

## Load cell for compression and tension SW1/SW3 series

Easily to mount into equipment with the 2 female threads on the sides.  
The waterproof body enables measurement applications in wet environments.



SW1 series



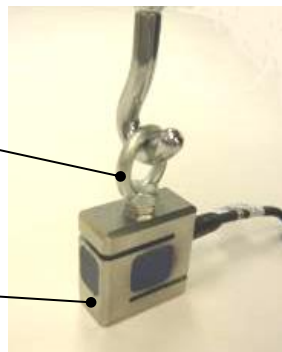
SW3 series



### [Test image]

Eye bolt  
EB series  
(Sold separately)

SW1 series



### [Main features]

- Easily integrate into your facility and equipment.
- Suitable for compress and pulling measurement due to easy mountable design.

### What is IP?

IP(International Protection) is a standard which is based on IEC Standard 529 for solid foreign materials, electric devices for water and cabinet.

IPxx

The second code

(IP 0 to 8 for water penetration)

The first code

(IP 0 to 8 for human body and solid foreign materials)

IP67

Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1m of submersion for 30 minutes.)

No ingress of dust, complete protection against contact.





**: eZ-Connect series**

eZ-Connect is composed of an amplifier and load cells.

Enables to replace load cells without additional adjustment.

Suitable for different types of tests such as tension and torque, measuring from low load to high load etc.

Available load cells have a mark .




Specifications				
Model	SW1 series	eSW1 series 	SW3 series	eSW3 series 
Capacity	Refer to model list			
Accuracy *1	±0.5%F.S. or less	±0.7%F.S. or less	±0.5%F.S. or less	±0.7%F.S. or less
Rated output	±2mV/V			
Nonlinearity	100N,200N: ±0.5%R.O 500N-5000N: ±0.25%R.O		±0.25%R.O	
Allowable voltage	10V DC			
Safe overload rating	120%		110%	
Working environment (Allowable temperature)	-5~50 °C (-30~70 °C)		-10~50 °C (-30~80 °C)	
Temperature influence at 0 point	0.01%/ °C		0.01%/ °C	
Temperature influence for output	0.02%/ °C		0.02%/ °C	
Cable	Approx. 0.5~2m (Curl cord)		Approx. 5m	
Dimensions	See [Dimensions]			
International Protection (*2)	IP67			

\*1 The accuracy is only load cell itself. Please refer to below "Separated Sensor Model" and "eZ-Connect series" for the accuracy of combinations with the amplifier (indicator).

\*2 IP67 is only approved for the load cell itself. The amplifier (indicator) and the connector parts are not approved.

\* An amplifier (indicator) is required to read values. Please refer to below "Available amplifiers (indicators)" for the detail.

\* When you order a load cell without indicators, please choose one from 3 of connector types. We cannot undertake that our load cell can be combined with your equipment. Even though you could combine it, we cannot guarantee accuracy of force value.

Available Amplifiers (Indicators)					
Type	Separated Sensor Model			eZ-Connect series Sensor Interchangeable Amplifier	
Indicator	Handy type ZTS series*1	Handy type ZTA series*1	Indicator	Handy type ZTS series	Handy type ZTA series
Image					
Feature	- Handheld use - Specific purpose - Higher accuracy	- Handheld use - Specific purpose - Higher accuracy - I/O displacement - Data saving to USB	- Desktop use - Specific purpose - Higher accuracy	- Desktop use - Load cell interchangeable (such as measurement of tension and torque, or low and high load)	- Handheld use - Load cell interchangeable (such as measurement of tension and torque, or low and high load)



\* Please refer to each indicator specification for the detail.

\*1 Basically an indicator and load cell are integrated, calibration is necessary when change load cell.

### [Sensor Model]

	Model	Capacity	Mounting thread
<b>SW1 series</b>	<b>SW1-100N</b>	100N	M6
	<b>SW1-200N</b>	200N	M6
	<b>SW1-500N</b>	500N	M8
	<b>SW1-1000N</b>	1000N	M8
	<b>SW1-2000N</b>	2000N	M10
	<b>SW1-5000N</b>	5000N	M10
<b>SW3 series</b>	<b>SW3-10kN</b>	10kN	M16
	<b>SW3-20kN</b>	20kN	M16

\* When order load cell without amplifier, please choose the connector type from below table.

Code	-5P	-6P	-OP
Connector shape	 5 pin	 6 pin	Without Connector (Open end)
Connect to	ZT series, FA Plus,etc	Some discontinued IMADA products	For installing in equipment
*Please check the connector shape of your equipment to connect.			

\* Add the code to the end of model. For example: When order SW1-100N with 5 pin, the product model is "SW1-100N-5P".

