



The F490 is a digital indicator for a strain gauge type sensor that measures load, pressure, tension, torque, etc.

With reduction in size and weight, its functions are enhanced by recording of measurement data, a wide variety of information displays, long-time battery drive, PC compatibility, and much more.

One unit enables high-precision field measurement and data management.



Record function

Measurement data can be stored in the internal memory. The record data is in CSV format that can be easily used by Excel, etc.

● Record data

ID, record count, date/time of record, measurement channel, indicated value, unit

● Record mode

Record when [REC] is pressed

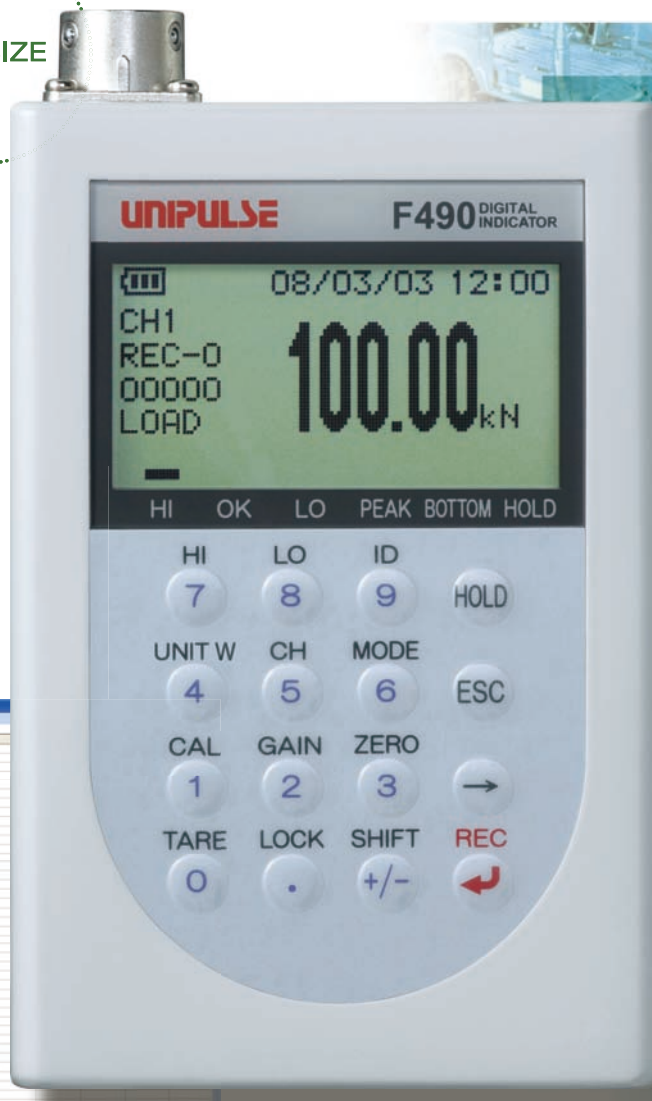
Record when stability is detected

Record hold value at hold-release time

Interval record

Graph data record

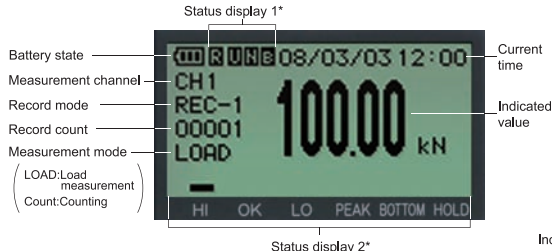
1	COUNT	DATE	TIME	CH	DATA	UNIT
2	1	2008/3/18	14:34:58	1	10.00	kN
3	2	2008/3/18	14:35:06	1	9.997	kN
4	3	2008/3/18	14:35:12	1	9.999	kN
5	4	2008/3/18	14:35:14	1	9.999	kN
6	5	2008/3/18	14:35:17	1	10.00	kN
7	6	2008/3/18	14:35:20	1	9.999	kN
8	7	2008/3/18	14:35:25	1	9.999	kN
9	8	2008/3/18	14:35:29	1	10.00	kN
10	9	2008/3/18	14:35:35	1	10.00	kN
11	10	2008/3/18	14:35:37	1	9.999	kN
12	11	2008/3/18	14:35:41	1	9.999	kN
13	12	2008/3/18	14:35:43	1	9.999	kN
14	13	2008/3/18	14:35:48	1	10.00	kN
15	14	2008/3/18	14:35:52	1	9.999	kN
16	15	2008/3/18	14:35:55	1	9.999	kN
17	16	2008/3/18	14:35:56	1	9.999	kN
18	17	2008/3/18	14:36:01	1	9.999	kN
19	18	2008/3/18	14:36:06	1	9.999	kN
20	19	2008/3/18	14:36:09	1	10.00	kN
21	20	2008/3/18	14:36:14	1	10.00	kN
22	21	2008/3/18	14:36:20	1	9.999	kN
23	22	2008/3/18	14:36:25	1	10.00	kN
24	23	2008/3/18	14:36:29	1	10.00	kN
25	24	2008/3/18	14:36:33	1	10.00	kN
26	25	2008/3/18	14:36:36	1	9.999	kN
27	26	2008/3/18	14:36:38	1	9.999	kN
28	27	2008/3/18	14:36:41	1	9.999	kN
29	28	2008/3/18	14:36:43	1	10.00	kN
30	29	2008/3/18	14:36:46	1	9.999	kN
31	30	2008/3/18	14:36:49	1	10.00	kN
32	31	2008/3/18	14:36:53	1	9.999	kN
33	32	2008/3/18	14:36:56	1	10.00	kN
34	33	2008/3/18	14:37:02	1	10.00	kN
35	34	2008/3/18	14:37:07	1	10.00	kN
36	35	2008/3/18	14:37:11	1	10.00	kN
37	36	2008/3/18	14:37:15	1	10.00	kN
38	37	2008/3/18	14:37:18	1	10.00	kN
39	38	2008/3/18	14:37:20	1	10.00	kN
40	39	2008/3/18	14:37:23	1	10.00	kN
41	40	2008/3/18	14:37:24	1	9.999	kN
42	41	2008/3/18	14:37:30	1	9.999	kN
43	42	2008/3/18	14:37:32	1	10.00	kN
44	43	2008/3/18	14:37:35	1	9.999	kN



