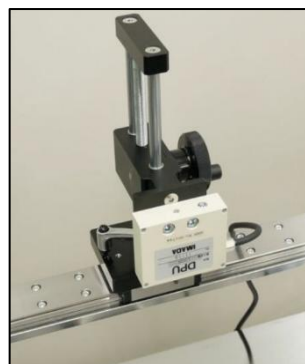
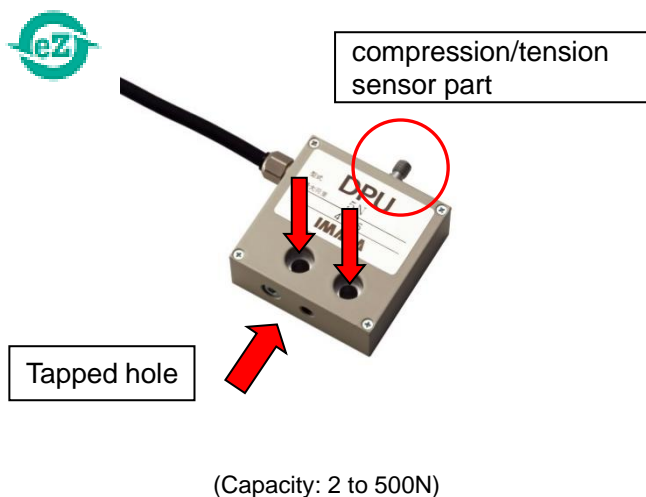


# Tension and Compression Load cell DPU/DPUH series

- DPU/DPUH series is a strain gauge type load cells for tension and compression testing.
- DPU/DPUH series can be built in manufacturing line and equipment with ease.

## DPU series (Standard type)

Test image



when built into equipment

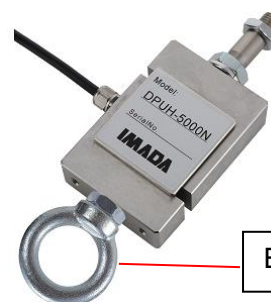
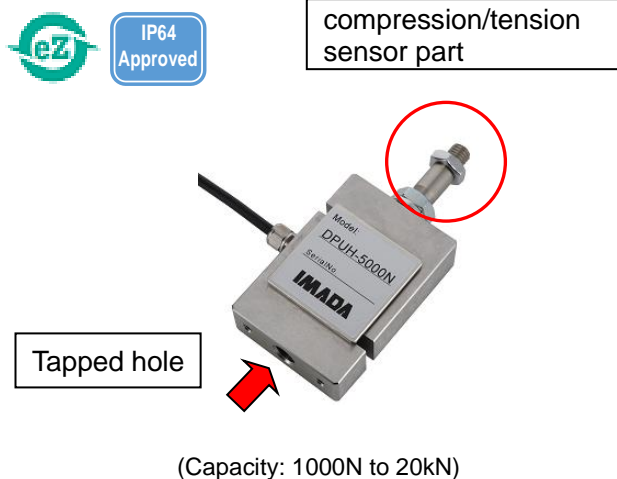
EB-500N-M6(\*1)



when hanging on equipment/hooking samples

## DPUH series (High capacity type)

Test image



when hanging on equipment/hooking samples

\*1 Hoisting attachment for load cells EB series is sold separately. Refer to each specification for detail.

\* When an only load cell ordered, standard attachments such as small hook A-1/S-1 are not included.

For attachments included with the sensor separate type force gauge (ZTS/ZTA-DPU/DPUH), please refer to each specification.

\* An amplifier (indicator) is required to read values. Refer to "Available amplifiers (indicators)" on page 2 for details.



\* IP (Ingress Protection) is a standard based on IEC Standard for solid foreign materials, electric devices for water and cabinet.

## eZ-Connect series

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

- Allows easy replacement of load cells without additional adjustment
- Suits different types of tests such as tension and torque, measuring from low load to high load, etc.

Available load cells have a mark. 

