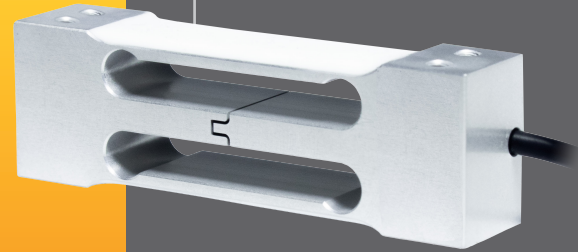




## Single Point Load Cell

# YP Series

**The YP Series is a very low profile, high performance, strain gage load cell constructed of aluminum alloy. It is designed to accurately measure tension and compression loads in capacity ranges of 0-300 g to 0-5 kg.**



The YP Series is constructed of transducer-quality aluminum alloy and is designed to accurately measure tension and compression loads for applications ranging from 0-300 g to 0-5 kg. The YP Series features a field proven dual-guided cantilever beam design that readily tolerates moments induced by angular, eccentric, or off-center loading, with minimal sensitivity to these types extraneous loads. The YP Series also offers integral overload protection for both tension and compression modes, thus yielding much higher safe and ultimate overload capacity. The load cell is environmentally sealed to IP66 and IP67 (limited immersion) by virtue of proprietary, multi-redundant barriers uniquely integrated to protect all internal components. The cable is durable PVC jacketed, with tinned-copper braided shielding, for mechanical protection and to minimize the effects of RFI and EMI. The YP Series is an ideal choice for ultra-low force measurements such as medical and life science applications, where a versatile, high accuracy, moment-compensated load cell solution is required.



### APPLICATIONS

- Tension and Compression Measurements
- Ultra Low Force Measurements
- High Accuracy and Repeatability
- Medical and Life Science Weighing
- Moment/Off-Center Load Applications
- OEM and VAR Solutions

### FEATURES

- 300 g to 5 kg Capacities
- Low Profile/Compact Size
- 0.03% Accuracy Class
- Aluminum Alloy
- IP66/67 Environmental Sealing
- Excellent Price/Performance Ratio
- Two Year Warranty

For more information call **1-888-545-8988**

# YP Series Specifications

Innovative Measurement Solutions



## PERFORMANCE

Rated Capacities (kg)	0.3, 0.6, 1.2, 2.5, 5.0
Rated Output (FSO)	2 mV/V
Output Tolerance	±10 % R.O
Combined Error Band	≤ 0.03 % FSO
Non-Linearity	≤ 0.03 % FSO
Hysteresis	≤ 0.03 % FSO
Non-Repeatability	≤ 0.02 % FSO
Zero Balance	± 3 % FSO
Creep (30 Minutes)	≤ 0.03 % of load*
Zero Return (30 Minutes)	0.01 % of load
Moment Sensitivity	0.015 % FSO/Inch
Maximum Moment	5 Times Capacity
Ultimate Moment	175 % of Maximum Moment

\*0.3 kg: ≤ 0.05 % of load

## MECHANICAL

Load Cell Material	Aluminum
Load Cell Finish	Anodized Aluminum
Safe Overload	Tension/Compression 500% FSO Side Load 50% FSO
Ultimate Overload	Tension/Compression 1000% FSO Side Load: 100% FSO
Deflection	0.01"
Weight	0.3 lbs.
Mounting Bolt Torque (Recommended)	15 in - lbs.

