

Model 9010

Damped Load Cells



Features

- Capacities: 3-50 kg (6-110 lbs)
- Stainless steel or aluminum housing available
- Adjustable tare load canceling mechanism
- Highly effective viscous damping
- Built-in overload limit stops in three locations
- 6 wire sense circuit
- IP 65 protection

Model 9010 is a self contained weighing module for use in repeated shock-loading applications or where fast weighing and settling times are required such as multi-head weighers, check weighers and other static and dynamic weighing applications characterized by sudden or impact loading.

Model 9010's unique fluid damping system allows the load cell to be used in applications that previously required the use of LVDT's or similar types of measuring devices.

The model 9010 has a unique adjustable tare load cancellation feature which brings load cell adaptability into check-weighing and grading applications.

The two additional sense wires feed back the voltage reaching the load cell. Complete compensation of changes in lead resistance due to temperature change and / or cable extension, is achieved by feeding this voltage into the appropriate electronics.



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Weigh Module 9010 consists of a Tedea-Huntleigh single point load cell enclosed in an environmentally protected, electrolyses nickel plated aluminum housing. The Module integrates load cell performance, viscous damping, adjustable tare offset mechanism and overload protection.

LOAD CELL

Tedea-Huntleigh's Model 1010, 1040 or 1140 single point load cells can be used in the Model 9010. Standard capacities 3kg to 50kg; for higher capacities, consult Tedea-Huntleigh.

OVERLOAD PROTECTION

Model 9010 features a unique viscous damping technique developed and patented by Tedea-Huntleigh, which provides:

- Faster settling time
- Higher weighing speeds
- Load cell protection (extended working life)

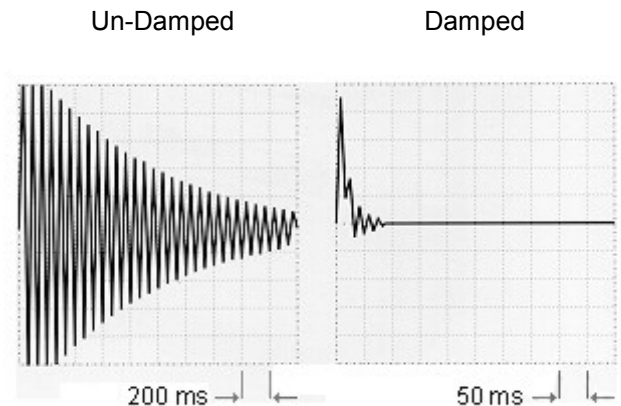
Damping parameters are a factory set for each specific application. The benefits of damping are illustrated by the test results shown below, which show actual oscilloscope traces for damped and undamped load cells under identical tests.

TARE LOAD CANCELLING

Model 9010 features an adjustable tare load canceling mechanism which provides a tare offset of up to 35kg (in several ranges). The tare offset is a factory set but may be adjusted by the user. This feature enables the use of a lower capacity load cell, resulting in electronic circuits with lower grains, lower noise, higher stability and lower temperature drifts.

LOAD CELL LIFE

Because of the design and unique features of Model 9010, the life of the load cell is increased substantially. For example, in one typical set of life tests, the undamped load cell failed after approximately 300,000 cycles. The damped load cell held without any significant deterioration for more than 30 million cycles. In this test a model 1010-10kg load cell was used. A dead load of 2.5kg was mounted 150mm from the mounting center. A 4.5kg impact was applied at that point at a rate of 8 times/sec.



TEST CONDITIONS

Load Cell	Tedea-Huntleigh model 1010, 5Kg Capacity
Tare or Dead Load	2Kg at mounting center
Excitation	1" steel ball (about 70 grams) dropped from
	700mm
Loading Point	150mm in front of mounting center
Vertical Scale	300 grams per division

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ENVIRONMENTAL PROTECTION

The model 9010 is available in electrolysis nickel plated aluminum or stainless steel housing. It is environmentally protected to IP65. A special "breather valve" allows atmospheric pressure equalization while excluding splashing liquids.

A built-in shut off valve is used for shipping.

SETTLING TIME

Settling time is the elapsed time from the instant of loading to the time the load cell's signal remains within the user specified accuracy.

Settling time is affected by the following parameters:

1. Total mass on the module and its distance from the mounting center
2. Impact loading characteristics
3. Environmental temperature change

For optimum performance, the above parameters must be specified by the user for each order.

EFFECT OF TEMPERATURE ON SETTLING TIME

The damping characteristics of model 9010 are factory set for minimum settling time under user specified conditions. Temperature variations will cause the settling time to change somewhat. Extreme temperature rise will prolong oscillations, while temperature decrease will cause a more sluggish response.

However, within the temperature range of 10°C to 30°C the settling time will be within the specified limits (see specifications).

APPLICATION AND ORDER DATA

PART A : TO BE COMPLETED BY CUSTOMER

CUSTOMER'S NAME:.....
CONTACT PERSON:.....
NO. OF UNITS:..... DATE:.....
APPLICATION:.....
TARE WEIGHT (dead load):.....
USEFUL WEIGHT (Live load):.....
DESCRIBE LIVE LOAD (powder, fruit, screws, etc.):.....
SETTLING TIME REQUIRED:..... mSec.
ACCURACY REQUIRED:.....
OPERATING TEMPERATURE RANGE °C:.....
CABLE LENGTH (if not standard):..... m.