Specification				
Model	DPU-2N to 500N	eDPU-2N to 500N 	DPUH-1000N to 20kN	eDPUH-1000N to 20kN 
Features	Standard type	eZ-Connect series standard type	High capacity type	eZ-Connect series high capacity type
Capacity	Refer to each model list			
Rated output	1mV/V+/-10% (2N,5N is 0.9 to 1.25 mV/V +/-10%)	-	1.5mV/V+/-10%	-
Nonlinearity	0.12%R.O.	-	0.1%R.O.	-
Hysteresis	0.12%R.O.	-	0.1%R.O.	-
Recommended voltage (allowable applied voltage)	5V DC (12V DC)	-	5V DC (10V DC)	-
Safe overload rating	Refer to [Load cell only]			
Working environment (allowable temperature)	0 to +50 degree Celsius (-10 to +60 degree Celsius)		-10 to +40 degree Celsius (-20 to +80 degree Celsius)	
Temperature influence for 0 degree	0.02%/ degree Celsius	-	0.01% degree Celsius	-
Temperature influence for output	0.01%/ degree Celsius	-	0.01%/ degree Celsius	-
Weight	Approx. 325g		1000N to 5000N: Approx. 900g 10kN: Approx. 2.0kg / 20kN: Approx. 2.6kg	
Cable	2m (with cable)		3m (with cable)	
Dimension	Refer to [Dimensions]			
Protection Rating (*1)	-		IP64	

\* Refer to page 3 for the accuracy of combinations with the amplifier (indicator) under [Models of sensors combined with indicators (Separated sensor models)] and [eZ-Connect series (Sensor interchangeable model)].






\* An amplifier (indicator) is required to read values. Refer to "Available amplifiers (indicators)" below for details.

\* When ordering load cell without indicators, three connector types are available. See [Load cell only] on page 4 for details.

The load cells are not guaranteed either for the operability with your own amplifier (indicator) or for the accuracy as a result of such use.

\*1 IP is only approved for the sensor part. The amplifier (indicator), the connector parts, and cable are not secured.

### [Available Amplifiers (Indicators)]

Separated Sensor Model		
Handheld type ZTS series	Handheld type ZTA series	Desktop type FA Plus2
		
<ul style="list-style-type: none"> <li>- Handheld use</li> <li>- Specific purpose</li> <li>- Higher accuracy</li> </ul>	<ul style="list-style-type: none"> <li>- Handheld use</li> <li>- Higher accuracy</li> <li>- I/O displacement</li> <li>- Data saving to USB</li> </ul>	<ul style="list-style-type: none"> <li>- Desktop use</li> <li>- Higher accuracy</li> </ul>
eZ-Connect series Sensor Interchangeable Amplifier		
Desktop type eFA Plus2	Handheld type eZT	Quad Sensor Measuring Amplifier QSMA-400
		
<ul style="list-style-type: none"> <li>- Desktop use</li> <li>- Load cell interchangeable (such as measurement of tension and torque, or low and high load)</li> </ul>	<ul style="list-style-type: none"> <li>- Handheld use</li> <li>- Load cell interchangeable (such as measurement of tension and torque, or low and high load)</li> </ul>	<ul style="list-style-type: none"> <li>- Up to 4 different load cells can be connected Simultaneously. (Load cell interchangeable)</li> <li>- To use QSMA-400, the graphing Software Quad Graph Drawer is required to be downloaded.</li> </ul>

\* Refer to the specification sheet of each amplifier (indicator) for details.

