

# Belt Scales

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# Master™ 311M

Medium to Heavy Capacity Weigh Frame



## Standard Features

- Semi-modular weigh frame design
- Weigh frame without moving parts
- Fits standard conveyors
- Mounts with four bolts
- Requires weigh frame cutting for proper fit
- Minimum modifications to conveyor required

## Options:

- Galvanized or stainless construction
- Custom widths available
- Custom lifting weights available on request

## Applications:

- Mining, quarries, bulk material blending, process control and retrofit

## Part Number/Price

Part #	Description	Est. Weight	Price
163296	311M belt scale weigh frame with 50 kg load cell	125 lb	\$1,535.00
163297	311M belt scale weigh frame with 100 kg load cell	125 lb	\$1,535.00
163298	311M belt scale weigh frame with 250 kg load cell	125 lb	\$1,535.00
Consult	Lifting weight kit		Consult

Please complete the Belt Scale Questionnaire on page 163 to obtain a quote

## Specifications

### Belt Width:

18 in to 36 in (457 mm to 914 mm)

### Capacity:

1,500 tons per hour

### Belt Speed:

Maximum 400 feet per minute (2 m/s)

### Inclination:

Maximum 12 degrees

### Material:

Powder coated mild steel

### Accuracy System:

1%

### Load Cell:

RL1218A: 50 kg, 100 kg, 250 kg

### Warranty:

One-year limited warranty

# Master™ 221DB

Medium to Heavy Capacity Belt Scale

## Specifications

- Conveyor Width:**  
18 in to 72 in (457 mm to 1,829 mm)
- Capacity:**  
3,300 tons per hour
- Maximum Belt Speed:**  
800 feet per minute (4 m/s)
- Inclination:**  
Maximum 25 degrees
- Material:**  
Powder coated mild steel
- Accuracy System:**  
0.5-1%
- Load Cell:**  
RL9018SS: 50 kg, 100 kg, 200 kg
- Junction Box:**  
JB4SS
- Warranty:**  
One-year limited warranty



## Standard Features

- Weigh frame is mounted on outside of conveyor
- Minimum modifications to conveyor are required
- Service friendly
- Friction-free pivot supports
- Two support beams
- Fits standard conveyors - mounts with four bolts per assembly

## Options:

- Galvanized or stainless construction

## Applications:

- Medium to heavy capacity

## Part Number/Price

Part #	Description	Est. Weight	Price
163292	221DB belt scale with 50 kg load cells	143 lb	\$3,445.00
163293	221DB belt scale with 100 kg load cells	143 lb	\$3,345.00
163294	221DB belt scale with 200 kg load cells	143 lb	\$3,345.00
202591	221DB stainless steel belt scale with 50 kg load cells	143 lb	\$4,145.00
202592	221DB stainless steel belt scale with 100 kg load cells	143 lb	\$4,145.00
202593	221DB stainless steel belt scale with 200 kg load cells	143 lb	\$4,145.00

Please complete the Belt Scale Questionnaire on page 163 to obtain a quote

# Master™ 211

Medium to Heavy Capacity Weigh Frame



## Standard Features

- Friction-free pivot points
- One load cell carrier beam
- Fits standard conveyors
- Custom built for each application

## Options:

- 304/316 Stainless steel
- Dual load cells
- Dual idler
- Custom lifting weights available on request

## Part Number/Price

Part #	Description	Price
Consult	Master 211	Consult
Consult	Lifting weight kit	Consult

Please complete the Belt Scale Questionnaire on page 163 to obtain a quote

## Specifications

**Conveyor Width:**

20 in to 80 in (500 mm to 2,000 mm)

**Capacity:**

3,000 tons per hour

**Maximum Belt Speed:**

800 feet per minute (4 m/s)

**Maximum Inclination:**

25 degrees

**Material:**

Powder coated mild steel

**Accuracy System:**

0.5 %

**Load Cell:**

RL20001 alloy steel, s-beam (capacity selected from application)

**Warranty:**

One-year limited warranty

# Master™ 14X

Medium to Heavy Capacity Weigh Frame

## Specifications

**Conveyor Width:**

20 in to 120 in (500 mm to 3,000 mm)

**Capacity:**

20,000 tons per hour

**Belt Speed:**

1,400 feet per minute (7 m/s)

