

**NEW**

Easy handling, simple setting, fast output operation  
suited for even complex sequence patterns

# Digital Function Generator

## eK-FGJ / eK-FG2

Frequency range : 0.01 Hz to 1 MHz

Output waveform : sine wave, triangular wave, square wave, DC, arbitrary wave

Maximum amplitude : 20 Vp-p (@1 k $\Omega$  = RL), 7.5 Vp-p (@50  $\Omega$  = RL)



# eK-FGJ

Simple operation and high stability,  
the benefit of digital  
function generator

## Features

- Designed for directly setting the output from bipolar power supplies produced by Matsusada.
- High accuracy and stability features for signal creation
- Intuitive operation and setting on LCD screen in a single unit
- Sequence operation with control software
- Easy operating exclusive control software as standard equipment

## Overview

eK-FGJ is a function generator designed for realizing smaller and more user-friendly unit.

Output value from the function generator can be converted and set based on our bipolar power supplies.

Accordingly, eK-FGJ features the accurate and intuitive setting without calculating with the gain value.

We implemented the operability improvement by simple operation on 3.5-inch LCD screen.

As you know, the function generator usually creates stable waveform with high accuracy.



# eK-FG2

Best cost performance by digital  
function generator

## Features

- Together with eK-FGJ, high-end signal output in a compact body
- Sequence operation with control software
- Easy operating exclusive control software as standard equipment

## Overview

For the best use of space, eK-FG2 that is a 35 mm wide ultra compact function generator with 2-ch output has no user interface from the eK-FGJ.

So, you can use the two function generators properly on different purposes like research and development with FGJ or inspection with FG2. Thus, the series enables you to improve the work environment for development and research, which will lead to the cost reduction as well as space saving.



Compact bipolar  
power supply

DJOP10-5

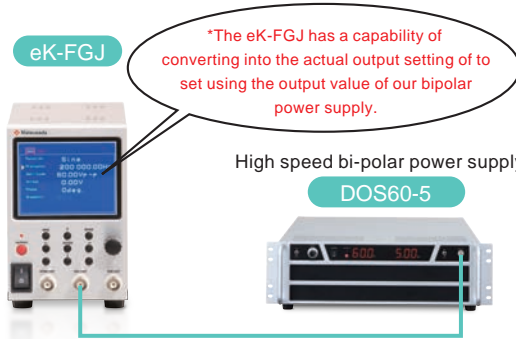


\*The picture shows an example application with DJOP10-5.

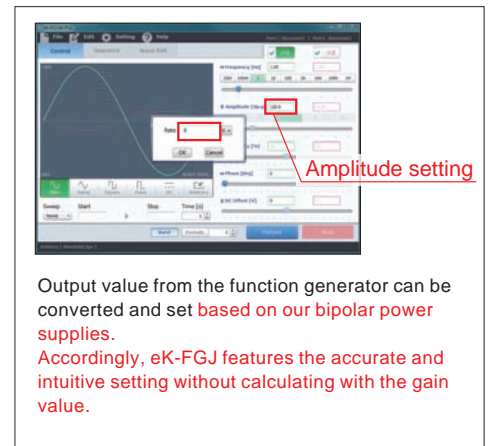


If a different output is used instead of DC, 0 V and 0 A will be displayed since the unit is dedicated to displaying DC output in DJOP series.

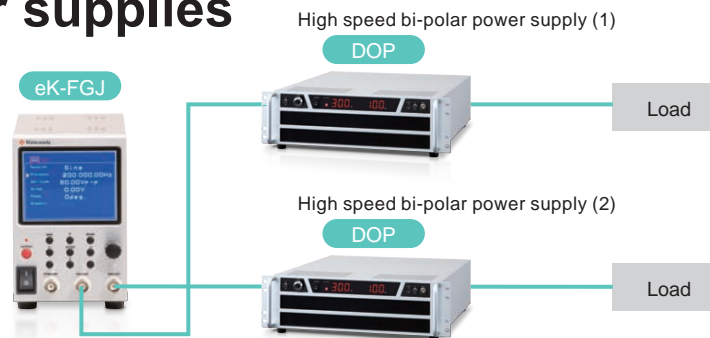
# Matsusada as a leading power supply manufacturer introduced direct OUTPUT display for eK-FGJ



