

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, ProfiNet, Modbus TCP/IP, EtherNet/IP, 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

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 proven 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

Milltronics SF500		Milltronics SF500	
Mode of operation		Power supply	
Measuring principle	Flowmeter integrator	Standard	AC version • 100 ... 240 V AC \pm 10 %, 50/60 Hz, 55 VA max. • Fuse FU3 = 2AG, 2 AMP, 250 V Slo Blo DC version • 10 ... 30 V DC, 26 W max. • Fuse FU2 = 3.75 A resettable (not user replaceable)
Typical application	<ul style="list-style-type: none"> Compatible with SITRANS solids flowmeters or equivalent 1 or 2 load cell models Compatible with LVDT equipped solids flowmeters, with use of optional interface board (remotely mounted) 	Controls and displays	
Input		Display	Illuminated 5 x 7 dot matrix liquid crystal display with 2 lines of 40 characters each
Load cell/LVDT	0 ... 45 mV DC per load cell or LVDT interface card	Programming	Via local keypad and/or Dolphin Plus interface
Auto zero	Dry contact from external device	Memory	<ul style="list-style-type: none"> Program stored in non-volatile FLASH ROM, upgradeable via Dolphin Plus interface Parameters stored in battery backed RAM, 3 V NEDA 5003LC or equivalent, 10 year life
mA	See optional mA I/O board	Communications	Two RS 232 ports One RS 485 port SmartLinx compatible
Auxiliary	5 discrete inputs for external contacts, each programmable for either: display scrolling, totalizer 1 reset, zero, span, multi-span, print, batch reset, PID function, or on-line calibration	Approvals	CE, CSA _{US/C} , FM, RCM
Output		Options	<ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Inputs: 2 programmable 0/4 ... 20 mA for PID control or online calibration, optically isolated, 0.1 % ... 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 Output supply: isolated 24 V DC at 50 mA, short circuit protected
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 D mm (8.2 W x 11.2 H x 3.6 D inch)		
Weight	2.6 kg (5.7 lb)		

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Selection and ordering data

Milltronics SF500

A full feature, powerful integrator designed for use with solids flowmeters

➤ Click on the Article No. for the online configuration in the PIA Life Cycle Portal.

Input voltage

AC voltage

DC voltage

Auxiliary input/output boards¹⁾

None

Board with 2 analog inputs and 2 analog outputs

Feature software

Standard

Auxiliary memory

None

Data communications²⁾

SmartLinx Ready

SmartLinx PROFIBUS DP module

SmartLinx DeviceNet module

SmartLinx ProfiNet module

SmartLinx EtherNet I/P module

SmartLinx MODBUS TCP I/P module

Enclosures

Standard enclosure, no entry holes

Standard enclosure, 4 entries, for M20 glands

Trade approval stickers

No trade approval sticker

Not legal for Canadian and EU trade sticker

Approvals

CE, CSA_{US/IC}, FM, RCM

Further designs

Please add "-Z" to article no. and specify order code(s).

Stainless steel tag (69 mm x 50 mm), Measuring-point number/identification (max 27 characters), specify in plain text.

Stainless steel, sun/weather shield 357 x 305 x 203 mm (14 x 12 x 8 inch) (finished unit is field mounted with enclosure)

Manufacturer's test certificate: According to EN 10204-2.2

LVDT conditioner card mounted and connected for use with LVDT flowmeters

Stainless steel enclosure, 304 (1.4301), [406 x 305 x 152 mm (16 x 12 x 6 inch), Type 4X, IP66 (finished unit is mounted inside enclosure)]

- With window
- Without window

Painted mild steel, [406 x 305 x 152 mm (16 x 12 x 6 inch), Type 4, IP65 (finished unit is mounted inside enclosure)]

- With window
- Without window

Painted mild steel, anti-vibration enclosure with viewing window 406 x 305 x 203 mm (16 x 12 x 8 inch), Nema/Type 4, IP66 (finished unit is mounted inside enclosure)

Painted mild steel, heated enclosure with viewing window for use down to -50 °C (-58 °F) (finished unit is mounted inside enclosure)
483 x 584 x 203 mm (19 x 23 x 8 inch)

Article No.

