We communicate the voices of the earth.

OSASI
OSASI TECHNOS INC.

URL : http://www.osasi.co.jp/en/
E-mail : cs@osasi.co.jp

Corporate Headquarters (Kochi)	65-3 Hongu-cho, Kochi-shi, Kochi 780-0945, Japan TEL:+81-88-850-0535 FAX:+81-88-850-0530
Tokyo Headquarters	Sumitomo Seimei Nishi-Shimbashi Building 4F, 1-10-2, Nishi-shimbashi, Minato-ku, Tokyo, 105-0003, Japan TEL:+81-3-5510-1391 FAX:+81-3-5510-1393
Kyushu Branch Office	Iwaho Building Ekiminami 4F, 4-1-17 Hakata Eki Minami, Hakata-ku, Fukuoka-shi, Fukuoka 812-0016, Japan TEL:+81-92-434-9200 FAX:+81-92-434-9201

2017.10 100

Company profile

Products catalogue

Measurement system for disaster prevention

OSASI TECHNOS INC.

We communicate the voices of the earth.

Exploration, construction, and maintenance and control. The technologies of Osasi Technos watch over safety in many fields.

Osasi Technos developed a memory card-based data recorder in 1985 and released a hydrograph the following year. The hydrograph is now widely used to monitor water levels of rivers and wells.
We have released numerous measuring instruments ever since, including rain gauges, extensometers, and pipe strain gauges. In 2002, we developed a communications device to network the instruments. We have continually improved the performance of our products, and our power-saving techniques have gained a great advantage over the competition.
Today, we are able to build a broad scope of measuring systems tailored to the needs of individual fields, ranging from semi-automatic monitoring systems to remote monitoring systems. Our systems have proved themselves in many exploration and maintenance fields, particularly in preventing natural disasters.
Through tireless development and improvement, we will continue to offer products that are truly useful in the real world.

Total support from Osasi Technos

Designing and manufacturing devices Designing measurement systems

We design and propose systems that meet customer needs.
We customize monitoring devices according to the requirements of the actual site and operating environment; this is possible because we design our products in-house.

Installing equpiment and implementing solutions

Environments vary and so do the problems during installation. Where customers want reliable solutions, we answer calls with excellent problem-solving skills backed by long years of experience. We tailor our solutions to the actual monitoring and observation tasks, maximizing user convenience.

Cloud services

We provide cloud services that are essential to efficient and effective monitoring and observation systems. Enjoy speedy startup of monitoring tasks at a reasonable cost.

Maintaining equipment

Regular inspection ensures a long service life for our monitoring equipment.
We have inspection and repair facilities in our own plant in Japan. We provide total support for the customers' monitoring and observation tasks, including maintenance and inspection of the equipment we have delivered.

Currently, equipment installation service, maintenance service, cloud service, rental service are only provided in Japan.

Natural Disaster

Flooding (water level gauge)
Landslide (extensometer)
Mudslide (mudslide sensor)
Slope failure (extensometer/rain gauge)
Earthfill dam (water level gauge/rain gauge)

Where landslides are frequent, Osasi Technos provides quick response with its NETIS-registered technology. Our automatic monitoring systems are immediately deployable, providing quick solutions to specific location needs.

Typhoons are becoming stronger every year. Heavy rains are becoming more and more frequent. As a result, large-scale landslide disasters are happening more often. Once a landslide occurs, second and third disasters are very likely. To protect human lives in the disaster area, you need to immediately build a monitoring system to provide the residents and concerned parties with risk information around the clock.
Osasi Technos has developed packet communication devices that use mobile networks. The devices are now used in our immediately deployable automatic monitoring system, which interconnects the measuring instruments deployed on-site and transfers the monitoring data to remote locations. The remote monitoring system has been registered on the NETIS database of the MLIT (Ministry of Land, Infrastructure, Transport and Tourism) of Japan for its ease of installation and very short lead time.
*NETIS: New Technology Information System

System design has a high degree of freedom and adapts to a wide range of installation locations.

All network products from Osasi Technos feature OSNET, our original on-site network technology. Our network products communicate with each other on their own, without needing any additional equipment (such as modems).
OSNET operates solely on the built-in lithium battery of the products. It connects up to 64 related products, or approximately 50 measuring instruments, and allows a single communication device to centrally control them all. The products can be up to 1 km apart on wired communications; radio network transmitters are also available.
There is no restriction regarding installation location of the on-site measuring instruments. You can add network devices flexibly.

Flooding

Localized torrential rains and huge typhoons have been increasing due to global warming, raising the risk of disasters year by year. Particularly, small- and medium-sized rivers with relatively small catchment areas pose a high risk of flooding; their flow suddenly increases when it rains heavily even for a short period. It is very difficult to forecast sudden changes in the water level, yet residents must be informed of the danger without delay.
Local governments are addressing this issue by installing a large number of simple water level gauges, increasing the density of monitoring the water levels, thereby increasing the precision of flooding forecast.

Landslides

A landslide is a movement of a slope. The activity affects a relatively wide area, and has a huge impact on the life of residents. Extensometers, rain gauges, and alarms are installed to support alert and evacuation in case of a landslide due to a heavy rain. In addition, hydrographs, pipe strain meters, and clinometers are installed for observation to clarify the mechanism of a landslide, analyze stability, design countermeasures, and evaluate stability after the countermeasures have been implemented.

Mudslides

Mud that has accumulated on a mountainside or in a mountain stream is unstable. Inundations due to a localized torrential rain can fluidize the mud and cause a vicious mudslide. It has a huge impact and sometimes causes profound damage downstream.
Mudslides are generally monitored by wire sensors installed in a risky stream. The wire sensors are combined with alarms. An alarm goes off to notify people of the danger as soon as the impact of a landslide breaks a wire sensor upstream.

Volcanic eruptions

A volcanic eruption produces cinders, pyroclastic flows, lava flows, volcanic ash, and volcanic gases, sometimes causing huge disasters over a wide area. When it rains heavily on the accumulation of spouted rocks and volcanic ash, mudslides and mud flows are likely. This poses a risk to residents downstream.
Surveillance cameras and gas detectors are installed to continuously monitor volcanic activities so that a rise in the risk of disasters can be detected without delay. Communications devices and alarms are used to immediately notify residents in the downstream areas and the neighboring local governments of the risk.

Exploration

Landslide
(extensometer, pipe strain gauge, underground water level gauge, rain gauge, clinometer)
Water analysis
(thermometer, turbidimeter, ph meter, EC meter)
Weather observation
(rain gauge, thermohygrometer)

Excellent power-saving design and weatherproof performance ensure stable operation for the long term.

Thorough power-saving design is the primary strength of Osasi Technos. Our thinking started with the fact that there are no power supplies outdoors and that batteries eventually go dead. We now boast power-saving specifications and performance that are unequaled in the industry. There is something more to our concept than mere low power consumption. Our design concept prioritizes continued data collection and storage. An example is the power supply backup function, which allows continuous operation by switching between main and standby batteries. Even in the unlikely event that both batteries fail, the internal data will be kept intact.
We know that our products are used outdoors under extreme temperatures and humidity. For many years, our field experience has been fed back to our product development process, which means our latest products boast superior weatherproof performance.
Osasi Technos products operate stably over long periods outdoors. Count on their reliability in applications where no power supply is available.

Serving needs in the field for extended periods — our challenge will continue.

Osasi Technos is strong in the field of surveys on landslides and hydrological processes, where products must meet three requirements: reliability, operability, and stability. Reliable data collection depends on reliable instruments. In installing measuring instruments and recovering data from them, their operability significantly affects ease and speed. Stability is the key to making instruments operate over long periods without maintenance. Osasi Technos will continue to develop and put on the market products that meet the requirements at a high level.

Released in 1988

Released in 1997

Released in 2002
and later

Landslide survey

Extensometers

To determine the movement of a ground surface on a landslide location, two piles are installed across a crack: one at a fixed point and the other at a moving point. An invar wire is stretched between the piles to measure the change in distance. Our extensometers continuously monitor the expansion and contraction, and trip an alarm contact when the displacement has exceeded a threshold. You can install a vertical wire inside the borehole to observe the bend of the hole (vertical extensometer). Our extensometers have a resolution of 0.1 mm, so they can be used to monitor not only landslides but also bedrock collapses and displacements in temporary constructions.

Rain gauges

Contrary to what most people would expect, most rainfalls are uniform only in a very narrow area. You cannot always get the right data for your exploration area from an adjacent observatory. In exploration, it is important that rainfall be observed on-site.
Osasi Technos offers two types of tipping-bucket rain gauges: 0.5 mm and 1 mm per tip. Heaters are also available for use in cold districts. A data recorder receives the contact signals from the tipping bucket and stores them as data. The data recorder can also be used as a pulse logger if it is connected to a sensor that outputs contact signals. The data recorder also features an alarm contact.

