

## Belt Weighing

### Belt scales

#### Milltronics MLC

##### Overview



Milltronics MLC is a low-capacity scale for light belt loading.

##### Application

The MLC is suitable for monitoring such products as fertilizer, tobacco, animal feed pellets, or sugar.

The MLC's proven use of parallelogram style load cells results in fast reaction to vertical forces, ensuring instant response to product loading. This enables it to provide outstanding accuracy and repeatability even with very light loading. The MLC may be easily installed in existing flat belt conveyors or belt feeders.

Operating with Milltronics BW500, SIWAREX WT241, WP241, or FTC microprocessor-based integrators, the MLC provides indication of flow rate, total weight, belt load and belt speed of bulk solids materials on a belt conveyor. A speed sensor monitors conveyor belt speed for input to the integrator. When used in conjunction with Milltronics BW500 integrator with PID controller, the MLC may also be used in the food industry as part of a pre-feed control system for extruders, cookers and de-hydrators.

##### Benefits

- Unique parallelogram style load cell design
- Designed for light product loading
- Compact and easy to install
- System includes weighing idler
- Stainless steel option
- Low cost of ownership

### Technical specifications

Milltronics MLC	
<b>Mode of operation</b>	
Measuring principle	Strain gauge load cell measuring load on flat belt conveyor idler
Typical application	Monitor fertilizer, tobacco, animal feed pellets, sugar, cereal
<b>Performance</b>	
Accuracy <sup>1)</sup>	± 0.5 ... 1.0 % of totalization over 25 ... 100 % operating range
Repeatability	± 0.1 %
<b>Medium conditions</b>	
Max. material temperature	85 °C (185 °F)
<b>Belt design</b>	
Belt width	<ul style="list-style-type: none"> <li>• 450 ... 1 200 mm</li> <li>• 18 ... 48 inch</li> </ul>
Belt speed	2.0 m/s (400 fpm) maximum <sup>2)</sup>
<b>Capacity</b>	Up to 50 t/h (55 STPH) <sup>2)</sup>
<b>Conveyor incline</b>	<ul style="list-style-type: none"> <li>• ± 20° from horizontal, fixed incline</li> <li>• Up to ± 30° with reduced accuracy</li> </ul>
<b>Idlers</b>	
Conveyor idler	Horizontal
Idler diameter	50 or 60 mm (1.90 or 2.30 inch)
Idler spacing	0.5 ... 1.5 m (1.6 ... 5.0 ft)

Milltronics MLC	
<b>Load cell</b>	
Construction	17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover Strain gauge protection: polybutadiene
Degree of protection	IP67
Cable length	3 m (10 ft)
Excitation	10 V DC nominal, 15 V DC maximum
Output	2 mV/V excitation at rated load cell capacity
Non-linearity	0.03 % of rated output
Hysteresis	0.05 % of rated output
Non-repeatability	0.03 % of rated output
Capacity	10 or 20 lb
Overload	150 % of rated capacity, ultimate 300 % of rated capacity
Temperature	<ul style="list-style-type: none"> <li>• -40 ... +85 °C (-40 ... +185 °F) operating range</li> <li>• -10 ... +60 °C (14 ... 140 °F) compensated</li> </ul>
<b>Mounting dimensions</b>	Identical for all capacities
<b>Hazardous locations</b>	Consult the factory
<b>Approvals</b>	CE, RCM, EAC, KCC

- <sup>1)</sup> Accuracy subject to: on factory approved installations the belt scale system's totalized weight will be within the specified accuracy when compared to a known weighed material test sample. The test rate must be within the specified range of the design capacity and held constant for the duration of the test. The minimum material test sample must be equivalent to a sample obtained at the test flow rate for three revolutions of the belt or at least ten minutes running time, whichever is greater.
- <sup>2)</sup> Contact Siemens ([http://www.automation.siemens.com/aspa\\_apppe](http://www.automation.siemens.com/aspa_apppe)) for ratios of higher values.

