

Weighfeeders

SITRANS WW100

Operating Instructions · 03/2010



SITRANS

SIEMENS

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 Milltronics Process Instruments Inc.
- 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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Disclaimer of Liability

While we have verified the contents of this manual for agreement with the instrumentation described, variations remain possible. Thus we cannot guarantee full agreement. The contents of this manual are regularly reviewed and corrections are included in subsequent editions. Please check the website shown below for the latest manual revisions. We welcome all suggestions for improvement.

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Technical Publications
Siemens Milltronics Process Instruments Inc.
1954 Technology Drive, P.O. Box 4225
Peterborough, Ontario, Canada, K9J 7B1
Email: techpubs.smpi@siemens.com

European Authorized Representative

Siemens AG
Industry Sector
76181 Karlsruhe
Deutschland

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SITRANS WW100

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.

Safety Notes

Special attention must be paid to warnings and notes highlighted from the rest of the text by grey boxes.



WARNING means that failure to observe the necessary precautions can result in death, serious injury, and/or considerable material damage.

Note: means important information about the product or that part of the operating manual.

The Manual

Notes:

- SITRANS WW100 is to be used only in the manner outlined in this instruction manual.
- 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.

This instruction manual covers the operation, installation, and maintenance of SITRANS WW100.

Please refer to this manual for proper installation and operation of SITRANS WW100. Adhering to the installation and operating procedures will ensure a quick, trouble-free installation and allow for the maximum accuracy and reliability of your weighfeeder.

The drive system for the servo gearmotor 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.

If you have any questions, comments, or suggestions about the manual contents, please email us at techpubs.smpi@siemens.com.

For the complete library of Siemens Milltronics manuals, go to www.siemens.com/weighing.

Technical Support

Support is available 24 hours a day.

To find your local Siemens Automation Office address, phone number and fax number go to:

www.siemens.com/automation/partner

- Click on the tab Contacts by Product then find your product group (+Process Automation > +Process Instrumentation > +Level Measuring Instruments).
- Select the team Technical Support. Click on Next.
- Click on the appropriate continent, then select the country followed by the city. Click on Next.

For on-line technical support go to:

www.siemens.com/automation/support-request

- Enter the device name (SITRANS WW100) or order number, then click on Search, and select the appropriate product type. Click on Next.
- You will be prompted to enter a keyword describing your issue. Then either browse the relevant documentation, or click on Next to email a detailed description of your issue to Siemens Technical Support staff.

Siemens A&D Technical Support Center:	phone	+49 180 50 50 222
	fax	+49 180 50 50 223

Safety

Safety and general precautions

! **WARNING:** Always follow safe practices when working on or around SITRANS WW100, especially in wet environments and when adjacent to conductive steel mounting framework.

! **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.

Always follow established safe operating practices.

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

Secure the weighfeeder when:

- replacing the belt
- placing or removing the calibration test chain
- working on or around the load cell
- working on or around the speed sensor
- working on or around the gearmotor

Specifications

Accuracy

- $\pm 0.5\%$ to 0.25% ¹

Operating temperature

- -10 to +40 °C (+14 to +104 °F)

Construction materials

- mild steel or stainless steel [304 (1.4301) or 316 (1.4401)]

Load cells

- one (1) single point, nickel plated platform (standard)
- stainless steel for corrosive and washdown environments (optional)
- non-linearity $\pm 0.03\%$
- non-repeatability $\pm 0.02\%$

Speed sensor

- optical encoder, driven pulley mounted

Framework

- precision machined, stainless or mild steel
- cantilevered design for easy belt replacement

Pulleys

- 115 mm (4.5") diameter, crowned and lagged

Belt tension

- counter-weighted stainless steel tensioning idler for consistent tension, required for high accuracy weighing

¹ Accuracy subject to: On factory approved installations the weigh feeder 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.

Belting

- polyester carcass with polyurethane top cover and endless finger splice for maximum weighing consistency

Drive

- standard - 0.24 kW (0.32 hp) drive motor with direct coupled flange mounted gear reducer 45.6 Nm (404 in-lbs), 2.1 service factor minimum.
- optional - 0.09 kW (0.125 hp) AC drive motor with direct coupled flange mounted gear reducer 81 Nm (717 in-lbs), 3.12 service factor minimum

Belt cleaning

- UHMW blade type with counterweight at the head pulley for cleaning product side of belt
- UHMW blade return plow
- optional belt cleaning brush on product side of belt

Shipping weight

- Open: 91 kg (200 lbs)
- Enclosed: 181 kg (400 lbs) maximum

Approvals

- CE, C-TICK, meets USDA and FDA requirements for food processing

Operation

Weighfeeders

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.

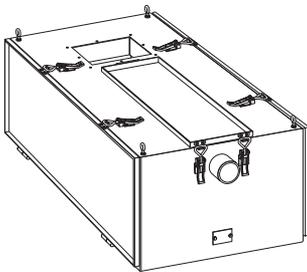
In-motion weighing requires accurate transmission of the product load to a strain gauge load cell. The resulting voltage signal corresponding to weight is transmitted to the integrator and becomes one of the two inputs required for integration.

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.

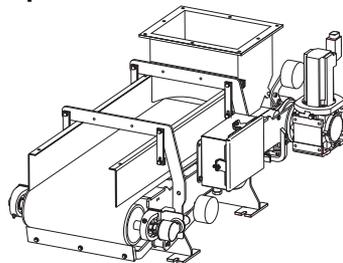
Since the force measured by the load cell is represented as weight per unit length, it can be multiplied by the distance of belt travel (one speed sensor pulse) to provide product weight for that segment of the belt (lbs/ft x ft = lbs, or kg/m x m = kg).

SITRANS WW100 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.

Enclosed



Open



Mechanical Installation

Perform a thorough and systematic inspection of shipping containers immediately upon receipt of your Siemens weighfeeder. The shipping 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 to ensure accuracy and repeatability.

Notes:

- Refer to the mechanical drawings included with this manual prior to beginning installation.
- Do **NOT** remove the tagged load cell shipping screw(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.

Installation

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.

1. 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.
2. Install a gasket between the flanges for dust control.
3. Securely fasten the unit to a rigid, level structure. Use a level for verification and shim as necessary. Prevent any twisting of the frame that may affect weighfeeder performance.
4. 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.

Note: Inlet and discharge will not support load.

5. Check the gear reducer oil level. See the gear reducer information in the appropriate manual for further details on maintenance.

6. Flexible in-feed connections are **REQUIRED** for all applications. Flexible discharge connections are also recommended.

Note: A de-dust port is provided on enclosed units at the discharge end. Remove the plastic insert and connect to system. If no de-dust system is required, do not remove plastic insert.

7. Connect the electric supply to the motor and/or motor controller, following the interwiring diagram supplied with this manual in the Appendix. The AC motor controller 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: A termination box for the loadcells and speed sensor has been provided for open units installed on the side frame of the unit, this can be removed and placed in another location. Cable lengths are 9' (3 m) from the loadcell and speed sensor. Enclosed units do not have a removable termination box.

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

Notes:

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

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.

Electrical installation

Notes:

- 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.



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.

Initial S110 setup

The WW100 is configured with a Sinamics S110 CU305DP control and power module.

1. Ensure the electrical connections match the connection diagrams in the Appendix.
2. Apply power to the power module and allow boot sequence to run. The steady green LED next to RDY on the unit indicates that the boot sequence is complete.

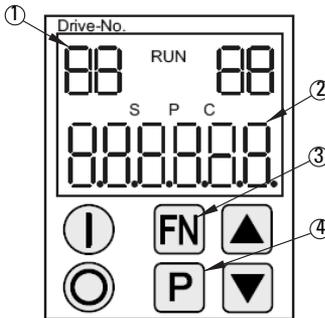
Notes:

- Do not continue until the boot sequence is complete.
 - If the drive is in alarm state, refer to the S110 user manuals and/or contact your Siemens representative.
3. Remove the power and ensure all power sources to the drive are switched OFF.
 4. Insert the pre-programmed Micro Memory Card (MMC) into the slot below the S110 display and ensure the card locks into place.
 5. Apply main AC power and then 24 Volt DC power to the device and allow the application software to load.



Do not use P977 until software has loaded and parameters have been set.

Failure to allow the software to load completely can result in lost and irretrievable software and application data.



S110 Display

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

6. The S110 display will show "0.0" in the parameter/value field (2) when the software is loaded and fault F01650 has been acknowledged.