**Inclination:**

25 degrees

**Material:**

Powder coated mild steel

**Accuracy Guidelines:**

0.25 %

**Load Cell:**

RL20001 alloy steel s-beam  
(capacity selected from application)

**Warranty:**

One-year limited warranty



## Standard Features

- Custom built for each application
- Fits standard conveyors
- Multiple idler design
- Inner frame free, floating platform

## Options:

- 304 Stainless steel
- Two, three or four weigh idlers
- Custom lifting weights available on request

## Applications:

- Medium to heavy capacity, mining and aggregate

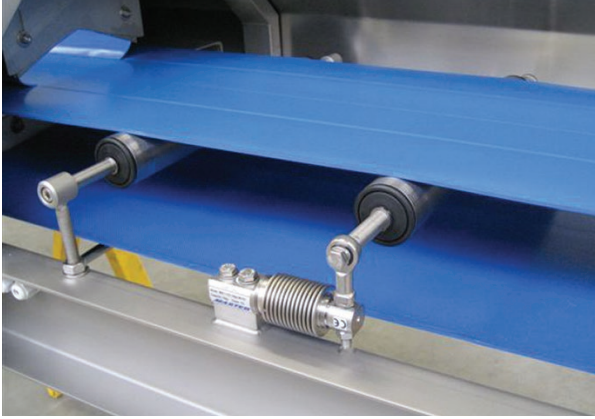
## Part Number/Price

Part #	Description	Price
Consult	Master 142	Consult
Consult	Master 143	Consult
Consult	Master 144	Consult
Consult	Lifting weight kit	Consult

Please complete the Belt Scale Questionnaire on page 163 to obtain a quote

# Master™ 421

Light Capacity Weigh Frame



## Standard Features

- Ideal for flat belt conveyors
- Roller supported on both sides by load cells
- Open design for easy cleaning

## Applications:

- Light capacity, food production and light granular materials

## Part Number/Price

Part #	Description	Price
Consult	421 weigh frame	\$2,735.00

*Please complete the Belt Scale Questionnaire on page 163 to obtain a quote*

## Specifications

### Conveyor Width:

12 in to 60 in (300 mm to 1,600 mm)

### Capacity:

30 tons per hour

### Belt Speed:

400 feet per minute (2 m/s)

### Inclination:

10 degrees

### Material:

Powder coated mild steel / 304 / 316 stainless steel

### Accuracy Systems:

0.5 %

### Load Cell:

RL9018SS single ended beam in 10, 20 or 50 kg capacities

### Warranty:

One-year limited warranty

## Specifications

### Conveyor Widths:

18-72 in

### Capacity:

Up to 10,000 tons per hour

### Belt Speed:

Up to 1,200 feet per minute

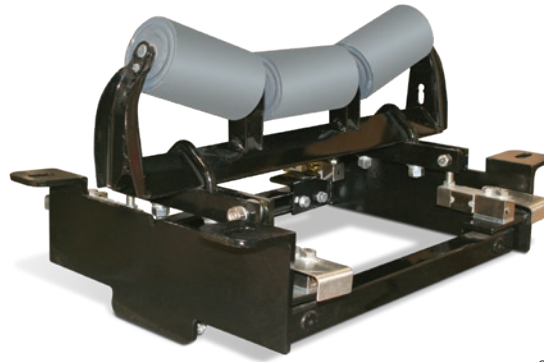
### Accuracy Guidelines:

Single-two idler system: 0.5%-1% total error

Three-four idler system: <0.5% total error

### System Accuracy:

Guidelines assume clean belt with automatic tensioning system. Accuracy guidelines are typical. System accuracy may vary depending on environmental influences.



*Note: Idler not included. Customer is responsible for mounting idler to weigh frame.*

## Standard Features

- Experience durability and accuracy with Rice Lake's rugged BCI belt scale weigh frame. Built to last, the BCI is one of the most accurate belt scales in its class. Ideal for mining, quarries, bulk material blending, process control operations and load-out applications, the BCI easily handles capacities up to 10,000 tons per hour with unsurpassed accuracy.