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#### Selection and ordering data

#### Article No.

#### Order Code

##### Milltronics MLC Belt scale

Accuracy is  $\pm 0.5 \dots 1.0$  % of totalization over 25 ... 100 % operating range with capacity up to 50 t/h (55 STPH).

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

##### Belt width/Scale construction

C5-M rated polyester painted mild steel

18 inch (457 mm)

1 A

24 inch (610 mm)

1 B

30 inch (762 mm)

1 C

36 inch (914 mm)

1 D

42 inch (1 067 mm)

1 E

48 inch (1 219 mm)

1 F

500 mm (20 inch)

1 G

650 mm (26 inch)

1 H

800 mm (32 inch)

1 J

1 000 mm (39 inch)

1 K

1 200 mm (47 inch)

1 L

450 mm (18 inch)

1 M

Stainless steel 304 (1.4301), bead blast finish (1 ... 6  $\mu\text{m}$ , 40 ... 240  $\mu\text{in}$ )

18 inch (457 mm)

2 A

24 inch (610 mm)

2 B

30 inch (762 mm)

2 C

36 inch (914 mm)

2 D

42 inch (1 067 mm)

2 E

48 inch (1 219 mm)

2 F

500 mm (20 inch)

2 G

650 mm (26 inch)

2 H

800 mm (32 inch)

2 J

1 000 mm (39 inch)

2 K

1 200 mm (47 inch)

2 L

450 mm (18 inch)

2 M

##### Load cell capacity

10 lb (4.55 kg)

A

20 lb (9.09 kg)

B

Not specified<sup>1)</sup>

X

##### Weighing idler dimensions

50 mm (1.96 inch)<sup>2)</sup>

1

60 mm (2.40 inch)<sup>3)</sup>

2

1.90 inch (48.2 mm)<sup>4)</sup>

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##### Further designs

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

Stainless steel tag [69 x 38 mm (2.7 x 1.5 inch)], Measuring-point number/ identification (max 27 characters), specify in plain text.

Y15

Application Eng. reference number (max. 15 characters), specify in plain text.

Y31

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

C11

FDA compliant version. Conduit and fittings designed for food applications conforming to FDA/USDA standards

K01

##### Operating instructions

All literature is available to download for free, in a range of languages, at

<http://www.siemens.com/weighing/documentation>

##### Spare parts

Load cell, 10 lb (4.55 kg), 17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover, includes hardware

Article No.

PBD-23900244

Load cell, 20 lb (9.09 kg), 17-4 PH (1.4568) stainless steel construction with 304 (1.4301) stainless steel cover, includes hardware

PBD-23900245

Conduit replacement kit

7MH7723-1NA

FDA conduit replacement kit

7MH7723-1QL

Spare load cell hardware kit

A5E44809390

##### Milltronics MLC calibration weight [Stainless Steel 304 (1.4301)]

For scales with belt width of 18 inch or 500 mm or 450 mm

1.05 lb (0.47 kg)

7MH7724-1AL

1.63 lb (0.73 kg)

7MH7724-1AM

2.35 lb (1.06 kg)

7MH7724-1AN

3.21 lb (1.45 kg)

7MH7724-1AP

For scales with belt width of 24 inch or 650 mm

1.38 lb (0.62 kg)

7MH7724-1AQ

2.15 lb (0.97 kg)

7MH7724-1AR

3.11 lb (1.41 kg)

7MH7724-1AS

4.24 lb (1.91 kg)

7MH7724-1AT

For scales with belt width of 30 inch or 800 mm

1.72 lb (0.77 kg)

7MH7724-1AU

2.67 lb (1.21 kg)

7MH7724-1AV

3.85 lb (1.73 kg)

7MH7724-1AW

5.26 lb (2.37 kg)

7MH7724-1AX

For scales with belt width of 36 inch or 1 000 mm

2.05 lb (0.92 kg)

7MH7724-1AY

3.19 lb (1.44 kg)

7MH7724-1BA

4.56 lb (2.07 kg)