Notes:

- Do not continue until the software is loaded.
 - To acknowledge fault, press **FN** key (3) on display. (For more fault codes, see the S110 user manuals and/or contact your Siemens representative).
7. Test the functionality of drive
 - a. If belt is travelling in reverse, set P1113 to either "0" or "1" (see *P1113 - Belt direction on page 10*).
 8. Set the maximum RPM P2000 (see *P2000 - Maximum RPM on page 11*).
 9. Verify RPM output on display.

10. Save application data [see *P0977 - Save to Micro Memory Card (MMC) on page 11*].
11. Remove card and store for backup.

Switch drives

Follow these steps to switch between Command Data Set (CDS) and Drive Data Set (DDS) parameters.

1. Press and hold **FN** and use **▲** or **▼** arrows to access the alternate drive, as indicated by the drive number (see *S110 Display on page 9*).
2. Press **P** to confirm selection. Display will stop flashing.

P0003 - Expert mode

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

1. Set S110 display to drive number 01 (see *Switch drives on page 10*).
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 **▲** and **▼** to set the value to 3.
6. Press **P** and hold for 3 seconds to save.

P1113 - Belt direction

Note: P0003 must be set to EXPERT MODE to access/modify parameter settings (see *P0003 - Expert mode on page 10*).

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

1. Set S110 display to drive number 02 (see *Switch drives on page 10*).
2. Use **▲** or **▼** arrows to navigate to P1113.
3. Press **P** so the current parameter value is displayed.
4. Press **FN** to activate **edit mode** (display will flash).
5. Use **▲** and **▼** to set the value to either 0 or 1 (whichever is the alternate).
6. Press **P** and hold for 3 seconds to save.

P2000 - Maximum RPM

Sets the maximum motor RPM.

Calculate P2000 value using this equation or use the examples:

Imperial: design speed X 47.28702

Metric: design speed X 9308.468

Design Speed		
ft/min	m/sec	P2000
10	0.05080	472.870
22	0.11176	1040.31
35	0.17780	1655.05
50 ¹	0.25400	2364.351

1. factory default

1. Set S110 display to drive number 02 (see *Switch drives on page 10*).
2. Use  or  arrows to navigate to P2000.
3. Press  so the current parameter value is displayed.
4. Press  to activate **edit mode** (display will flash).
5. Use  and  to set the value (calculated above).
6. Press  to acknowledge the new value (display will stop flashing).
7. Press  again and hold for 3 seconds to save.

P0977 - Save to Micro Memory Card (MMC)

Saving the application settings to the MMC will ensure quick recovery in case of power loss.

1. Set S110 display to drive number 01 (see *Switch drives on page 10*).
2. Use  or  arrows to navigate to P0977.
3. Press  so the current parameter value is displayed.
4. Press  to activate **edit mode** (display will flash).
5. Use  and  to set the value to 1.

Calibration

After WW100 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 program sheet has been provided with the weighfeeder detailing the entries used during factory calibration. The calibration is initially done using the supplied test chain¹. Material tests are recommended to achieve maximum accuracy.

Test Load

The test load value for your SITRANS WW100 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)

Zero

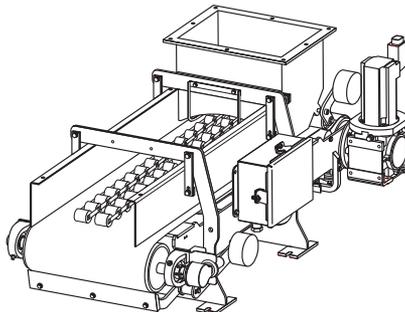
Perform the zero calibration as described in the Calibration section of the integrator manual. Zero calibrations should be at least three belt revolutions or five minutes, whichever is longer.

Span

The test load used in the calibration procedure is the test chain provided.

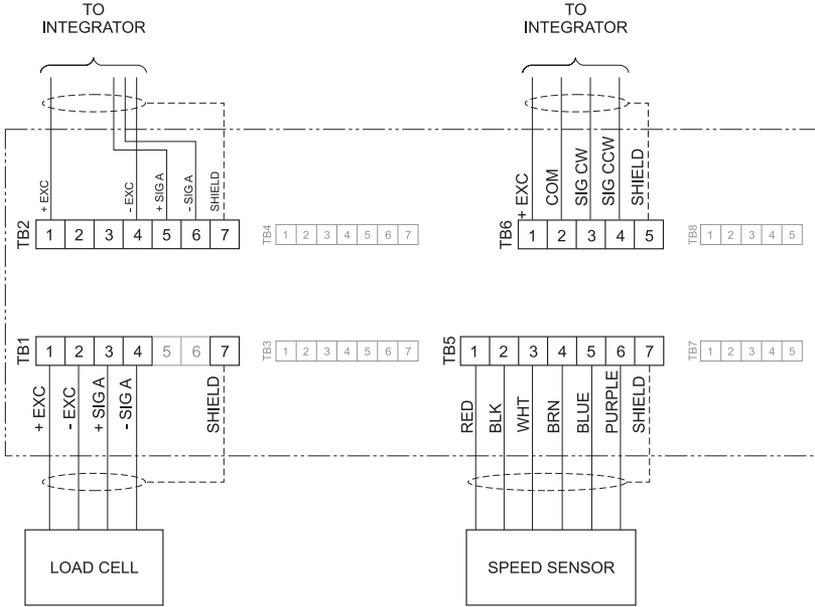
Perform the span calibration as described in the Calibration section of the integrator instruction manual. Span calibrations should be at least three belt revolutions or five minutes, whichever is longer.

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



¹ For models with skirtboard covers, the cover will need to be removed for test chain calibration.

Wiring



Start Up

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.

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 on page 16*.

Shear Gate *(disregard for horseshoe-style infeeds)*

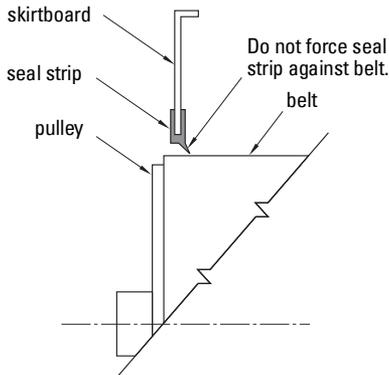
The shear gate on the inlet of the weighfeeder needs to be set to allow the maximum feed rate capacity requested by the customer. Consult your Siemens representative if feed rate changes are required.

Skirtboards

The skirtboards have also 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.



Changing the Conveyor Belt

1. On enclosed models, open and remove the access and non-access side panels by releasing the latches and sliding the door off the hinges.
2. Rotate the belt tension roller up against the back of the infeed where it is self-supported during belt change. On non-standard models, this tensioner may need to be removed for ease of belt change. It is located at the infeed end of the weighfeeder.
3. To make the belt change easier, remove the belt scraper counterweight located at the discharge end of the conveyor.
4. Move the belt out from the side guide roller.

Note: It is not normally necessary to loosen the telescopers to remove the belt. If you do need to loosen the telescopers, mark the current position of the telescoper for reference.

5. From the access side of the feeder at the discharge end, grab the edge of the belt and if the belt scraper is still weighted, lift it away from the belt. Gently pull the belt over the side rail, making sure that the leading edge of the belt does not catch on any components.
6. Now repeat Step 5 on the inlet end of the feeder. Again, be careful not to cut or scrape the belt on any components.
7. When both ends have been pulled to the outside of the side rail, you may grab the belt in the middle and slowly remove the belt, relieving the scraper if necessary. As you are removing the belt, mark the direction the belt was rotating. This mark will allow you to re-install the belt in the same direction. Take care when storing the belt to prevent kinks or other damage.
8. With the belt removed, inspect the feeder 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.
9. Reverse steps 1 to 7 to re-install the same belt.

Notes:

- 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 on page 16*).
- New belts should be un-rolled and allowed to relieve any kinks or bends: this will help tracking and weighing accuracy.

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 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.

Belt Tracking

1. Before attempting to track the belt, be sure:
 - belt scraper and belt tension counterweights are in place.
 - belt tension is near guidelines suggested on page 15.
 - feeder is level and true.
 - installation has not warped or twisted the frame.
 - head and tail pulley are parallel to each other.
 - plow is contacting underside, belt is engaged inside guide rollers.
 - belt plow blades are adjustable vertically for proper contact to the belt.
2. Turn on the feeder and observe its tracking line on the head and tail pulleys. If the belt is drifting toward one side of the feeder, then adjust the telescoper on either side of the machine (see below).