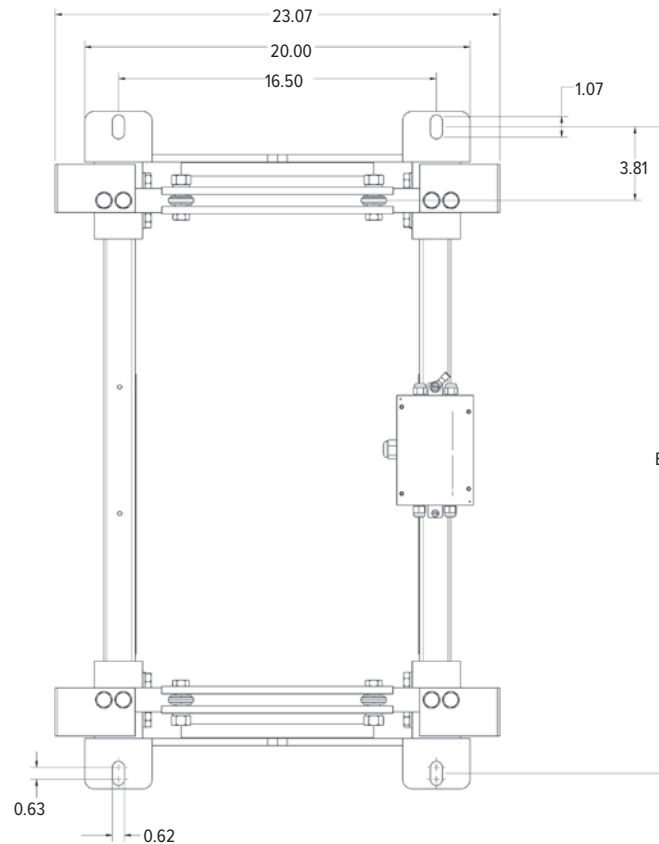
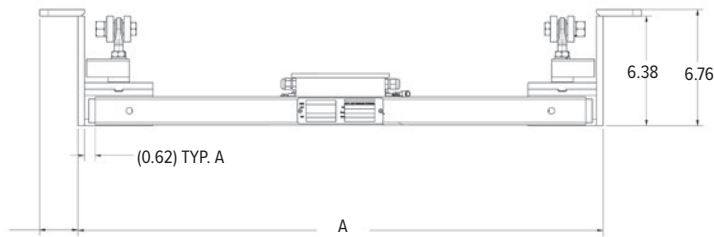
## Applications

- Mining, quarries, bulk material blending, process control, utilities, truck/barge/rail loading and retrofit

## Part Number/Price

Part #	Description	Est. Belt Width	Capacity	Price
<b>Mild Steel Weigh Frames</b>				
94968	24 in weigh frame	18 in	500 lb	\$2,485.00
95208	30 in weigh frame	24 in	500 lb	\$2,485.00
95209	36 in weigh frame	30 in	500 lb	\$2,485.00
95210	42 in weigh frame	36 in	500 lb	\$2,485.00
95211	48 in weigh frame	42 in	500 lb	\$2,485.00
95212	54 in weigh frame	48 in	500 lb	\$2,485.00
96717	60 in weigh frame	54 in	1,000 lb	\$2,485.00
96718	66 in weigh frame	60 in	1,000 lb	\$2,485.00
96719	72 in weigh frame	66 in	1,000 lb	\$2,485.00
Consult	Light-capacity weigh frames			\$3,375.00
<b>Stainless Steel Weigh Frames</b>				
110839	24 in weigh frame	18 in	500 lb	\$3,625.00
105246	30 in weigh frame	24 in	500 lb	\$3,625.00
110841	36 in weigh frame	30 in	500 lb	\$3,625.00
110842	42 in weigh frame	36 in	500 lb	\$3,625.00
110843	48 in weigh frame	42 in	500 lb	\$3,625.00
110844	54 in weigh frame	48 in	500 lb	\$3,625.00
110845	60 in weigh frame	54 in	500 lb	\$3,625.00
110846	66 in weigh frame	60 in	500 lb	\$3,625.00
110847	72 in weigh frame	66 in	500 lb	\$3,625.00
Consult	Light-capacity weigh frames			\$4,875.00
<b>Weigh Frame Accessories</b>				
126282	V-bolt for 3 in angle iron base idlers set of 2			\$95.00
126283	V-bolt for 4 in angle iron base idlers set of 2			\$105.00

Please complete the Belt Scale Questionnaire on page 163 to obtain a quote



Note: Cables on drawings removed for clarity. Idler mounting hardware is not included in weigh frame; see idler mounting bolts above.

