KEISOKU GIKEN

Battery HILS

Battery emulator

MCD Series

Full digital control as de facto standard.

5V 200mA × 5 channels

Battery ECU

High-Speed

Full-Digital

KEISOKU GIKEN CO., LTD.

1U revolution!

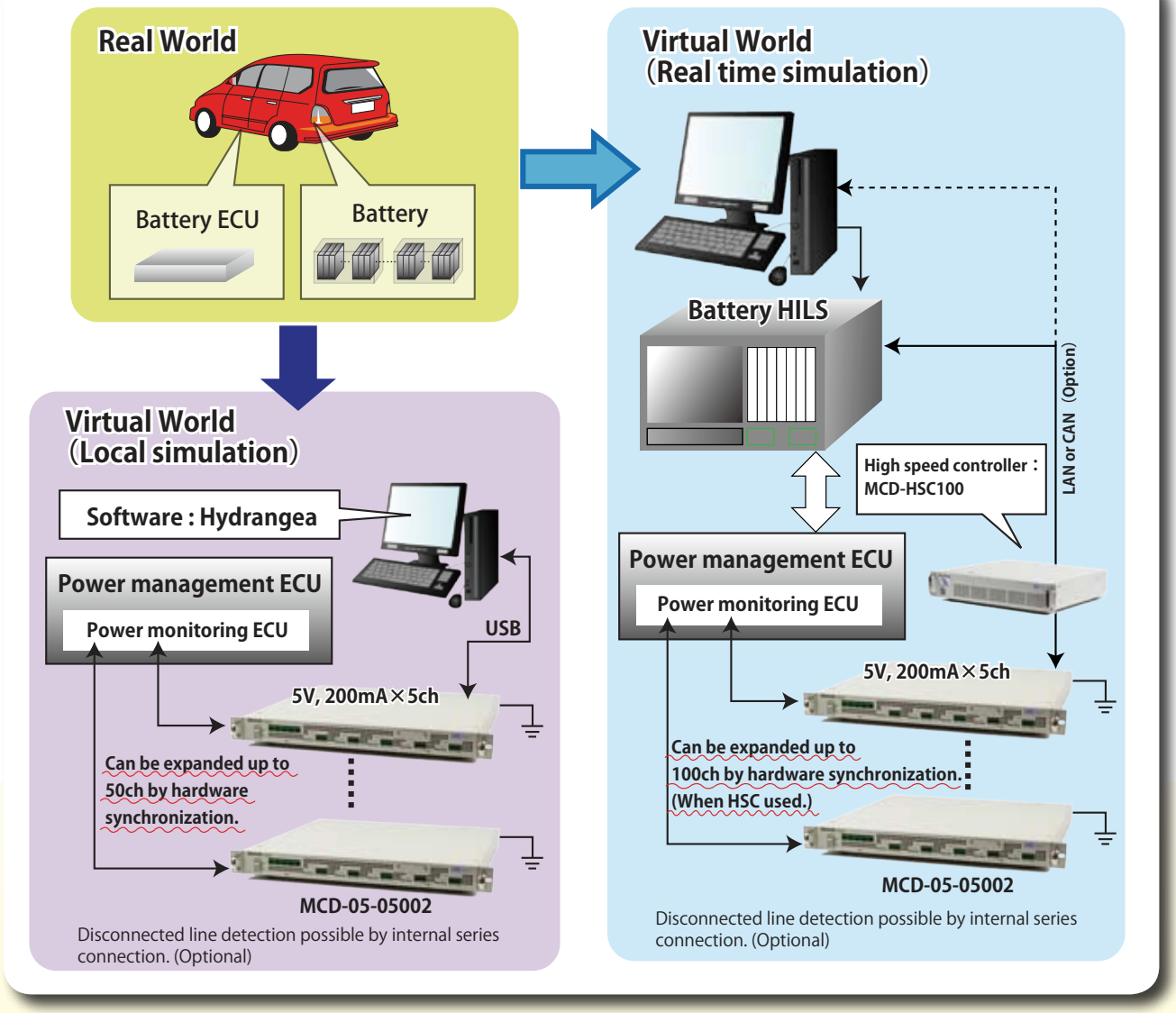
Battery HILS/ECU test emulator as de facto standard

Full Digital Control!

Voltage : 5V　Current capacity : 200mA × 5ch → **Expandable to 200ch max. (5ch × 40 sets)**

5V / 500mA type （Model : MCD-05-05005）
5V / 1A type （Model : MCD-05-05010）

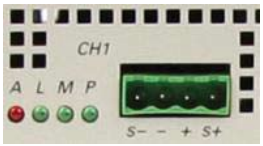
Application



Just fit for Battery HILS / ECU Testing !