Pipe strain gauges

A pipe strain gauge is a pipe on which strain gauges are appended at even intervals; it is installed in an exploration borehole at a landslide site. It is used to estimate the depth of a slip plane, together with the results of analyzing other subjects such as boring cores. Osasi Technos offers a pipe strain data recorder that supports multiple channels of signals from a strain gauge (up to 90 channels with an expansion unit). A single-channel water level gauge is also available for measurement of underground water levels in a borehole.

Clinometers and load cells

Osasi Technos offers a range of 4-gauge strain data recorders for strain-gauge transducers with an I/O resistance of 350 ohms used primarily in civil engineering, such as clinometers, anchor load cells, pore pressure gauges, and earth pressure gauges. With connection units, our recorders support up to 60 channels of signals from other devices. Thermocouples can also be used. There is also a model that features a built-in 1-channel water level gauge.

Hydrological survey

Water level gauges

Construction of roads, rivers, and dams changes the topography and affects underground water. To investigate the influence, underground water levels near the construction site are continuously monitored; it starts before the commencement of construction and ends after completion. Our hydraulic water level sensors feature an atmospheric relief pipe, which prevents the system from being influenced by changes in the atmospheric pressure due to weather conditions, thus allowing accurate measurement of water levels. The sensors come in a wide variety—voltage output types, current output types, titanium-made types, and small-diameter types for narrow areas.
Two types of data recorders are available: network type and waterproof type. Network-type data recorders are combined with multiple devices via a network and allow centralized management. Waterproof-type data recorders are for standalone use.

Maintenance and Control

Slope monitoring
(underground water level gauge, pipe strain gauge, clinometer)
Road flooding (water level gauge)
River water monitoring (water level gauge)
Reservoir/canal management
(water level gauge, rain gauge)
Civil engineering structure monitoring
(strain meter, displacement gauge)

Computerization solves labor shortages in maintenance and management.

Use Osasi Technos' information systems to implement precision maintenance and management cost-effectively.

The recent increase in the strength of typhoons and frequency of heavy rains poses a high risk of large-scale landslide disasters. It also poses many other issues regarding the maintenance and management of water-related equipment. Torrential rains are difficult to forecast as they can be abrupt and localized, and today's social systems are not sufficiently prepared for them.
The primary cause is labor shortage.
There are not enough people to cover everything that needs to be managed: slopes, road flooding, river banks, basin water levels, irrigation channels, and more. Actions sometimes have to be delayed.
Our emergency disaster monitoring system can be quickly deployed and run on-site – a unique feature of a simple network system of small measuring instruments. The system is often used as a provisional measure in emergencies, but it can serve as a long-term field information system. It is an economical solution if you need a high-performance information system for disaster prevention.

Beyond mere management of slopes and river banks, Osasi Technos provides wide support that encompasses even agricultural issues.

Risks need to be determined for slopes, river banks, road flooding, and water levels of rivers, basins, and irrigation channels. The precision of equipment maintenance and management can be increased by grasping the situation and implementing necessary information systems.
Aging has become particularly apparent in the field of agriculture, posing a serious problem in that the indispensable labor population itself is being lost. Where there is a labor shortage regarding water level management of basins and irrigation channels, our information systems can take over. They not only save labor but also help save resources through conscientious handling of issues.

Accurate, constant monitoring of slope safety

Slope management system

Slope protection works, such as anchors, are gradually made unsafe by rain and aging. They need regular visual inspection, but things can always be overlooked.
Osasi Technos offers a system that allows centralized management from a remote location. Measuring instruments are installed on every slope to capture displacements, so the conditions of the route slopes can be identified easily.
Our products are easy to install; they need no external power supply nor any communications infrastructure. They are optimal for continuously monitoring the sources of risks and the measures implemented there. Upon detection of an excessive displacement, the system issues an alarm e-mail to notify the risk. The alarm e-mail is independent of the remote observation and is sent in real time. Thus, the system significantly reduces the delay of communicating risk information so that disasters can be prevented.

Quickly detecting flood and shutting off traffic

Flood monitoring (underpasses)

An underpass is one of the most difficult-to-manage locations on the road.
Underpasses are often seen in cities with heavy traffic. They are structures that draw traffic underground to avoid a crossing with a railway or another road.
In the event of a localized torrential rain, rainwater flows into an underpass rapidly and violently from the surrounding area, immediately causing the road to flood. Due to its topography, an underpass tends to hold water. The water level tends to rise rapidly, resulting in many cars being abandoned.
The number of workers is limited and it is nearly impossible to address every abrupt change in the field. Instead, water level sensors and alarms can be installed to quickly detect flooding and shut down traffic. Such a system has proved effective.

Monitoring river water infiltration to forecast dyke breaks

Water level observation system for river banks (inside dam bodies)

River banks are generally earth structures, so water seeps into the dam bodies as the river's water level rises. If a high water level lasts for a long time inside the dam bodies, the water can reach the other side of the bank. It can eventually weaken and break down the bank.
To monitor the seeping water and identify the risk, underground water level sensors are installed transversally along the dam body.
The system is useful in collecting data for planning countermeasures.
In addition, once management thresholds are designated for the rise in the water level inside the dam bodies, the system can issue an alarm when the water level has reached a dangerous point.

Conscientious water management through remote monitoring of rainfalls and water levels

Water level monitoring system for waterways in basins

Agricultural basins are often seen in the upstream of a river. Their discharge needs to be regulated, but daily management has become a burden on the aging farmers and the frequency of flow adjustment has fallen. Water resources are precious for agriculture, but it is becoming increasingly difficult to use them effectively.
To overcome the problem, Osasi Technos has developed a system to reduce the management burden. An electrically-driven winch and a control panel are added to an existing inclined gutter, which are remotely controlled via communications devices. With a water level gauge and a still camera installed, daily water levels are monitored on a remote PC. The discharge is regulated from a remote PC by controlling the inclined gutter. The system issues a warning e-mail to notify the manager in the event of an overflow.

Currently, communication device and cloud service are only provided in Japan. English version to be announced.

We offer a range of measurement systems for disaster prevention.

Whether you are installing a regular system for your routine work or an emergency system in the urgency of disasters, the lead time for installing observation systems needs to be as short as possible. We do not merely sell measuring instruments. We support our customers with our enhanced service system that encompasses proprietary cloud services, stockpiling, construction and maintenance services, and rental services. Our measurement systems are developed and manufactured in-house, and thus are flexible. Off-the-shelf or customized, our measurement systems are designed to suit your on-site needs.

Water level gauge

Extensometer

Pipe strain gauge

Rain gauge

Cloud service

Transmitter

Observed data

Alarm

Alarms

Multi-point ground-level clinometer

Load cell Clinometer

Analog ammeter/ voltmeter

Camera

Currently, communication device and cloud service are only provided in Japan. English version to be announced.

OSNET Network System Measurement System

OSNET: Carriers: Specified low-power radio:

Observation equipment

[Multi-point ground-level clinometer]
- ◉Data logger
  - ・Broadcast clinometer/NetBC-30L
- ◉Sensor
  - ・Broadcast clinometer/NetBC-30S


NetBC-30L

NetBC-30S

[Water level gauge]
- ◉Data logger
  - ・Water level gauge /NetLG-001N
  - ・Water level gauge with graph/WLG-01N
- ◉Hydraulic water level sensor
  - ・DS-1 (FS±0.1%)
  - ・DS-7/mm meter (FS±0.13%)
  - ・MS-2L (FS±0.25%)


NetLG-001N

DS-1

WLG-01N

[Extensometer]
- ◉Data logger
  - ・Extension data logger/NetLG-501
  - ・Extensometer with graph/SLG-100


NetLG-501

SLG-100

[Pipe strain gauge]
- ◉Data logger
  - ・Strain/water level gauge /NetLG-301N, 301N+

*For hydraulic water level sensors, see the above Water level gauge section.


NetLG-301N

301N+

[Rain gauge]
- ◉Data logger
  - ・Rainfall recorder/NetLG-201
- ◉Rainfall transmitter
  - ・Tipping-bucket rainfall transmitter/RS-2


NetLG-201

RS-2

[4-gauge strain meter]
- ◉Data logger
  - ・1-ch 4-gauge strain data logger/NetLG-104
  - ・4-gauge strain/water level gauge/ NetLG-401N, 401N+
- ◉Supported sensors (350-Ω gauge strain sensor)
  - Anchor load cells, ground clinometers, multi-stage borehole clinometers, and more


NetLG-104

NetLG-401N

401N+

[Analog ammeter/voltmeter]
- ◉Data logger
  - ・1-ch analog data logger/NetLG-102
- ◉Supported sensors (current and voltage output sensors)


NetLG-102

[Still camera]
- ◉Data logger
  - ・Image recorder/NetCM-1
- ◉Camera unit
  - ・Camera set (lens + camera + housing + arm)

*Radio transmitters are not supported.


