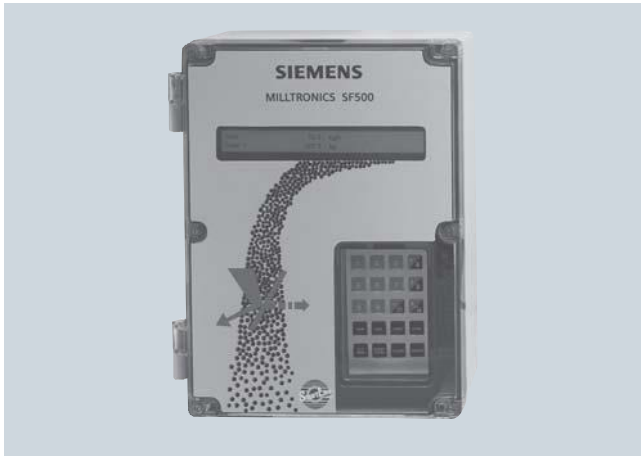


Weighing Electronics

Stand-Alone Integrators

Milltronics SF500

Overview



Milltronics SF500 is a full feature integrator for use with solids flowmeters.

Benefits

- Automatic zero and electronic span calibration
- Alarms for rate or diagnostic error
- On-board Modbus[®], optional PROFIBUS DP, Allen-Bradley[®] RIO and DeviceNet[™]
- On-line calibration and dual PID control with optional analog I/O card
- Multi-point linearizer for high turn down accuracy
- Up to 8 multi-spans for application of more than one flow condition and/or material
- Moisture meter input with optional analog I/O card for calculation of dry weight

[®]Modbus is a registered trademark of Schneider Electric.

[®]Allen-Bradley is a registered trademark of Rockwell Automation.

[™]DeviceNet is a trademark of Open DeviceNet Vendor Association.

Application

Milltronics SF500 operates with any solids flowmeter with up to two strain gauge load cells or LVDT sensor. The SF500 processes sensor signals for accurate flow rate and totalized weight of bulk solids. It can take on lower level control functions traditionally handled by other devices, and it supports popular industrial communication buses. Its patented load cell balance function eliminates matching of load cells.

The PID function may be used for rate control of pre-feeding devices and/or control of additives with two internal PID controllers. Operating in tandem with two or more solids flowmeters or weighfeeders, the SF500 may be used for ratio blending and controlling additives. Batching, load out, and alarm functions are also provided by the SF500.

Dolphin Plus software may be used for programming the unit with a PC.

Technical specifications

Mode of operation	
Measuring principle	Flowmeter integrator
Typical application	<ul style="list-style-type: none"> Compatible with Siemens Milltronics solids flowmeters or equivalent 1 or 2 load cell models Compatible with LVDT equipped solids flowmeters, with use of optional interface board (remotely mounted)
Input	
Load cell/LVDT	0 ... 45 mV DC per load cell or LVDT interface card
Auto zero	Dry contact from external device
mA	See optional mA I/O board
Auxiliary	5 discrete inputs for external contacts, each programmable for either: display scrolling, ...talizer 1 reset, zero, span, multispans, print, batch reset, PID function, or on-line calibration
Output	
mA	Programmable 0/4 ... 20 mA, for rate, optically isolated, 0.1 % of 20 mA resolution, 750 Ω load max. (see optional mA I/O board)
Load cell/LVDT conditioner card	10 V DC compensated excitation for strain gauge type, 2 cells max, 150 mA max.
Remote totalizer 1	Contact closure 10 ... 300 ms duration, open collector switch rated 30 V DC, 100 mA max.
Remote totalizer 2	Contact closure 10 ... 300 ms duration, open collector switch rated 240 V AC/DC, 100 mA max.
Relay output	5 alarm/control relays, 1 SPST Form A relay contact per relay, rated 5 A at 250 V AC, non-inductive or 30 V DC
Measuring accuracy	
Resolution	0.02 % of full scale
Accuracy	0.1 % of full scale
Rated operating conditions	
Ambient conditions	
Location	Indoor/outdoor
Ambient temperature	-20 ... +50 °C (-5 ... +122 °F)
Relative humidity/ingress protection	Suitable for outdoor/Type 4X/NEMA 4X/IP65
Installation category	II
Pollution degree	4
Design	
Material (enclosure)	Polycarbonate
Dimensions	209 W x 285 H x 92 mm D (8.2 W x 11.2 H x 3.6" D)
Weight	2.6 kg (5.7 lbs)
Power supply	
Standard	100/115/200/230 V AC ± 15 %, 50/60 Hz, 31 VA Fuse, FU1: 2AG, Slo Blo, 2 A, 250 V or equivalent

