. 9 COMMUNICATION PROFIBUS DP FOR PROGRAMMING INFORMATION.
3. THIS APPLICATION HAS BEEN SETUP FOR "TELEGRAM 1" ONLY! THIS PROVIDES 2 WORDS OF INPUT AND 2 WORDS OF OUTPUT DATA. IN OUR EXAMPLE:
 PLC I/P WORD PIW256 FROM DRIVE UNIT.
 PLC I/P WORD PIW258 FROM DRIVE UNIT.
 PLC O/P WORD PQW256 TO DRIVE UNIT - CONTROL WORD.
 PLC O/P WORD PQW258 TO DRIVE UNIT-SPEED REF SET POINT.

CAUTION. DEVICE CAN BE DAMAGED IF CAN_BUS CABLES ARE CONNECTED TO X126!

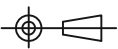
PRFIBUS ADDRESS SWITCHES. S110 EQUIPMENT MANUAL SEC. 6.3.5.2annual, Sec. 6.3.5.2

Switch	Significance
S1	2 ⁰ = 1
S2	2 ¹ = 2
S3	2 ² = 4
S4	2 ³ = 8
S5	2 ⁴ = 16
S6	2 ⁵ = 32
S7	2 ⁶ = 64

1	2	4	8	16	32	64		
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S1	S2	S3	S4	S5	S6	S7		

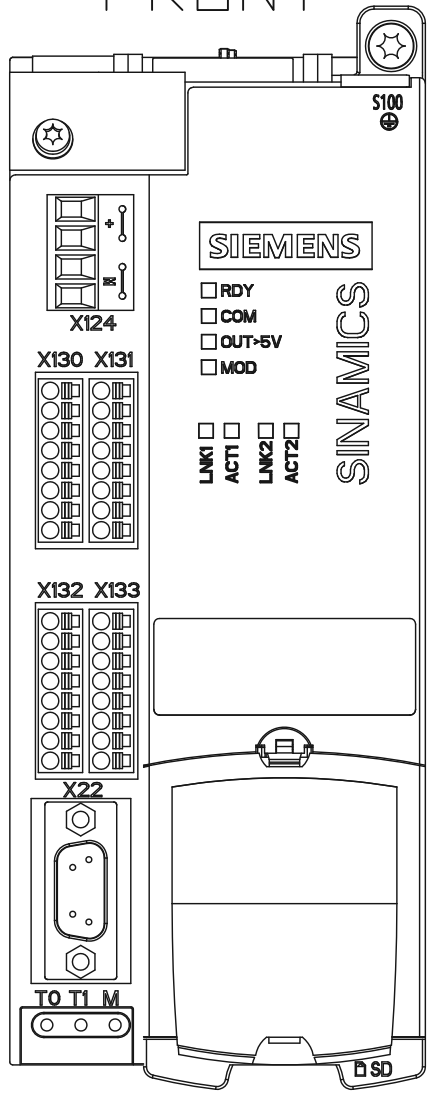
ON
OFF

1. SWITCHES ARE LOCATED UNDER THE BOP ON FRONT OF CONTROL UNIT.
2. STANDARD PROFIBUS ADDRESS IS SET TO "3". THIS CAN BE CHANGED WITH ADDRESS SWITCHES OR WITH PARAMETER P0918 UNDER CDS.
3. NEW ADDRESS DOES NOT TAKE EFFECT UNTIL AFTER A POWER CYCLE.
4. REFER TO S110 EQUIPMENT MANUAL SEC. 6.3.5.2 FOR SWITCH SETTING EXAMPLE.

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2	ECO 79C49824	JG	--	Mar 03/11		
1	FOR CONSTRUCTION	JG	MM	JAN 25/10		
USE DIMENSIONS ONLY - DO NOT SCALE		Rev.	Revision / ECN Description	Drawn	Appr.	Date
DIMENSIONS ARE IN INCHES						
	Product Group	WEIGHING TECH.		Tolerance Unless Otherwise Noted	Scale	Size
	Date:	12/01/10		1 Place Decimal ± 0.03 2 Place Decimal ± 0.01 3 Place Decimal ± 0.002	NONE	B
	Drawn:	J. GOEEN	TITLE			
	Checked:	G. MCGREGOR	CU305DP Profibus Information			
	Approved:	M. MORRISSEY	X126 Connection			
	Location:	PETERBOROUGH	Front Panel Address Switches			
	SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada	DRAWING No:	A5E02842631	Rev.	2	
	File No. A5E0284263101	Plot at	1=1	Sheet	11 of 12	

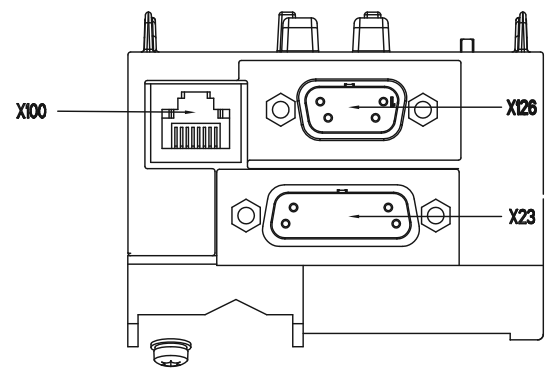
A B C D E F G H I J

FRONT



CU305DP CONTROL UNIT

TOP



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	2	ECO 79C49824	JG	--	Mar 03/11
USE DIMENSIONS ONLY - DO NOT SCALE	1	FOR CONSTRUCTION	JG	MM	JAN 25/10
DIMENSIONS ARE IN INCHES	Rev.	Revision / ECN Description	Drawn	Appr.	Date
Third Angle Projection	Product Group	WEIGHING TECH.	Tolerance Unless Otherwise Noted	Scale	Size
	Date:	12/01/10	1 Place Decimal ± 0.03 2 Place Decimal ± 0.01 3 Place Decimal ± 0.002	ANGLE: ± 0.5°	NONE
	Drawn:	J. GOHEEN	TITLE: CONTROL UNIT CU305DP CONNECTOR LAYOUT		
	Checked:	G. MCGREGOR			
	Approved:	M. MORRISSEY			
	Location:	PETERBOROUGH			
	SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada		DRAWING No:	A5E02842631	Rev. 2
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