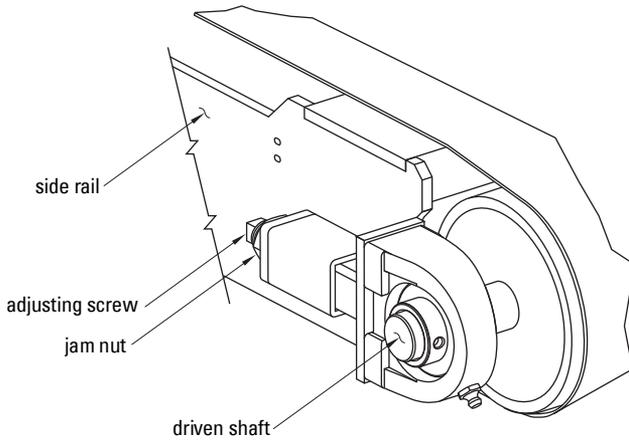
Telescoper Adjustment

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.

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 build up on head or tail pulleys.



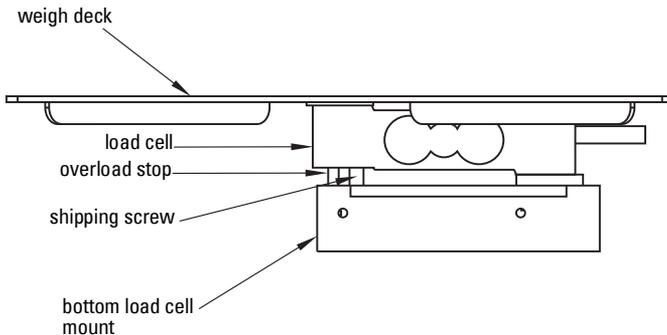
Load Cell Replacement

If a load cell on SITRANS WW100 has been damaged, is not functioning, or if you are changing the capacity, you will need to replace the load cell.

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.

Removing Old Load Cell

1. Confirm the new 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 feeder so it is hanging free from the load cell.
3. Install the shipping screw (tagged) through the bottom load cell mount and into the load cell. Tighten the shipping screw until the load cell bottoms out on the overload screw.



4. Remove the belt.
5. Remove the top load cell mount bolts, for nickel plated cells remove the threaded bushing from the loadcell for the replacement.
6. Remove the weighdeck.
7. Remove the two bottom load cell mount bolts. The load cell is now held in place only by the shipping screw.
8. Remove the shipping screw and slide the load cell off the mount.

Installing New Load Cell

1. Slide the new load cell into position and carefully screw in the load cell shipping screw. Do not overtighten the screw.
2. Install the two bottom load cell mount bolts. Tighten them by hand. Now re-tighten the shipping screw so the load cell is resting against the overload stop.
3. Install the two top load cell mount bolts. Tighten them by hand.
4. Start with the bottom load cell mounting bolts and tighten them to the specified torque in the chart provided with the replacement loadcell. Replace the weighdeck and the threaded bushings for nickel plated cells. Now tighten the two top load cell mounting bolts.
5. Remove the shipping screw.
6. Route the load cell cable to the junction box and connect the load cell according to the supplied interwiring diagram.

Calibration

1. Power up the integrator and using the appropriate integrator menu, verify that the new load cell is 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. 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 feeder back in operation.

Quick Start Up Overview

1. Verify that the weighfeeder is installed properly as described in *Mechanical Installation on page 7*. 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 are all properly wired.
3. Refer to the supplied integrator/controller manual for calibration and configuration information.

Troubleshooting

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.

Zero Drift, Non-Repeatability, or Non-Linearity

Check for these following conditions:

- weigh deck alignment. Verify weigh deck alignment is accurate. Improper alignment is the most common mechanical problem affecting scale accuracy. Contact your Siemens representative for assistance [should be $+1/32"$ ($+0.8$ mm) - $0"$ (0 mm) aligned with slider beds retreat and approach].
- material buildup on weigh section, pulleys, or between the weigh deck and feeder frame.
- belt mis-tracking.
- belt too tight.
- load cell bolts loose.
- speed sensor pulley slippage.
- load cell shipping screw (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.

Maintenance

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.

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 the conveyor 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 food grade grease (see notes below)
Electric gear motor	Check oil level in gearbox	Daily, at least once/week	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 build up	Weekly	Replace as required
Infeed seal strips	Check for holes, wearing, frays, or other damage	Weekly	Replace as required
Pullies	Check lagging	Every 10,000 hours	Inspect and replace as necessary

Notes:

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

General Maintenance

The equipment should be cleaned periodically to maintain a high level of accuracy. Any excess accumulation of product should be removed to minimize potential damage to the mechanical components and scale accuracy.

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.

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

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

Weighfeeder Storage Recommendations

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

Load cell care

The load cell shipping screws should be installed whenever the feeder is moved. It is good practise to install these shipping screws during the storage period as an extra safety measure. Do not forget to remove the shipping screws upon re-installation.

Gear reducer

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

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

Electrical

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

Lubrication

Grease all greasable points.

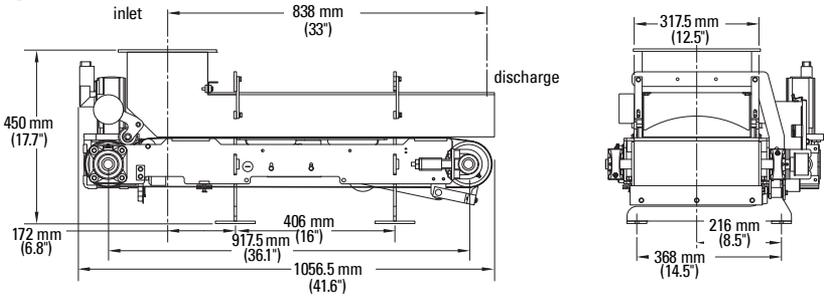
Belt care

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

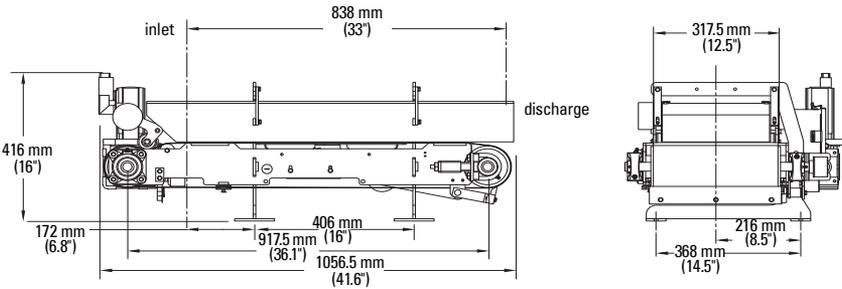
Note: Do **NOT** store the weighfeeder in direct sunlight, as this will cause premature breakdown of the belt.