7MH7724-1BB

6.29 lb (2.83 kg)

7MH7724-1BC

For scales with belt width of 42 inch or 1 000 mm

2.38 lb (1.07 kg)

7MH7724-1BD

3.71 lb (1.67 kg)

7MH7724-1BE

5.35 lb (2.41 kg)

7MH7724-1BF

7.31 lb (3.29 kg)

7MH7724-1BG

For scales with belt width of 48 inch or 1 200 mm

2.72 lb (1.22 kg)

7MH7724-1BH

4.23 lb (1.92 kg)

7MH7724-1BJ

6.06 lb (2.75 kg)

7MH7724-1BK

8.34 lb (3.75 kg)

7MH7724-1BL

Note: calibration accessories should be ordered as a separate item on the order.

<sup>1)</sup> Only for quotation purposes, not a valid ordering option.

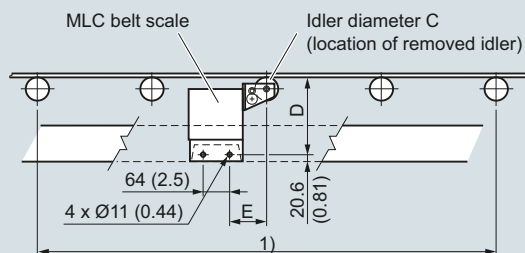
<sup>2)</sup> Available with Belt width/Scale construction options 1G ... 1M and 2G ... 2M only.

<sup>3)</sup> Available with Belt width/Scale construction options 1G ... 1M only.

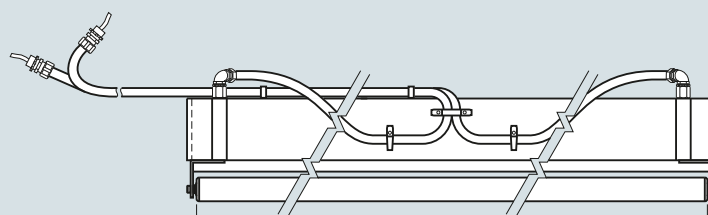
<sup>4)</sup> Available with Belt width/Scale construction options 1A ... 1F and 2A ... 2F only.

**Dimensional drawings**

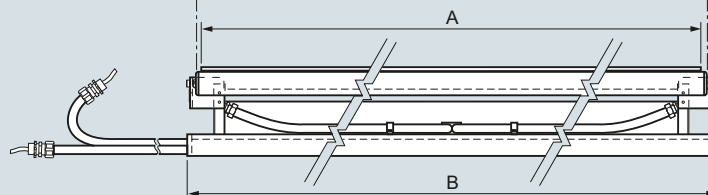
Installation



Plan View



Front View



1) For pan supported belts, the belt should be cut out to allow the MLC and at least two (preferably four) other idlers to be installed.

**Imperial designs [dimensions in inch (mm)]**

Scale size	'A' roller width	'B' dimension	'C' dimension	'D' dimension	'E' dimension
18 (457)	18 (457)	19 (483)	1.90 (48.3)	6.19 (157)	3.5 (89)
24 (610)	24 (610)	25 (635)	1.90 (48.3)	6.19 (157)	3.5 (89)
30 (762)	30 (762)	31 (787)	1.90 (48.3)	6.19 (157)	3.5 (89)
36 (914)	36 (914)	37 (940)	1.90 (48.3)	6.19 (157)	3.5 (89)
42 (1 067)	42 (1 067)	43 (1 092)	1.90 (48.3)	6.19 (157)	3.5 (89)
48 (1 219)	48 (1 219)	49 (1 245)	1.90 (48.3)	6.19 (157)	3.5 (89)

