

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 and 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.

Weighing Electronics

Stand-alone

Solids flowmeters / Milltronics SF500

Selection and ordering data

		Article No.									
Milltronics SF500 Integrator		7MH7156- ● ● ● ● ● - ● ● ●									
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		2									
DC voltage		3									
Auxiliary input/output boards¹⁾											
None		A									
Board with 2 analog inputs and 2 analog outputs		B									
Feature software											
Standard		A									
Auxiliary memory											
None		0									
Data communications²⁾											
SmartLinX Ready		0									
SmartLinX PROFIBUS DP module		2									
SmartLinX DeviceNet module		3									
SmartLinX PROFINET module		4									
SmartLinX EtherNet/IP module		5									
SmartLinX Modbus TCP/IP module		6									
Enclosures											
Standard enclosure, no entry holes		1									
Standard enclosure, 4 entries, for M20 glands		2									
Trade approval stickers											
No trade approval sticker		A									
Not legal for Canadian and EU trade sticker		B									
Approvals											
Ordinary Locations/General Purpose (Non-Ex), CE, UKCA, cCSAus, FM, RCM, EAC, KC		A									

¹⁾ Required for PID control and online calibration.

²⁾ Required for industrial communications. SmartLinX PROFINET module is certified per standard V2.2.4.

Further designs	Order Code
Please add "-Z" to article no. and specify order code(s).	
Stainless steel tag (69 x 50 mm), Measuring-point number/identification (max 27 characters), specify in plain text.	Y15
Stainless steel, sun/weather shield 357 x 305 x 203 mm (14 x 12 x 8 inch) (finished unit is field mounted with enclosure)	S50
Manufacturer's test certificate: According to EN 10204-2.2	C11
LVDT conditioner card mounted and connected for use with LVDT flowmeters	G21
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	A11
• Without window	A12
Painted mild steel, [406 x 305 x 152 mm (16 x 12 x 6 inch), Type 4, IP66; (finished unit is mounted inside enclosure)]	
• With window	A13
• Without window	A14
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)]	A15

Selection and ordering data (Continued)

Further designs	Order Code
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)	A35
Instruction manuals	
All literature is available to download for free, in a range of languages, at http://www.siemens.com/weighing/documentation	

Optional equipment	Article No.
Auxiliary I/O card spare	7MH7723-1BJ
LVDT Conditioners in NEMA 4 enclosure (to interface LVDT Flowmeter/Belt scale without internal pre-amplifier)	7MH7723-1AJ
Cables to connect BW500/SF500 keypad to motherboard	7MH7723-1CB
SITRANS RD100 Remote displays, see SITRANS RD100 catalog page: https://support.industry.siemens.com/cs/document/109765059	7ML5741-.....
SITRANS RD200 Remote displays, see SITRANS RD200 catalog page: https://support.industry.siemens.com/cs/document/109765328	7ML5740-.....
SITRANS RD300 Remote displays, see SITRANS RD300 catalog page: https://support.industry.siemens.com/cs/document/109765138	7ML5744-.....
Spare parts	
Display card	7MH7723-1AF
Lid with overlay and keypad	7MH7723-1AG
SF500 motherboard, AC	A5E34320776
SF500 motherboard, DC	A5E34320778
Fuse, 2 A, 250 V, BW500, BW500/L, and SF500, spare	7MH7723-1DG
Keypad spare for BW500, BW500/L, and SF500	7MH7723-1CD
LVDT card spare kit, internal to SF500	A5E34699664
PROFINET IO module	7ML1830-1PM
Modbus TCP/IP, EtherNet/IP module	7ML1830-1PN
PROFIBUS DP module	7ML1830-1HR
DeviceNet module	7ML1830-1HT

Technical specifications

Milltronics SF500	
Mode of operation	
Measuring principle	Flowmeter integrator
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)
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, totalizer 1 reset, zero, span, multi-span, 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)

Technical specifications (Continued)

Milltronics SF500	
Load cell/LVDT conditioner card	10 V DC compensated excitation for strain gauge type, 2 cells max., 150 mA max.
Remote totalizer 1	<ul style="list-style-type: none"> Contact closure 10 ... 300 ms duration Solid state relay contact rated 30 V DC, 100 mA max. Max. contact on-resistance = 36 ohms Max. off-state leakage = 1 uA
Remote totalizer 2	<ul style="list-style-type: none"> Contact closure 10 ... 300 ms duration Solid state relay contact rated 240 V AC/DC, 100 mA max. Max. contact on-resistance = 36 ohms Max. off-state leakage = 1 uA
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