Dimensions

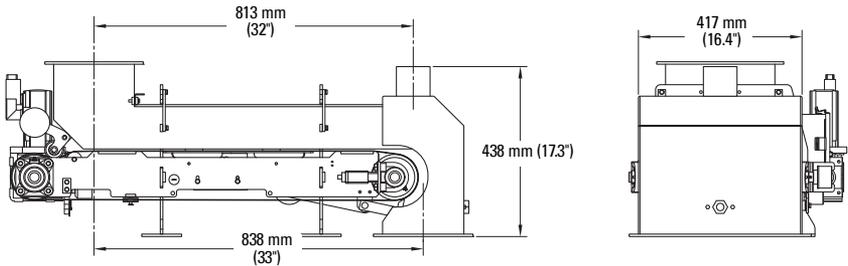
Open



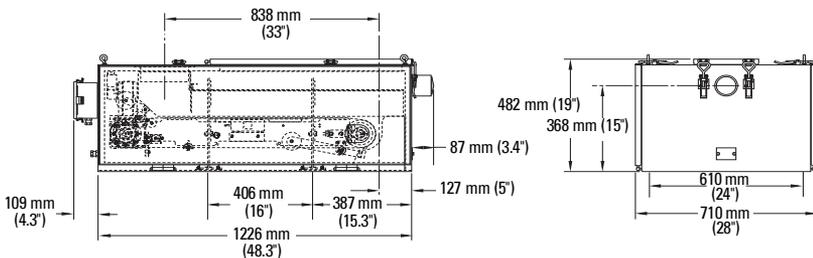
Open Horseshoe



Open Dust Hood



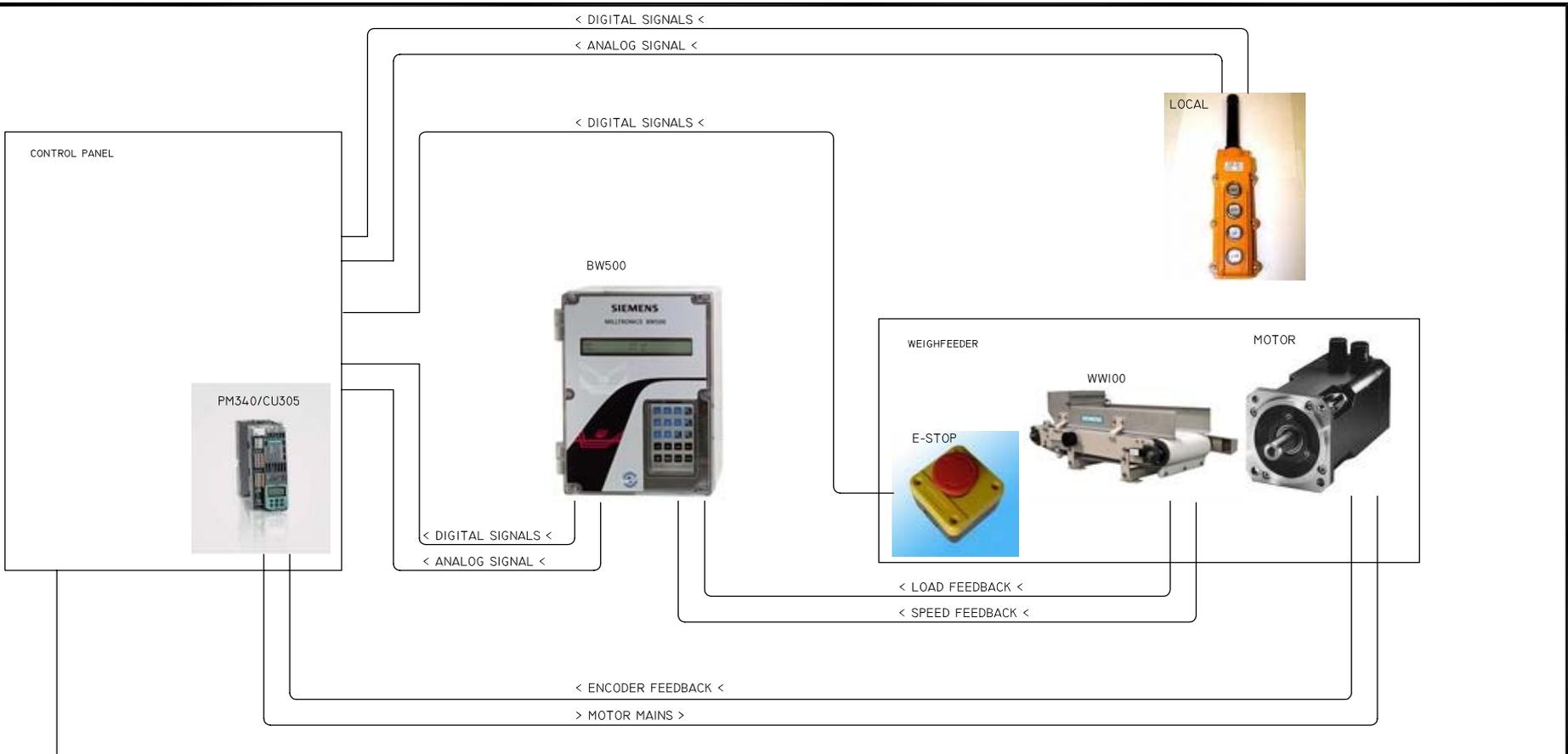
Enclosed



Dimensions

Appendix

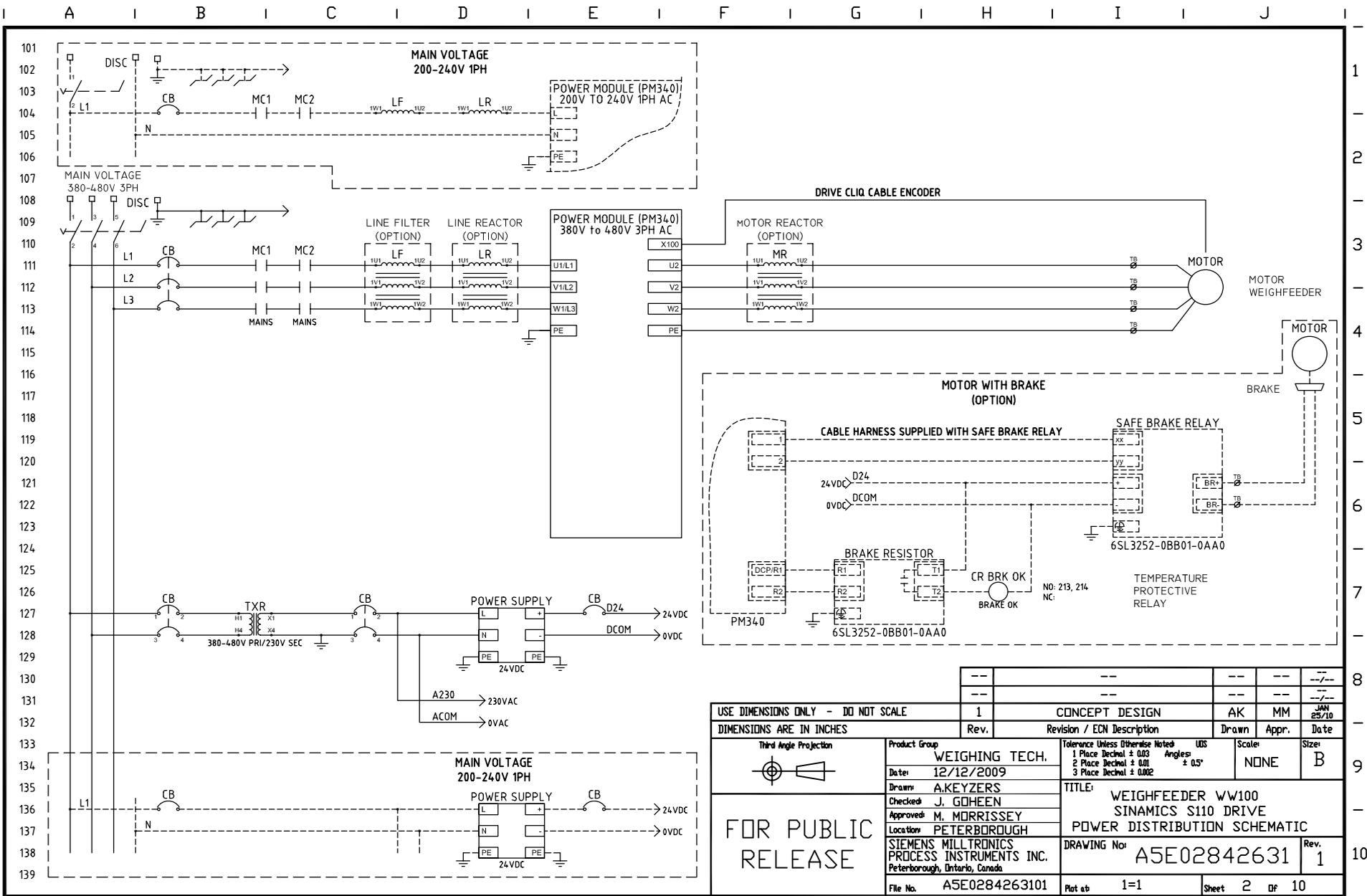
System wiring diagrams on following pages.



DCS

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	Checked: J. GOEHN	Angles: ± 0.5°		
	Approved: M. MORRISSEY			
	Location: PETERBOROUGH			
	SIEMENS MILLTRONICS	DRAWING No:		Rev.
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	Peterborough, Ontario, Canada			
FOR PUBLIC RELEASE	File No. A5E0284263101	Plot sb 1=1	Sheet 1	Of 10