NetCM-1

Camera set

Wireless client unit NetMI-3T
6-port hub NetHB-1
Wireless client unit NetMI-3T
6-port hub NetHB-1
Used as a relay
Wireless client unit NetMI-3T
Used as a relay
Wireless client unit NetMI-3T
RS-232C converter NetGW-1
6-port hub NetHB-1
6-port hub NetHB-1

Semi-automatic observation equipment

To each device / To a 6-port hub

Data collection and device configuration

To an RS-232C converter

Use a PC to configure devices and collect data.

Configuration and collection software OSNET Supporter 2

Network controller NetCT-1

CF card
CF card set

SD card

Alarm equipment

◉Alarm output device

NetAL-1

◉Alarm unit

AL-TypeC

◉LED flasher

・AC100V LRMZL-100
・DC12V LRMZL-12

◉Electronic horn

・AC100V ST-25AM-100
・DC12V ST-25AM-12

Communication equipment

[au]
- ◉Packet transmitter
  - ・NetMAIL-2
  - ・NetMAIL-2BOX

[FOMA]
- ◉FOMA remote monitoring device
  - ・FOMA communication box
  - ・Remote monitoring device for satellite phones

[Internet]

Ethernet converter

ADSL modem/router

[Fiber optics]

Ethernet converter

Media converter

Packet communications network of au

FOMA network

Fiber optics network

Data center

Internet

Remote observation and monitoring system

Cloud-based system

Field information service

Web monitoring

Windows of the field information service

Use a cellphone/smartphone to view the data.

Rainfall data

高知市本宮町雨量計
2015年08月26日

時間	時間	連続(mm)
00:00	0	0
01:00	0	0
02:00	2	2
03:00	1	3

Alarm mail

雨量計R-1
2015年08月26日
本宮地区時間雨量が警戒値を越えました。
警戒値は10mm/hです。

Cell phone screens

System based on the OSNET OBSERVE automatic monitoring system

①System based on the packet communications network of au

A graph is automatically generated from the received e-mails.

OBSERVER screen

Alarm mail

#06 SLG-100
時間移動量
警報値に達しました
設定±2.0mm/hour
測定データ
04/27 16:26
正時 +44.4mm
平均 +44.3mm
最小 +44.3mm

Alarm mail
Sent to up to 20 addresses

②System based on the Internet or fiber optics networks

Data is collected at regular intervals and is automatically converted into a graph.

OBSERVER screen

There is an edition that automatically converts the observed information into tables and graphs and uploads them to a user-designated web server. (OBSERVER Web Edition)

Currently, communication device and cloud service are only provided in Japan. English version to be announced.

Products

OSNET ····· Supports networking.

Multi-point ground-level clinometer

NETIS registration No.: SK-160012

Broadcast clinometer NetBC-30L/NetBC-30S

OSNET


Data logger


Sensor (radio unit)


Sensor (detector unit)


Solar power unit (optional)


External antenna (optional)

Mesh radio technology reduces the risk of communications failures.
Our multi-point ground-level clinometers capture planar changes in the slope.

■Data logger specifications
Power supply — 12 VDC external power supply (5 V to 15 V)
CR123A lithium battery (main×1, standby×1)
Dimensions — Main unit: 158.5 (H) × 144 (W) × 275 (D) (not including antennas), 1 kg approx.
Container: 416 (H) × 275 (W) × 160 (D), 2 kg approx.
Alarm type — Alarm for accumulation of combined inclination angles
Alarm output contact — 1 (no-voltage A contact or B contact)

■Sensor specifications
Power supply — Compact solar cell array
CR123A lithium battery (main×2, standby×2)
Dimensions — Radio unit: 411 (H) × 125 (W) × 102 (D) (including back panel), 1.3 kg approx.
Sensor unit: 55 (H) × 80 (W) × 30 (D), 500 g approx.
Resolution — 0.01°
Precision — ±0.2°

■Radio specifications
Frequency channels — 10 channels (920 MHz band)
Communications distance — Clear: 400 m or over
Woods: 100 m or over

*At a recording interval of one hour
Data storage continuation/1.2 years
Main cell continuation/2.6 months (data logger)
6.4 months (sensor)

Water level gauge

Water level gauge NetLG-001N

OSNET

Water level gauge with enhanced alarm functions and support for automatic observation

Power supply — 12 VDC external power supply (5 V to 15 V)
CR123A lithium battery (main×1, standby×1)
Dimensions — 100 (H) × 120 (W) × 62 (D), 500 g approx.
Supported sensors — Osasi Technos hydraulic water level sensors
Resolution — 1 cm or 1 mm
Precision — ±0.1% F.S.
Alarm type — Four upper/lower limit alarms
Alarm output contact — 1 (no-voltage A contact or B contact)

*At a recording interval of one hour
Data storage continuation: 6.9 years
Main battery continuation: 11.2 months

Water level gauge with graph WLG-01N

OSNET

*To be released in March, 2016

Water level gauge with an LCD panel and an SD card slot

***The NetCT-1 network controller is not required.**

Power supply — 12 VDC external power supply (5 V to 15 V)
CR123A lithium battery (main×1, standby×1)
Dimensions — 165 (H) × 144 (W) × 94.5 (D), 1,000 g approx.
Supported sensors — Osasi Technos hydraulic water level sensors
Resolution — 1 cm or 1 mm
Precision — ±0.1% F.S.
LCD panel — 128 × 64 dots
Water level fluctuation graph, list of measured values, current value monitor, device configuration, water level setting, alarm setting, LCD setting, and maintenance information
Alarm type — Four upper/lower limit alarms
Alarm output contact — 1 (no-voltage A contact or B contact)

*At a recording interval of one hour
Data storage continuation: 6.9 years
Main battery continuation: 11.2 months

Waterproof water level gauge WP-1

Dustproof, waterproof water level gauge that requires no container

Resolution — 1 cm or 1 mm
Precision — ±0.1% F.S.
Measurement interval — 1 s to 1 day
Supported sensors — Osasi Technos hydraulic water level sensors
Power supply — CR123A lithium battery (main×1, standby×1)
Dimensions — 141 (H) × 90 (W) × 62 (D), 350 g approx.
Protection level — IP67 equivalent

*At a recording interval of one hour
Data storage continuation: 6.9 years
Main battery continuation: 10.8 months

Hydraulic water level sensor DS-1 DS-7

■DS-1
Range — 0 to 10 m, 0 to 20 m, 0 to 50 m, 0 to 100 m
Precision — ±0.1% F.S. (nonlinearity + hysteresis + reproducibility)

■DS-7
Range — 0 to 750 mm (supplied with a 10-m cable)
Precision — ±0.13% F.S. (nonlinearity + hysteresis + reproducibility)

■Common specifications
Sensor material — SUS316L
Dimensions — ϕ25 × 127 mm, 120 g

*Sensors with an output range of 4 to 20 mA are also available. For more information, contact your nearest Osasi Technos sales representative.

Hydraulic water level sensor MS-2L

■MS-2L
Range — 0 to 10 m, 0 to 20 m, 0 to 50 m
Precision — ±0.25% F.S.
(nonlinearity + hysteresis + reproducibility)
Sensor material — SUS316L
Dimensions — ϕ25 × 120 mm, 140 g

Hydraulic water level sensor PDCR-1830

■PDCR-1830
Range — 0 to 10 m, 0 to 20 m, 0 to 50 m
Precision — ±0.1% F.S.
(nonlinearity + hysteresis + reproducibility)
Sensor material — Titanium
Dimensions — ϕ17.5 × 105 mm, 100 g

* Lightening arrester is optional.

Cable bracket

Material — Vinyl chloride
Inner diameter — ϕ75

* For retaining Osasi Technos hydraulic water level sensors

Extensometer

Extension data logger NetLG-501

OSNET

High-performance extensometer with a built-in communications port

Range — ±3276.7 mm
(±1999.9 mm on the LCD panel on the main unit)
Resolution — 0.1 mm
Wire length — 1 m
Recording interval — Double intervals of 1 min. and 5 min. to 1 day
Log — Value at every hour, mean, minimum, maximum
Alarm type — Hourly movement, daily movement,
and chronological movement ×4
Alarm output contact — 1 (no-voltage A contact or B contact)

Power supply — 12 VDC external power supply (5 V to 15 V)
CR123A lithium battery (main×1, standby×1)
Dimensions — 148 (H) × 180 (W) × 208 (D), 2.6 kg approx.