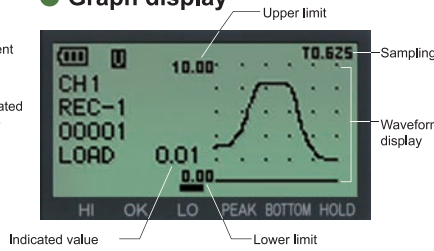
A variety of display modes

A LCD with clear visibility is adopted to display a variety of information including indicated value, battery state, record count, etc. Each time the ESC key is pressed, switching is performed between the display modes.

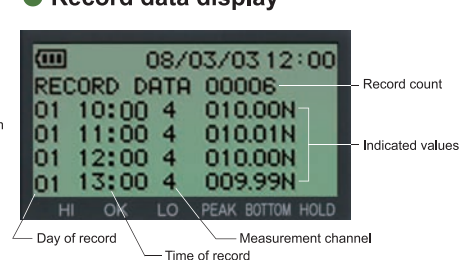
● Data display



● Graph display



● Record data display



*For details, see the display section in the specifications on the reverse side.

Simple operation mode

Only the items necessary for load measurement are displayed, and simple measurement can be made. It is convenient for checking the indicated value.

* Record function, graph display, etc., will not appear.



Measurement mode

Switching can be performed between two measurement modes.

- Load measurement mode
Input from the sensor is displayed.
- Counting mode
Quantity of measuring objects is displayed.

Hold function

Necessary points of measurement data are detected.

- Hold mode
Sample / Peak / Bottom / Peak-to-peak
- Data hold section
All / Level / Level+time

Comparison mode

Indicated values are compared with the upper limit and lower limit set values to detect abnormal values.

Multi-calibration

Four channels of calibration values can be stored, which can be selected as desired according to the field sensor.

Equivalent input calibration

Calibration can be performed by simply key-inputting the output value and corresponding indicated value of the sensor.

One-touch zero function

The indicated value can be zeroed by key operation.

Zero tracking

Slow zero drifts caused by temperature changes, etc., are automatically corrected.

USB interface

By simply connecting the F490 to a USB port of a personal computer, it will be recognized as a drive, which enables file reference and copying.

Three types of power

The F490 is user-friendly because of three types of power sources. It can also be used in places with no power supply.

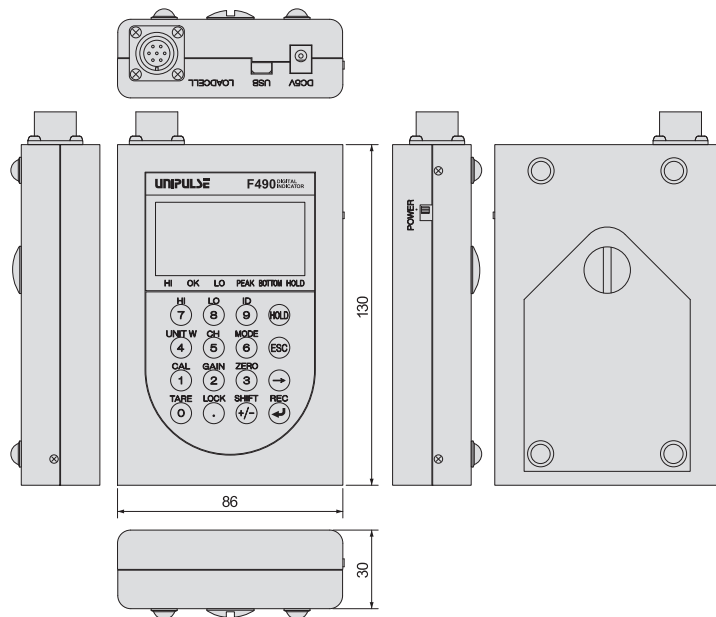
- AA alkaline batteries
- USB (bus power)
- AC adapter (optionally available)