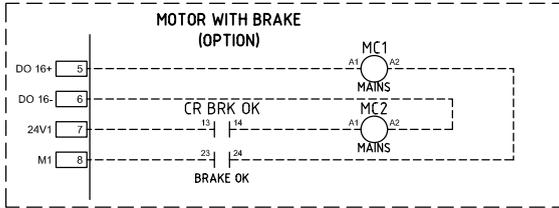
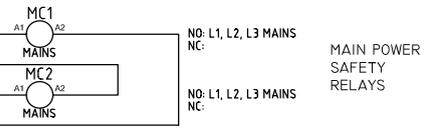
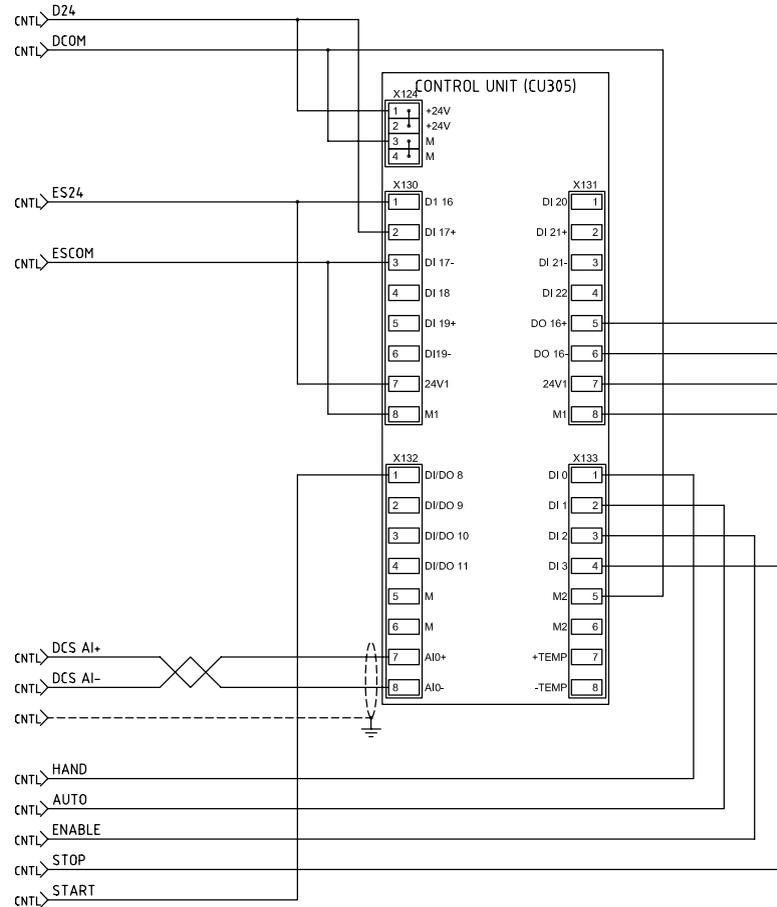
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	Approved:	M. MORRISSEY		SINAMICS S110 DRIVE		
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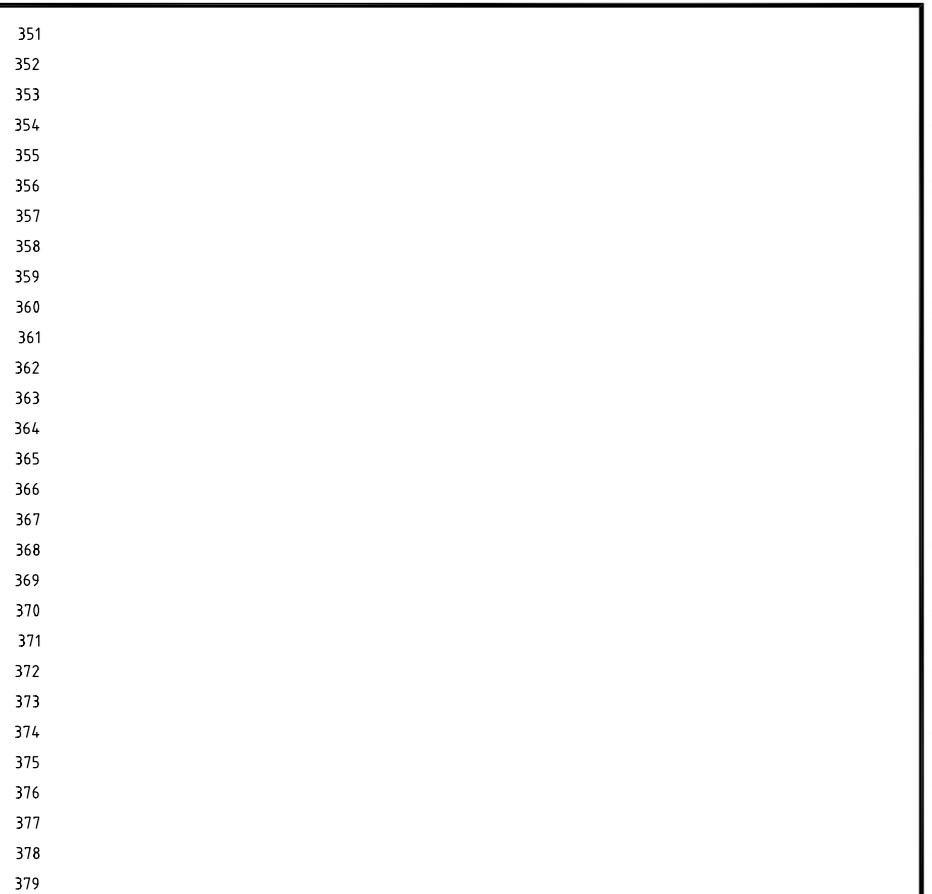
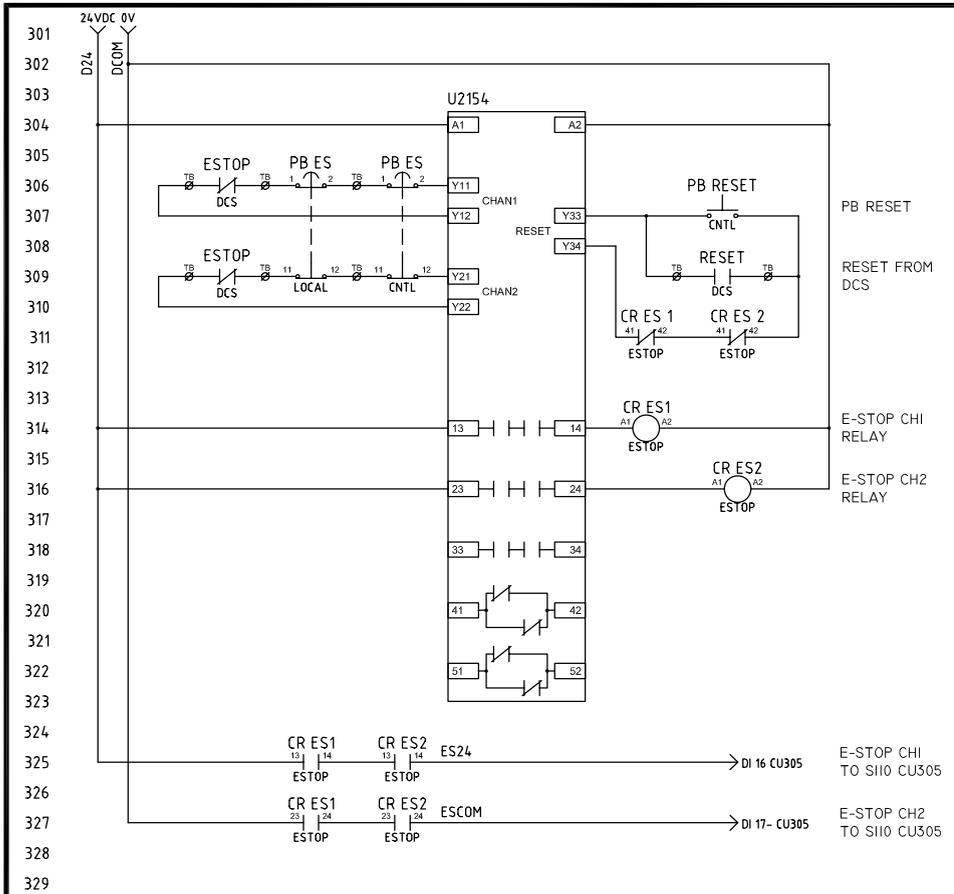
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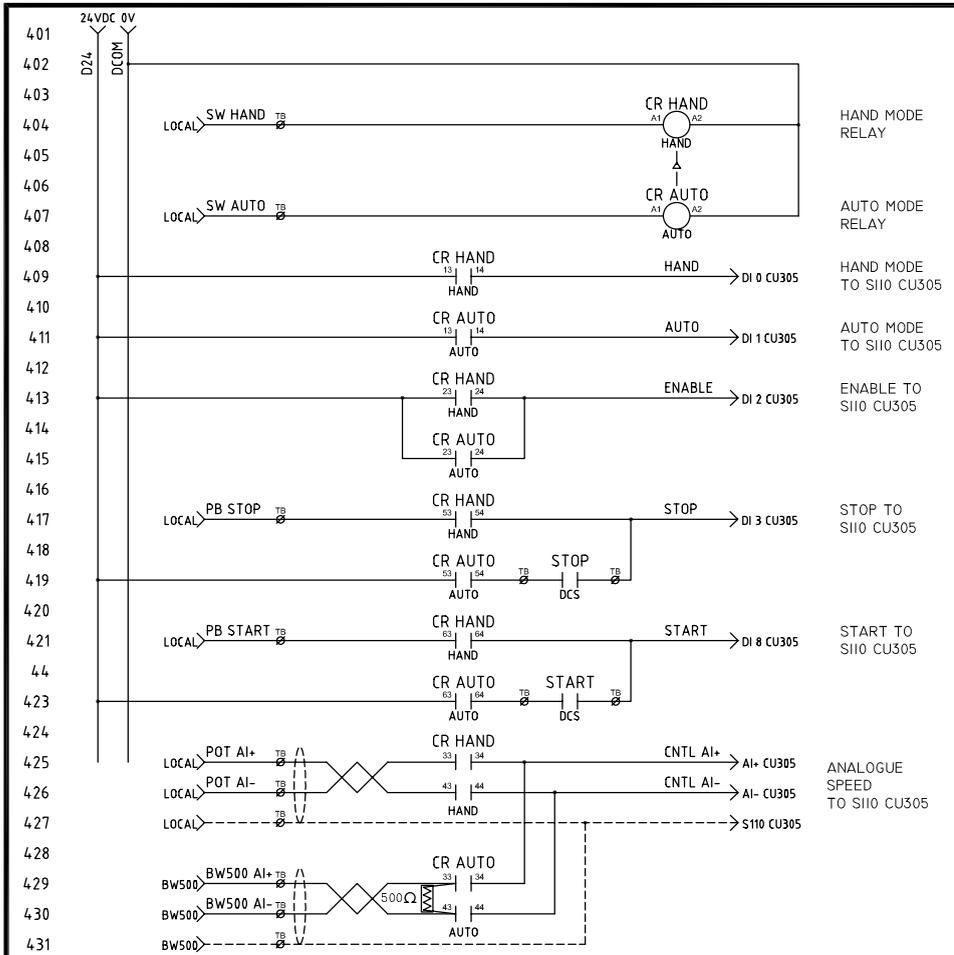