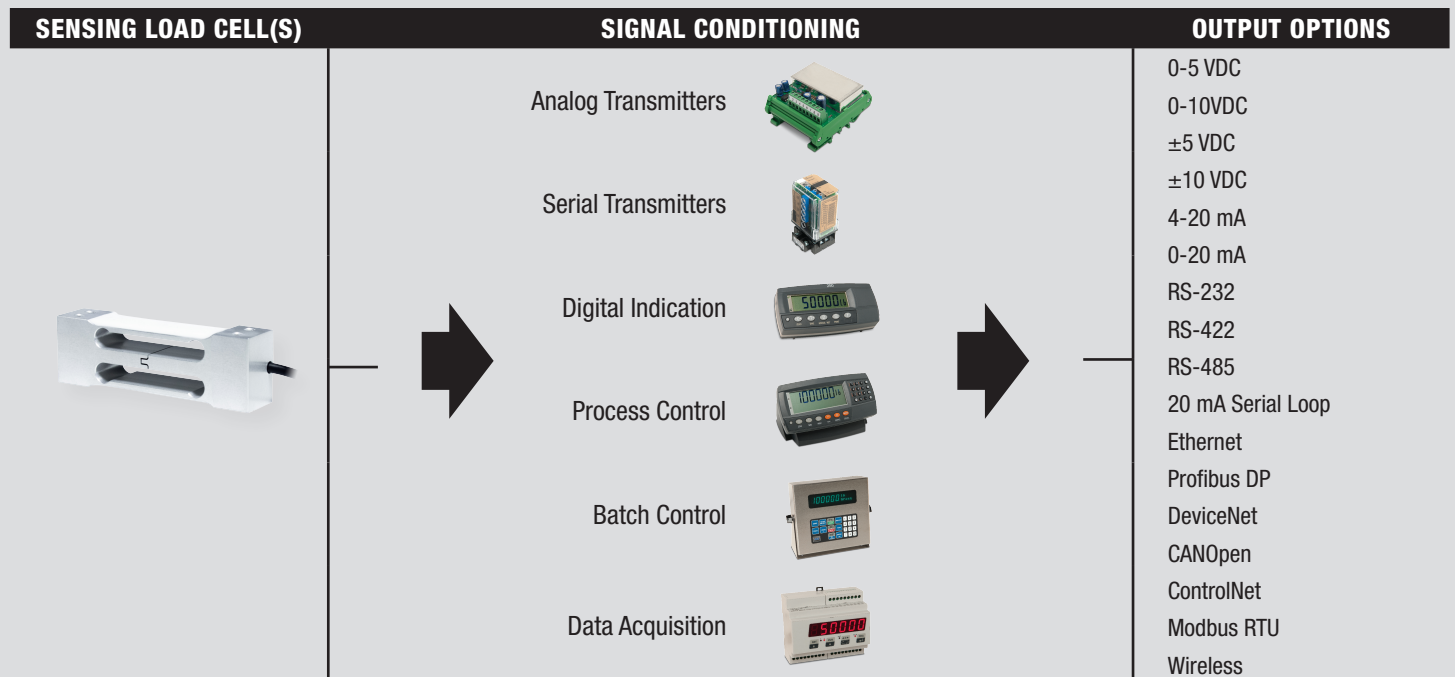
## ELECTRICAL

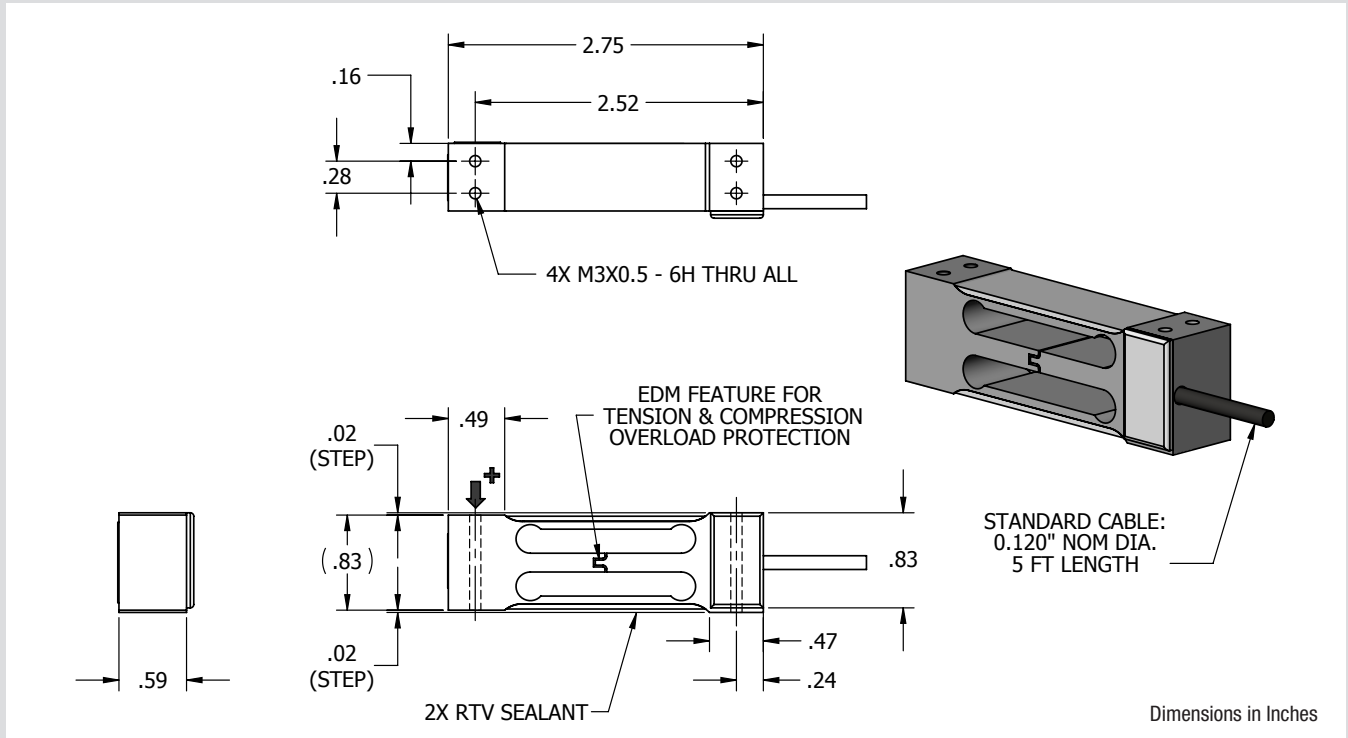
Input Impedance	400 ±15 ohms
Output Impedance	350 ± 3 ohms
Insulation Resistance	>5000 Megohms
Max Excitation Voltage	15 AC/DC
Cable Color Code	+ Excitation (red) - Excitation (black) + Signal (green) - Signal (white) Shield (natural)
Cable Type	4-conductor, 28 AWG, PVC jacket, foil shield, Diameter: 0.120"
Cable Length	See Dimensions Table
Cable Termination	Finished Conductors