Controls and displays

Display	Illuminated 5 x 7 dot matrix liquid crystal display with 2 lines of 40 characters each
Programming	Via local keypad and/or Dolphin Plus interface
Memory	<ul style="list-style-type: none"> Program stored in non-volatile FLASH ROM, upgradable via Dolphin Plus interface Parameters stored in battery backed RAM, 3 V NEDA 5003LC or equivalent, 10 year life
Communications	<ul style="list-style-type: none"> Two RS-232 ports One RS-485 port SmartLinx[®] compatible

Approvals

CE, CSA_{NRTL/C}, FM, C-TICK

Options

- Dolphin Plus: Windows[®] based software interface. Refer to associated product documentation.
- SmartLinx[®] modules: protocol specific modules for interface with popular industrial communications systems. Refer to associated product documentation.
- LVDT interface card: for interface with LVDT based solids flowmeters
- mA I/O board
 - Inputs: 2 programmable 0/4 ... 20 mA for PID control or online calibration, optically isolated, 0.1% of 20 mA resolution, 200 Ω input impedance
 - Outputs: 2 programmable 0/4 ... 20 mA for PID control or rate output, optically isolated, 0.1% of 20 mA resolution, 750 Ω load max
 - Outputs supply: isolated 24 V DC at 50 mA, short circuit protected

Windows[®] is a registered trademark of Microsoft Corporation.

Weighing Electronics

Stand-Alone Integrators

Milltronics SF500

Selection and ordering data	Order No.
Milltronics SF500 A full feature, powerful integrator designed for use with solids flowmeters	C) 7MH7156-
Input voltage AC voltage	1
Auxiliary input/output boards¹⁾ None Board with 2 analog inputs and 2 analog outputs	A B
Feature software Standard	A
Auxiliary memory None	0
Data communications²⁾ SmartLinX® Ready Smartlinx A-B® RIO module Smartlinx PROFIBUS DP module Smartlinx DeviceNet™ module	0 1 2 3
Enclosures Standard enclosure, no entry holes Standard enclosure, 4 entries, M20	1 2
Trade approval stickers No trade approval sticker Not legal for Canadian and EU trade sticker	A B
Approvals CE, CSA _{AUS/C} , FM, C-TICK	A
Further designs Please add "-Z" to Order No. and specify Order code(s).	Order Code
Stainless Steel tag (69 mm x 50 mm), Measuring-point number/identification (max 16 characters), specify in plain text.	Y15
<u>Stainless steel enclosure, 304 (1.4301), [406 x 305 x 152 mm (16" x 12" x 6"), Type 4X, IP66 (finished unit is mounted inside enclosure)]</u>	
With window	A11
Without window	A12
<u>Painted mild steel, [406 x 305 x 152 mm (16" x 12" x 6"), Type 4X, IP66 (finished unit is mounted inside enclosure)]</u>	
With window	A13
Without window	A14
Painted mild steel, anti-vibration enclosure with viewing window (finished unit is mounted inside enclosure)] 406 x 305 x 203 mm (16" x 12" x 8"), Type 4X, IP66	A16

¹⁾ Required for PID control and online calibration.