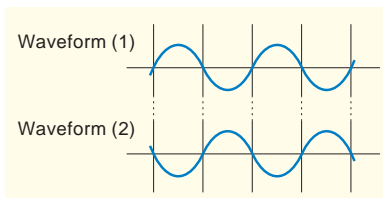
\*The picture shows an application example with DOS60-5.  
If a different output is used instead of DC, 0 V and 0 A will be displayed since the unit is dedicated to displaying DC output in DOS series



## The series offers the synchronous waveform output in two power supplies

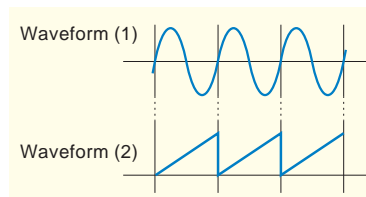
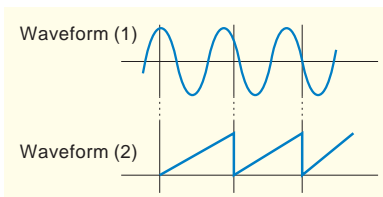


•It is possible to apply the opposite synchronous waveform output by positive or negative toward motors or dielectric materials.



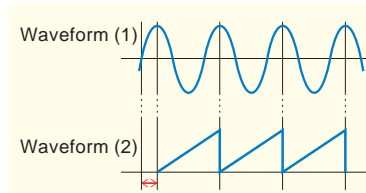
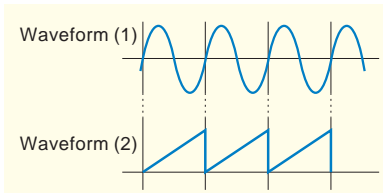
•In the series, the synchronous output is available where the two waveforms follow the same patterns in terms of the respective cycle and sweeping start point. Besides, the phase shift is also available where one phase is shifted differing from the other.

Synchronous Output



It is designed to control the two waveforms by making them the same in terms of the cycles and the sweeping start point.

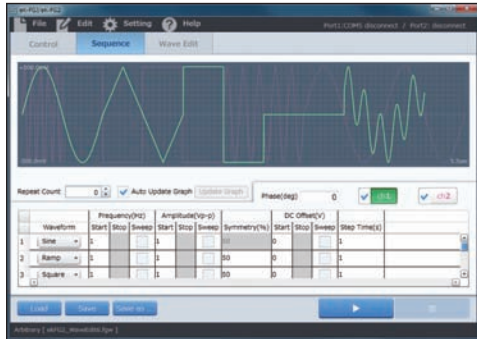
Phase Shift



The output timing is arranged by moving the phase of your choice.

# Easy operating exclusive control software as standard equipment

## Sequence Screen

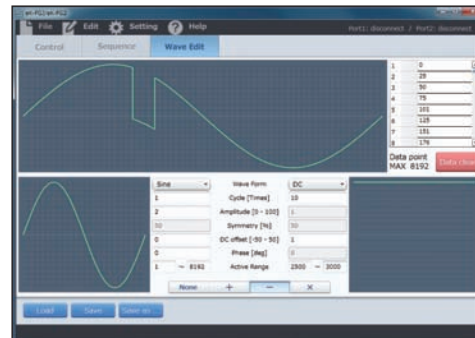


The series features the independent sequence outputs with Ch1 and Ch2. Also, during the sequence operation, you can use the waveform made by a dedicated editor. (As for the waveform of your choice, select one waveform that is commonly used in Ch1 and Ch2.)

## Optional Waveform Generation



The series offers the composition consisting of a sine wave and an amplitude which have different patterns and readily provides the waveform generation



The composition is also available by setting the specified range.



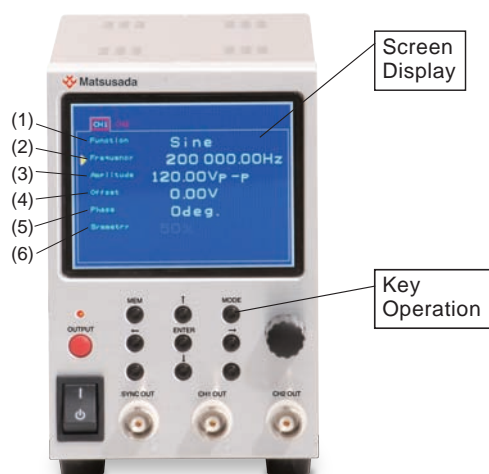
They can be added, subtracted, and multiplied.