Cable Seal	Epoxy; Conformal

## ENVIRONMENTAL

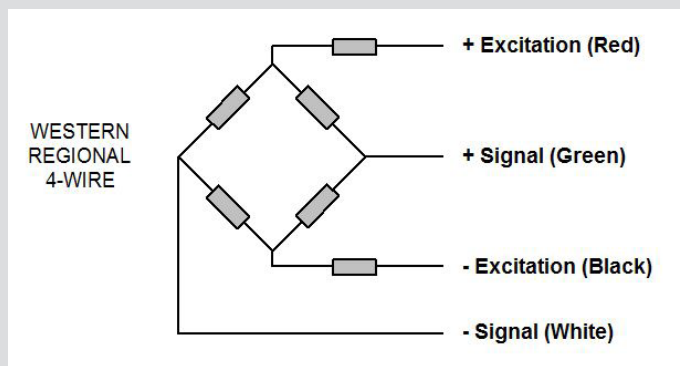
Temperature, Operating	-22 to +175 °F (-8 to +79°C)
Temperature, Compensated	14 to +104 °F (-10 to +40°C)
Temperature Effects	Zero < 0.0015% FSO/°F < 0.0026% FSO/°C
Temperature Effects	Output < 0.0008% of Rdg./°F < 0.0014% Rdg./°C
Temperature, Storage	-40 to +170 °F (-40 to +77°C)
Sealing	IP66, Multi-redundant; Pressure Resistant IP67, Multi-redundant; Limited Immersion Tolerance