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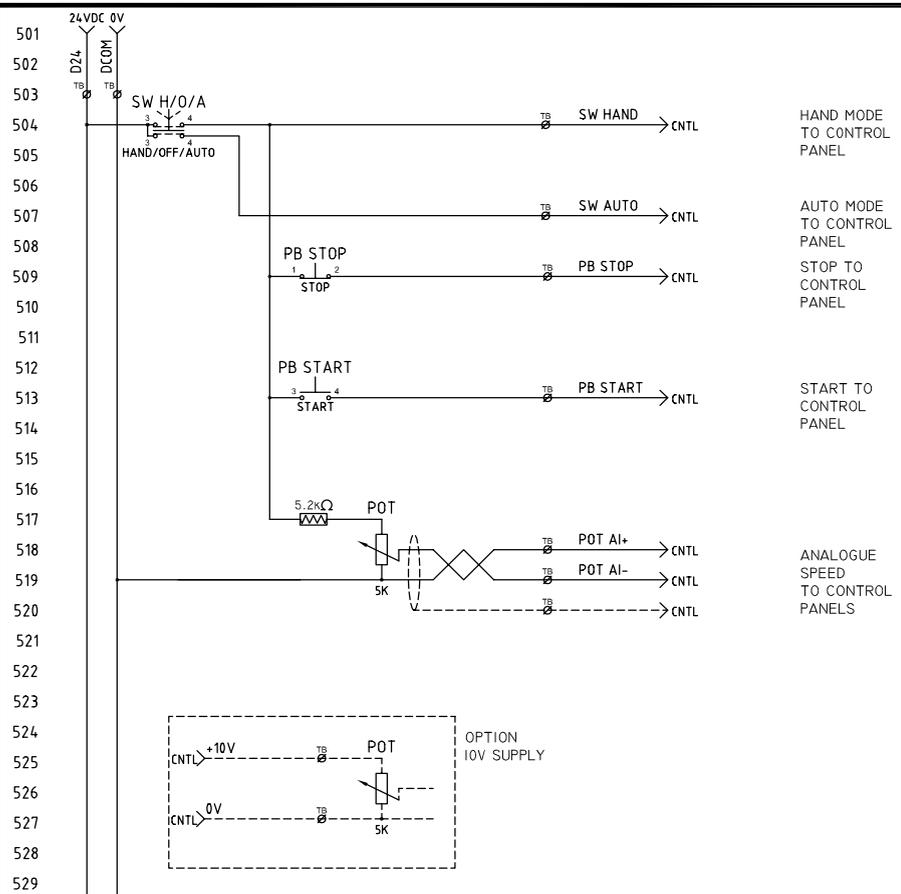


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		File No.	A5E0284263101	Plot sb	1=1	Sheet 4 of 10



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454	HAND MODE RELAY
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456	AUTO MODE RELAY
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459	HAND MODE TO S110 CU305
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461	AUTO MODE TO S110 CU305
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463	ENABLE TO S110 CU305
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467	STOP TO S110 CU305
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471	START TO S110 CU305
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475	ANALOGUE SPEED TO S110 CU305
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HAND MODE
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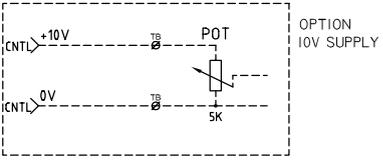
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STOP TO
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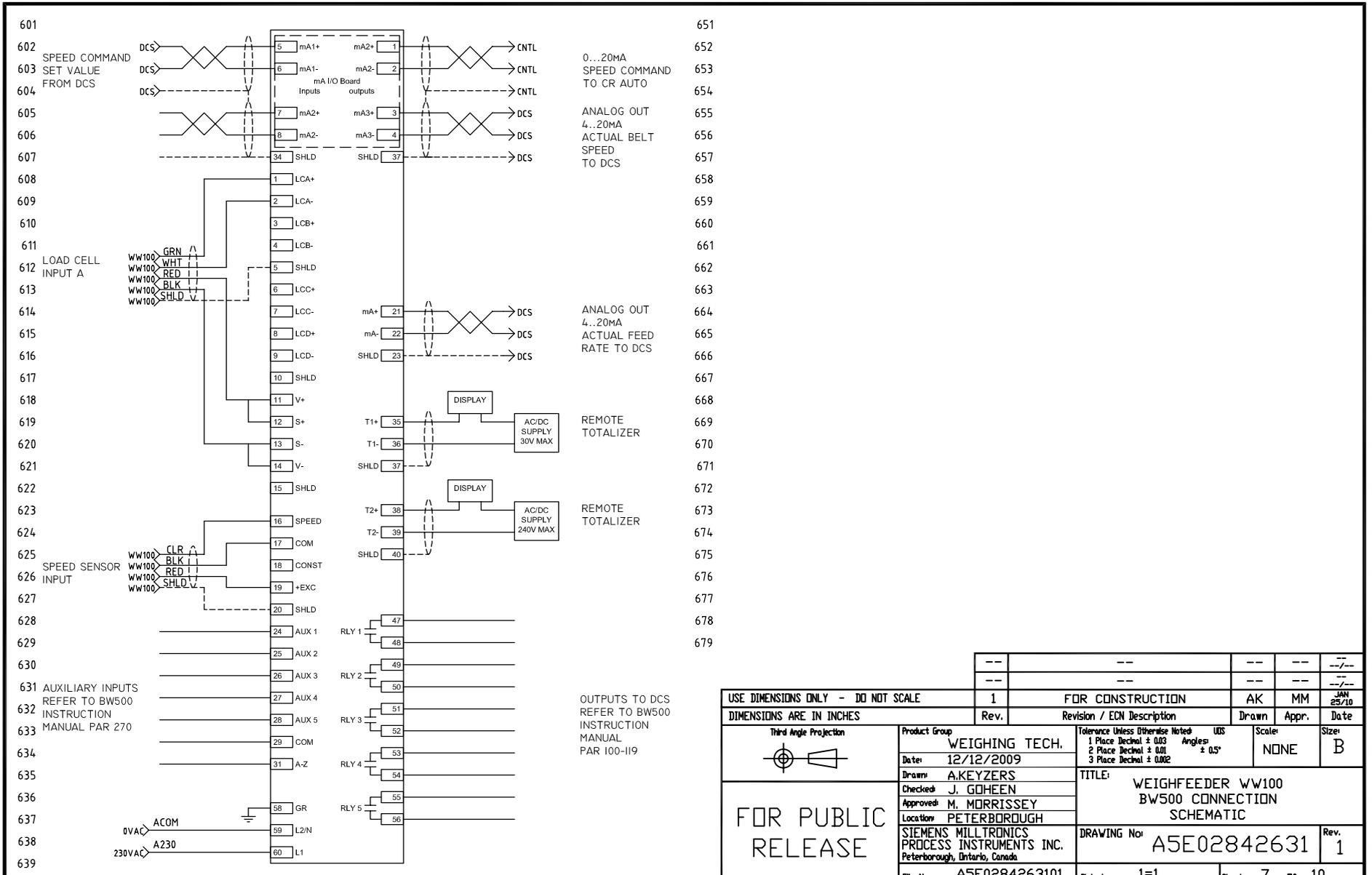
START TO
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File No.	A5E0284263101		Plot sb	1=1	Sheet	6 of 10



