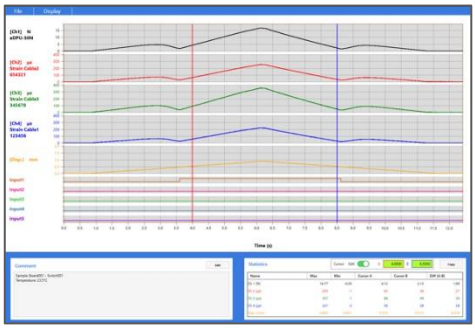
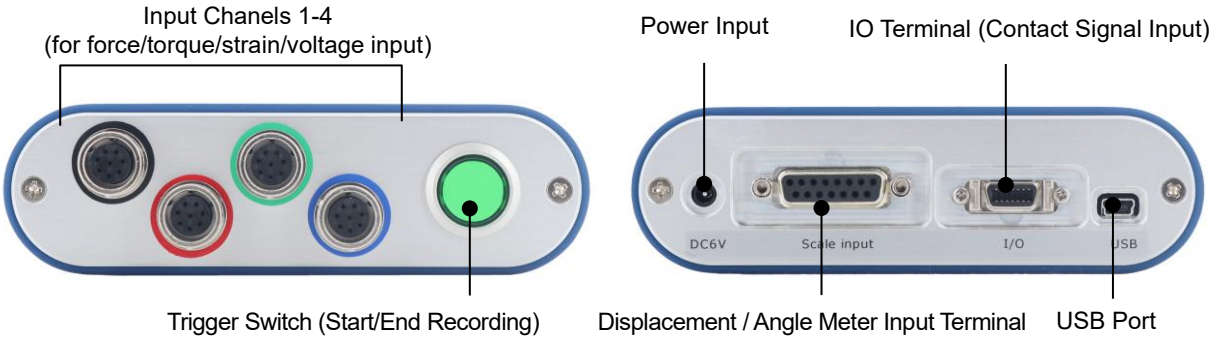
Quad Sensor Measuring Amplifier QSMA-400

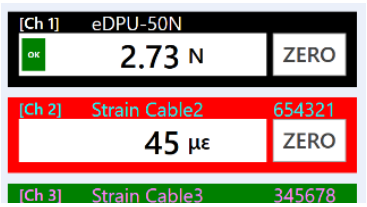
- Measuring amplifier caters to the input of Force, Torque, Strain, and Voltage of up to 4 channels with the input of Displacement and Contact Signals
- Graphing software displays measurement values of 4 sensors and displacement in real-time
- Easy correlation confirmation by graphs displayed at the aligned time axis
- Various eZ-Connect load cells are available with no accuracy adjustment

QSMA-400



4-channel Graphing Software
Quad Graph Drawer (included)



Display of Measurement Values	
	Measurement values are not displayed on the QSMA-400 itself. A PC with Quad Graph Drawer installed is required to display the measurement values. For details about Quad Graph Drawer, please refer to [4ch. graph creation software Quad Graph Drawer] on page 4.

Features	
Input: Force, Torque, Strain, Voltage, Displacement, and Contact Signals Simultaneously, Displacement and Contact Signals can be input, in addition to up to 4 channels of force, torque, strain, and voltage. The software displays each measurement value in real-time. (*1/*2)	**Simultaneous Graphing of Measured Values for Each Channel** Graphing software is downloadable from IMADA Connected which enables to create time graphs of each measured value. Correlations between each measured value can be easily analyzed. (*2)
Various load cells attachable without accuracy adjustment eZ-Connect series load cells can be connected without accuracy adjustment. Load cells with different capacities (e.g. 5N and 1000N) and different kinds of forces (e.g. compression force and torque) can be connected simultaneously	**CSV Data Output** Data imported into the Graphing software for output as CSV data with the aligned time axis. Force—displacement, Force-Strain graphs etc. can be created from CSV Data with spreadsheets. (*2)

*1 Dedicated cables are required for Strain, Voltage, and Contact Signal Input. Refer to page 4 for details.

