THAYER SCALE

PROCESS MEASUREMENT & CONTROL EQUIPMENT

Model S52i Belt Scale & Weigh Belt Integrator

- ***Weigh & Communicate***
- ***State-of-the-Art Technology***
- ***Powerful***
- ***Flexible***
- ***Easy to Use***

THAYER's S52i Integrator is a full featured instrument in a single, compact package. It performs the same functions as an instrument costing many times more without sacrificing the accuracy associated with THAYER products. Simplicity of use has always been a very important factor in designing an instrument and the S52i has inherited all the time and labor saving methods THAYERhas developed over the years.

The S52i Instrument can be used on most belt conveyor weigh belt systems using either strain gauge or LVDT load cell to provide continuous information about the flow of material to its process by monitoring the load and speed. Weight information is processed as weight per length and speed is processed as unit length per time. Integrated together, a great deal of information is available about the system, such as: flow rate; accumulated weight (total); belt loading; belt speed; etc.

Input Power Requirement	
Voltage Range:	120 to 240 VAC
Frequency Range:	50 to 60 Hertz
Phase Requirement:	Single Phase
Power Consumption:	< 43 W
Supply Protection:	Fused
Environmental Requirements	
Area Classification:	Non-Hazardous.
Operating Temperature:	14 to 158° F (-10° to +70° C).
Operating Humidity:	10 to 90% Non-Condensing
Storage Temperature:	-4 to 185° F (-20° to +85° C)
Storage Humidity:	5 to 95% Non-Condensing.
Altitude:	Operational Up to 2000 Meters
Altitude Storage:	Up to 3000 Meters (70 kPa)
Cooling Method:	Natural Convection
Standard Dimensional Requirements	
Open Chassis Type:	IP23 8.0"H x 6.0"W x 4.5"D (203.2 x101.6 x 114.3 mm)
Enclosed, Type:	IP66 11.81"H x 9.84"W x 5.91"D (300 x 250 x 150 mm)
Standard Input/Output Specifications	
Analog Output:	Isolated 4-20 mA into 750 Ohm Load Maximum Sourcing, +24VDC Compliance Voltage, Range 0-24 mA AO-1 Programmable, Field Selectable
Analog Input	NONE
Digital Inputs:	Require Dry Contact Closures Sourcing, +12VDC with 10 mA Minimum Sink Current DI-DS Discrete - Drive Status DI-1, 2, 3 Programmable, Field Selectable
Digital Outputs	Isolated Relay Outputs Max. Voltage 240 VAC/VDC, Max. Current 120 mA DO-1,2,3 Programmable (Form A) , Field Selectable Remote Totals Discrete – Remote Totalizer (Form A)

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Communication Options:

- DeviceNet,
- PROFIBUS,
- Ethernet/IP & MODBUS/TCP,
- Q2 – Allen-Bradley DF1 and MODBUS RTU.

PROFIBUS Modbus® Allen-Bradley DeviceNet

Currently Available Digital Inputs:	
Acknowledge	Performs the function of pressing the ACK key on the S52i keypad.
ATL Input	Used to provide feedback with ATL.
Auto Calibrate	Asserted to perform an Auto Calibration cycle
Auto Zero	Initiates a single (momentary) or continuous (maintained Auto Zero calibration.
Belt Limit Switch	The state of this input is passed to the communications table and Belt Mistracking output
OI Lock	When asserted disables display keys that may change the operation of the instrument such as a menu parameter and calibration.
Reset ALL Totalizers	Resets all internal totalizers yo zero (momentary).
Resets Totalizer #1	Resets Totalizer #1 (monetary).
Resets Totalizer #2	Resets Totalizer #2 (momentary).
Silence	Performs the function of pressing the SIL key on the display.
Not Used	Disables Digital input.