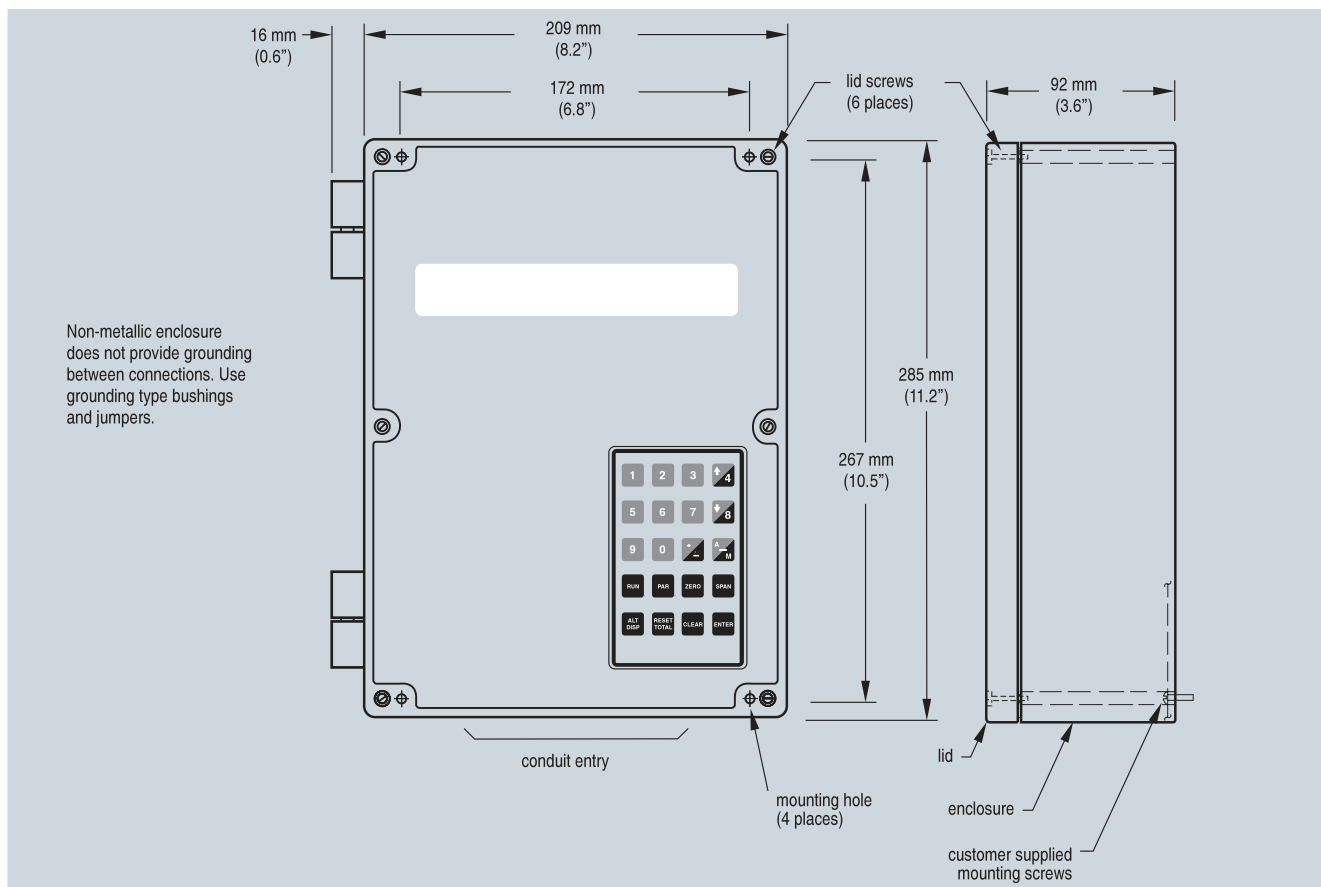
²⁾ Required for industrial communications.