*At a recording interval of one hour
Data storage continuation: 10.4 months
Main battery continuation: 3.8 months

Extensometer with graph SLG-100

OSNET

Extensometer that displays the graph on-site.
*** The data can be collected with an SD card.**

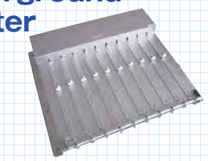
Range — 0 to 1,000 mm
Resolution — 0.1 mm
Wire length — 1.2 m approx.
Recording interval — Double intervals of 1 min. and 1 hour
Log — Value at every hour, mean, minimum, maximum
Alarm type — Hourly movement, daily movement, total movement, and chronological movement
Alarm output contac — 1 (no-voltage A contact or B contact)

LCD panel — 128 × 64 dots
Total movement graphs (weekly, daily, and hourly), list of measured values (daily and hourly), alarm settings, current value monitor, device configuration, alarm configuration, and alarm history

Power supply — CR123A lithium battery (main×1, standby×1)
Dimensions — 130(H) × 130 (W) × 216 (D), 1.6 kg approx.

*At a recording interval of one hour
Data storage continuation: 10.4 months
Main battery continuation: 4 months (at an observation interval of 1 sec.)

Visual underground extensometer MTS-10



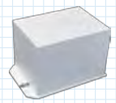
Multi-layer movement gauge for determining the depth of an underground slip plane and sensing the movement on a slip plane.

Number of measurement points — Up to 10
Range — 300 mm
Dimensions — 483 (H) × 566 (W) × 85 (D), 9 kg approx.

Super invar wire

Size : 30-m or 100-m coil, ϕ0.5 mm
Thermal expansion coefficient : 0.5 × 10-6°C (30 to 100°C)
Urethane coated.

Container for extensometers



Material : Wood
Dimensions : 267 (H) × 285 (W) × 425 (D)

Strain and water level gauge

Strain and water level gauge NetLG-301N

OSNET

OSNET support & expansion support
Data can be collected via an SD card.

■General specifications
Power supply — 12 VDC external power supply (5 V to 15 V)
CR123A lithium battery (main×1, standby×1)
Alarm output contact — 1 (no-voltage A contact or B contact)

■Water level sensor specifications
Supported sensors — Osasi Technos hydraulic water level sensors
Resolution — 1 cm or 1 mm
Precision — ±0.1% F.S.
Alarm type — Four upper/lower limit alarms

■Strain sensor specifications
Supported sensors — 2-gauge 3-wire 120-Ω strain gauge sensors
Sensor power supply — Constant current 5.00 mADC ±0.4%
Resolution — 1 μ strain
Precision — ±100 μ strain
Alarm type — Four cumulative/chronological fluctuation alarms

*At a recording interval of one day for strain and one hour for water levels
Data storage continuation : 17.2 years for strain and 3.4 years for water levels
Main cell continuation : 10 months

Dimensions — 223 (H) × 355 (W) × 90.5 (D)
Weight — 2.5 kg approx.
Channels — 1 channel for water level, 30 channels for strain

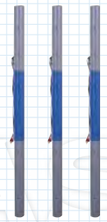
Expansion unit 301N+

OSNET

Dimensions — 223 (H) × 95 (W) × 82.5 (D)
Weight — 0.9 kg approx.
Channels — 10 channels for strain

* Up to six expansion units can be connected.

Pipe strain gauge VP40/50



VP40 ····· 1 direction, 2 gauges (ϕ48 outer diameter, sleeve)
VP40 ····· 2 directions, 4 gauges (ϕ48 outer diameter, sleeve)
VP50 ····· 1 direction, 2 gauges (ϕ60 outer diameter, sleeve)

* Used in combination with a data logger for pipe strain measurement, such as NetLG-301N or a handy strain meter.

This catalog basically shows model codes used in Japan. Model codes and prices of English-version products may be different.

Products

OSNET ····· Supports networking.

Rain gauge

Rainfall data logger NetLG-201

OSNET

Rain gauge with a built-in communications port

Input signal	0.5 mm or 1 mm/pulse (no-voltage contact)
Recording period	Up to 7,620 mm of cumulative rainfall
Alarm type	Hourly rainfall, daily rainfall, continuous rainfall, effective rainfall, and chronological rainfall
Alarm output contact	1 (no-voltage A contact or B contact)
Supported sensor	Tipping-bucket rainfall transmitter
Power supply	12 VDC external power supply (5 V to 15 V) CR123A lithium battery (main×1, standby×1)
Dimensions	100 (H) × 120 (W) × 60.9 (D), 500 g approx.

*At a recording interval of one hour
Maximum cumulative rainfall: 7,620 mm
Main battery continuation: 11.7 months
(when the mean monthly rainfall is 500 mm)

Tipping-bucket rainfall transmitter RS-2

Rainfall sensor that outputs a pulse signal for every 0.5 mm of rainfall

Detection method	Tipping bucket
Unit	0.5 mm/tipping (pulse)
Output signal	No-voltage make contact output (2 contacts, primary and secondary)
Precision	±0.5 mm for a rainfall up to 20 mm ±3% for a rainfall over 20 mm
Material	Outer cylinder: SUS304 Drain pipe and filter: Resin Tipping bucket: Plated brass
Water receiving port diamete	200 mm
Dimensions	φ210 × 450 mm, approx.

Analog ammeter/voltmeter

1-ch analog data logger NetLG-102

OSNET

Analog data logger with a built-in communications port

Sensor power supply	Selectable from insulated 12 VDC, insulated 24 VDC, and external output power-thru (ON/OFF control available)
Range	4 to 20 mA, 0 to 1 V, 0 to 5 V, and 0 to 10 mV
Precision	±0.1% F.S. (±0.2% F.S. in the 0 to 10 mV range)
Sensor pre-heating time	0 to 60 s
Data recording interval	1 s to 1 day
Alarm type	Four upper/lower limit and chronological fluctuation alarms
Power supply	10 to 15 VDC external power supply
Dimensions	113 (H) × 164 (W) × 61 (D), 600 g approx.

*At a recording interval of one hour
Maximum data accumulation period: 6.9 years

⊙Supported sensors : Current/voltage output sensors

Communications equipment

Packet communications equipment NetMAIL-2

OSNET

NetMAIL-2

OSNET data and alarms are distributed by e-mail over the packet communications network of au.

Power supply	10 to 15 VDC external power supply
Current consumption	15 mA or less (standby) 160 mA (transmitting, depends on conditions)
Dimensions	55 (W) × 180 (H) × 110 (D) (not including protrusions)
Operating temperature	-20°C to +55°C (no condensation)
Monitoring interva	5 min. to 1 day (2 patterns can be set.)
Communications network	au Packet One
Supported service	CDMA1x
Frequency band	800 MHz
Data rate	14.4 kbps max.
Standard	ARIB STD-T53
Input contacts	8 (no-voltage A contact or B contact)
Output contacts	4 (no-voltage A contact or B contact)
Antenna	323 mm (H)

NetMAIL-2BOX
*Power supply set for NetMAIL-2

*Steel plate construction
(with a built-in 17-AH battery)

FOMA communications box

OSNET

Communications equipment using the FOMA network

Inpu	RS-232C (NetGW-1)
Power supply	100 VAC or 12 VDC
Box materia	Steel plate (light beige)
Dimensions	530 (H) × 405 (W) × 250 (D) (not including protrusions), 32 kg approx.

Wireless network transmitter NetMI-3T

OSNET

OSNET network transmitter using specified low-power radio

General specifications

Power supply	12 VDC external power supply (5 V to 15 V) CR123A lithium battery (main×1, standby×1)
Current consumption	20 mA or less (transmitting, on external power supply) 35 mA or less (transmitting, on lithium cell) 200 μA or less (standby for reception)

Wireless unit specifications

Dimensions	φ95 × 382 (H) (not including protrusions), 850 g approx.
Frequency channels	2 channels (429 MHz band)
Communications distance	1,000 m or more (clear) 100 m or more (woods)
Relay stages	Up to 22 stages

Operating unit specifications

Dimensions	125 (W) × 162 (H) × 62.8 (D), 630 g approx.
Alarm output contacts	1 (no-voltage A contact or B contact)

Load cell and clinometer

4-gauge strain/water level gauge NetLG-401N

OSNET

OSNET-compatible and expandable. Data collection via SD cards.