High-speed operation

High speed measurement in 3ms and setting in 2us are possible in the hardware sequence mode as 2,048 buffer memories are equipped in each channel for setting and measurement.
Multi-channel high-speed measurement and setting are possible by optional high-speed controller “MCD-HSC100” for real time simulation. (LAN or CAN communication: Optional)



Highly accurate measurement & setting

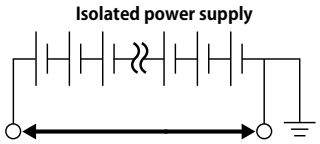
Realized high resolution and accuracy.

		Min. resolution	Measurement Accuracy
Measurement	Voltage	0.1mV	± 0.02% of f.s.
	Current	0.1mA	± 0.05% of f.s.
Setting	Voltage	1mV	± 0.06% of f.s.
	Current	0.1mA	± 0.075% of f.s.

* Refer to the specification for operational conditions that may be applied to the accuracy.

Isolated independent channels

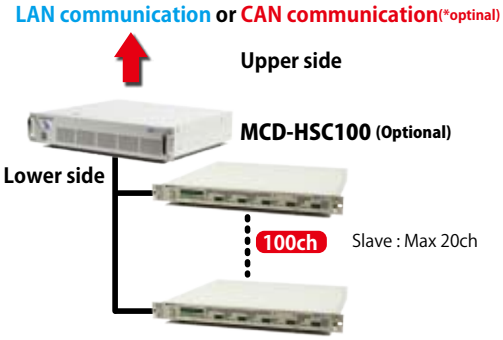
Each channel is isolated and equipped with independent buffer memory.
Hence hardware-sequence-operation-setting is possible in each channel.



Hardware synchronization （50ch / 100ch）

By the expansion feature, it can be expanded up to 200ch max.
With the hardware synchronization feature, it can be expanded up to 50ch. With optional HSC, high speed controller, it can be expanded up to 100ch max. as hardware synchronization. (LAN or CAN communication. Optional)

* There are minimal phase differences between channels.

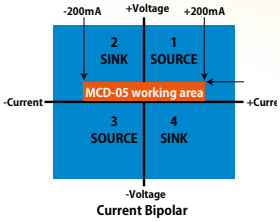


Various options

- Disconnect line control option (Up to 500V max internal connection)
- MCD communication option (LAN or CAN interface)
- Bound connector option　etc.

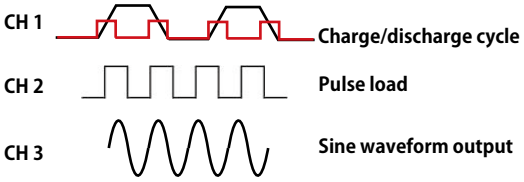
DC power source and Electronic load

Bi-polar type electronic load is equipped so it can sink current from the ECU that enables to balance the batteries.
Various condition of ECU can be simulated and tested.



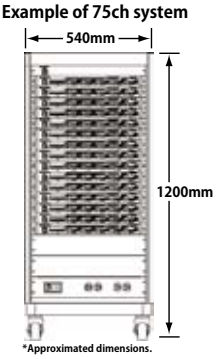
Ripple voltage injection

Ripple voltage of Sine, Square or triangle waveform can be injected to each channel. (Available when in hardware sequence mode)



High density racking

As MCD is in 1U and only 4kg, 100ch can be build in a 880mm single rack system. (The power section, load section and measurement sections are arranged in 1U size.)



Full digital control

MCD can be digitally communicated with higher PC/HILS. This resulted to minimize wirings. Stable and accurate measurement or setting possible.

Analog control

- The wiring is time consuming and troublesome when calibrating.
- Needs periodical zero-span adjustment and calibration.
- Susceptible to external noise.

Solution!

Full digital control

- No susceptible to external noises.
- Better stability and accuracy.
- Minimized wiring labor.
- Easy to move or relocate.

Hydrangea (Optional software)

Ripple voltage setting and hardware-sequence setting are easy with optional software.