C) Subject to export regulations AL: N, ECCN: EAR99

Selection and ordering data	Order No.
Instruction manuals SF500, English SF500, French SF500, German Note: The instruction manual should be ordered as a separate item on the order.	C) 7ML1998-5CN02 C) 7ML1998-5CN11 C) 7ML1998-5CN31
Additional instruction manuals Smartlinx Allen-Bradley® Remote I/O, English Smartlinx PROFIBUS DP, English Smartlinx PROFIBUS DP, German Smartlinx PROFIBUS DP, French Smartlinx DeviceNet™, English Note: The appropriate Smartlinx instruction manual should be ordered as a separate line on the order. LVDT Conditioner Card Manuals, English LVDT Conditioner Card Manuals, German	C) 7ML1998-1AP03 C) 7ML1998-1AQ03 C) 7ML1998-1AQ33 C) 7ML1998-1AQ12 C) 7ML1998-1BH02 C) 7ML1998-5EF01 C) 7ML1998-5EF31
This device is shipped with the Siemens Milltronics manual CD containing the complete instruction manual library.	
Optional equipment Milltronics analog I/O cards LVDT Conditioners in NEMA 4 enclosure (to interface LVDT belt scale without internal pre-amplifier) SITRANS RD100 Remote displays - see RD100 on page 7/100 SITRANS RD200 Remote displays see RD200 on page 7/102	C) 7MH7723-1BJ C) 7MH7723-1AJ
Spare parts Displays Lids with overlay and keypad Motherboards Batteries, 3V, lithium Fuses, 2A, 250V, BW500/SF500, spare LVDT conditioners in NEMA 4 enclosure Auxiliary I/O cards spare Cables to connect BW500/SF500 keypad to motherboard Keypads spare for BW500/SF500	7MH7723-1AF C) 7MH7723-1AG C) 7MH7723-1AH C) 7MH7723-1ES C) 7MH7723-1DG C) 7MH7723-1AJ C) 7MH7723-1BJ 7MH7723-1CB 7MH7723-1CD

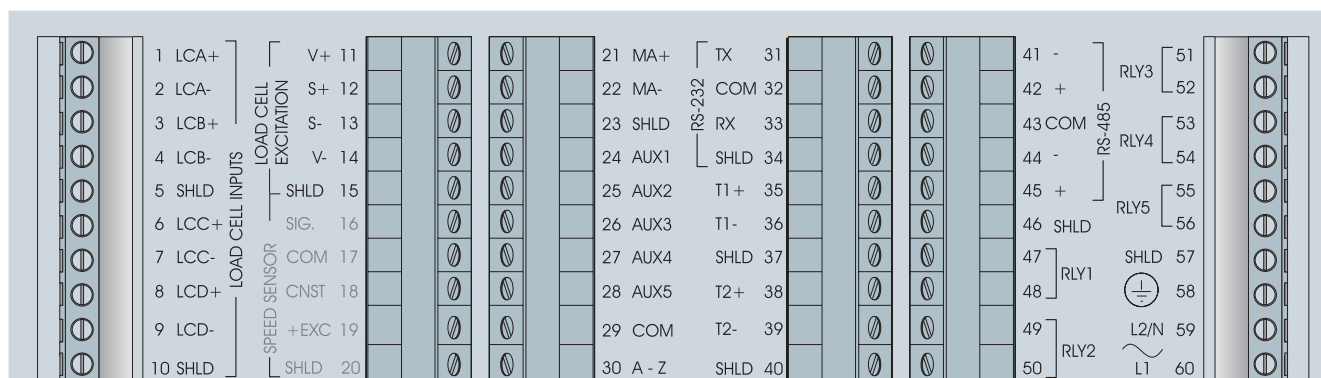
C) Subject to export regulations AL: N, ECCN: EAR99

Dimensional drawings



Milltronics SF500 dimensions

Schematics



Cable

- one load cell input for single load cell or LVDT application
 - non-sensing: Belden® 8404, 4 wire shielded, 20 AWG (0.5 mm²) or equivalent, 150 m (500 ft) max.
 - sensing: Belden® 9260, 6 wire shielded, 20 AWG (0.5 mm²) or equivalent, 300 m (1000 ft) max.
- two load cells:
 - non-sensing: Belden® 9260, 6 wire shielded, 20 AWG (0.5 mm²) or equivalent, 150 m (500 ft) max.
 - sensing: Belden® 8418, 8 wire shielded, 20 AWG (0.5 mm²) or equivalent, 300 m (1000 ft) max.
- auto zero: Belden® 8760, 1 pair, twisted/shielded, 18 AWG (0.75 mm²) or equivalent, 300 m (1000 ft) max.
- remote total: Belden® 8760, 1 pair, twisted/shielded, 18 AWG (0.75 mm²) or equivalent, 300 m (1000 ft) max.

Milltronics SF500 connections

Belden® is a registered trademark of Belden Wire and Cable Company.