### Dimensions

Part Number	A	B
<b>Mild Steel</b>		
94968	24.00 in	27.50 in
95208	30.00 in	33.50 in
95209	36.00 in	39.50 in
95210	42.00 in	45.50 in
95211	48.00 in	51.50 in
95212	54.00 in	57.50 in
96717	60.00 in	63.50 in
96718	66.00 in	69.50 in
96719	72.00 in	75.50 in

Part Number	A	B
<b>Stainless Steel</b>		
110839	24.00 in	27.50 in
105246	30.00 in	33.50 in
110841	36.00 in	39.50 in
110842	42.00 in	45.50 in
110843	48.00 in	51.50 in
110844	54.00 in	57.50 in
110845	60.00 in	63.50 in
110846	66.00 in	69.50 in
110847	72.00 in	75.50 in



# 920i<sup>®</sup> Belt Scale Integrator

## Specifications

### Line Voltages:

115 or 230 VAC,  
Frequency: 50 or 60 Hz

### Power Consumption:

340 mA, maximum at 115 VAC (26 W)  
240 mA at 230 VAC (26 W)

### Excitation Voltage:

10 ± VDC, 16 x 350 ohm or 32 x 700 ohm load cells  
per A/D card

### Analog Signal Input Range:

-10 mV to +45 mV

### Analog Signal Sensitivity:

0.3 µV/graduation minimum at 7.5 Hz  
1.0 µV/graduation typical at 120 Hz  
4.0 µV/graduation typical at 960 Hz

### A/D sample rate:

7.5 to 960 Hz, software selectable

### Resolution:

Internal Resolution: 8 million counts/8,000,000

### Weight Display Resolution:

9,999,999

### System Linearity:

± 0.01% full scale

### Digital I/O:

Six I/O channels on CPU board; optional 24-channel  
I/O expansion boards available

### Circuit Protection:

RFI, EMI, ESD protection

### Serial Ports:

Four ports on CPU board support up to 115,200  
bps; optional dual-channel serial expansion boards  
available

Port 1: Full duplex RS-232

Port 2: RS-232 with CTS/RTS; PS/2 keyboard  
interface via DB-9 connector

Port 3: Full duplex RS-232, 20 mA output

Port 4: Full duplex RS-232, 2-wire RS-485,  
20 mA output

### Display:

(W x H) 4.6 x 3.4 in (116 x 86 mm)  
320 x 240 pixel VGA liquid crystal display (LCD)  
module with adjustable contrast

### Keyboard:

27-key membrane panel, tactile feel, PS/2 port for  
external keyboard connection

### Temperature Range:

Certified: 14° F to 104° F (-10° C to +40° C)  
Operating: 14° F to 122° F (-10° C to +50° C)

### Dimensions:

Universal: 10.6 x 10.9 x 4.6 (268 x 276 x 117 mm)  
Deep Universal: 10.8 x 10.9 x 5.4  
(273 x 276 x 136 mm)

### Weight:

Panel Mount Enclosure: 8.5 lb (3.9 kg)  
Deep Universal: 11 lb (5.0 kg)

### Rating/Material:

NEMA Type 4X/IP66, stainless steel

### Warranty:

Two-year limited warranty on integrator and  
load cells

### Approvals:

CE Marked  
UL and C-UL listed (universal, deep and wall  
mount enclosure)  
Custom wall mount approved for 508A (optional)  
Panel mount UL recognized



920i<sup>®</sup> Integrator

## Standard Features

- Large (W x H) 4.6 x 3.4 in, 320 x 240 pixel backlit LCD graphical display
- NEMA Type 4X/IP66 stainless steel display enclosure
- Four bidirectional communication ports
- Rate and speed time displayed by the hour, minute or second
- Measurement displayed in feet or meters
- Unit of rate displayed in tons, pounds, kilograms, metric tons or long tons
- Digital I/O for totalizer
- Optional analog and alarm outputs
- For added security, integrator has the ability to be password protected
- Optional communication protocol cards include ControlNet, Rockwell Automation's DeviceNet, Rockwell Automation's Remote I/O, Rockwell Automation's EtherNet IP, Profibus DP, 0 to 10 VAC or 4 to 20 mA analog output, Ethernet TCP/IP,
- Standard communication RS-232, RS-485, 20 mA current loop
- Built-in support for ticket printing