Hydrangea
あじさい

MCD series specification

			MCD-05-05002	MCD-05-05005	MCD-05-05010
Common	No. of CH		5CH/1set, max 50CH/10 sets (Hardware connection), max200CH/40 sets(Software connection)		
	Common function	Charge section	Charge (DC-Voltage, Current output)		
		Discharge section	Discharge (DC voltage, Current load function)		
		Measurement section	Measurement (DC-V,A and Time)		
	Setting	Interface	Control by the host PC through USB I/F (No control on the panel.)		
		Mode	Single CH setting / Batch CH setting (Setting time error: max 10ms)		
	Operational mode	Real time operation	Controlled by real time command from the host PC.		
		Sequence operation	Set the sequence from the host PC prior to the test.		
Charging section	Function		Charge (DC-Voltage, Current output)		
	Operation mode		CC mode, CV mode (Automatic crossover)		
	Protection	OCP/OVP	Controlled by the firmware using the setting value and measurement result.		
	Output voltage	Setting range	5V to 0V(Single range)	5V to 0V(Single range)	5V to 0V(Single range)
		Setting accuracy	± 0.06% of f.s. *1	± 0.1% of f.s. *1	± 0.1% of f.s. *1
		Setting resolution	1mA	1mA	1mA
	Output current	Setting range	200mA to 0mA(Single range)	500mA to 0mA(Single range)	1000mA to 0mA(Single range)
		Setting accuracy	± 0.075% of f.s.	± 0.1% of f.s.	± 0.2% of f.s.
		Setting resolution	0.1mA	0.1mA	0.2mA
Dis-charging section	Function		Discharge (DC-Voltage & current load)		
	Operation mode		CC mode, CV mode (Automatic crossover)		
	Protection	OCP/OVP	Controlled by the firmware using the setting values and measurement result		
	Output voltage	Setting range	5V to 0V(Single range)	5V to 0V(Single range)	5V to 0V(Single range)
		Setting accuracy	± 0.06% of f.s. *1	± 0.1% of f.s. *1	± 0.1% of f.s. *1
		Setting resolution	1mV	1mV	1mV
	Output current	Setting range	0mA to -200mA(Single range)	0mA to -500mA(Single range)	0mA to -1000mA(Single range)
		Setting accuracy	± 0.075% of f.s.	± 0.1% of f.s.	± 0.1% of f.s.
		Setting resolution	0.1mA	0.1mA	0.2mA
Meas-urement section	OUT voltage	Measuring range	6V to 0V(Single range)	6V to 0V(Single range)	6V to 0V(Single range)
		Measuring accuracy	± 0.02% of f.s. *2, *3, *5	± 0.05% of f.s. *2, *3	± 0.05% of f.s. *2, *3
		Measuring resolution	0.1mV	0.1mV	0.1mV
	Charge & discharge current	Measuring range	220mA to -220mA	550mA to -550mA	1100mA to -1100mA
		Measuring accuracy	± 0.05% of f.s. *2, *4	± 0.1% of f.s. *2, *4	± 0.1% of f.s. *2, *4
		Measuring resolution	0.1mV	0.1mV	0.1mV
	Time	Measuring range	Hardware range 4ms to 60000ms / No upper limit when used with software		
		Measuring accuracy	± 0.3% of rdg.		
		Measuring resolution	1ms(Hardware sequence)		
		Minimal measurement	3ms(Hardware sequence)		
Interface	USB		USB1.1		
	I/O		8CH Photo-coupler, Isolated open collector output (12V/10mA, max24V/10mA)		
	Master-Slave expansion		Dedicated connector		
General	Rated input voltage		AC100 to 240V ± 10% 50/60Hz		
	Power consumption		40VA or less	60VA or less	80VA or less
	Dimensions (W x H x D mm)		430 × 44 × 400 EIA/1U	430 × 44 × 400 EIA/1U	430 × 44 × 400 EIA/1U
	Weight		Approx. 4kg	Approx. 5kg	Approx. 6kg
	Ambient temperature & humidity		Ambient temperature & humidity		
	Accuracy guaranteed temp and humid.		Accuracy guaranteed for 6 month at the ambient of 23℃± 5℃ / 70%RH		

*1 Setting accuracy guaranteed range: 0.5Vto5V *2 The accuracy will be degraded when selected higher conversion speed. For the above mentioned accuracy, 55Hz (initial value) is needed. *3 The F.S is 5V, guaranteed in 0V to 5V range. *4 The F.S for the accuracies are 200mA/500mA/1000mA. The guaranteed ranges are -200mA to 200mA/-500mA to 500mA/-1000mA to 1000mA. *5 Guaranteed temperature range: 23+/-2C. If this temperature exceeded then add +/-0.5mV offset voltage.

Recommended environment for Hydrangea.(Optional software)

Host PC	Software operational environment	Hardware	IBM PC-AT or equivalent
		Environment	CPU: Pentium III 1GHz or over
			Memory: 512MB or over
			HDD: 5GB or over empty area
		OS	Microsoft WindowsXP Professional / Home Edition SP2 or higher Microsoft Windows Vista Home / Business / Ultimate SP1 or higher Ultimate SP1 or higher

● The content of this catalog is generated based on the latest data as of Nov. 2011. ● Please consult us for the latest specification, price and availability of the product prior to ordering. ● All brand names, product names and company name are registered trademarks of their respective companies. ● Information in this document is subject to change without notice.

KEISOKU GIKEN Co., Ltd.

East Japan sales office (Head Quarters) 2-12-2, Chigasaki-minami, Tsuzuki-ku, Yokohama 224-0037 Japan
TEL : +81-45-948-0277 / FAX : +81-45-948-0224

West Japan sales office 3F, Eclat Esaka Bldg. 1-18, Toyotsu-cho, Suita-city, Osaka 564-0051 Japan
TEL : +81-6-6387-1039

E-mail : PWsales@hq.keisoku.co.jp **http://www.keisoku.co.jp/en/**

Nov. 2011 issued ● CP-0109-1110B