**[Models of sensors combined with indicators (Separated sensor models)]**

Model			Capacity	Accuracy (*1)	Display	Resolution
ZTS	ZTA	FA Plus2				
ZTS-DPU-2N	ZTA-DPU-2N	FAP2-DPU-2N	2N	+/-0.2%F.S. or less	2.000N(2000mN)	0.001N(1mN)
ZTS-DPU-5N	ZTA-DPU-5N	FAP2-DPU-5N	5N		5.000N(5000mN)	0.001N(1mN)
ZTS-DPU-10N	ZTA-DPU-10N	FAP2-DPU-10N	10N		10.00N	0.01N
ZTS-DPU-20N	ZTA-DPU-20N	FAP2-DPU-20N	20N		20.00N	0.01N
ZTS-DPU-50N	ZTA-DPU-50N	FAP2-DPU-50N	50N		50.00N	0.01N
ZTS-DPU-100N	ZTA-DPU-100N	FAP2-DPU-100N	100N		100.0N	0.1N
ZTS-DPU-200N	ZTA-DPU-200N	FAP2-DPU-200N	200N		200.0N	0.1N
ZTS-DPU-500N	ZTA-DPU-500N	FAP2-DPU-500N	500N		500.0N	0.1N
ZTA-DPUH-1000N	ZTS-DPUH-1000N	FAP2-DPUH-1000N	1000N	+/-0.25%F.S. or less	1000N(1.000kN)	1N(0.001kN)
ZTA-DPUH-2000N	ZTS-DPUH-2000N	FAP2-DPUH-2000N	2000N		2000N(2.000kN)	1N(0.001kN)
ZTA-DPUH-5000N	ZTS-DPUH-5000N	FAP2-DPUH-5000N	5000N		5000N(5.000kN)	1N(0.001kN)
ZTA-DPUH-10kN	ZTS-DPUH-10kN	FAP2-DPUH-10kN	10kN		10.00kN	0.01kN
ZTA-DPUH-20kN	ZTS-DPUH-20kN	FAP2-DPUH-20kN	20kN		20.00kN	0.01kN

\* Refer to each indicator specification for details.

\*1 It is the accuracy of the load cell and the amplifier (indicator) combined.

**[eZ-Connect series (Sensor interchangeable model)]**

Model	Capacity	Accuracy *1	Display	Resolution
eDPU-2N	2N	+/-0.2%F.S. or less + Accuracy of amplifier	2.000N(2000mN)	0.001N(1mN)
eDPU-5N	5N		5.000N(5000mN)	0.001N(1mN)
eDPU-10N	10N		10.00N	0.01N
eDPU-20N	20N		20.00N	0.01N
eDPU-50N	50N		50.00N	0.01N
eDPU-100N	100N		100.0N	0.1N
eDPU-200N	200N		200.0N	0.1N
eDPU-500N	500N		500.0N	0.1N
eDPUH-1000N	1000N	+/-0.25%F.S. or less + Accuracy of amplifier	1000N(1.000kN)	1N(0.001kN)
eDPUH-2000N	2000N		2000N(2.000kN)	1N(0.001kN)
eDPUH-5000N	5000N		5000N(5.000kN)	1N(0.001kN)
eDPUH-10kN	10kN		10.00kN	0.01kN
eDPUH-20kN	20kN		20.00kN	0.01kN

\*1 Total accuracy when combined with the eZ-Connect series amplifier.

e.g. Accuracy of eDPU series combined with eZT → +/-0.4%F.S. or less (Load cell: +/-0.2%F.S. or less + Amplifier: +/-0.2%F.S. or less)

**[Load cell only]**

Model	Capacity	Safe overload rating	Measuring shaft	Included nut
DPU-2N	2N	150%	M6 P1.0 (Coarse thread) Thread length: 7.5mm	N/A
DPU-5N	5N			
DPU-10N	10N			
DPU-20N	20N			
DPU-50N	50N			
DPU-100N	100N			
DPU-200N	200N			
DPU-500N	500N			
DPUH-1000N	1000N	150%	M10 P1.5 (Coarse thread) Thread length: 15mm (*1)	Hexagon nut Material: Steel Height: 6mm
DPUH-2000N	2000N			
DPUH-5000N	5000N			
DPUH-10kN	10kN		N/A (*2)	N/A
DPUH-20kN	20kN			

\*1 Female screw M12 P1.75 is available by removing the measuring shaft.



\*2 DPU-10kN and DPU-20kN do not have measuring shafts, they have an M18P1.5 Depth22 female screw.