Specifications

Analog section	Excitation voltage Signal input range Equivalent input calibration range Zero adjustment range Gain adjustment range Accuracy A/D converter	3V DC \pm 10%, output current within 35mA -3.0 ~ +3.0mV/V +0.5 ~ +3.0mV/V +2.0 ~ +2.0mV/V +0.5 ~ +3.0mV/V Non-linearity : Within 0.02%/FS (at a 3.0mV/V input) Zero drift : Within 0.3 μ V / $^{\circ}$ C RTI Gain drift : Within 5ppm/ $^{\circ}$ C Rate : 80 times/sec. Resolution : 24bit (binary) 1/30000 with respect to 3.0mV/V
Display section	Display Display value Status display	128 x 64-dot single color LCD 5-digit, -99999 to +99999, Character height 14mm Status display 1 : R (Recording) / A (Using AC adapter) / U (In USB connection) / N (Writing in NOV RAM) / B (Backup battery alarm) Status display 2 : HI / OK / LO / PEAK / BOTTOM / HOLD
Setting section	Setting item	<ul style="list-style-type: none"> • Tare subtraction* / Equivalent input calibration / Span calibration / Zero calibration (one-touch zero) / Unit weight setting* / Measurement channel selection / Upper limit setting / Lower limit setting / Identification / Set value LOCK • Unit select / Digital filter / Motion detection (time / width) / Zero tracking (time / width) / Near zero / Digital zero / Minimum scale division • Date/time / Buzzer / Back light / Auto off time / Version display / Memory check / Initialize • Hold function : Hold mode / Hold section / Start level / End level / Detect time • Graph function : Sampling* / Trigger mode* / Trigger edge* / Trigger level* / Pre-trigger* • Operation mode / Comparison mode / Measurement mode* / Record mode* / Real-time output* <p>*Cannot be used in simple operation mode.</p>
Record section	Record function Recording media Recording method Record data Amount of recordable data	<ul style="list-style-type: none"> • Record when [REC] is pressed • Record when stability is detected • Record hold value at hold-release time • Interval record • Graph data record <p>Internal memory CSV text format ID, record count, date/time of record, measurement channel, indicated value, unit 20,000</p>
Hold function		Hold mode : Sample / Peak / Bottom / Peak-to-peak Data hold section : All / Level / Level+time
Measurement mode		Load measurement / counting
Clock	Display Accuracy	Year (last two digits), month, day, hour, minute Lunar inequality 1 minute. (ordinary temperature)
Interface		USB interface (Communication standard : Compliant with USB Ver.1.1, Communication speed : Full speed, Class : Mass-storage and virtual COM port, OS : Windows XP (SP3), Windows Vista (SP1)) <ul style="list-style-type: none"> • File operation (The F490 is recognized as a drive, which enables file reference and copying.) • Virtual COM port (Set values can be read and written by terminal software.) • Real-time output (Measured data are output in succession on USB.)
General Specifications	Internal power source External power source Current consumption Backup power source Continuous use time Operation conditions Dimensions Weight	AA alkaline batteries or nickel metal hydride batteries (4) Dedicated AC adapter (for 100V AC or for free power source) Approximately 30mA (back light off, F490 only) Approximately 35mA (back light on, F490 only) Set values and record data are maintained by the lithium battery (warranty period 5 years or more) When a 350 Ω sensor is connected : Approximately 30 hours (back light off) When a 120 Ω sensor is connected : Approximately 12 hours (back light off) Temperature : -10 to +40 $^{\circ}$ C Humidity : 80%RH or less (non-condensing) 86W x 130H x 30D (mm) (not including projections) Approximately 380g (including the battery weight approximately 95g)
Accessories		Sensor connector • • • 1 AA alkaline battery • • • 4 CD-ROM • • • • • 1 Operation manual • • • 1

Dimensions

Unit:mm



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* Please note that specifications or designs shown in this catalog may be changed without prior notice due to our continuous product improvement activities.

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