Currently Available Digital Outputs:	
Alarm Common	Asserted when a programmed alarm condition occurs.
Alarm Audible	Output assigned to a horn or bell for an alarm condition. Deactivated by the ACK key or the SIL key.
Alarm-Low Load	Asserted when a programmed Low Load alarm condition occurs.
Alarm-High Load	Asserted when a programmed High Load alarm condition occurs.
Alarm-Low Rate	Asserted when a programmed Low Rate alarm condition occurs.
Alarm High Rate	Asserted when a programmed High Rate alarm condition occurs.
Alarm-Low Speed	Asserted when a programmed Low Speed alarm condition occurs.
Alarm-High Speed	Asserted when a programmed High Speed alarm condition occurs.
ATL Output	Asserted when a programmed High Speed Alarm condition occurs.
Auto Calibrate	Asserted during an Auto Calibration Cycle.
Auto Zero	Asserted during the Auto Zero Cycle.
Belt Limit Switch	Asserted when Belt Limit Switch (belt mistracking) input is closed.
Calibration Done/Error	Asserted at the end of a calibration cycles.
Calibration Running	Asserted while in the calibration mode.
Not Used **	Disables Digital output
	* Output only available on Digital Output #3. ** When Not Used is selected for digital output, the state of that output can be controlled via communications.
Currently Available Analog/Frequency Outputs:	
Load	Represents 0%-100% of the Belt Loading
Speed	Represents 0%-100% of the Belt Speed
Rate:	Represents 0%-100% of the Rate
Not Used:	Disables Analog/Frequency Output.

Input/Output Configuration
The three user configurable digital inputs are provided to allow the user to remotely control selected features and functions of the S52i. Each input is independent of the others. The same function should not be programed to more than one point. The user must provide a contact closure capable of sinking 10mA @12 vdc between the appropriate input terminals.

The three user configurable digital outputs are provided to allow the user to remotely monitor the operation of the weighing device. Each output is independently programmed and asserted. More than one output may be assigned the same function if needed.
One user configurable analog output (4-20 mA, fixed) is available.

S52i Function Keys

LEFT / RIGHT ARROWS.
These keys are used in Belt controller applications to manually adjust the motor speed and for menu navigation

FUNCTION KEYS.
On the display, there are four function keys, F1 - F4, that are used for variable functions. Each key has a corresponding label which appears on the display directly above the key. These labels allow the operator to easily determine the function of each key as its displayed.

UP / DOWN ARROWS.
These keys are used in Belt controller applications to adjust the setpoint and for menu navigation

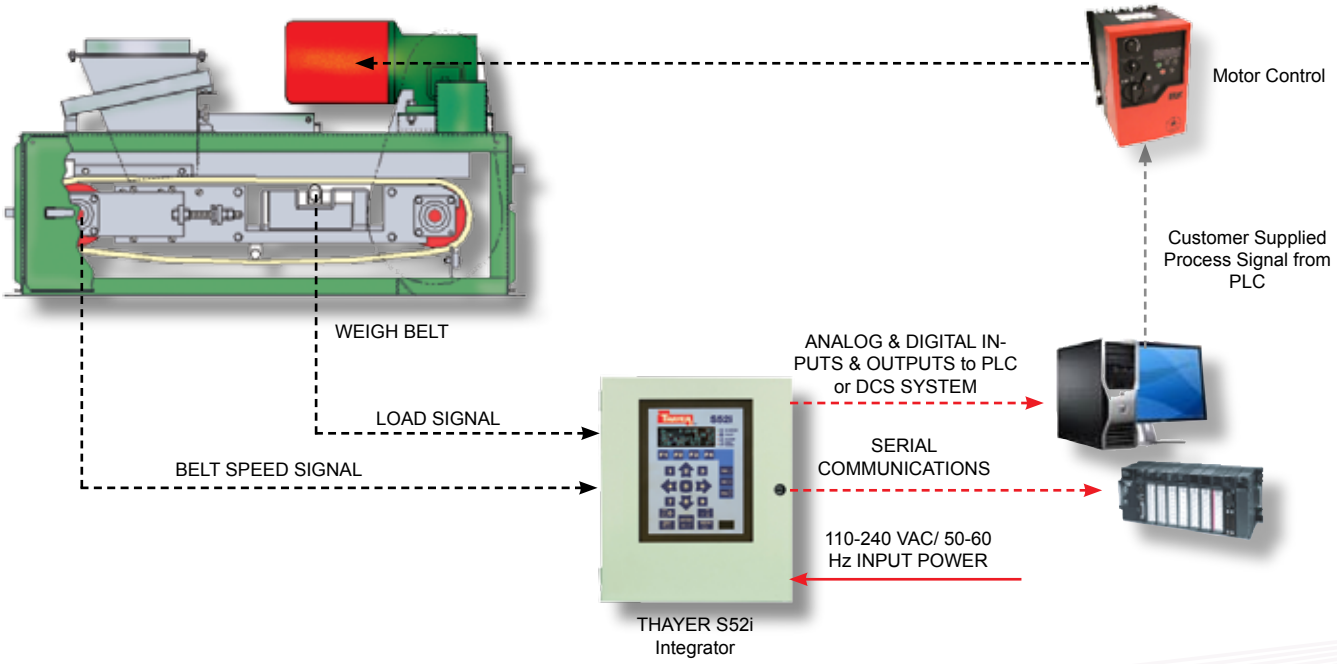
CALIBRATION KEY.
The CAL key allows the user to enter the top calibration menu. Pressing the appropriate Function key under the labels will select that calibration mode.