■General specifications

Power supply	12 VDC external power supply (5 V to 15 V) CR123A lithium battery (main×1, standby×1)

■Water level sensor specifications

Supported sensors	Osasi Technos hydraulic water level sensors
Resolution	1 cm or 1 mm
Precision	±0.1% F.S.

■Strain sensor specifications

Supported sensors	4-strain-gauge 350-Ω transducers
Sensor power supply	5.00 mADC±0.4%, constant current
Resolution	1 μ strain
Precision	±100 μ strains

■Thermocouple specifications

Supported sensors	K type, N type, J type, T type
Resolution	0.1°C
Precision	±0.7°C±2°C (internal contact compensation) ±0.7°C (external contact compensation)

*At a recording interval of one hour
Data storage continuation : 1.4 years (4-gauge strain), 3.4 years (water level)
Main battery continuation : 6.1 months

Dimensions ····261 (H) × 189 (W) × 90.5 (D)
Weight ·····1.6 kg approx.
Channels ·····1 channel for water level, 10 channels for strain

Expansion unit 401N+

Dimensions ····261 (H) × 95 (W) × 81 (D)
Weight ·····1.0 kg approx.
Channels ·····10 channels for strain

*Up to five expansion units can be installed.

4-gauge strain data logger NetLG-104

OSNET

1-channel strain data logger with a built-in network communications port

Sensor power supply	2.00 VDC
Range	±15,000 μ strains
Resolution	1 μ strain
Precision	±0.04% F.S.
Alarm type	Four upper/lower limit and chronological fluctuation alarms
Alarm output contact	1 (no-voltage A contact or B contact)
Supported sensors	4-strain-gauge 350-Ω transducers
Power supply	12 VDC external power supply (5 V to 15 V) CR123A lithium battery (main×1, standby×1)
Dimensions	100 (H) × 120 (W) × 62 (D), 500 g approx.

*At a recording interval of one hour
Data storage continuation : 5.7 years
Main battery continuation : 9 months (factory default)

⊙Supported sensors (350-Ω gauge strain sensors):
Anchor load cells, ground clinometers, multi-stage borehole clinometers, and more

Camera

OSNET camera (Image data logger NetCM-1/Camera)

OSNET

■General specifications

Power supply	10 to 15 VDC external power supply
Current consumption	1.5 mA (standby, mean)/250 mA or less (operating)
Operating temperature	-20°C to +55°C (no condensation)

■Controller specifications

Image size	VGA (640×480)
Monitoring interval	5 min. to 12 hours
Shooting	Interval shooting, event shooting
Input contacts	2 (no-voltage A contact or B contact)
Output contacts	2 (no-voltage A contact)
Dimensions	80 (W) × 188 (H) × 135.2 (D), 820 g approx.
Accessory	2-GB industrial SD card ×1

■Camera specifications

Pixel count	410,000 pixels (with night vision)
Zooming	11 times, optical
Shooting lead time	15 s maximum
Waterproofing	IP66 waterproof housing
Weight	6 kg approx. (including housing)

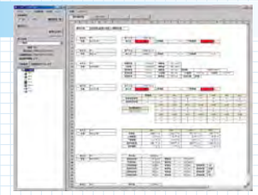
Software

■Automatic observation software/OSNET OBSERVER

OSNET OBSERVER automatically observes OSNET equipment from a remote location at designated intervals (5 min. to 1 day). The data can be viewed as a graph on a PC.

■Automatic observation software/OSNET OBSERVER Web Edition

With the Web Edition, the data collected by OSNET OBSERVER can be summarized into a table or graph on a web page and uploaded to a user-designated server. As long as you have Internet access, you can check the latest field condition from anywhere.



OBSERVER window showing the latest observed values

■Configuration support software/OSNET Supporter 2

OSNET Supporter 2 allows you to view the OSNET network in a tree structure, find network failures including redundant addresses and loop connections, check and change the device configuration, view the data (recorded data and alarm history), and collect recorded data (logger.dat), all from a remote location.

■Rainfall processing software/R-Station

R-Station is a documentation software that reads the rainfall data (collected via a CF card, for instance) and creates drawings and tables from it.

■Data processing software/D-Station

D-station is a documentation software that reads the data from a logger (collected via a CF card, for instance) and creates drawings and tables from it. It works concurrently with OSNET OBSERVER.

■WISEF-compatible data processing software/W-Station

W-Station reads the water level data (collected via a CF card, for instance), and creates documents or outputs WISEF text files from it.

■Reservoir water level forecast system for torrential rain/DAM-HAZARD

Enter specification parameters of the reservoir and hyetographs (chronological rainfall data) on DAM-HAZARD, and it will forecast the rise in the water level in the event of a torrential rain. Where Internet access is available, DAM-HAZARD automatically downloads the rainfall forecast from the Meteorological Agency and forecasts the water level of the reservoir in real time for six hours into the future.
*Product of joint research with the Institute for Rural Engineering, National Agriculture and Food Research Organization (NARO)

■Automatic observation software for water levels and rainfall/D-COLLECT

The D-COLLECT remote data collection software works with the NetMAIL-1 and NetMAIL-2 packet transmitters, automatically collecting the data recorded in the water level gauges and rain gauges in the OSNET network deployed in the field.
*D-COLLECT can be linked with the real-time analysis function of DAM-HAZARD to increase the precision of forecasting the reservoir water level.

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Products

OSNET ····· Supports networking.

Alarm device

Alarm output device NetAL-1

OSNET

Alarms are issued as soon as warning signals are received. Suitable for monitoring network failures, including cable disconnections.

Application	On-site evacuation alarms, alarms for remote locations, and network failure reports
Communications port	1 OSNET port
Alarm output contacts	6 (no-voltage A contact or B contact)
Alarm contact capacity	30 VAC/500 mA (max.) 100 VAC/150 mA (max.)
Power supply	12 VDC external power supply (5 V to 15 V) CR123A lithium battery (main×1, standby×1)
Dimensions	113 (H) × 164 (W) × 60.3 (D), 700 g approx.

Alarm unit AL-TypeC

Enable/disable alarm devices and configure alarm output timing.
***2 alarm output channels**

Power supply	100 VAC (connected to terminal base) or 12 VDC
Dimensions	165 (H) × 180 (W) × 75 (D) (including protrusions)
Alarm output time setting	Off, 30 sec., 1 min., 2 min., 5 min., 10 min., 30 min., 1 hr., 6 hrs., continuous
Alarm input contacts	2 (no-voltage A contact or B contact)
Alarm output contacts	2 (100 VAC), 2 (12 VDC, 2 outputs interlocked with timer or continuous), 1 (relay output contact, no-voltage A contact or B contact)
Output capacity	10 A under resistance load, 5 A under inductive load

Installation on a tripod

LED flashlight

[AC power type]

Rated power supply	100 VAC
Operating voltage range	90 to 110 V
Rush current	0.4 A
Power consumption	12 W

[DC power type]

Rated power supply	12 VDC
Operating voltage range	10 to 15 V
Rush current	2.5 A
Power consumption	6 W

Electronic horn

[AC power type]

Rated power supply	110/220 VAC (switched)
Operating voltage range	90 to 120 V/180 to 220 V
Power consumption	11 W
Sound pressure level	105 dB (1 m, front)

[DC power type]

Rated power supply	12/24 VDC (switched)
Operating voltage range	10 to 15 V/19 to 29 V
Power consumption	3 W/8.5 W
Sound pressure level	105 dB (1 m, front)

Motor siren

Rated power supply	100 VAC
Capacity	100 W
Power consumption	95 W

Wire sensor

For detection of rockfalls and mud slides Used in combination with alarm devices

Size	1.2 × 0.8 × 1P
Color	Light blue
Conductor resistance	38 Ω/km (20°C)
Length	200 m/roll
Weight	8.6 kg approx.

Tripod

Tripod for LED flashlights

Model No.	SZ-009
Flashlight pitch	120 to 140
Size	1,113 mm
Height adjustment	1,285 mm to 2,285 mm
Surface treatment	Electrodeposition (black)
Weight	4.5 kg

Tripod adapter

Adapter for using an electronic horn or motor siren on the tripod for LED flashlights

Size	120 (H) × 120 (W) × 190 (D)
Inner diameter of pipe	φ27.6
Material	SS400 steel (dark brown)
Application	Installing a motor siren or an electronic horn

OSNET is a trademark of Osasi Technos.

OSNET
Low Power & Flexible Network System

OSNET is a generic name for the network that meets the Osasi Technos specifications. OSNET supports up to 64 devices and up to 1 km of distance between the devices (with a single-wire twisted pair cable 0.9 mm or larger). The biggest feature is its power source—driven by lithium battery, OSNET operates in mountainous regions where no external power supply is available. With additional devices, OSNET enables data collection from remote locations and output of alarms.