*2 To use QSMA-400 and output CSV Data, a PC connected to the dedicated graphing Software Quad Graph Drawer must be installed and made available. Quad Graph Drawer is downloaded from IMADA Connected with the prior User and QSMA-400 product registration on IMADA Connected, and a suitable internet environment must be available.

[Specifications]

Model	QSMA-400
Compatible Input Signals / Number of Input channels	Load cell / Strain Gauge / Voltage Input (5V): Total 4 Channels Linear Scale / Angle Meter: 1 Channel Contact signal (non-voltage contact): At most 5 Channels
Amplifier Accuracy (Force, Torque)	+/-0.5%F.S. (*1)
Amplifier Accuracy (Voltage)	+/-0.1V (*1)
Display (Force, Torque)	Signed 4 digits (*2/*3)
Measurement Unit	Varies depending on the sensor, input cable, and settings used (*3)
Sampling Rate	2000 times/sec (synchronous sampling for each input channel)
Power Supply	Powered from USB port / Dedicated AC adapter (AC100-240V free input) (*4)
Power Consumption	USB: Maximum 5V/850mA or AC adapter: Maximum 6V/1A
Operating Environment	Ambient Temperature: 0-40°C / Relative Humidity: 20-80%
Function	Comparator / Sign Reversal (*5)
Output Function	USB communication (2.0 or later) / 3-step comparator (-NG/OK/+NG)/overload signal (*6)
Product Weight	Approx. 450g
Size	Refer to [Dimensions]
Accessories	AC adapter / USB Cable / Software download Procedure
Dedicated Software (included)	Download Version Software: **Quad Graph Drawer** (For details, please refer to [4-channel Graphing Software Quad Graph Drawer] on page 3.)

*1 When connecting the eZ-Connect series, the measurement accuracy is the amplifier accuracy plus the load cell accuracy. Overall measurement accuracy will vary depending on the sensor, input cable and settings used.

*2 Display other than force and torque will vary depending on the combined sensor, input cable, and settings.

*3 Measurement values are not displayed on the QSMA-400 itself. A PC with Quad Graph Drawer installed is required to display the measurement values. For details about Quad Graph Drawer, please refer to [4ch. graph creation software Quad Graph Drawer].

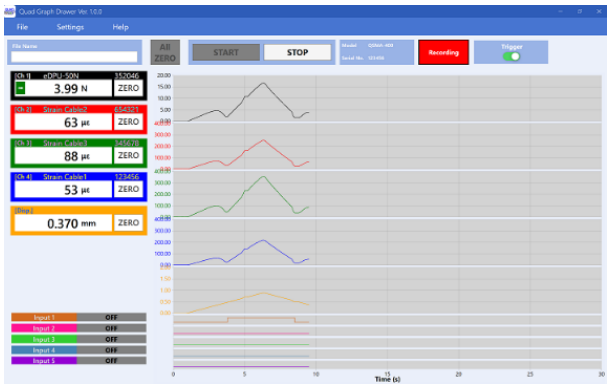
*4 When using the included AC adapter, power will not be supplied from the USB port.

*5 Settings are made from the Quad Graph Drawer. Comparator value settings are only possible for the load cell connected to CH1.

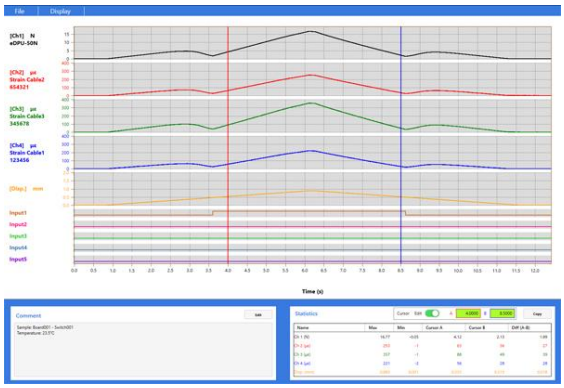
*6 The comparator signal and overload signal output to the Test Stand and external devices (using the I/O connector) are only valid for the measurement value of the load cell connected to CH1.

[4-channel Graphing Software Quad Graph Drawer]

The PC software (available only in download version) for displaying, recording, and graphing measurement values entered the QSMA-400.



Displays measurement values for all channels in real-time. Continuous data recorded and graphed at 2000 data points per second.