ACKNOWLEDGE KEY.
The ACK key is used to acknowledge certain operating conditions, such as a shutdown, and to hide the alarms from view. When pressed to acknowledge alarms, the alarm condition will be hidden and the label in the upper right of the display will alternate with “ALM”. The other function of this key is “0” during numeric entry.

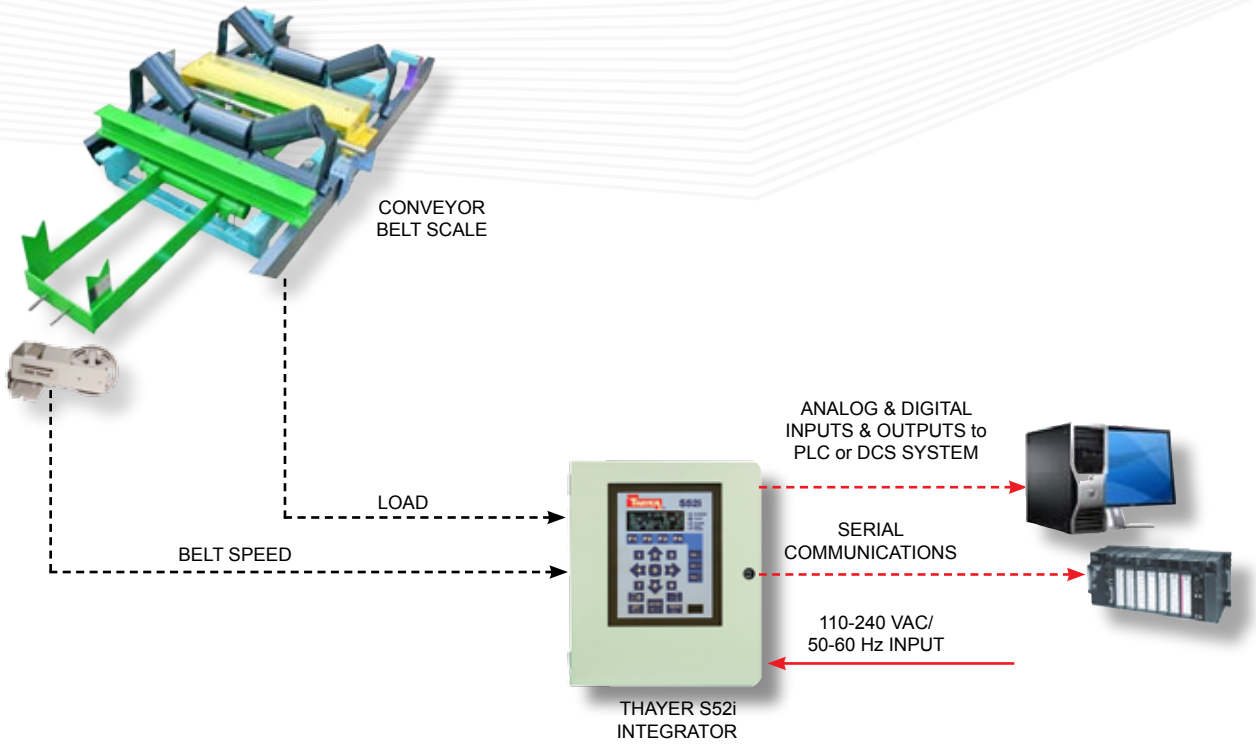
SILENCE KEY.
The SIL key is used to silence an audible alarm, if such an output is selected. The other function of this key is the “.” during numeric entry.

ESCAPE KEY.
The ESC key is used to cancel a function or procedure such as a calibration or counting belt pulses. Pressing the ESC key will not change the operating mode (RUN, OFF) of the instrument. The user will be asked to acknowledge the ESC request in many cases by pressing the “YES” key.

