## 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 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.

## Technical specifications

| Milltronics SF500 | |
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| **Mode of operation** | |
| Measuring principle | Flowmeter integrator |
| Typical application | • Compatible with SITRANS solids flowmeters or equivalent 1 or 2 load cell models<br>• 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) |
| 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<br>• Solid state relay contact 30 V DC, 100 mA max.<br>• Max. contact on-resistance = 36 ohms<br>• Max. off-state leakage = 1 uA |
| Remote totalizer 2 | • Contact closure 10 ... 300 ms duration<br>• Solid state relay contact rated 240 V AC/DC, 100 mA max.<br>• Max. contact on-resistance = 36 ohms<br>• 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 |

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| **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<br>• 100 ... 240 V AC ± 10 %, 50/60 Hz, 55 VA max.<br>• Fuse FU3 = 2AG, 2 AMP, 250 V Slo Blo<br>DC version<br>• 10 ... 30 V DC, 26 W max.<br>• 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 stored in non-volatile FLASH ROM<br>• Parameters stored in battery backed RAM, 3 V NEDA 5003LC or equivalent, 10 year life |
| Communications | Two RS 232 ports<br>One RS 485 port<br>SmartLinx compatible |
| **Approvals** | CE, $CSA_{US/C}$, FM, RCM, EAC, KCC |
| **Options** | • SmartLinx modules: protocol specific modules for interface with popular industrial communications systems. Refer to associated product documentation.<br>• LVDT interface card: for interface with LVDT based solids flowmeters<br>• mA I/O board<br>- Inputs: 2 programmable 0/ 4 … 20 mA for PID control or on-line calibration, optically isolated, 0.1 % … 20 mA resolution, 200 Ω input impedance<br>- 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<br>- Output supply: isolated 24 V DC at 50 mA, short circuit protected |

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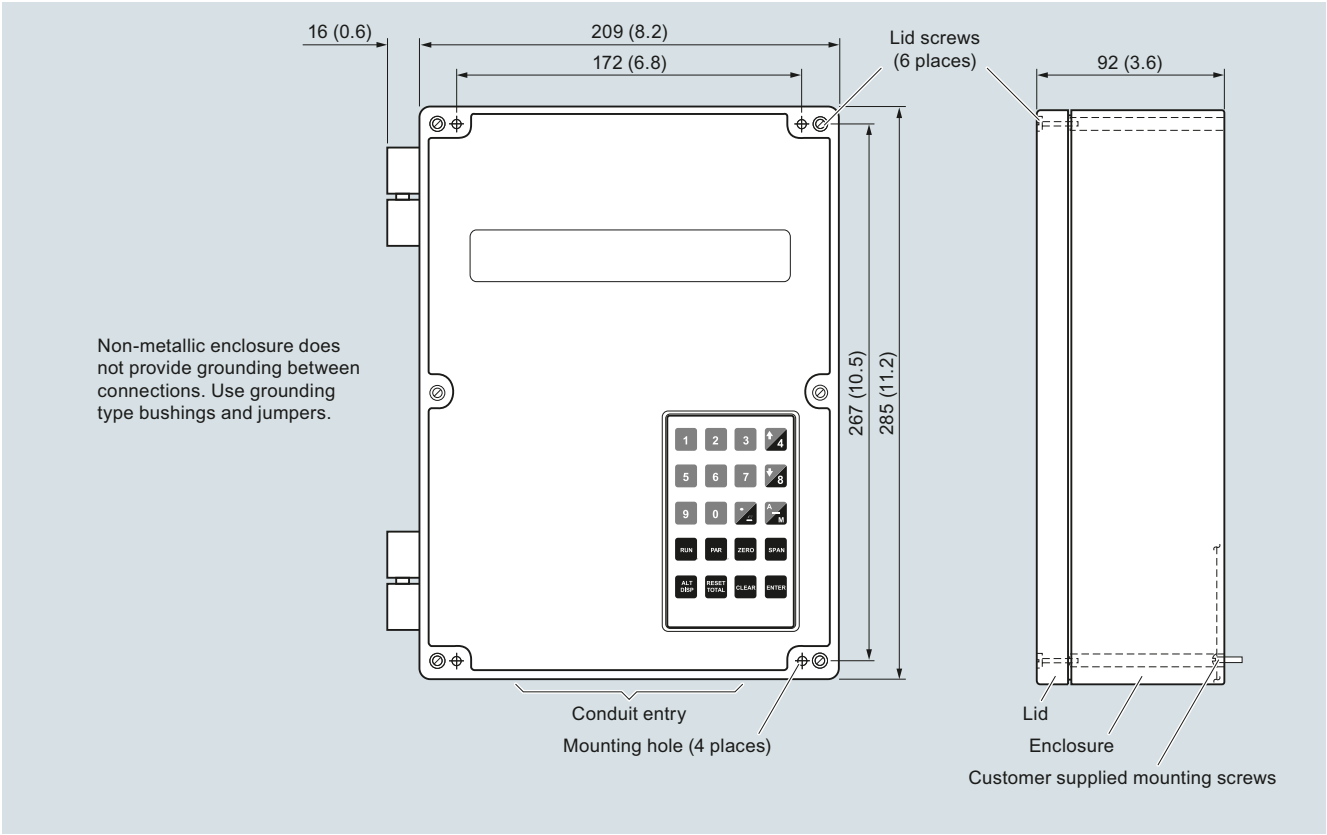
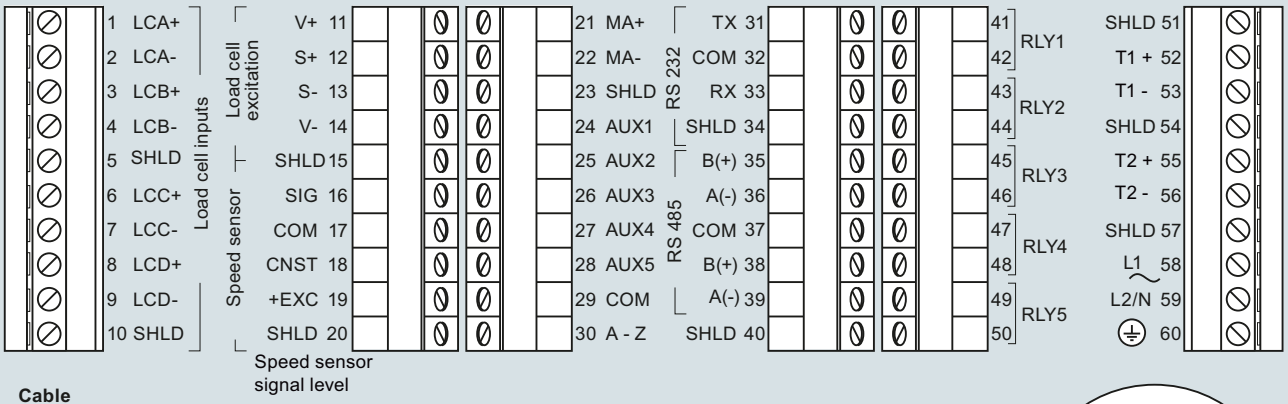
## Dimensional drawings



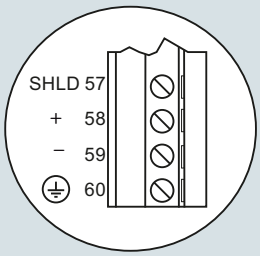

Milltronics SF500, dimensions in mm (inch)

## 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