If necessary, measuring shaft option is available for DPU-10kN/20kN.

\* The load cells are not guaranteed either for the operability with your own amplifier (indicator) or for the accuracy as a result of such use.

\* When ordering load cell only, choose the connector type from the table below and add the code to the end of model.

For example, when ordering DPU-500N with 5 pin, the product model is "DPU-500N-5P".

Code	-5P	-6P	-OC
Connector shape	 5 pin	 6 pin	Without Connector (Open end)
Connect to	ZTA/S series, FA Plus2, etc	Some discontinued IMADA products	For installing in equipment
*Check the connector shape of your equipment to connect.			

Cable Option for DPU series *Not available for DPUH series			
	Code *1	Cable Length	Description
Extended Cable	-( )m	Max. 10m *2	It is an option to change the cable to extended cable which connects to the amplifier (indicator).
Flexible Cable	-BR( )m	Max. 10m	It is an option to change the cable to high flexible cable to reduce the risk of breakage during bending.

\*1 Put Cable Length before "m" of Code. The order increment of the optional cable length is every meter.

\*2 The cable length is the sum of the standard cable length and the extended cable one.








\* To maintain the signal quality, the cable length is limited.

\* When ordering cable option, add the cable option code before the connector shape code.

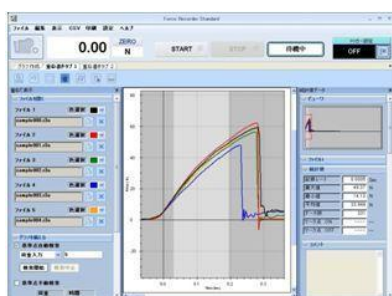
For example, when ordering DPU-5N-5P with 10m cable length, the product model is "DPU-5N-10m-5P".

\* For DPUH series, a relay cable for extension is available. Please refer to "Options Available for Load cell Cable" for details.

**[Related Products]**

Pen type load cell <b>PN-50N</b>	Coin shaped type load cell <b>LM series</b>	High accuracy coin shaped type load cell <b>LC series</b>
		
Pen-shaped to fit for measuring control force of small samples.	Coin size load cell for compression use.	High accuracy coin shaped load cell for compression.
Extra small type load cell <b>LMU series</b>	For automatic doors load cell <b>DM-2000N</b>	Small type load cell <b>LU series</b>
		
Extra small load cell for both tension and compression testing with 50N,200N and 500N capacity.	Fit to measure automatic door closing force.	Small type load cell for both tension and compression testing with 500N and 2000N capacity.
Hoisting attachment for load cell <b>EB/RE series</b>	Option handle <b>LTH-T</b>	Option handle <b>LTH-C</b>
		
Hoisting attachment for load cell, it combines with DPU/LU/LMU series for tension testing.	Handle for DPU/eDPU series load cell to make handheld measurement easier.	Handle for DPU/eDPU series load cell to make handheld measurement easier.

**Graphing Software: Force Recorder**



- Plots graphs of force-time at real time via USB connection at 2000Hz
- Comment function for keeping a note of testing conditions such as testing speed
- Overlays up to 5 graphs (Standard, Professional edition)
- Analyzes force-displacement relationships (Professional edition)

\* Refer to each specification sheet for further information.

