Nihon Kasetsu

eComo04

Nihon Kasetsu Monitoring

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NIHON KASETSU has 50 years' experience in developing high value technology solutions in sectors such as construction, infrastructure and industry.

The **NIHON KASETSU Monitoring** line offers telemetry systems for monitoring and control, designed to be installed and used in all types of environments in a simple, efficient and reliable manner.

The **eComo System** is the heart of the monitoring and control system. The CPU and software work in tandem, encompassing the processing unit (where all the information from sensors is managed and where the communication module is integrated) and the online control platform.

This is an optimal solution for many areas; examples are geotechnical engineering, meteorology, water quality, solar and wind energy, structures, greenhouses, agriculture, emissions control, early disaster warning (from earthquakes, landslides, floods, for example), infrastructure monitoring (e.g. bridges, dams and roads -both in construction and when operational-), traffic control and access (for vehicles, animals and people) and handling and storage of bulk materials.

eComo04 Compact

The eComo04 Compact is the central processing unit in the eComo System assembly. It receives and processes signals from sensors, shows the real-time data on an LCD display and connects the information with servers and online administrator and user platforms.

It is made entirely in Japan, with all electronic components from premium Japanese, American and European brands.

The housing is of high resistance plastic with IP66 protection, and can be installed outdoors and in any working environment. All inputs, outputs and external connections are through high quality waterproof metal connectors.

Inside are the power module (for connection to a power distribution network of 100-240 V AC at 50-60 Hz, or a 12V DC solar power system), several interchangeable electronic modules (which processes the information captured by sensors and configures the features of the eComo04 Compact), a CPU (developing all the managing tasks) and the communication module (responsible for communicating with the outside world by sending and receiving information by telephone or Wi-Fi).

IP 66	
Up to Inputs	6 analogs
	4 digitals
	4 thermocouples
Up to Outputs	4 digitals
	4 auxiliary supplies

New feature
Digital RS-485 communication
Compatible with previous versions of the eComo04

Monitoring

System architecture

Nihon Kasetsu eComo System

The sensors measuring the parameters to monitor, are connected to the central processing unit eComo04 Compact. It supports both digital and analogue sensors (including specific inputs for thermocouples). One or more video cameras can also be connected as an option. It provides digital outputs to connect light or acoustic devices or control

any actuator. Although NIHON KASETSU supplies a wide range of preconfigured sensors and actuators, the eComo04 Compact can also work with any other sensor on the market.

Readings are taken at a rate of one per second, and the average value calculated and sent via LAN, Wi-Fi or SIM up

to 4G. The data stored can also be extracted in-situ using USB memory. The communications module sends the data at configurable time intervals to remote secure NIHON KASETSU servers in encrypted information packets. NIHON KASETSU offers a M2M mobile phone service and the accessories required for communication.

eComo Software

Administrator Platform

Through the online Administrator platform, authorized user can control a fleet of eComo devices, plus sensors, actuators and cameras associated with them, from a single application. Among its main functions are:

- Registering devices, users and establishing access privileges to the eComo System.

- Selecting the sensors connected to each eComo04 from the "Plug&Play" sensors list preset in the system.

- Manual configuration of any sensor needing to be connected. *

- Configuring cameras and the intervals at which images are sent.

- Setting event alarms, e.g. limit values or status changes in digital inputs.

- Establishing working timetables.

- Modifying the appearance of online user platforms.

* Any commercial sensor can be configured manually with its specific parameters.

User Platform

From the online User platform, users can view and use the data from one or more eComo devices from any computer or mobile device. Among its main functions are:

- Displaying the latest reading or consulting historical measurements.

- Displaying graphs.

- Exporting data in different formats.

- Alarm log.

- Sending e-mail notifications of certain events.

- Displaying camera images.

Hardware configuration

Customizing eComo System

The eComo04 modular structure admits several configuration options to adjust the system to the project needs.

RS-485 module and ADC-Hub

The RS-485 module allows long wire and low-noise communication (up to 1000m between sensors and eComo04). A daisy chain connection between ADC-Hubs increases the eComo System versatility.

Communication module

SIM and router

Telephone cards and M2M communication service. Agreements with major international operators. The best rates according to data volume (with or without camera, streaming, etc). Reliable, safe and easily scalable.