## APPROVALS



## Part Number/Price

Part #	Description	Price
<b>Integrators</b>		
95214	Belt scale integrator 115 VAC, deep enclosure	\$2,795.00
95215	Belt scale integrator 230 VAC, deep enclosure	\$2,795.00
170693	Belt scale integrator, panel mount	\$2,675.00
170694	Belt scale integrator, wall mount	\$3,275.00
107615	Belt scale integrator with UPS 115 VAC	\$2,895.00
107616	Belt scale integrator with UPS 230 VAC	\$2,895.00
120550	Belt scale integrator with deep enclosure, two slot expansion, EtherNet IP for A-B, 115 V	\$3,945.00
120551	Belt scale integrator with deep enclosure, two slot expansion, EtherNet IP for A-B, 230 V	\$3,945.00
150811	Belt scale integrator with deep enclosure, two slot expansion, analog output	\$3,495.00
69782	Two-slot expansion board (wall mount)	\$315.00
71743	Two-slot expansion board (panel mount & deep universal)	\$315.00
98057	Ethernet TCP/IP, wireless LAN card 802.11 b/g	\$675.00
87803	Ethernet IP (specifically for A-B PLC)	\$840.00
67602	Analog output: selectable 0 to 10V, 0 to 20 mA	\$325.00

Please complete the Belt Scale Questionnaire on page 163 to obtain a quote  
See Indicators for additional 920i options

# 882D Belt Scale Integrator



## Standard Features

- LCD display, 0.8 inch seven-digit, seven-segment weight display, 3 x 20 pixelated prompt area
- RS-232 or RS-485 serial port
- USB device port connects directly to a PC
- Ethernet TCP/IP polled or continuous
- AC or DC models
- Hardware slot for two option cards
- Operator functions through menu key for audit trail, preset tare, accumulator, time & date and setpoints
- Audit trail tracking for configuration and calibration changes. Password protection for user and configuration changes.
- Setpoints for control and alarms
- Four onboard digital I/O channels
- Four programmable ticket formats up to 1,000 characters
- Filter settings for light, medium and heavy noise
- Speed inputs

## Approvals



## Specifications

### Power

Input voltages: 100-240 VAC; 9-36 VDC  
Input frequency: 47-63 Hz

### Power Consumption:

AC: 15 watts; DC: 20 watts

### Excitation Voltage:

10 VDC 8 x 350 ohm (16 x 700 ohm) load cells

### Analog Signal Input Range:

-45 mV to 45 mV

### Analog Signal Sensitivity:

0.3  $\mu$ V/graduation minimum at 7.5 Hz;  
1.0  $\mu$ V/graduation typical at 120 Hz

### Sample Rate:

7.5 to 120 Hz, software selectable

### Resolution:

Internal: 8 million counts 23 bit weight display;  
100,000

### System Linearity:

$\pm$  0.01% full scale

### Digital I/O:

Four I/O onboard primary keys, pseudo functions,  
batching functions

### Circuit Protection:

18 KV, 10 V/meter

### Communication Ports:

RS-232 full duplex or RS-485 half duplex; USB micro  
A/B connector 2.0; Ethernet TCP/IP

### Pulse Input:

Dual inputs for redundancy

### Display:

LCD display, seven-digit, seven-segment weight  
display, 3 x 20 pixelated prompt area

### Status Annunciators:

Load, total, rate, speed, zero

### Keyboard:

Flat membrane panel, tactile feel

### Operating Temperature:

Industrial: 14° F to 122° F (-10° C to 50° C)

### Dimensions (W x H x D):

9.87 x 9.38 x 4.33

### Weight:

12 lb (5.4 kg)