0...20MA
SPEED COMMAND
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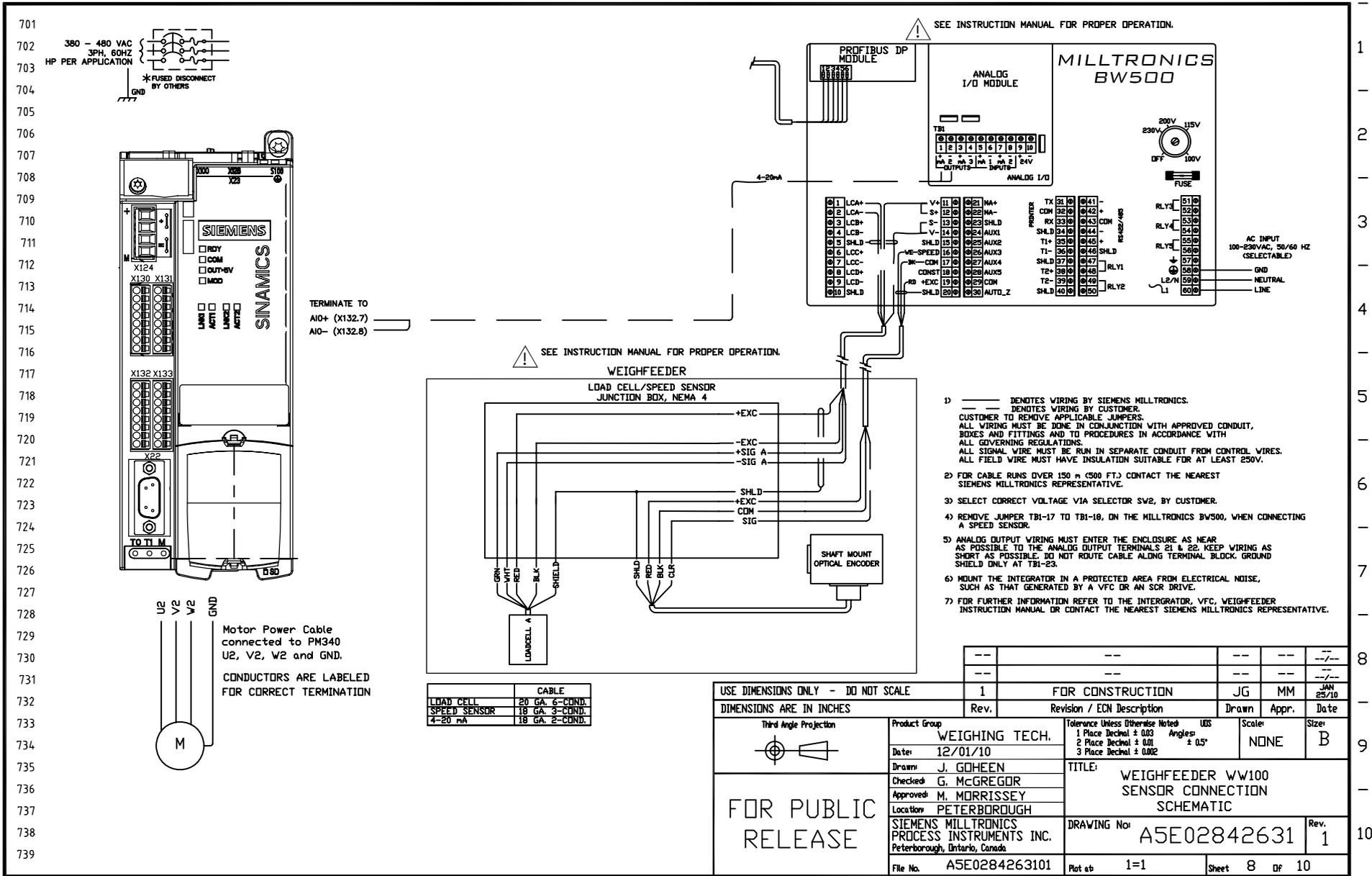
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REMOTE
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OUTPUTS TO DCS
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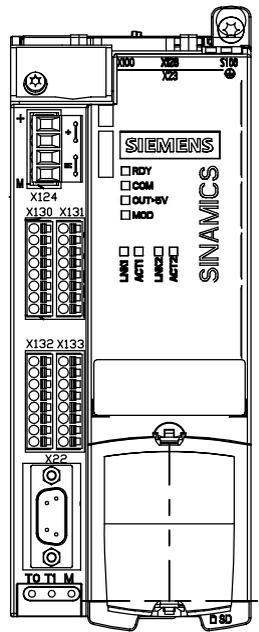
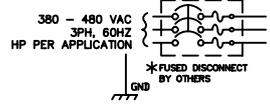
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	Approved	M. MORRISSEY		Rev. 1			
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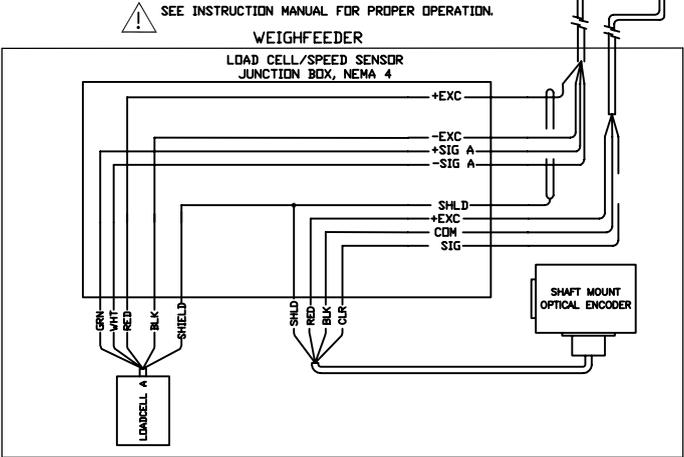


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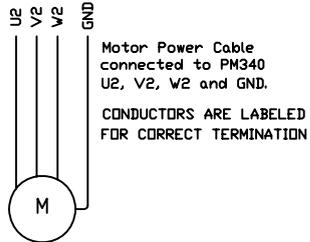
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TERMINATE TO
AIO+ (X132.7)
AIO- (X132.8)



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



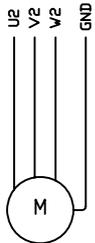
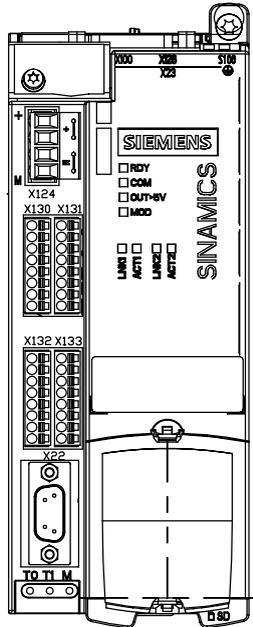
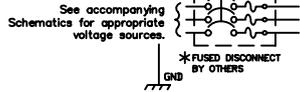
SEE INSTRUCTION MANUAL FOR PROPER OPERATION.

SEE INSTRUCTION MANUAL FOR PROPER OPERATION.

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- 2) FOR CABLE RUNS OVER 150 m (500 FT.) CONTACT THE NEAREST SIEMENS MILLTRONICS REPRESENTATIVE.
- 3) SELECT CORRECT VOLTAGE VIA SELECTOR SW2, BY CUSTOMER.
- 4) REMOVE JUMPER TBI-17 TO TBI-18, ON THE MILLTRONICS BW500, WHEN CONNECTING A SPEED SENSOR.
- 5) 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.
- 6) MOUNT THE INTEGRATOR IN A PROTECTED AREA FROM ELECTRICAL NOISE, SUCH AS THAT GENERATED BY A VFC OR AN SCR DRIVE.
- 7) FOR FURTHER INFORMATION REFER TO THE INTERGRATOR, VFC, WEIGHFEEDER INSTRUCTION MANUAL OR CONTACT THE NEAREST SIEMENS MILLTRONICS REPRESENTATIVE.