7MH7156-



Order Code

Y15

S50

C11

G21

A11

A12

A13

A14

A15

A35

Instruction manuals

SF500, English

SF500, French

SF500, German

Note: The instruction manual should be ordered as a separate item on the order.

Additional instruction manuals

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 Manual, English

LVDT Conditioner Card Manual, German

This device is shipped with the Siemens Milltronics manual DVD containing the complete instruction manual library.

Optional equipment

Auxiliary I/O card spare

LVDT Conditioners in NEMA 4 enclosure (to interface LVDT belt scale without internal pre-amplifier)

Cables to connect BW500/SF500 keypad to motherboard

SITRANS RD100 Remote displays - see RD100 on page 2/14

SITRANS RD200 Remote displays - see RD200 on page 2/16

SITRANS RD300 Remote displays - see RD300 on page 2/20

SITRANS RD500 web, datalogging, alarming, ethernet, and modem support for instrumentation - see on page 2/24

Spare parts

Display card

Lid with overlay and keypad

SF500 motherboard, AC

SF500, motherboard, DC

Battery, 3 V, lithium

Fuse, 2 A, 250 V, BW500, BW500/L, and SF500, spare

Keypad spare for BW500, BW500/L, and SF500

LVDT card spare

ProfiNet IO module

Modbus TCP I/P, EtherNet I/P module

PROFIBUS DP module

DeviceNet module

Article No.