Peripheral equipment

6-port hub NetHB-1

OSNET

A switching hub with 6 built-in communications ports

Application	Communications between network devices, expansion of OSNET network, data relay, and cable extension
Communications port	6 OSNET ports
Power supply	12 VDC external power supply (5 V to 15 V) CR123A lithium battery (main×1, standby×1)
Dimensions	123 (H) × 174 (W) × 60.9 (D), 800 g approx.

RS-232C converter NetGW-1

OSNET

RS-232C converter that connects the network and external devices

Application	Data collection on a PC, remote control, centralized management system, and more
Communications port	1 OSNET port
Power supply	12 VDC external power supply (5 V to 15 V)
Dimensions	100 (H) × 120 (W) × 60.9 (D), 450 g approx.

Network controller NetCT-1(CF)

OSNET

For configuring OSNET devices and collecting data

Application	Collecting data on a CF card, configuration of devices and data check on them, and network configuration
Communications port	1 OSNET port
Power supply	CR123A lithium cell (×1)
Dimensions	92 (H) × 135 (W) × 29 (D), 500 g approx.

Lightning arrester for power supplies and communications lines NetSP-1

OSNET

For protection of network devices from lightning surges

Supported circuit	Communications port (×1), 12-VDC power supply (×1)
Surge tolerance	7000 A (8/20 μs)
Dimensions	102 (H) × 78 (W) × 64.3 (D), 370 g approx.

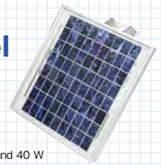
Lightning arrester for communications lines NetSP-2

OSNET

For protection of network devices from lightning surges

Supported circuit	Communications port (×2)
Surge tolerance	7000A (8/20 μs)
Dimensions	102 (H) × 78 (W) × 64.3 (D), 370 g approx.

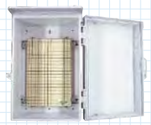
Solar cell panel



Power supply for devices

Output:	10 W, 20 W, 30 W, and 40 W
Panel angle	0°, 20°, 40°, and 60°
Solar cell element	Polycrystalline silicon cell
Bracket	For single pipe or pole SUS304 (The single-pipe clamp is made of SS, plated and coated)
Cable length	5 m

Plastic boxes



For protection of equipment

Material	AAS resin
Color	White gray
Bracket	For single pipe or pole

*Many different sizes are available.

SD card

Industry-spec SD card that boasts high reliability and durability, capable of operating in a wide temperature range of -40°C to +85°C

Interface	SD memory card Ver. 3.0
Memory size	2 GB
Memory type	SLC
Dimensions	24.0 (W) × 32.0 (H) × 2.1 (D)
Operating temperature	-40°C to +85°C (no condensation)

CF card CF card set

Industry-spec CF card that boasts high reliability and durability, capable of operating in a wide temperature range of -20°C to +55°C

Interface	CFA 3.0
Memory size	256 MB
Memory type	SLC
Dimensions	42.8 (W) × 36.4 (L) × 3.3 (T) (CF card Type I) 54.0 (W) × 85.6 (L) × 5.0 (T) (Adapter, PC card Type II shape)
Operating temperature	-20°C to +55°C (no condensation)

Transducer for water level gauge

Transducer for hydraulic water level gauge PMC-90

Data is displayed on the screen and sent to external devices.

Number of input channels	1 or 2
Supported sensor	Hydraulic water level sensor
Sensor input range	±75 mA (Voltage input type) 4 to 20 mADC (Current input type)
Sensor power supply output voltage	3.75 VDC ±0.1 V (Voltage input type) 24VDC ±1.2 V (Current input type)
Water level display resolution	1 cm or 1 mm
Precision	±0.1% F.S.
Display	Character LCD, 20 digits × 2 rows
Smoothing	Automatic smoothing by a digital low-pass filter or the moving average
Recording interval	1 sec. to 1 day (*Options are supported.)
Output specifications	1 or 2 quantities (BCD or 4 to 20 mA)
Output update interval	1 sec. or when the external start contact is made
Power supply	10 to 15 VDC external power supply 100 VAC
Dimensions	480 (W) × 320 (W) × 99 (H) (not including protrusions)

This catalog basically shows model codes used in Japan. Model codes and prices of English-version products may be different.

Rental

OSNET ····· Supports networking.

Some of our products are available for rental. Reduce the management labor and operating cost in short-term observations and other temporary needs.

Water level gauge

Water level gauge NetLG-001
OSNET

Water level gauge PC-001

Water level sensor

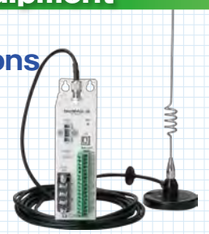
Hydraulic water level sensor DS-1 (in cm) DS-7 (in mm)

*The standard sensor diameter is ϕ25; ϕ17.5 sensors are also available.

Communications equipment

Packet communications equipment NetMAIL-2
OSNET

NetMAIL-1
OSNET



NetMAIL-2

Wireless parent unit NetMI-P
OSNET

Wireless child unit NetMI-C
OSNET

NetMAIL-2BOX
*Power supply set for NetMAIL-2

*Steel plate construction (with a built-in 17-AH battery)

NetMAIL-1BOX
*Power supply set for NetMAIL-1

*Plastic construction (with a built-in 7.2-AH battery)

Alarm device

Alarm output device NetAL-1
OSNET

Safety system for preventing workplace accidents
NetLG-201, RS-1 (or RS-2), RI-2000, NetCT-1, and CF card set

Strain and water level gauge

Strain and water level gauge NetLG-301
OSNET

Strain and water level gauge PC-301

Analog ammeter/voltmeter

1-ch analog data logger NetLG-102
OSNET

Extensometer

Extension data logger NetLG-501
OSNET

Extensometer with graph SLG-100
OSNET

Load cell and clinometer

4-gauge strain/water level gauge NetLG-401N
OSNET

Peripheral equipment

6-port hub NetHB-1
OSNET

RS-232C converter NetGW-1
OSNET

Network controller NetCT-1
OSNET

CF card set

SD card

Rain gauge

Rainfall data logger NetLG-201
OSNET

Tipping-bucket rainfall transmitter RS-2 RS-1

Software

Automatic observation software OSNET OBSERVER
OSNET

Camera

OSNET camera (Image data logger NetCM-1/Camera)
OSNET

Currently, equipment rental service is only provided in Japan.

Osasi Technos' cloud service
Field Information Service

Access our data center from your PC or mobile terminal over the Internet, and view the data sent from the on-site observation equipment.
Our field information service offers flexibility in routine observations and emergencies alike.

Observed data

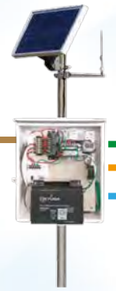
Alarm mail

Internet

Osasi Technos'

Data Center

KDDI
docomo
Satellite
phone



Exploration

Underground water level

Rainfall

Inclination

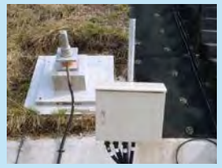
Natural disaster

Landslide

Mud slide

Rockfall

Maintenance and management



Slope maintenance and management

Basin water level management

Bridge maintenance and management

OSNET network

Under a severe outdoor environment, data from the onsite observation equipment is securely transmitted to a remote location.

Features of the service

◉Short lead time before commencing observation

The information service is ready for the user as soon as the observation equipment is installed on-site. Even in emergencies, you can start observation quickly (three to seven days).

◉Observation and monitoring in offices and on the go

As long as you have Internet access and a PC or mobile terminal, you can check the data and chronological graphs anytime, anywhere.

◉Small burden on the user side

Users do not have to manage the server or introduce special software. The burden on users is small.

◉Real-time alarms

Alarm functions and automatic observation functions are independent of each other. Alarms are immediately issued on demand regardless of the intervals of automatic observation.

◉Choice of communications carriers

We offer a choice of communications: the au network (packet communications equipment), the FOMA network (FOMA communications equipment), satellite phones, and more. Choose your best according to the situation at the installation site.

Showing just what you want to show, seeing just what you want to see

Webpage configuration

Different webpages are shown on the manager side and on the user side. The manager can register multiple viewers per installation site and customize the view to the needs of individual viewers.

Manager side

Site management webpage

The manager configures the site information and assigns privileges to individual user IDs.

User side

User webpage

Mobile webpage

The user logs in using the ID and password, to which privileges have been assigned in advance, and view the data.

Currently, cloud service is only provided in Japan. English version to be announced.