Statistical values such as max. and min. values automatically displayed after recording. The measurement values checked for each graph at any stage.

[Other features]

- Supports manual recording and automatic recording by setting conditions (trigger function)
- Comment function allows you to record the environment during measurement
- Printing and CSV data output
- Comparator display (Ch1 only when load cell is connected)
- Overload display (available with load cell in connection)
- Sensor settings (sign, unit, comparator value, etc.)

* Quad Graph Drawer is only offered in a download version. Download available from IMADA Connected by registering as a user on IMADA Connected and registering the QSMA-400 product. An internet connection is required to register on IMADA Connected, download, and install Quad Graph Drawer.

● Software Operating Environment

Operating Environment	Supported OS: Windows 10/11
Supported Hardware	CPU: Core i3 1GHz or higher recommended, Memory: 8GB or higher recommended, Hard disk: 10GB or more (data storage area)
Supported Platforms	.NET 8
Display	Resolution 1920 x 1080 pixels or higher
Cautionary Notes	- To download/ install/ use the software, Windows user account with the administrator rights is required. - An internet connection is necessary for downloading and installation.

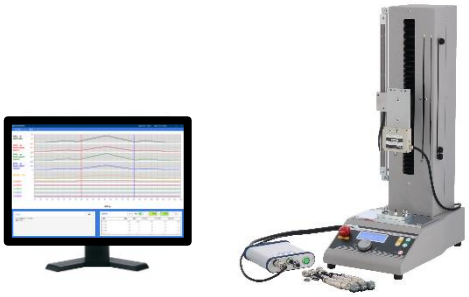
[Peripheral Devices]

Compatible Load Cell for QSMA-400 **eZ -Connect Series**	Force Control Cable **QCB-ST01**
	
eZ-Connect series load cells can be connected to the QSMA-400 without accuracy adjustment. Load cells can be replaced depending on the measurement range and sample.	This cable connects the QQSMA-400 to a motorized test stand to enable the force control function and overload stop function. (*1)
Strain Gauge Connection Cable **QST-350**	Recommended Strain Gauges **FLAB-5-350-11-1LJC-F / FLAB-5-350-23-1LJC-F** (*3)
	
A cable for connecting QSMA-400 and a strain gauge with lead wires. For 350Ω gauges (*2)	Strain Gauge (350Ω) (20 bottles / box set) by Tokyo Measuring Instruments Laboratory Co., Ltd. For iron: FLAB-5-350-11-1LJC-F For aluminum: FLAB-5-350-23-1LJC-F