A5E33489473

7ML1998-5CN11

A5E35574806

7ML1998-1AQ03

7ML1998-1AQ33

7ML1998-1AQ12

7ML1998-1BH02

7ML1998-5EF01

7ML1998-5EF31

7MH7723-1BJ

7MH7723-1AJ

7MH7723-1CB

7ML750-1AA00-0

7MH7723-1AF

7MH7723-1AG

A5E34320776

A5E34320778

7MH7723-1ES

7MH7723-1DG

7MH7723-1CD

A5E34699664

7ML1830-1PM

7ML1830-1PN

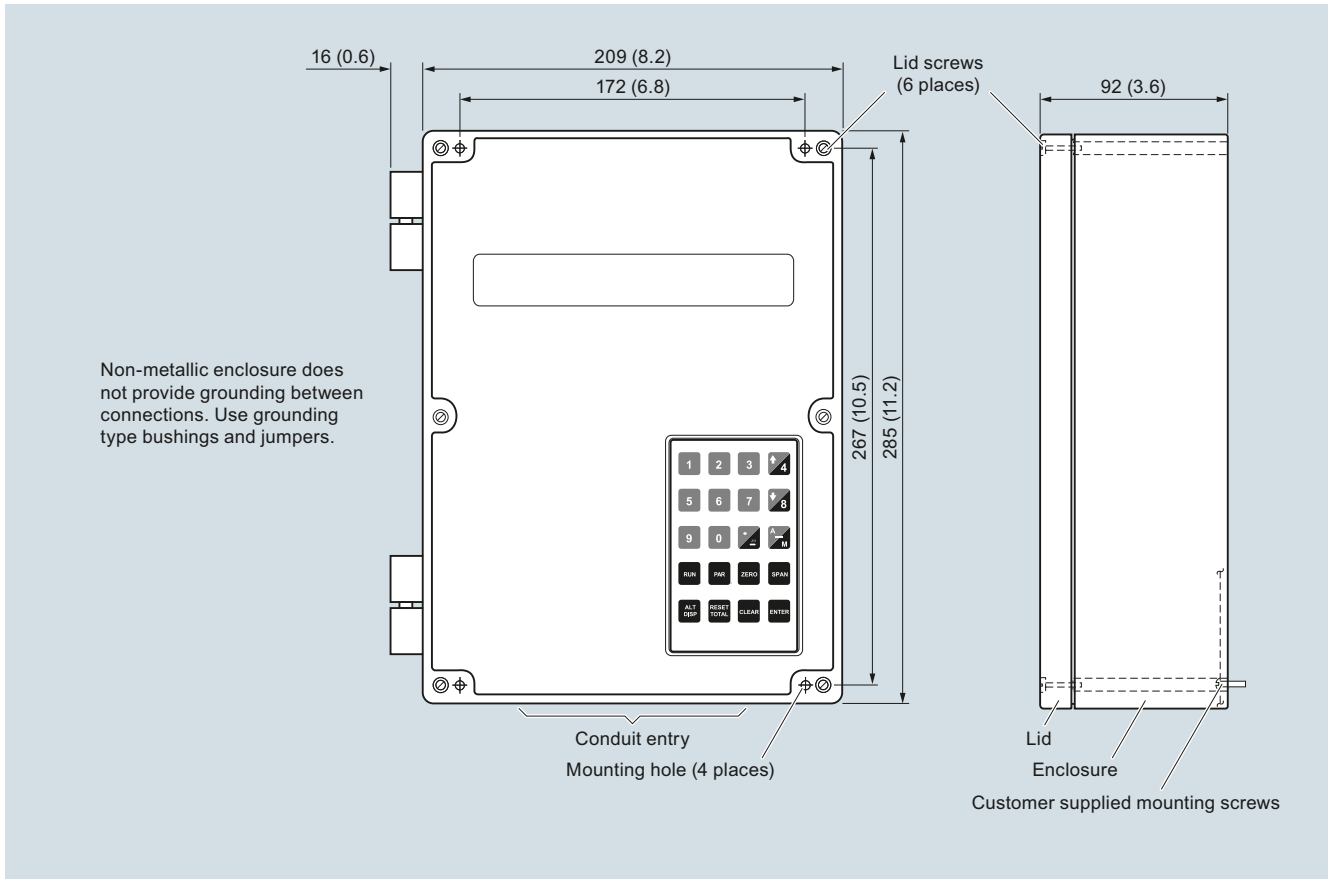
7ML1830-1HR

7ML1830-1HT

¹⁾ Required for PID control and online calibration.

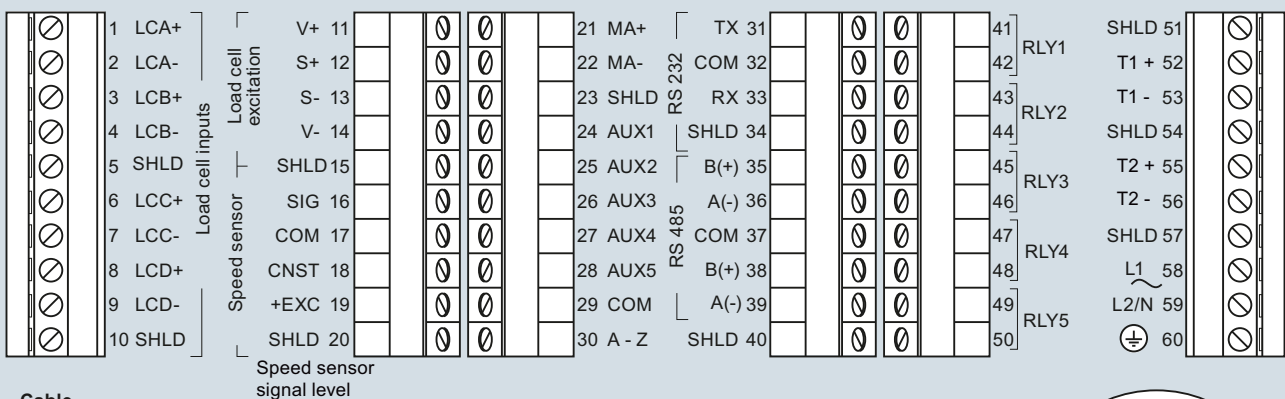
²⁾ Required for industrial communications.

Dimensional drawings



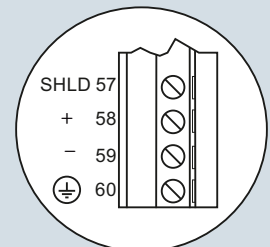
Milltronics SF500, dimensions in mm (inch)

Schematics



Cable

- One load cell:
 - 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 (1 000 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 (1 000 ft) max.
- Auto zero: Belden 8760, 1 pair, twisted/shielded, 18 AWG (0.75 mm²) or equivalent, 300 m (1 000 ft) max.
- Remote total: Belden 8760, 1 pair, twisted/shielded, 18 AWG (0.75 mm²) or equivalent, 300 m (1 000 ft) max.



DC version

Milltronics SF500 connections