Positive and negative outputs are available respectively.

Wide varieties of waveforms are available by generating according to the composition methods.

\*Concerning the configuration data used for the output, the reproduction may not always coincide with the actual output waveforms

## Functions



(1) **Function** : output waveform selecting (among the waveform items referring to “GENERAL SPECIFICATIONS” (see page 06))

(2) **Frequency** : frequency setting / setting value displaying

(3) **Amplitude** : amplitude setting / setting value displaying

(4) **Offset** : DC offsetting / setting value displaying

(5) **Phase** : setting of phase to start / setting value displaying

(6) **Symmetry** : symmetry setting / setting value displaying  
(in selecting triangle wave and square wave)

**MEM** : memory writing / read screen displaying

**MODE** : display switching / setting screen displaying

← ↑ ↓ → : cursor movement

**ENTER** : to confirm your setting on the memory screen

## Exclusive Control Software

### Basic Operations



(1) **Function** : output waveform selecting

(2) **Sweep** : sweep setting / setting value displaying (by selecting frequency, amplitude or offset)

(3) **Frequency** : frequency setting / setting value displaying (in selecting triangle wave and square wave)

(4) **Amplitude** : amplitude setting / setting value displaying

(5) **Symmetry** : symmetry setting / setting value displaying (in selecting triangle wave and square wave)

(6) **Phase** : phase setting / setting value displaying

(7) **DC Offset** : DC offsetting / setting value displaying

## Operating Environment

OS**2	Windows 10(32/64bit), Windows 8.1(32/64bit), Windows 8(32/64bit), Windows 7(32/64bit)
CPU	Pentium4 or later
RAM	1GB or more
HDD	500MB or more of free capacity
Monitor	1024×768 or more of resolution
USB port*3	Two ports
Communication Port	USB port

\*1 It requires Microsoft .NET Framework 4.5.

\*2 Rest assured that Japanese as well as English can be used for the OS language.  
However, note that the display language in the control software of eK-FGJ or eK-FG2 is English only regardless of the OS language setting.

\*3 One port is required to connect the USB protect key.

## Specification for Control Software

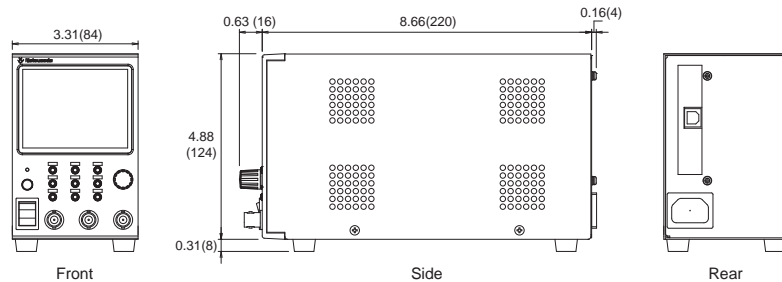
Waveform output	
<b>Waveform</b>	Sine wave, triangular wave, square wave, DC, and arbitrary wave
<b>Setting item</b>	Frequency, amplitude, symmetry, phase, and offset
<b>Sweeping item</b>	Frequency, amplitude, and offset
Sequence Function	
<b>Step Number</b>	16 at maximum
<b>Step Time</b>	0.1 to 99.0 sec
<b>Repetition Number</b>	100 at maximum
Arbitrary waveform generation	
<b>Method</b>	Calculation with two waveforms for the sum, difference or product (The calculation of specified part is possible.) The waveform data can directly be edited.
<b>Data point number</b>	8192 at maximum
<b>Cycle</b>	0.1 to 2000
Others	
	Resolution setting
	Restoring the previous status
	Automatic communication function