# YP Typical System Configuration



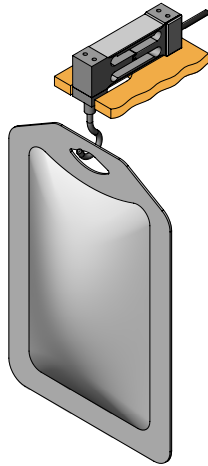


## YP Wiring Diagram





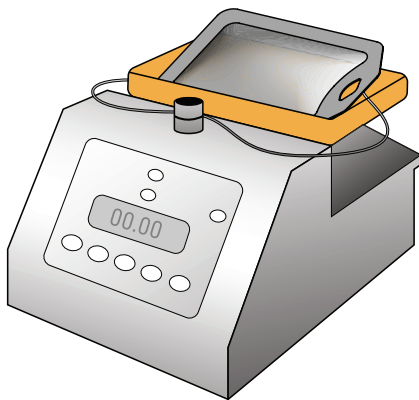
### Medical Bag Weighing



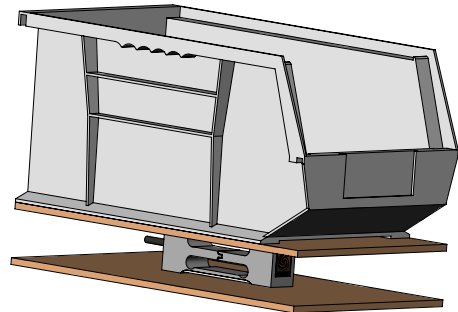
### Hopper Weighing



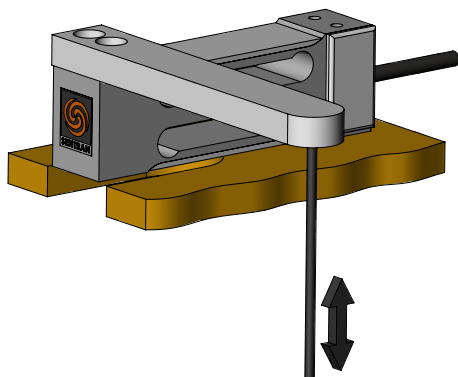
### Medical Scale Weighing



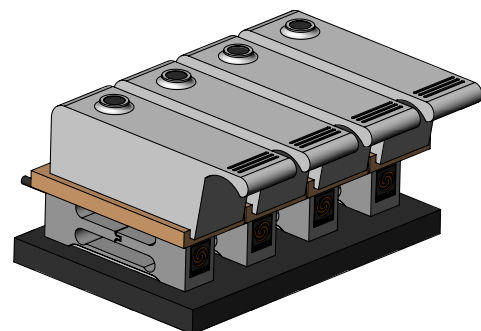
### Bin Weighing - Inventory Management



### Eccentric and Moment Loading



### Life Science - Reservoir Weighing





- In-Line Analog or Serial Transmitter
- Display/Control Instrumentation
- Wireless Operation
- High Temperature Operation (to 400° F)
- Special Cable Lengths
- M Series Connectors
- OEM and Custom Configurations
- Use and Installation Guides