### Material:

Stainless steel

### Rating:

IP66

### Warranty:

Two-year limited warranty

### Approvals:

CE Marked  
UL/c-UL Listed

# 882D Belt Scale Integrator

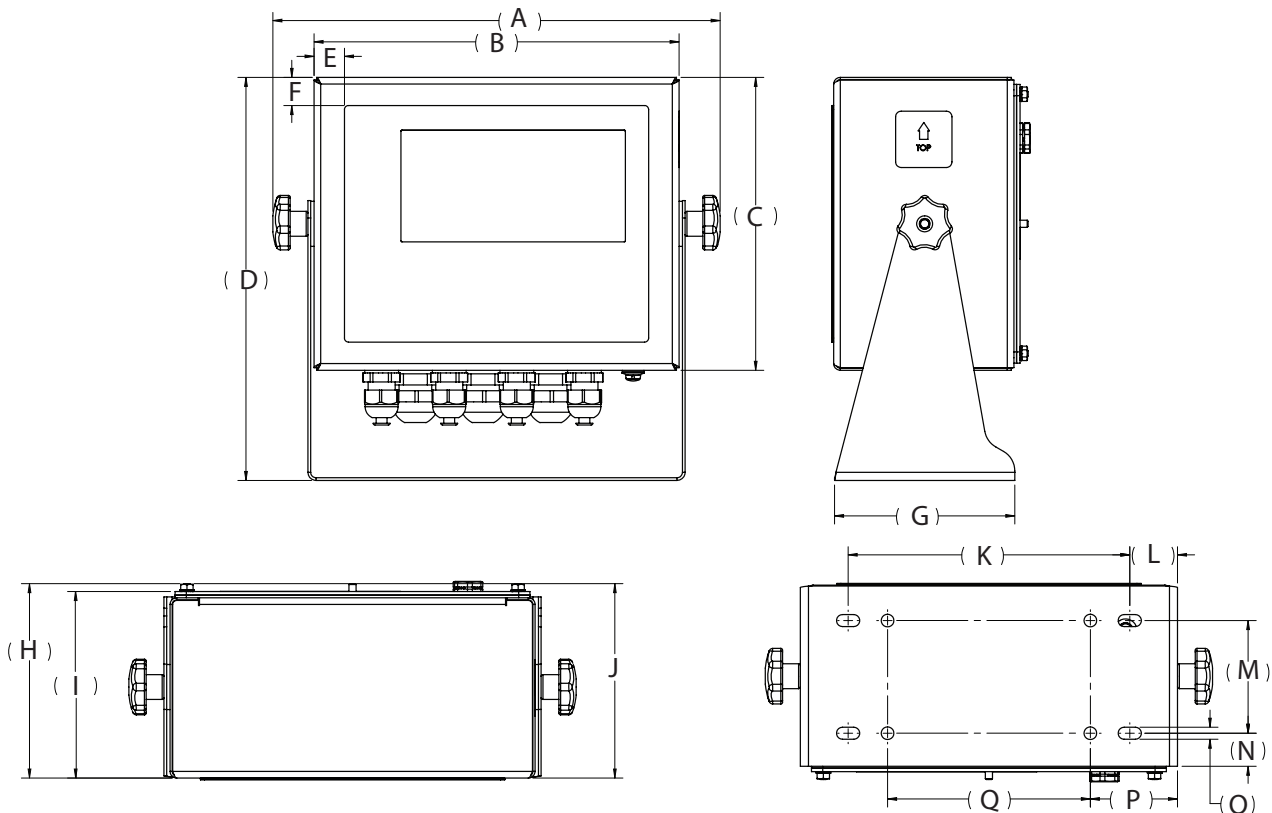
## Part Number/Price

Part #	Description	Price
<b>Integrators</b>		
177708	120 VAC	\$2,115.00
180847	220 VAC Euro power cord	\$2,115.00
184683	9-36 VDC	\$2,275.00

## Options/Accessories

Part #	Description	Price
190527	882D option, digital I/O	\$365.00
190528	882D option, single analog out	\$425.00
190529	882D option, relay interface	\$470.00
177850	Panel mount kit	\$215.00
197724	Overlay, clear protective window, pack of 5	\$75.00
<b>Network Cards</b>		
190530	882D option, Ethernet/IP	\$600.00
190531	882D option, DeviceNet	\$600.00
190532	882D option, ProfiNet	\$600.00
190534	882D option, Profibus	\$600.00
190533	882D option, Modbus TCP	\$600.00
190535	882D option, EtherCAT	\$600.00