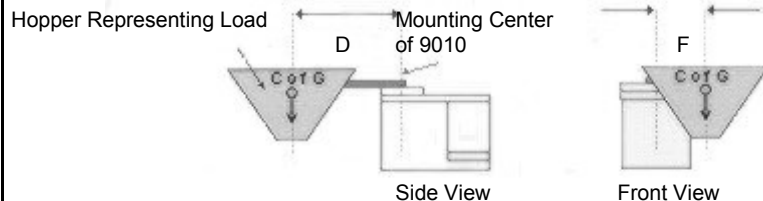
IF A CHECKWEIGHER:.....
SIZE OF CONVEYOR PLATFORM (MOVEMENT DIRECTION):.....
LENGTH:..... cm WIDTH:..... cm
SPEED OF BELT:..... cm/Sec
SIZE OF WEIGHED PRODUCT (IN MOVEMENT DIRECTION):..... cm
TARE WEIGHT DISTRIBUTION:.....
CONVEYOR:..... Kg MOTOR:..... Kg
POSITION OF MOTOR (SEE SKETCH):.....
D:..... cm F:..... cm

IF NOT A CHECKWEIGHER (SEE SKETCH):
ESTIMATE TARE C of G: D:..... cm F:..... cm
LOADING POSITION: D:..... cm F:..... cm
DROP HEIGHT:..... cm
IF LOAD C of G VARIES, MAX DIST. BETWEEN EXTREMES:.....

PART B: TO BE COMPLETED BY TEDEA-HUNTLEIGH

SERIAL NUMBERS:.....
ORDER ACK:.....
DELIVERY QUOTED:.....
DATE:.....

PART C: DEFINITION OF LOADING POSITION RELATIVE TO 9010



Model 9010

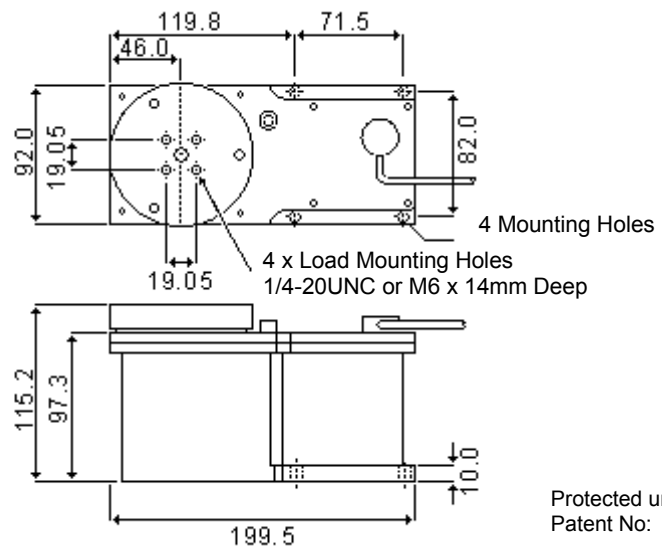
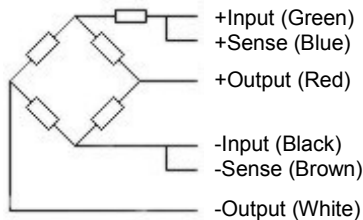
Damped Load Cells

GRADE	E	F	UNITS
Rated Capacities	3, 5, 7, 10, 15, 20, 30, 50		kg
Sensitivity - FullScale	2 ± 10%		mV/V
Temperature Range - Standard*	10 to 30		±% of Applied Load
Zero Error*	0.050	0.030	±% of Load / °C
Temperature Effect On Span*	0.004	0.002	±% of Applied Load / °C
Temperature Effect On Zero* : Load Cell	0.01	0.006	±gr / °C rise
Temperature Effect On Zero* : Buoyancy	0.15	0.15	±gr / °C rise
Temperature Effect On Zero* : Tare Offset	0.25 x tare offset (kg)		Volts AC or DC
Excitation: Recommended	10		Volts AC or DC
Excitation: Maximum	15		Ohms
Input Impedance	415 ± 15		Ohms
Output Impedance	350 ± 5		MegaOhms
Insulation Impedance	>5000		kg
Tare Offset Ranges	0 to 35		
Environmental Protection	IP65		millisecond
Settling Time - Typical	40 - 200		% / °C
Temperature Effect On Settling Time	2		% of Rated Capacity
Safe Static Overload			% of Rated Capacity
Downward at mounting center	800		% of Rated Capacity
Upward at mounting center	400		
200mm in front or side of mounting center	200		kg
Construction	Aluminum, electrolysis nickel plating or stainless steel		
Weight	3 (aluminum)/ 12 (stainless steel)		lbs
Approvals			

*Extended temperature ranges and smaller temperature effects are available upon request.

Outline Dimensions All Capacities (in mm)

Wiring Schematic Diagram



Protected under U.S.
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