Weighing Electronics

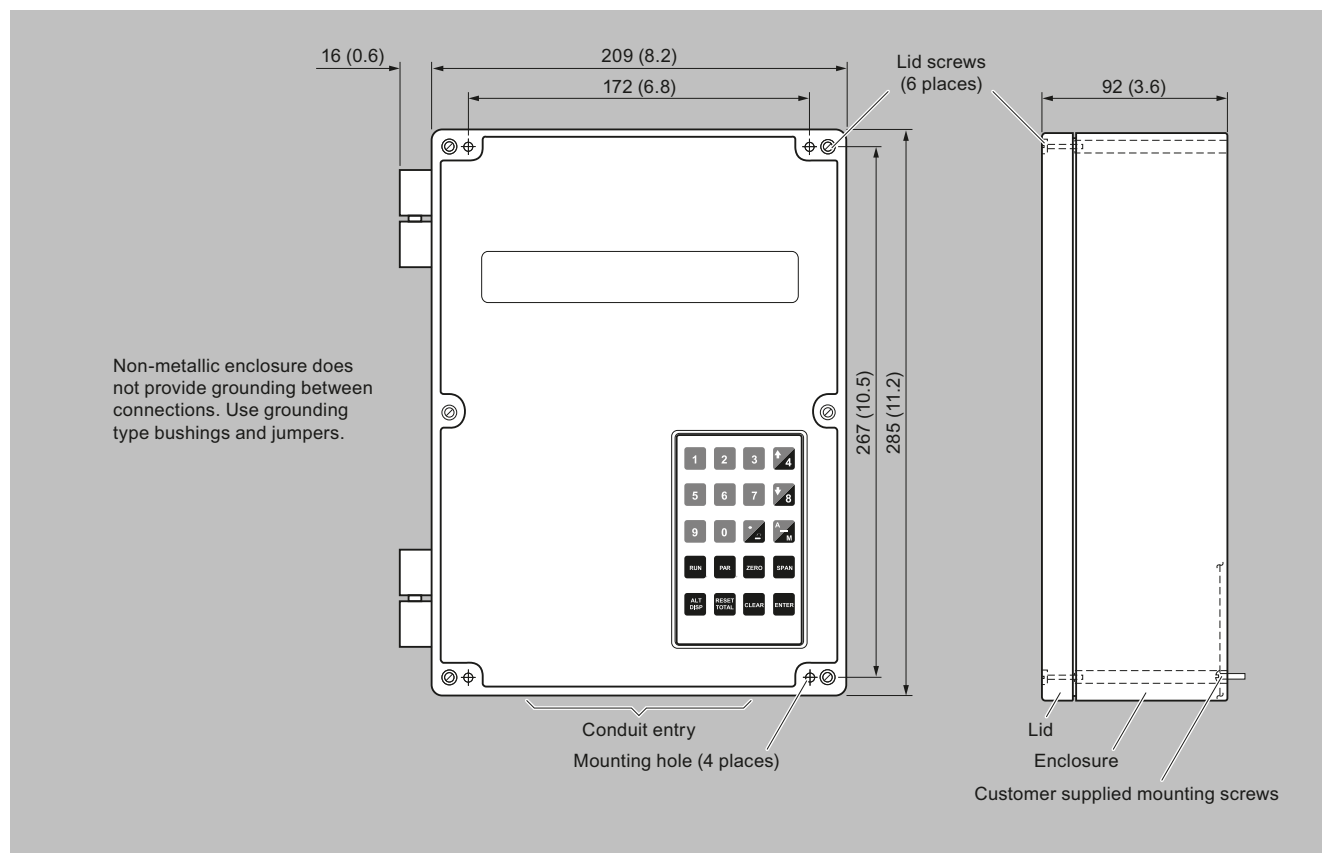
Stand-alone

Solids flowmeters / Milltronics SF500

Technical specifications (Continued)

Milltronics SF500	
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)
Power supply	
Standard	AC version <ul style="list-style-type: none"> • 100 ... 240 V AC \pm 10 %, 50/60 Hz, 55 VA max. • Fuse FU3 = 2AG, 2 AMP, 250 V Slo Blo DC version <ul style="list-style-type: none"> • 10 ... 30 V DC, 26 W max. • Fuse FU2 = 3.75 A resettable (not user replaceable)
Controls and displays	
Display	Illuminated 5 x 7 dot matrix liquid crystal display with 2 lines of 40 characters each
Programming	Via local keypad
Memory	Program and parameters stored in non-volatile Flash memory
Communications	Two RS 232 ports One RS 485 port SmartLinX compatible
Approvals	
CE, UKCA, cCSAus, FM, RCM, EAC, KC	
Options	
<ul style="list-style-type: none"> • 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 	

Dimensional drawings



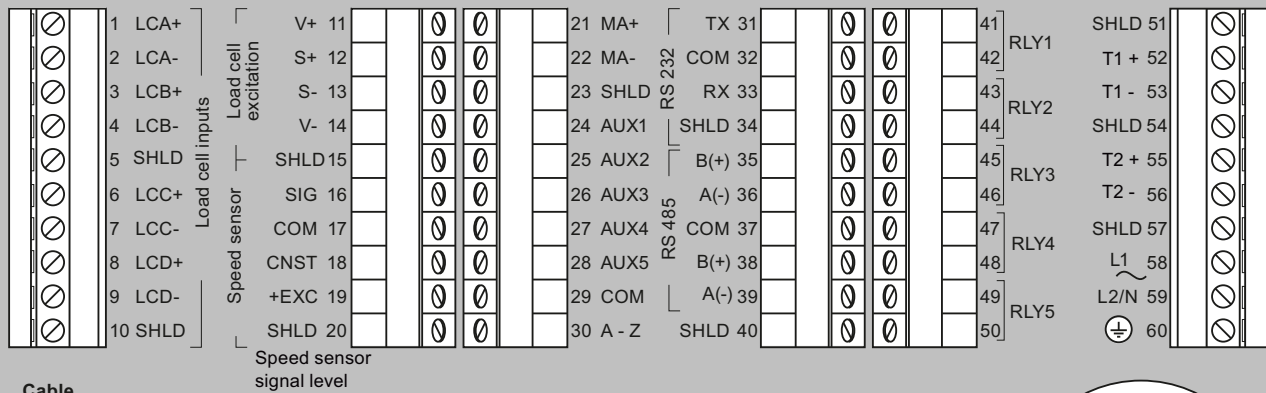
Milltronics SF500, dimensions in mm (inch)

Weighing Electronics

Stand-alone

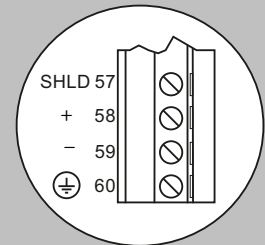
Solids flowmeters / Milltronics SF500

Circuit diagrams



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