Web-based Measurement System

The observation unit/data logger has a web server and a built-in Ethernet interface, enabling real-time remote monitoring on an Internet browser.

・Low-cost web-based monitoring

・Real-time alarm monitoring

Web-based water level gauge ITC-01, 02

Five levels of alert can be set. According to the five levels, the observation interval (one second to one hour) is continuously variable and so is the frequency of smoothing. The gauge has two sets of values, one for normal conditions and the other for alert conditions.

Water level monitoring window

Number of input channels ..... 1, for water level
Supported sensors ..... ITC-01: Osasi Technos semiconductor hydraulic water level sensors, such as DS-1 (0 to 40 mV)
ITC02: Current and voltage output sensors (4 to 20 mA, 0 to 5 V, and 0 to 1 V)
Sensor power supply ..... ITC-01: 4 V (Supports sensors like DS-1.)
ITC-02: Selectable from 24 V, 12 V, or thru power supply
Precision ..... ±0.1% F.S. (including temperature drift in the entire operating temperature range)
Power consumption ..... ITC01: 1 W (regular and upon measurement)
ITC-02: 1 W (regular)/2 W (upon measurement, fluctuates depending on the sensor connected)

Web-based rain gauge ITC-21

Every minute, the gauge calculates and stores the hourly rainfall, daily rainfall, continuous rainfall, N-hour rainfall (10 minutes to 3 days), and effective rainfall. According to the five alert levels designated in advance, the gauge monitors the conditions in real time and issues alarms.

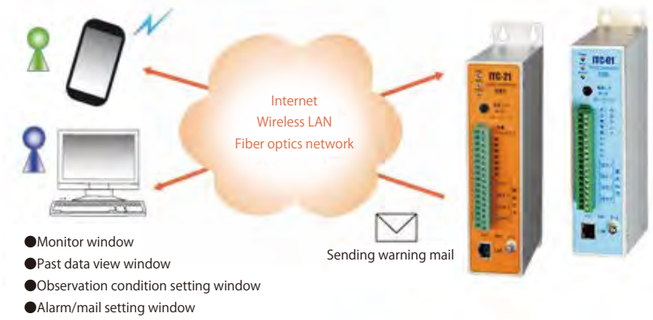
Rainfall monitoring window

Input signal ..... 0.5 mm or 1 mm/pulse (no-voltage contact)
Power consumption ..... 1 W (regular and upon measurement)

Common specifications of ITC

Alert levels ..... 5 levels
Alarm output contacts ..... 4 contacts
E-mail transmission ..... 12 alert/alarm e-mails and 2 observation e-mails
Operating temperature range ..... -20° C to +55° C (no condensation)
Measure against instantaneous power failure ..... A backup capacitor allows the internal data to be saved in the event ofan instantaneous power failure. (During a power failure, measurements are cancelled.)
Dimensions ..... 50 mm (W) × 216 mm (H) × 145 mm (D)
Weight ..... 860 g approx.
Power supply voltage ... 12 VDC (10.5 V to 15 V)

The web-based measurement systems can be connected to existing LAN infrastructures. You do not need a special data center to share and view the information over a network. The systems allow you to suppress the cost of installation and operation.



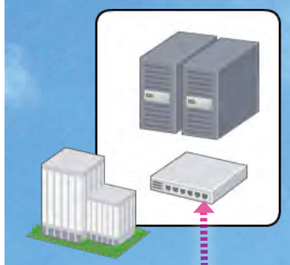
- Monitor window
- Past data view window
- Observation condition setting window
- Alarm/mail setting window

*A router is required for connection to the Internet.

Disaster prevention solutions from Osasi Technos

Simple server system
「Local Disaster Prevention」

National and prefectural disaster prevention servers and GIS servers



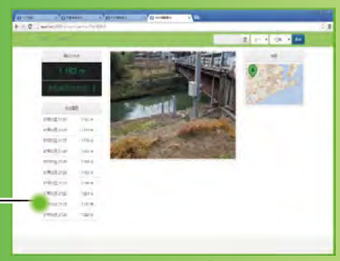
Local governments' GIS servers

Internet

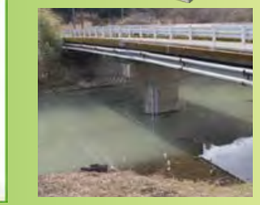
Using a network camera to capture what is going on in a remote place

Visual monitoring

River water levels and peripheral conditions are monitored not only by data but also by image. With water level gauges and rainfall monitoring systems, the camera enables combined monitoring. Use visual monitoring in the daytime and use numerical values in the nighttime. In the event of a disaster, the camera can be operated remotely to visually check the constantly changing conditions.



Camera window



Integrated ITC server

Monitoring localized torrential downpours

Rainfall monitoring

ITC-21 mounted

Rainfall window

A single box containing observation equipment and communications equipment is easy to install and move. You can start web-based remote monitoring on the day it is installed. Standard features include alarm functions by email and contact outputs. The system observes the situation every minute and stands by for alarms, allowing the staff to monitor the situation in real time and issue evacuation instructions without delay.

Monitoring rivers, tsunami, and inundations

Water level monitoring

Water level window

ITC-01/02 mounted

Water level monitoring equipment has alert mode, which is an original Osasi Technos function. When the water level reaches the alert threshold, the equipment automatically shortens the observation and alert monitoring intervals (1 sec minimum) to capture disaster symptoms.
The minute data obtained in alert mode is useful in designing future countermeasures.

Currently, this service is only provided in Japan. English version to be announced.

Company Profile

Management Philosophy

We contribute to society through a company-wide effort to increase customer satisfaction by continually providing the market with products and services whose quality is high enough to deserve customer satisfaction and confidence.

Outline of the Company

N a m e / Osasi Technos Inc.
A d d r e s s / 65-3 Hongu-cho, Kochi-shi, Kochi 780-0945, Japan
O f f i c e s / Main Office (Kochi)
Tokyo Main Office
Kyushu Branch
Established / June 10, 1972
C a p i t a l / 35 million yen
Representatives / Osashi Yano, Representative Director
Maki Yano, Director and President
B u s i n e s s / Design, development, manufacture, sale, rental, cloud service, installation, and maintenance of measuring instruments
M a i n b a n k s / Shikoku Bank, Shoko Chukin Bank

History

1972 Established as Osasi Products

1977 Capital increased from 3 million yen to 7 million yen

1978 Approved for general construction by Governor of Kochi

1985 Developed a memory-card data logger under instruction from the Civil Engineering Laboratory, the Ministry of Construction

1988 Given the Local Industry Award of Kochi Prefecture for the memory-card data logger

1992 Capital increased from 7 million yen to 10 million yen

1993 Renamed as Osasi Tecnos

1994 Tokyo Main Office opened
Given the Local Industry Encouragement Award of Kochi Prefecture for the rainfall data logger/transmitter for road traffic regulation

1997 Capital increased from 10 million yen to 35 million yen

1998 The automatic landslide monitoring system for emergency certified under the technical review of the Sabo & Landslide Technical Center, an institute qualified by the Construction Minister
The new Main Office building (Kochi) completed

1999 Kyushu Branch opened
Osashi Yano, Representative Director, given the Industrial Technology Award for Distinguished Services

2000 Given the Local Industry Encouragement Award of Kochi Prefecture for the safety system for preventing industrial accidents due to mudslide
Started rental services of own products

2002 Approved for general construction by the Minister of Land, Infrastructure, Transport and Tourism
OSNET Network Series released

2003 Osashi Yano, President and Representative Director, assumed the office of Chairman, Representative Director
Toshitaka Nozaki, Senior Executive Director, assumed the office of President and Director
Released the industry's first extensometer with graph

2005 Released a water level gauge with graph
Toshitaka Nozaki, President and Representative Director

2007 Released OSNET Radio Set (patented in 2012)

2008 Released OSNET Packet Communications Device

2009 Released a waterproof water level gauge
Given the Local Industry Encouragement Award of Kochi Prefecture for the OSNET Packet Communications Device
Given the 2009 MCPC Encouragement Award for the OSNET Packet Communications Device

2010 The immediately deployable automatic monitoring system registered on the NETIS (New Technology Information System) of the Ministry of Land, Infrastructure, Transport and Tourism
Released the 1-ch analog data logger

2011 Released the 1-ch 4-gage strain data logger
Renewed the extensometer with graph
Started Field Information Service, an ASP service supporting KDDI and DoCoMo
Released the OSNET Camera

2012 Field Information Service started supporting satellite phones (DoCoMo)
The extensometer with graph and Field Information Service were certified as registered disaster prevention products of Kochi Prefecture

2013 Toshitaka Nozaki, President and Representative Director, retired when term of office expired
Maki Yano, Executive Director, assumed the office of President and Representative Director
Released the web-based water level gauge
The web-based water level gauge and OSNET Radio Set were certified as registered disaster prevention products of Kochi Prefecture

2014 Released the web-based rain gauge
Given the Local Industry Award of Kochi Prefecture for the web-based water level gauge
The web-based rain gauge was certified as a registered disaster prevention product of Kochi Prefecture

2015 Released the broadcast clinometer, which captures planar changes in the slope

2016 The broadcast clinometer was registered on NETIS
The broadcast clinometer was certified as a registered disaster prevention product of Kochi Prefecture
Listed by the Small and Medium Enterprise Agency among the 300 Wing-Spreading Small and Medium Enterprises and Small Business Operators

Currently, equipment installation service, maintenance service, cloud service, rental service are only provided in Japan.