## GENERAL SPECIFICATIONS

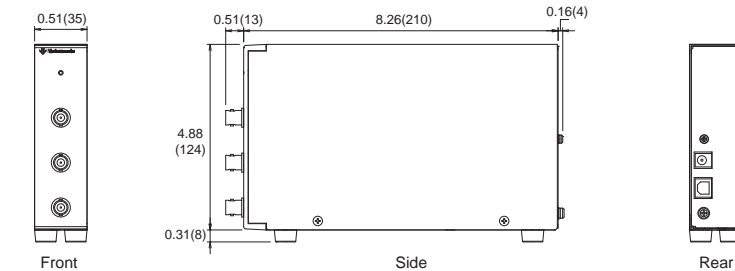
	eK-FGJ	eK-FG2
<b>Input voltage/current</b>	85 to 265 VAC 50 / 60 Hz, 0.4 A (@100 V) with AC input cable	90 to 132 VAC 50 / 60 Hz, 0.3 A (@100 V) with AC input adaptor
<b>Frequency range</b>	0.01 Hz to 1 MHz	
<b>Number of channels</b>	2	
<b>Waveform</b>	Sine wave, triangular wave, square wave, DC, or arbitrary wave (can be produced with the control software)	
<b>Maximum amplitude</b>	20 Vp-p (@1 k $\Omega$ = RL), 7.5 Vp-p (@50 $\Omega$ = RL)	
<b>Offset</b>	+ / -10 V (no load)	
<b>Output impedance</b>	50 $\Omega$	
<b>SYNC output</b>	TTL level (synchronizing with Ch1)	
<b>Display</b>	3.5-inch LCD screen, LED indicator	LED indicator
<b>Setting memory</b>	10 settings	—
<b>Communication function</b>	USB (standard) *It is available with exclusive control software.	
<b>Accessories</b>	Instruction manual (1) Control software	USB cable (standard) AC input cable (for eK-FGJ) AC input adaptor (for eK-FG2)
<b>Weight</b>	approx. 1800g	approx. 800g

## Dimensions inch (mm)

eK-FGJ



eK-FG2



## Optical Interface Board Option (for eK-FGJ) In selecting this option, the USB board is not included as a standard specification.

-LGob	Optical interface board + optical cable 2 m
-LGob(Fc5)	Optical interface board + optical cable 5 m
-LGob(Fc10)	Optical interface board + optical cable 10m
-LGob(Fc20)	Optical interface board + optical cable 20m
-LGob(Fc40)	Optical interface board + optical cable 40m

Isolation control is performed by optical communication. As complete isolation is performed by means of optical fiber, this enables the prevention of erroneous operation comprising transient phenomena caused by surges, inductive lightning, external noise, etc. (can be produced with the control software).

On the other hand, regarding the communication in this option, before the sequence operation is performed or the arbitrary waveform is outputted, it may take several seconds for the power supply to output following the signal output. If you plan to use the unit for such applications, it is not recommended to use this option.

**Note for ordering** To order, please add the above option codes to the model number.  
Sample: eK-FGJ-LGob, eK-FGJ-LGob(Fc5)

In case the power supply is used under the following conditions, please include the option.

- Noisy environment including factories (Example: Motors or coils are used near power supplies and loads.)
- Use with high voltage floating (more than 250 V)
- The installation distance between power supply and controller (PL or PLC) produced by Matsusada Precision is more than two meters

## Related Product to eK-FGJ and eK-FG2

For more details on the following products, there are variety of brochures or data sheets available. So, please feel to contact our sales representatives.

### Low Voltage, bipolar power supply ( $\pm 5$ to $\pm 300$ V)

- Motor drive testing
- ECU testing
- Evaluation test of parts

The series is ideal for such applications.

#### Compact and lightweight

##### DJOPseries



Output voltage :  $\pm 10$  to  $\pm 60$  V  
Output power : 50 W, 60 W  
Frequency range : DC to 30 kHz

- Ultra-compact, lightweight design, with a width of only 140 mm and weighing only 3 kg

##### DHOPseries



Output voltage :  $\pm 20$  V,  $\pm 45$  V  
Output power : 240W  
Frequency range : DC to 100 kHz

- High-speed response up to 100 kHz DC in a half-rack size

#### Higher Power capability

##### DOPseries



Output voltage :  $\pm 5$  to  $\pm 300$  V  
Output power : 150 to 2 kW  
Frequency range : DC to 30 kHz at maximum

- Higher power model up to 6 kW
- Quiet operation with new silent fan design
- High operability and excellent reliability along with high quality output

#### Ultra high speed response

##### DOSseries



Output voltage :  $\pm 20$  to  $\pm 60$  V  
Output power : 150 to 1.2 kW  
Frequency range : DC to 200 kHz maximum

- High speed response of DC to 200 kHz at maximum
- Both constant voltage (CV) and constant current (CC) modes available for use
- Compatible with master/slave operation (optional)

### High Voltage, bipolar power supply ( $\pm 400$ V to $\pm 40$ kV)

- High pressure test of electronic parts
- Evaluation test of charged drum (copy machines, etc.)
- Operation test of plasma actuators

The series is ideal for such applications.