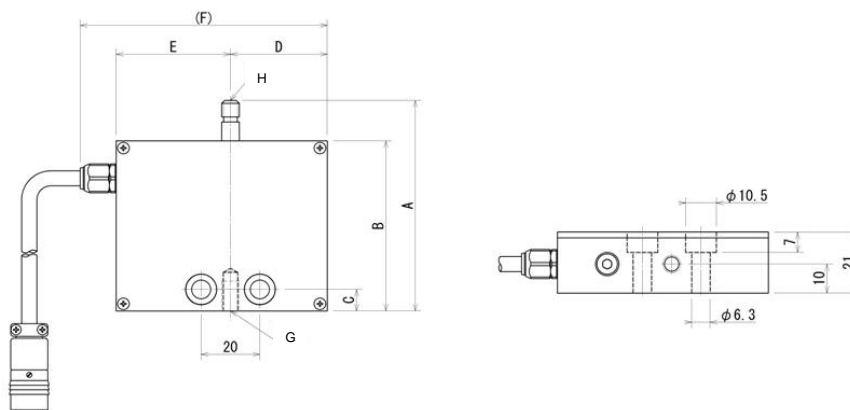
**Related Adaptor**

Model	Mountable load cell	Purpose
CA-6T6	From DPU-2N to DPU-500N	For converting the M6 female screw to M6 measuring shaft (male screw). Enabled to mount the M6 attachment to the DPU load cell.
CA-12T10	From DPUH-1000N to DPUH-5000N	For converting the M12 female screw to M10 measuring shaft (male screw). Enabled to mount the M10 attachment to the DPUH load cell.
CA-18T18	From DPUH-10kN to DPUH-20kN	For converting the M18 female screw to M18 measuring shaft (male screw). Enabled to mount the M18 custom attachment to the DPUH load cell.

\* Refer to the specification sheet of CA series for more details.

## [Dimensions]

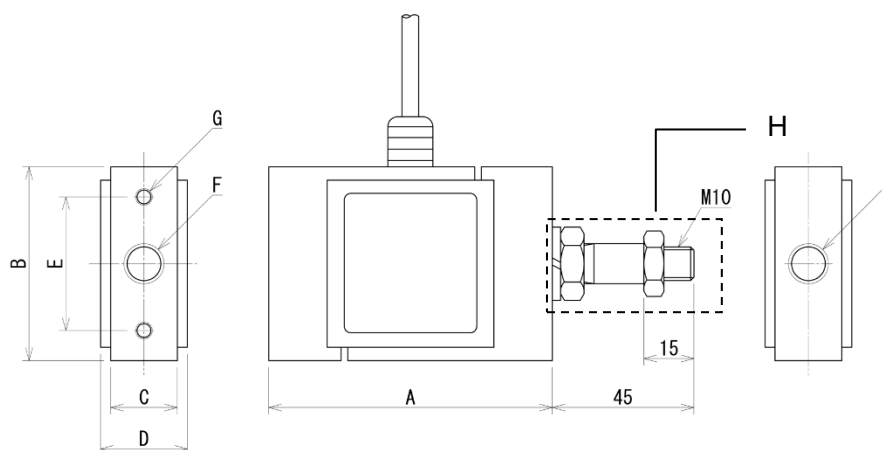
### DPU-2N to 500N



Model	A	B	C	D	E	(F)	G: Female screw	H: Measuring shaft
DPU-2N	71	57	12	26	32	(70)	M6 P1.0 Depth:10 (Coarse thread)	M6 P1.0 (Coarse thread) Thread length: 7.5
DPU-5N	71	57	12	26	32	(70)		
DPU-10N	71	57	12	26	32	(70)		
DPU-20N	73	59	7.5	33	39	(84)		
DPU-50N	73	59	7.5	33	39	(84)		
DPU-100N	73	59	7.5	33	39	(84)		
DPU-200N	73	59	7.5	33	39	(84)		
DPU-500N	73	59	7.5	33	39	(84)		

Unit: mm

### DPUH-1000N to 20kN



Model	A	B	C	D	E	F: Female screw	G: Female screw	H: Measuring shaft
DPUH-1000N	85	58	20	26	40	M12 P1.75 Depth:15 (Coarse thread)	M5 P0.8 Depth 8 (Coarse thread)	M10 P1.5 (Coarse thread) Thread length: 15
DPUH-2000N	85	58	20	26	40			
DPUH-5000N	85	58	20	26	40			
DPUH-10kN	105	78	32	38	60	M18 P1.5 Depth:22 (Fine pitch thread)	M6 P1.0 Depth:10 (Coarse thread)	Not included
DPUH-20kN	110	88	36	42	60			

Unit: mm

**[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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