Please complete the Belt Scale Application on page 163 to obtain a quote



### Dimensions

A	9.93 in (252.2 mm)	J	4.32 in (109.7 mm)
B	8.10 in (205.7 mm)	K	6.25 in (158.8 mm)
C	6.50 in (165.1 mm)	L	1.06 in (26.9 mm)
D	8.94 in (227.1 mm)	M	2.50 in (63.5 mm)
E	0.68 in (17.3 mm)	N	0.73 in (18.5 mm)
F	0.63 in (16 mm)	O	0.27 in (6.9 mm)
G	4.00 in (101.6 mm)	P	1.93 in (49 mm)
H	4.31 in (109.5 mm)	Q	4.50 in (114.3 mm)
I	4.14 in (105.2 mm)		

# Belt Scale Accessories



High-resolution Speed Sensor



Magnetic Coupler



Speed Wheel



Speed Sensors 125334 and 163319

## Part Number/Price

Part #	Description	Price
<b>Speed Sensing</b>		
152626	500 PPR high-resolution encoder kit, requires 152247 if magnetic coupling is required	\$1,395.00
152247	Magnetic coupler, use with 152626	\$395.00
125334	Speed sensor, belt scale 50 PPR (generator type)	\$945.00
163319	Speed sensor, belt scale 600 PPR (encoder type)	\$1,095.00
94969	Speed wheel assembly, 10 PPR NPN Configuration	\$845.00
<b>Static Weights</b>		
99708	15 lb weight	\$175.00
99709	30 lb weight	\$245.00
99696	3 in static weight mounting bracket (set of two)	\$485.00
99922	4 in static weight mounting bracket (set of two)	\$545.00
<b>Speed Sensor Replacement Parts</b>		
94979	Sensor proximity, for 94969	\$115.00
98320	Shoulder bolt, for 94969	\$15.00
95216	Bushing, speed wheel for 94969	\$12.75
192927	Coupler, replacement for 125334 and 163319	\$119.00
<b>Accessories</b>		
97416	Kit, shim 50 each 1/16 in, 1/8 in and 1/4 in thick	\$58.00
21161	Junction box, splice single cell	\$80.00
98501	Cable, load cell custom, 20 ft EL146HE	\$29.50

*Idler hardware not included with weigh frames*

# Belt Scale Application



Company \_\_\_\_\_ Prepared By \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State/Zip/Country \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_

Application Notes:

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## MATERIAL

Material being measured \_\_\_\_\_ Bulk Density (kg/l ) (lb/cu. ft) \_\_\_\_\_  
Corrosive state of material (choose one)  High  Moderate  Not Corrosive  
Feed Rate t/hr: \_\_\_\_\_ min. \_\_\_\_\_ max. Accuracy Required: +/- \_\_\_\_\_ %  
Constant Feed Rate:  Yes  No

## CONVEYOR

Application:  Inventory  Load out  Control  Blending  
Profile:  Horizontal  Incline/decline \_\_\_\_\_ (deg)  Variable Incline \_\_\_\_\_ (deg)  Curved  
Automatic Tensioning Apparatus:  Yes  No  
Access Side: (looking in direction of belt travel)  Left  Right  Both  
Area Classification: Zone \_\_\_\_\_ Class \_\_\_\_\_ Division \_\_\_\_\_  
Does the current conveyor have scale grade idlers?  Yes  No  
Belt Speed (ft/m per minute): \_\_\_\_\_ min. \_\_\_\_\_ max.  
Condition of belt? \_\_\_\_\_  
What type of splice does the belt have? \_\_\_\_\_  
Belt Length: \_\_\_\_\_ m/ft Belt Width: \_\_\_\_\_ mm/in Belt Cleaning Device:  Yes  No  
Idler Diameter: \_\_\_\_\_ mm/in Idler Spacing: \_\_\_\_\_ mm/in Tail Pulley Diameter: \_\_\_\_\_ mm/in  
Trough Angle: \_\_\_\_\_ degrees Conveyor Length: \_\_\_\_\_ ft/m  
(Supply sketch where possible)  Sketch attached

## INTEGRATOR REQUIREMENTS

Enclosure Type:  Field Mount/Universal  Panel Mount  Wall Mount  
Power Available:  115V  230V  9-36VDC  
Communications:  AB Remote I/O  Device Net  Profibus-DP  Ethernet IP  
 Analog Output  RS-232 (standard)  Ethernet TCP/IP  Control Net  
Remote Display Rate:  Yes  No Remote Display Totalizer:  Yes  No  
Speed Sensor:  Speed Wheel  Shaft Encoder  Magnet

# Belt Scale Application