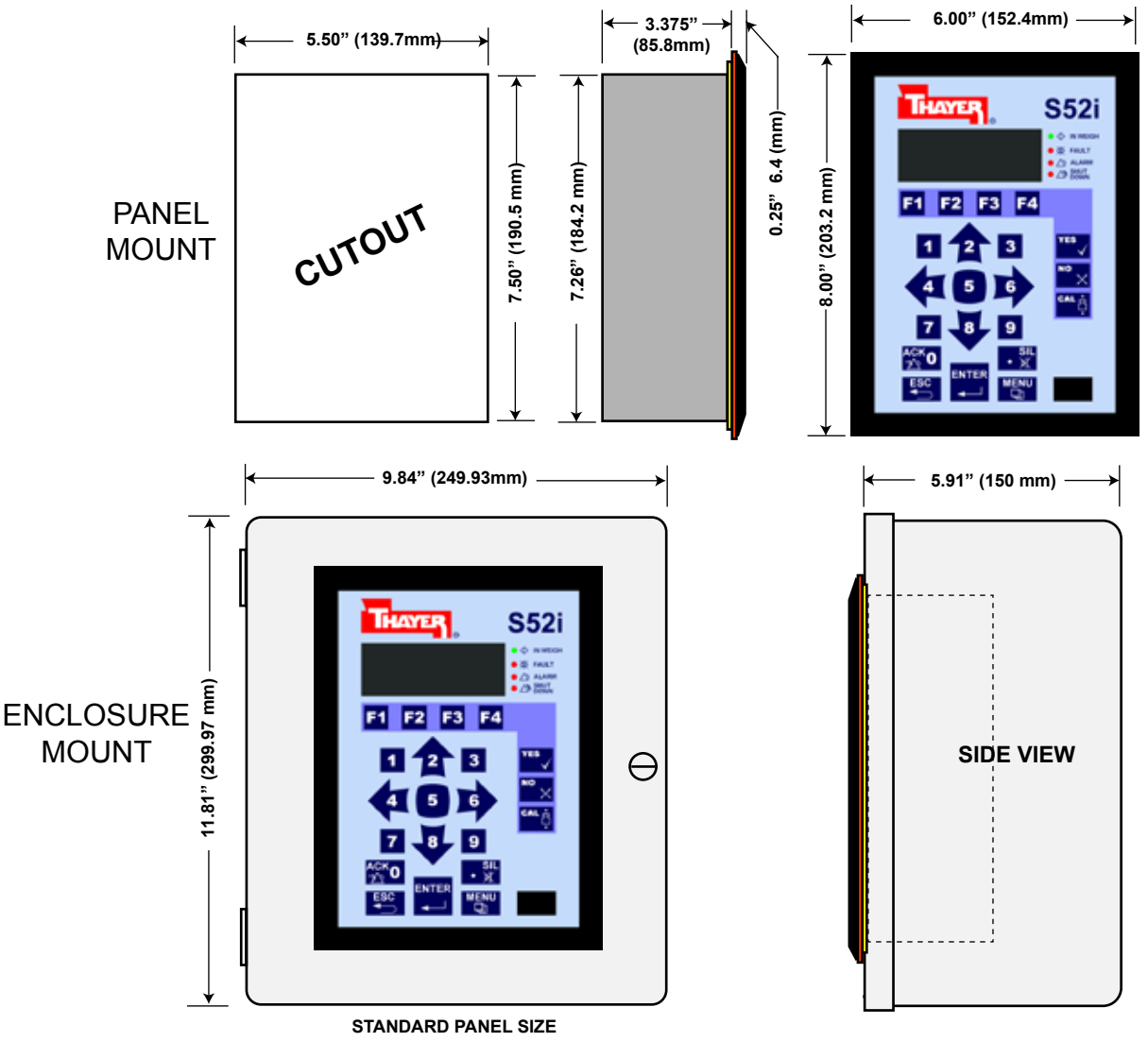
MENU KEY.
The MENU key is used to enter the top menu screen. From the top menu, the user is prompted to select what type of action will be done in the menu.



Weigh Belt Feeder using S52i Integrator to send Rate Signal to a PLC or DCS. The PLC or DCS then generates a process signal back to a Motor Controller that regulates motor speed.



Conveyor Belt Scale load and speed signals integrated into a rate signal using an S52i. Signal can be sent back to PLC or DCS system for rate varification or totalization



ADDRESSING THE NEEDS OF OUR CUSTOMERS

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