##### AMJ series



Output voltage :  $\pm 500$  V to  $\pm 4$  kV  
Output power : 20 W, 40 W  
Frequency range : DC to 75 kHz at maximum

- High speed response up to 75 kHz in a compact body
- Allowing to output the arbitrary waveform following the waveform input.
- Assuring the highest safety with protection functions to prevent arc discharge, etc.

##### AMPseries



Output voltage :  $\pm 600$  V to  $\pm 40$  kV  
Output power : 100 W to 1.2 kW  
Slew rate : more than 700 V/ $\mu$ s, or more than 300 V/ $\mu$ s

- Achieved to reach the high-speed slew rate up to 700 V/ $\mu$ s at the actual load
- Designed to output three times of rated peak current
- Equipped as standard with important protection features, such as OUTPUT short circuit protection

##### AMS/AMT series



Output voltage :  $\pm 600$  V to  $\pm 20$  kV  
Output power : 20 to 100 W  
Frequency range : DC to 100 kHz at maximum

- Allowing to output the waveform following the waveform input at high speed response of 100 kHz at maximum.
- Assuring the highest safety with protection functions to prevent arc discharge, etc.
- DC bias function as standard equipment



**USA/Canada : +1-888-652-8651**

other countries : ☎81-6-6150-5089

## Customer Inquiry Sheet (eK-FGJ / eK-FG2 series)

Please copy this page and above fax number after filling out form below.

☐ I would like

- ☐ A quotation    ☐ An explanation of product    ☐ A demonstration    ☐ To purchase
- ☐ Other ( )

■ Give us your requirement / comment

■ Please fill in below.

Address:	
Company:	
Dept.:	Title:
Name:	
Tel:	Fax:
E-mail:	

### Manufacturer warranty

We warrant the specification, unless otherwise specified, at max. rated output after warm up, and scope of application is between 10% and 100% of max. rated output. We warrant that products contained in this catalog (hereinafter, the "Products") are free from defects in material and workmanship under normal use for a period of one (1) year from the date of shipment thereof. However, the warranty period for X-ray detectors and X-ray source shall be either one (1) year from the date of shipment or 1,000 hours, whichever shorter. The above warranty shall not apply to any Product which, at our sole judgment, has been: i) Repaired or altered by persons unauthorized by us; or ii) Connected, installed, adjusted or used otherwise than in accordance with the instructions furnished by us (including being used in an inappropriate installation environment, such as in corrosive gas, high temperature and humidity). We are not liable for any loss, damage or failure of the Products after the shipment thereof caused by external factors such as disasters. We will not inspect, adjust or repair any of our power supply products in the field or at any customer site. If you suspect that there has been a power supply failure in the field, please inspect your whole unit by yourself in an effort to determine that the problem is, in fact, arising out of our power supply products. If it is found that the problem is arising out of such power supply product after inspection, please contact your local sales office for additional troubleshooting. A "Return Merchandise Authorization" is required in case the power supply must be sent back to the factory in Japan for inspection and repair. We, at our sole discretion repair or replace such defective products at no cost to the purchaser. We assume no liability to the purchaser or any third party for special, incidental, consequential, or other damages resulting from a breach of the foregoing warranty. This warranty excludes any and all other warranties not set forth herein, express or implied, including without limitation the implied warranties of merchantability or fitness for a particular purpose. The Products are not designed and produced for such applications as requiring extremely high reliability and safety, or involving human lives (such as nuclear power, aerospace, social infrastructure facility, medical equipment, etc.). The use under such environment is not covered by this warranty and may require additional design and manufacturing processes. No modification or supplement of this warranty shall be binding unless in writing and signed by a duly authorized officer of Matsusada. Matsusada reserves the right to make any changes in the contents of catalogs or specifications at any time without advance notice. Due to compelling reason such as unavailability of components used, products might be unavailable or unable to repair. The products specified in catalogs or specifications are designed for use by the person who has enough expertise or under the control of such person, and not for general consumers. Schematics of products shall not be submitted to users. Test result or test data for the products shall be available upon request with charge.

Make sure you read the specification in the latest catalog before you order. Contact nearby sales office for the latest catalog.

PLEASE SEE THE LINK BELOW FOR THE COMPLETE WARRANTY TERMS

<https://www.matsusada.com/site/warranty.html>

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