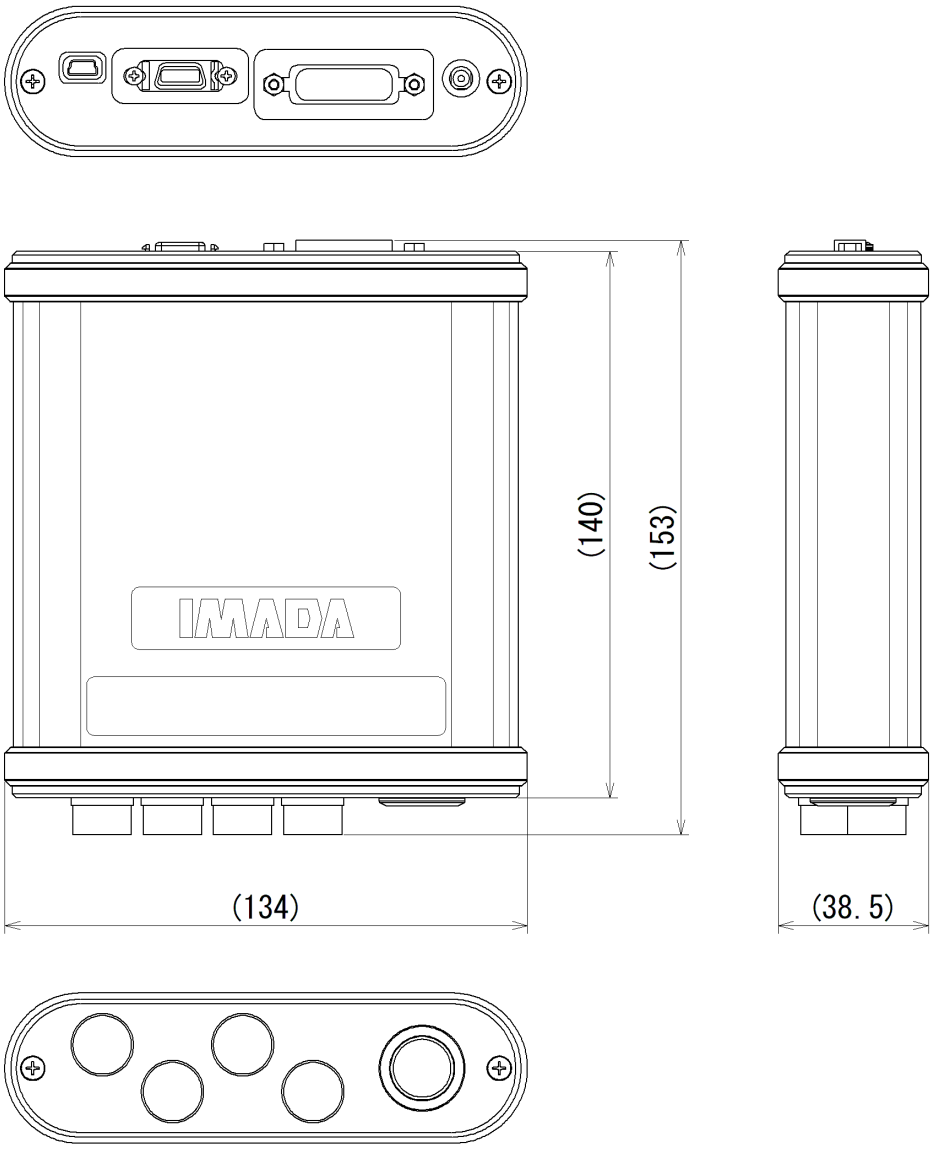
Voltage Input Cable (Open End) **QVI-05**	For Motorized Test Stand Linear Scale option **-FA**	Built-in Linear Scale Unit Built-in Angle Meter Unit **Customized Product**
		Linear Scale Unit / Angle Meter Unit measurements. Displacement / angle measurement is possible by mounting to equipment, etc. (*5)
		I/O Signal Connection Cable **Customized Product**
A cable for connecting to the QSMA-400 for voltage input. The GND between channels is common and non-isolated. (*4)	This is an option for mounting a linear scale on IMADA's motorized test stand. The linear scale mounted with the -FA option can be connected to the QSMA-400 directly.	A cable for inputting contact signals into the QSMA-400. It can also be used to output comparator signals to external devices. (*6)

*1 The force control function and overload stop function are available for the load cell force value connected to Ch1.
The overload stop function does not guarantee complete prevention of breakdowns due to overload.
*2 A customized strain gauge connection cable for 120 Ω gauges is available. Please contact us for details.
*3 Other than those recommended, no operation confirmation available.
*4 Customized voltage input cables with BNC and Clip are available. Please contact us for details.
*5 For External Linear Scale or Angle Meter connection, please contact us.
*6 The I/O Connector on the QSMA-400 rear used. Possible to connect up to 5 contacts.
The comparator signal output available for the load cell force value connected to CH1.

[Related Products]

Force-Deformation Evaluation unit **FSA-Q series**	Force-Displacement Measurement Unit **FSA series**
	
This Unit enables easy evaluation of sample deformation by simultaneous Force / Displacement, and Strain measurements. Graphing software creates graphs showing each measurement value on a time axis.	This Unit specializes in measuring and analyzing force-displacement. The high-speed communication of up to 2000Hz, enable to draw precise force -displacement graphs. Choices of Test Stands are offered according to the application requirements.

[Dimensions]



Unit: mm

[Cautions]

- Information in this document is subject to change without prior notice.
- This document is product descriptions and handling precautions and does not guarantee various characteristics or safety.
- This product is designed for measurement purposes only.
- Do not copy and use this content without authorization.
- PC is Not included in this product.
- Software could not work in some operating environments.

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