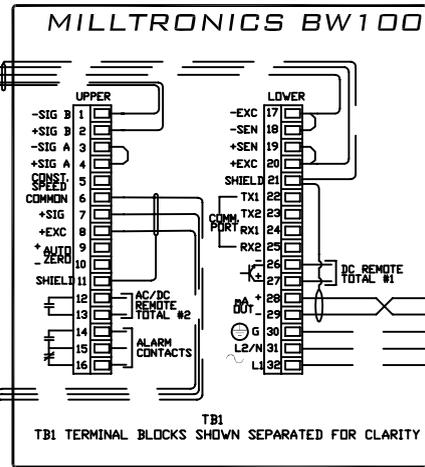
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FOR PUBLIC RELEASE	Drawn: J. GOHEEN	TITLE: WEIGHFEEDER WW100 SENSOR CONNECTION SCHEMATIC				
	Checked: G. MCGREGOR	DRAWING No: A5E02842631				
	Approved: M. MORRISSEY	Rev. 1				
Location: PETERBOROUGH		SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada		File No. A5E0284263101		Plot at 1=1
				Sheet 8		Of 10

SEE INSTRUCTION MANUAL FOR PROPER OPERATION.

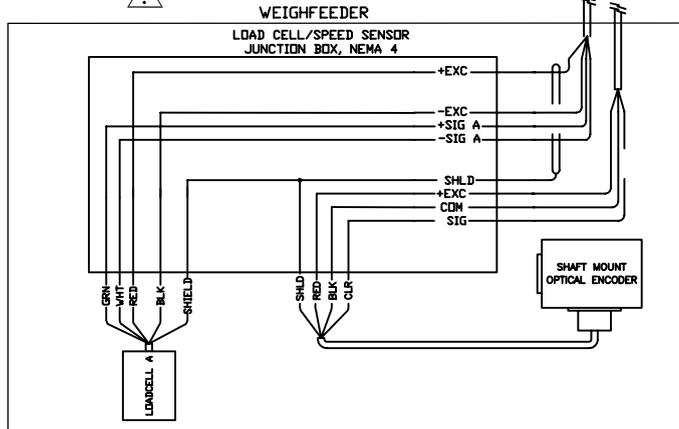


Motor Power Cable connected to PM340 U2, V2, W2 and GND.

CONDUCTORS ARE LABELED FOR CORRECT TERMINATION



SEE INSTRUCTION MANUAL FOR PROPER OPERATION.



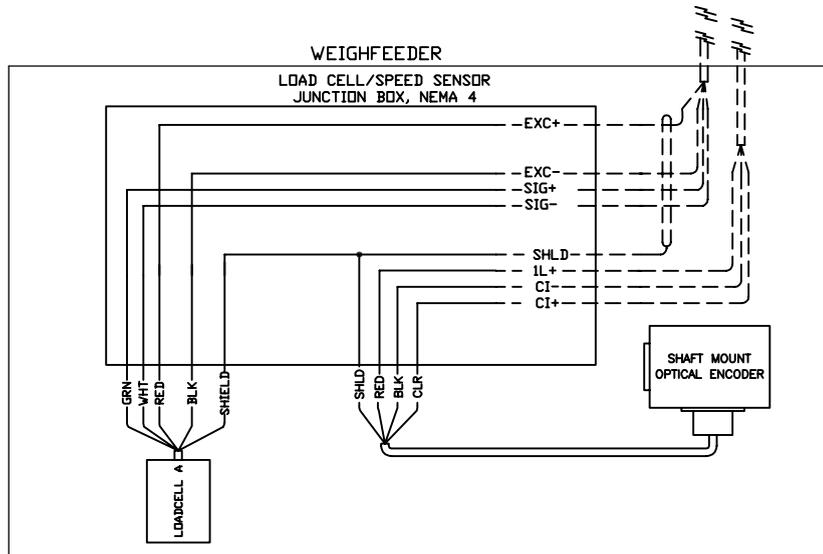
	CABLE
LOAD CELL	20 GA. 6-COND.
SPEED SENSOR	18 GA. 3-COND.
4-20 mA	18 GA. 2-COND.

- 1) --- DENOTES WIRING BY SIEMENS MILLTRONICS. --- DENOTES WIRING BY CUSTOMER. 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) SELECT CORRECT VOLTAGE VIA SELECTOR SW1, BY CUSTOMER.
- 4) INSTALL A JUMPER TBI-5 TO TBI-6 FOR CONSTANT SPEED SETUP, NO SPEED SENSOR.
- 4) INSTALL A JUMPER TBI-3 TO TBI-4 FOR SINGLE LOAD CELL INPUT.
- 5) ANALOG OUTPUT WIRING MUST ENTER THE ENCLOSURE AS NEAR AS POSSIBLE TO THE ANALOG OUTPUT TERMINALS 28 & 29. KEEP WIRING AS SHORT AS POSSIBLE. DO NOT ROUTE CABLE ALONG TERMINAL BLOCK. GROUND SHIELD ONLY AT TBI-21.
- 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 INTERGRATOR, VFD, WEIGHFEEDER INSTRUCTION MANUAL OR CONTACT THE NEAREST SIEMENS MILLTRONICS REPRESENTATIVE.

USE DIMENSIONS ONLY - DO NOT SCALE		1	FOR CONSTRUCTION		JG	MM	JAN 25/10
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Checked: G. MCGREGOR		Approved: M. MORRISSEY		DRAWING No: A5E02842631			
Location: PETERBOROUGH		SIEMENS MILLTRONICS PROCESS INSTRUMENTS INC. Peterborough, Ontario, Canada		Rev. 1			
File No. A5E0284263101		Plot sb 1=1		Sheet 9		Of 10	

FOR PUBLIC RELEASE

⚠ SEE INSTRUCTION MANUAL FOR PROPER OPERATION.



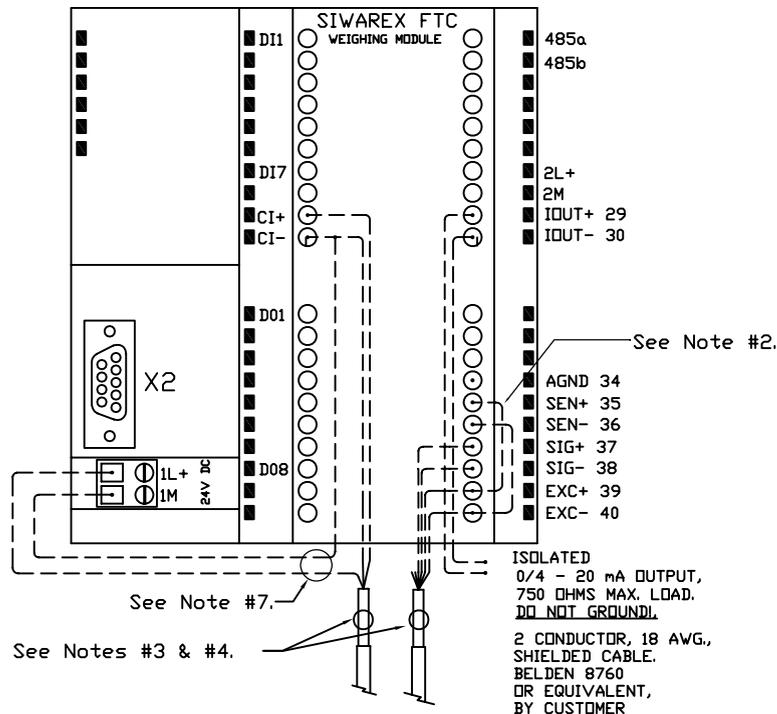
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SPEED SENSOR	18 GA. 3-COND.
4-20 mA	18 GA. 2-COND.

NOTES:

- 1) ——— DENOTES WIRING BY SIEMENS MILLTRONICS.
 - - - - - DENOTES WIRING BY CUSTOMER.
 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 BELDEN 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 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	1	FOR CONSTRUCTION	JG	MM	JAN 25/10
DIMENSIONS ARE IN INCHES	Rev.	Revision / ECU 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	
FOR PUBLIC RELEASE	Date 12/01/10	TITLE: WEIGHFEEDER WW100 FTC INTERCONNECT SCHEMATIC			
	Drawn J. GOHEEN				
	Checked G. MCGREGOR	DRAWING No. A5E02842631	Rev. 1		
	Approved M. MORRISSEY	Plot sb	1=1	Sheet 10 of 10	
	Location PETERBOROUGH	File No. A5E0284263101			

Notes

For more information

www.siemens.com/level

www.siemens.com/continuous-weighing

Siemens Milltronics Process Instruments Inc.
Industry Automation (IA)
1954 Technology Drive
P.O. Box 4225
Peterborough, ON
Canada K9J 7B1

email: techpubs.smpi@siemens.com

www.siemens.com/processautomation

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