**Metric designs [dimensions in mm (inch)]**

Scale size	'A' roller width	'B' dimension	'C' dimension	'D' dimension	'E' dimension
450 (17.72)	450 (17.72)	500 (19.69)	50 (1.97)	158 (6.22)	96 (3.78)
500 (19.69)	500 (19.69)	550 (21.65)	50 (1.97)	158 (6.22)	96 (3.78)
650 (25.59)	650 (25.59)	700 (27.56)	50 (1.97)	158 (6.22)	96 (3.78)
800 (31.50)	800 (31.50)	850 (33.46)	50 (1.97)	158 (6.22)	96 (3.78)
1 000 (39.37)	1 000 (39.37)	1 050 (41.34)	60 (2.36)	158 (6.22)	96 (3.78)
1 200 (47.24)	1 200 (47.24)	1 250 (49.21)	60 (2.36)	158 (6.22)	96 (3.78)

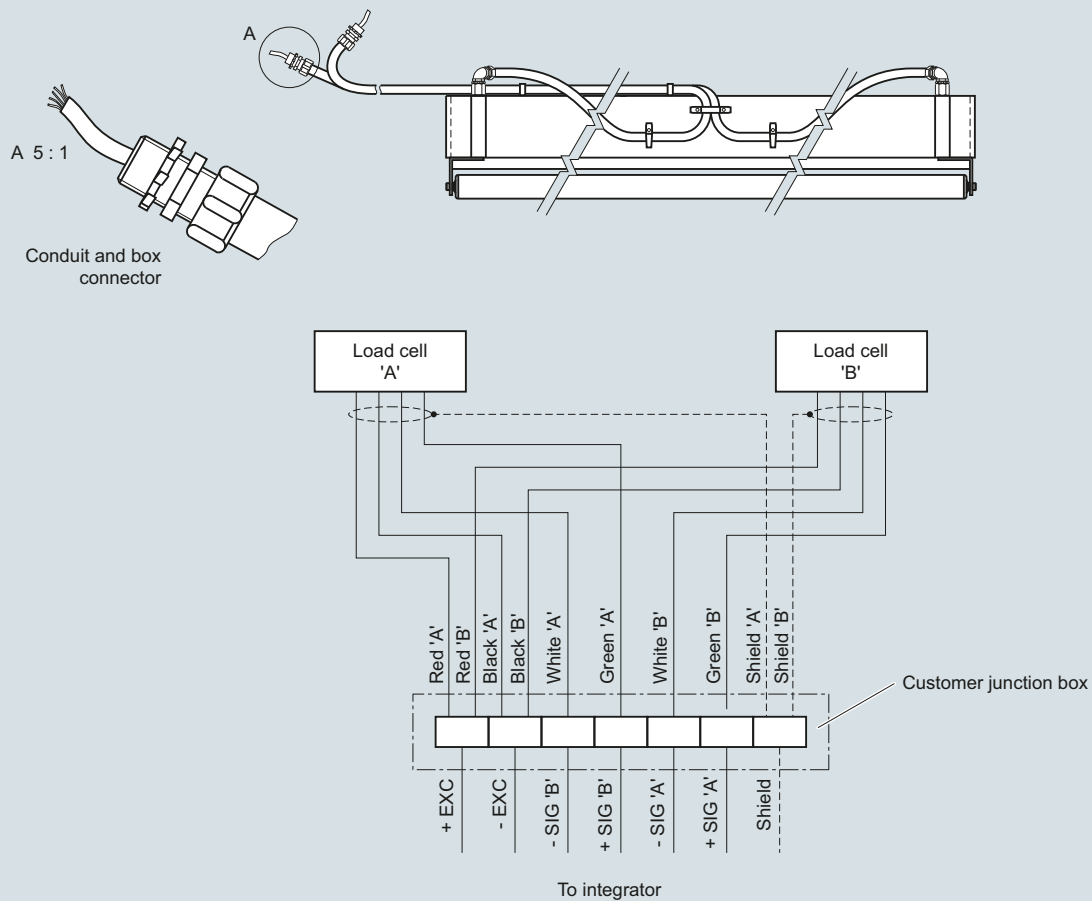
MLC, dimensions in mm (inch)

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## Circuit diagrams



Note:  
Conduit and cable arrangement may differ from example shown.

MLC connections

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