Online SIM management is also possible (e.g. for activating/cancelling services, data consumption or consulting rates).

Accesories

Cameras

Axis IP Camera compatible with the eComo System.

Actuators

We provide different kinds of actuators, such as acoustic and lighting ones, for signaling and warning. Additionally, any type of actuator can be controlled through the eComo04 digital outputs.

Solar Kit

COMPONENT	Model	Characteristics	
SOLAR PANEL	Kyocera - KC32T02	Maximun Power	32 W
		Dimension	517x512x17mm
		Output DC Voltage	12 V
		Cell Type	multicrystalline
VOLTAGE REGULATOR	Solsum 6.6F	System Voltage	12 V
		Own consumption	< 4 mA
		Load Current	6 A
BATTERY	UL40 - 12	Nominal Voltage	12V
		Nominal Capacity	40AH
		Weight	13 Kg

Sensors

Nihon Kasetsu has a broad catalogue of analogue an digital sensors inlcuding wind speed and direction, air quality sensors (dust pollution and different toxic gases), noise levels, temperature, rain gauge, water levels, etc. All can be easily program to work with the eComo04 Compact.

Specifications

eComo04

POWER SUPPLY		
Nominal Power CPU Consumption	14	W
Power Consumption depending on the sensors	5 ÷ 60	W
Power Supply mode	electrical grid / solar panel	
Electric Distribution Power Supply	100 ÷ 230	VAC
Solar Panel Supply	12	VDC
Nominal Current	4,5	A
Peak Current	5,4	A

ANALOG INPUTS		
Ports number	2 per module	
Sampling Frequency	1 (max.)	Hz
Maximun Input Voltage	±6 / ±12	VDC
ADC Bit Depth	24	Bit

Analog ports power supply*

OUTPUT 24 VDC		
Maximun load current	400	mA
Ripple voltage level	100	mVp-p

OUTPUT 12 VDC		
Maximun load current	500	mA
Ripple voltage level	150	mVp-p

OUTPUT 9 VDC		
Maximun load current	900	mA
Ripple voltage level	75	mVp-p

OUTPUT 6 VDC		
Maximun load current	1.350	mA
Ripple voltage level	200	mVp-p

THERMOCOUPLES		
Type T thermocouple ports	4	
Sampling Frequency	1 (max.)	Hz
Maximun Input Voltage	2,5	VDC
ADC Bit Depth	24	Bit
Temperature range	-40ºC a +150ºC	
Precision	±0,25	ºC

DIGITAL INPUTS		
Connectors	2 per module	
H level Voltage	3,3 ÷ 12	VDC
L lever Voltage	0 ÷ 1,2	VDC
Maximun input current	50	mA

DIGITAL OUTPUTS		
Connectors	2 per module	
H level Voltage	32 max	VDC
L lever Voltage	0	VDC
Maximun current	2	A

ADDITIONAL POWER SUPPLY		
Connectors	2 per module	
Voltage	12	VDC
Maximun current *	500	mA
Ripple voltage	150	mVp-p

LAN		
RJ 45 100BASE-TX/10BASE-T	1	

CASING		
Dimensions	360 x 285 x 185	mm
Weight	6,8	Kg

CERTIFICACIONES
CE / RoHS / EMC / WEEE

AMBIENT CONDITIONS		
Operating temperature	-30 ÷ 70	ºC
Storage conditions	-40 ÷ 85	ºC
Humidity	90%RH @ 60ºC	
IP	66	

* The maximun current can be limited by the battery status in the solar panel power supply mode.

Admin platform

- Registration of sensors and actuators
- Fleet control
- List of preconfigured sensors
- 5 programmable thresholds
- Configuration mode: easy, normal and advance
- Internet service operation mode selector
- Operation schedule
- Profile and password configuration
- Inputs configuration
- Outputs configuration
- Addtional power supplies configuration
- Surveillance camera registration

User platform

- Sending reports
- Sensor monitoring
- Data in graphs
- Live camera web player: image settings
- Sending photo: image settings

Security

- Encription data developed by Nihon Kasetsu
- Secure connection for the admin and user platform

Nihon Kasetsu

50 years of passion for excellence

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