### [Separated Sensor Model]

#### SW1 series

Model			Capacity	Accuracy *1	Display	Resolution
ZTA	ZTS	FA Plus2				
<b>ZTA-SW1-100N</b>	<b>ZTS- SW1-100N</b>	<b>FAP2-SW1-100N</b>	100N	±0.5%F.S. Or less	100.0N	0.1N
<b>ZTA-SW1-200N</b>	<b>ZTS- SW1-200N</b>	<b>FAP2-SW1-200N</b>	200N		200.0N	0.1N
<b>ZTA-SW1-500N</b>	<b>ZTS- SW1-500N</b>	<b>FAP2-SW1-500N</b>	500N		500.0N	0.1N
<b>ZTA-SW1-1000N</b>	<b>ZTS- SW1-1000N</b>	<b>FAP2-SW1-1000N</b>	1000N		1000N(1.000kN)	1N(0.001kN)
<b>ZTA-SW1-2000N</b>	<b>ZTS- SW1-2000N</b>	<b>FAP2-SW1-2000N</b>	2000N		2000N(2.000kN)	1N(0.001kN)
<b>ZTA-SW1-5000N</b>	<b>ZTS- SW1-5000N</b>	<b>FAP2-SW1-5000N</b>	5000N		5000N(5.000kN)	1N(0.001kN)

\* Please refer to each indicator specification for the details.

\*1 The accuracy is only available for combinations with the amplifier (indicator).

#### SW3 series

Model			Capacity	Accuracy *1	Display	Resolution
ZTA	ZTS	FA Plus2				
<b>ZTA-SW3-10kN</b>	<b>ZTS-SW3-10kN</b>	<b>FAP2-SW3-10kN</b>	10kN	±0.5%F.S.	10.00kN	0.01kN
<b>ZTA-SW3-20kN</b>	<b>ZTS-SW3-20kN</b>	<b>FAP2-SW3-20kN</b>	20kN	Or less	20.00kN	0.01kN

\* Please refer to each indicator specification for the details.







\*1 The accuracy is only available for combinations with the amplifier (indicator).

**[eZ-Connect series]**

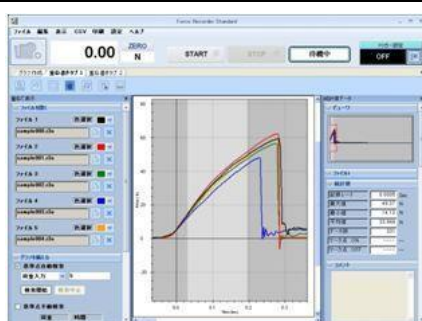
Model		Capacity	Accuracy *1	Display	Resolution
<b>eSW1 series</b>	<b>eSW1-100N</b>	100N	±0.7%F.S. or less	100.0N	0.1N
	<b>eSW1-200N</b>	200N		200.0N	0.1N
	<b>eSW1-500N</b>	500N		500.0N	0.1N
	<b>eSW1-1000N</b>	1000N		1000N(1.000kN)	1N(0.001kN)
	<b>eSW1-2000N</b>	2000N		2000N(2.000kN)	1N(0.001kN)
	<b>eSW1-5000N</b>	5000N		5000N(5.000kN)	1N(0.001kN)
<b>eSW3 series</b>	<b>eSW3-10kN</b>	10kN		10.00kN	0.01kN
	<b>eSW3-20kN</b>	20kN		20.00kN	0.01kN

\* Please refer to each indicator specification for the details.

\*1 The accuracy is only available for combinations with the amplifier (indicator).

Related products		
Eye bolt EB/RE series	Measuring shaft	Extra Small Load Cell LMU series
		
Hoisting attachments for load cell. Measure tensile strength by letting a hook or a shaft through.	It can be attached to load cell as male screw shaft.	Load cell LMU series is extra small type for both tension and compression testing with 50N to 500N capacity.
Standard Type Load Cell DPU series	High Accuracy Type Load Cell SK series	Small Type Load Cell LU series
		
Load cell DPU series is standard type for both tension and compression testing with 2N to 500N capacity.	Load cell SK series is high accuracy type for either tension or compression testing with 2000N to 20kN capacity. Its cuboid shape is ideal for integration into facilities or external devices.	Load cell LU series is small type for both tension and compression testing with 50N to 2000N capacity.

**Graphing Software: Force Recorder**



\*The image is Force Recorder Standard.

- You can make graphs of force-displacement at real time via USB connection at 2000Hz.
- You can write memo on each graph. You may write down testing conditions such as testing speed.
- 5 graphs at maximum can be overlaid. (Standard, Professional edition)
- Enables to analyze torque-angle relationships. (Professional edition)

\* Please refer to each specification for further information.