## Application Recommendations / Suggestions

- The Y Series Load Cells are designed for compression force measurement applications. These load cells were developed specifically to tolerate unusually high moments resulting from off-center loading in single load cell platform applications. Subsequently, the unique characteristics of this design lend to its adaptation to small hopper applications, monorail scales, belt conveyor scales and packaging machine applications, to name a few. The Y Series unique element geometry delivers exceptional performance and readily tolerates moments induced by angular, eccentric and off-center loading, with minimal sensitivity to these anomalies.
- Y Series load cells are cantilever beams, meaning they are rigidly fixed on a suitable mounting surface on one end and the load is introduced to the opposite end of the beam. The most common loading methods are via a bolt-on platform or bracket.
- For optimum performance the load cell should be securely mounted to a flat, rigid surface. Some Y Series load cells have built-in mounting bosses, while others require spacers that serve to define the beam reaction point and provide clearance for the load cell to deflect freely. Similar provisions are required for the loading end as well.
- Y Series load cells are generally available in relatively low capacity ranges. The advantage is their ability to resolve very low forces. This excellent sensitivity also makes the load cell more susceptible to unintended overloads, often caused by mishandling. Therefore care must be taken when handling, installing and using these load cells to guard against overloading, which in many cases can render the load cell unusable. Some versions incorporate integral overload protection for compression, tension, or both. Commonly, overload protection is incorporated in an given application to protect the load cell from excessive deflection due to static or dynamic force inputs.
- Moment compensated load cells have specific maximums for moment sensitivity and moment tolerance. These published specifications should never be exceeded. Maintaining a center of gravity as close to centerline as possible is always preferable.
- These load cells are designed to be used over the complete range of “no load” (0) up to the rated capacity. For example, 10 lbs. rated capacity Y Series load cells are designed to be used for measurements within the range of 0 to 10 lbs. These load cells can be safely loaded to 150% of rated capacity without affecting the load cell performance within the capacity range.
- The reason for the variety of capacities and configurations is to allow the user to select the most ideal capacity, geometry and sealing level for a given application. The most ideal capacity is one in which at least 80% of the capacity range is utilized at some point in the measurement process, without exceeding the rated capacity. This allows the load cell to deliver the highest signal to load ratio, and therefore the highest resolution and most stable measurement. There are other factors to consider, such as excitation voltage, but correct “sizing” of the load cell is the first step. Both the dead load and the live load need to be considered in determining the gross load and the load cell capacity.
- Contact Sentran’s expert Applications Specialists for additional professional guidance and technical support documentation.

## Commercial Information & Precautions

- Do not exceed specified Maximum Load Limits.
- The Safe Load Limit is the point to which normal loading will not cause the load cell to experience an excessive zero shift or a degradation in performance.
- Use reasonable care when applying load to any load cell. Load limits can be exceeded due to shock loading (i.e. dropping a load onto a load cell), off axis loading, side loading and similar loading conditions that are beyond design capabilities.
- The structural integrity of all load bearing components in any load cell system should be designed with safety redundant load paths. (Overload stops, overhead load arrestors, etc.)
- The surfaces to which the load cell(s) is attached and/or is reacting against must be of sufficient structural integrity to carry loads up to and exceeding the ultimate ratings of the load cell(s) being used, while also taking into account any companion hardware being used in conjunction with the load cell.
- To ensure optimum performance, all measuring system cabling should be run through dedicated conduit when available. Avoid proximity to electrical noise sources and use of “dirty” power sources.
- The load cell cable shield should be connected to a dedicated instrument ground point only.
- Force measurement and weighing applications have numerous application-specific considerations to be addressed both mechanically and electrically. Therefore, installation of all system components are the responsibility of the user and should always be approved by a qualified, professional engineer. Any information provided by Sentran, LLC is intended only as informational and does not constitute a formal recommendation for the use of any product for any application.
- Sentran offers application/installation/use guides on request for most standard products. Please contact your Sentran representative for assistance, or visit our technical library resource at [www.sentranllc.com](http://www.sentranllc.com).

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**SENTRAN, LLC**  
4355 LOWELL STREET  
ONTARIO, CA 91761-2225, U.S.A.  
T: 909-605-1544 F: 909-605-6305  
[www.sentranllc.com](http://www.sentranllc.com)

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