Related Cable		
Model	Explanation	Purpose of use
CB-108	Analog cable	To connect to a multi meter, oscilloscope.
CB-118	Analog cable (For optional -AN)	To connect to a multi meter, oscilloscope.
CB-208	RS232C cable	To connect to PC having its own system.
CB-308	Dogmatic cable	To connect to printer DP-1VR (ZTS/ZTA/eZT)
CB-908	Open end connection cable	Output cables for loose wire 37 pin (Useful for connection with unique equipment.)
CTB-A	Cable with Terminal Block	Allow doe connection with linear scale and external equipment such as PLC *1

\*1 Displacement function is only available in ZTA series , eZT, FA Plus2, eFA Plus2.

Related Adaptor	
Model	Purpose of use
CA-6T6	Adaptor for M6 female screw convert to M6 male screw. For mounting of M6 force gauge attachment to M6 measuring shaft of load cell SW1 series.
CA-10T10	Adaptor for M10 female screw convert to M10 male screw. For mounting of M10 force gauge attachment to M10 measuring shaft of load cell SW1 series.
CA-16T16	Adaptor for M16 female screw convert to M16 male screw. For mounting of M16 custom attachment to M16 measuring shaft of load cell SW3 series.

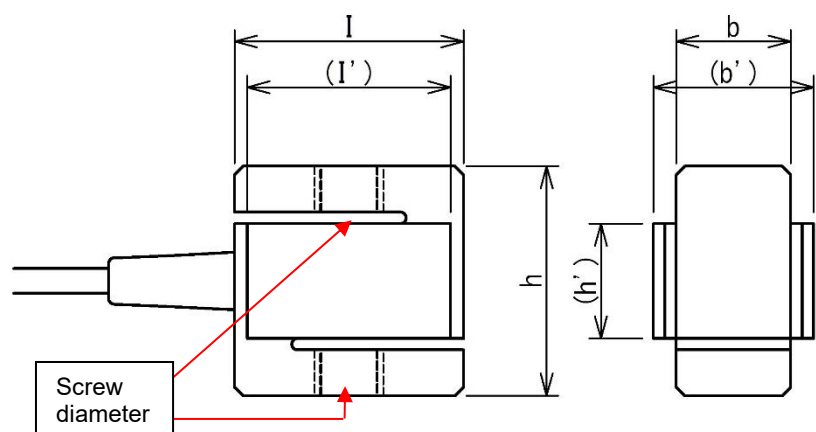
\* Please refer to screw adapter CA series specification for further information.

Custom-made Order	
<u>Extend the length of a cable</u> Enables to extend the length of a cable for gauge-PC connection or load cell-amplifier connection.	<u>Enhance flexibility of a cable</u> Enables to offer high-flex cable to reduce risks of disconnection.

\* Please contact us for details such as cable length etc.

## [Dimension]

### SW1 series



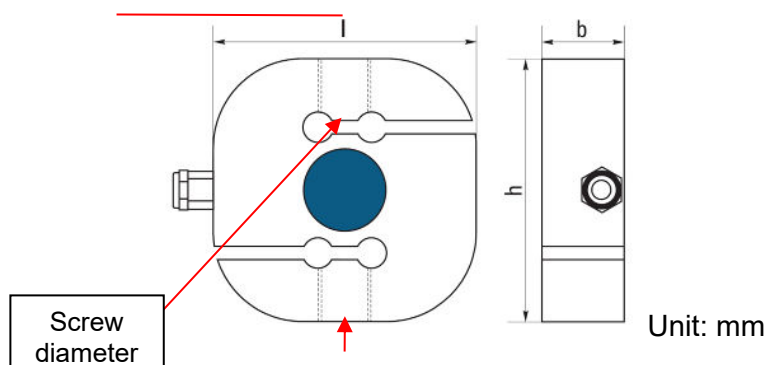
Unit: mm

Model	$l$	$b$	$h$	Screw (*1)	$l'$	$b'$	$h'$
SW1-100N	40	20	40	M6	36	28	20
SW1-200N				M6	36	28	20
SW1-500N				M8	-	-	-
SW1-1000N				M8			
SW1-2000N				M10			
SW1-5000N				M10			

\* The protective cover is attached on model SW1-100N and 200N. Refer to  $l'$ ,  $b'$ ,  $h'$  for dimensions for the cover.

\*1 The depth is 8mm.

### SW3 series



Unit: mm

Model	$l$	$b$	$h$	Screw (*1)
SW3-10kN	80	25	80	M16
SW3-20kN				

\*1 The depth is 11mm.

**[Cautions]**

- Information in this document is subject to change without prior notice.
- This document is product descriptions and handling precautions, and do not guarantee various characteristics or safety.
- This product is designed for force measurement purpose only.
- Do not copy and use this content without authorization.
- Do not apply force more than its capacity or from incorrect direction to the measuring shaft.
- Do not use this product in the environments including fierce temperature changes, high temperature, high humidity, near water, dusty place.

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