Business Operations

Design and development

Osasi Technos products are designed, developed, and improved in-house. Even embedded hardware, embedded software, and Windows software are developed by Osasi Technos employees. We are continually striving to improve quality even further to meet the needs of the customers and gain confidence.

Manufacturing

Product quality is of paramount importance. All processes of manufacturing are under thorough quality control. Each production process has a complete test and inspection system that involves a range of testers, including visual inspection systems and automatic pressurizers—all for improving quality.

Implementation and maintenance

"We make the voices of the earth heard" – the slogan is partcularly symbolic in the implementation and maintenance department. We always make much of the actual site in installing, building, and maintaining our systems. We provide our customers with maintenance services, repairing and calibrating the observation equipment they have. The total technical support system ensures reliability.

Cloud service

The cloud service of Osasi Technos allows the user to view and download the observation data collected from the on-site equipment over the Internet. The data is shown as graphs. Our services cover a broad range of applications, from routing observations to remote monitoring of emergency sites.

Rental service

Osasi Technos not only sells products; some of our products are available for rental. The rental service has been useful in a variety of circumstances, including temporary uses and urgent observations.

Past deliveries (extract)

Area	Customer	Product
Hokkaido /Tohoku	Hokkaido Regional Development Bureau	Otaru-Jozankei Line Maintenance and Management System
	Hokkaido Regional Development Bureau	Water intake measurement and automatic observation system
	Tsugaru Dam Construction Work Office, MLIT	Monitoring system for reservoir improvement construction
	Shinjo Office of River, MLIT	Gassan Landslide and Water Level Observation System
	Sunakozawa Dam Administration Office, Akita Pref.	Waterproof water level gauge
	Land Improvement Enterprise Federation, Yamagata Pref.	Water level observation equipment for tree fence survey
Kanto	Metropolitan Expressway Company	Elevated bridge pier inclination management system
	NEXCO East Japan Engineering	Automatic anchor load cell monitoring system
	Tokyo	Underground water survey before preparation of a housing site
	Odawara Civil Engineering Office, Kanagawa Pref.	Float-type water level gauge for hot springs
	Awa Civil Engineering Office, Chiba Pref.	Hegurishimo Landslide Monitoring System
	Yunishikawa Dam, Tochigi Pref.	Weir underground water level observation
	Funabashi City, Chiba Pref.	Remote monitoring system for water level of regulating reservoir
	Tomioka Civil Engineering Office, Gunma Pref.	Automatic monitoring system for landslide at uchiyama pass
Hokuriku /Shin'etsu	Yuzawa Soil-Erosion Control Office, Hokuriku Regional Development Bureau, MLIT	Imokawa Basin Weather Observation System
	Iida National Road Office, MLIT	Safety alert management system for construction in the San'en Nanshin Koarashi district
	JR East Japan	Strain and water level observation for elevated bridge at Toyama Station of Hokuriku Shinkansen
	Toyama Civil Engineering Center, Toyama Pref.	Mizusu district landslide prevention survey
	Ouchigata Land Improvement District, Ishikawa Pref.	Water level monitoring system for reservoir and water-dividing dam
	Himekawa Soil-Erosion Control Office, Nagano Pref.	Emergency measurement system for earthquake disaster in Hakuba-mura, Nagano Pref.
Tokai	Fuji Soil-Erosion Control Office, MLIT	Preparation of landslide equipment in Yui
	Tokuyama Dam Construction Work Office, Japan Water Agency	Automatic observation system for the col district of Tokuyama Dam
	Central Nippon Highway Engineering	Installation of concentrator for dynamic observation tasks on cut earth and slope, Shin-Tomei Expressway
	Tono Agriculture and Forestry Office, Gifu Pref.	Remote automatic monitoring system for the Tono district in prefectural reservoir preparation
	Gujo Civil Engineering Office, Gifu Pref.	Landslide monitoring system for Gukei district
	Miyagawa Upstream River Development Construction Work Office, Gifu Pref.	Automatic observation system for underground water at Nyukawa Dam
Kansai	Kii Mountain District Soil-Erosion Control Office, MLIT	River course blockage measurement and monitoring
	Rokko Soil-Erosion Control Office, MLIT	Mudslide monitoring and alarm system
	West Nippon Expressway Company	Abutment monitoring system for construction of Ibaraki-kita IC
	Nishimuro Promotion Bureau, Wakayama Pref.	Road disaster prevention system on Route 168
	Yoshino Civil Engineering Office, Nara Pref.	Tenkawa-mura slope survey and observation system
	Tamba Agriculture and Forestry Promotion Office, Hyogo Pref.	Slope monitoring system in case of torrential rain
Chugoku	Okayama National Road Office, MLIT	Hydrological survey of Tamashima-Kasaoka Road
	Chigoku Shikoku Agricultural Administration Bureau	Tohaku Disaster Prevention Network
	Japan Atomic Energy Agency	Survey on the amount of mine water at the remains of an open pit mine
	Hamada River Total Development Office, Shimane Pref.	Dynamic observation system for total development of Hamada River
	Kita Ward Office, Okayama City	Rainfall monitoring and notification system for Shimomaki district
	General Hospital (Private)	Rainfall observation and alarm system
Shikoku	Kochi River and National Road Office, MLIT	Production of water level gauges in the Niyodogawa river system in fiscal 2013
	Tosa National Road Office, MLIT	Slope monitoring system in Tachibana District
	Nakamura River and National Road Office, MLIT	Levee body water level observation
	Central East Agriculture Promotion Center, Kochi Pref.	Landslide monitoring system in Ao District
	Disaster Prevention and Soil-Erosion Control Section, Civil Engineering Department, Kochi Pref.	Kochi Pref. on-site monitoring system for landslide disasters
	Central East Civil Engineering Office, Kochi Pref.	Road slope monitoring system
	Seiyo Civil Engineering Office, Ehime Pref.	Slope failure monitoring system
	Private enterprise (Matsuyama)	Water quality and level observation for neutralizer
Kyushu /Okinawa	Saeki River and National Road Office, MLIT	Safety measure implementation on Higashi Kyushu Expressway
	Kimotsuki Central Irrigation and Drainage Office, Kyushu Regional Agricultural Administration Office	Dynamic observation around Atagoyama Farm Pond
	Onogawa Upstream Irrigation and Drainage Office, Kyushu Regional Agricultural Administration Office	Oso water level gauge construction
	Oyama Dam Construction Office. Japan Water Agency	Installation of slope observation equipment at Oyama Dam reservoir
	Kyushu Shinkansen Construction Bureau, JRTT	Hydrological survey on Kyushu Shinkansen between Isahaya and Nagasaki
	Gokayama Construction Office, Fukuoka Pref.	Keyago Bridge observation equipment construction
	Oshima Branch Office, Kagoshima Pref.	Subcontract of total basin disaster prevention (landslide) survey (Ura district)
	Sendaigawa River Office, Kagoshima Pref.	Underground water level gauge, Tsuruta Dam
	Kyushu Electric	Equipment installation and measurement system expansion, Mimikawa river system
	Okinawa Pref.	Inspection and monitoring of information communication equipment (water level, rainfall, visual monitoring system)
	Okinawa Pref.	Water level observation equipment for river drought countermeasure
Overseas	Mali	Survey for the anti-desertification plan in the southern part of the Segou region
	USA (National Park Service)	Movement survey (extensometer)
	Taiwan	Delivery of extensometer and rain gauge
	Armenia	Survey for the countermeasure and management plan against landslides (extensometer and rain gauge)
	Mexico	City development slope disaster (extensometer)
	China	Delivery of extensometer and other equipment
	Indonesia	Delivery of extensometer, rain gauge, and water level gauge
	Uzbekistan	Landslide monitoring skills improvement support project
	Korea	Delivery of extensometer
	Pakistan	Delivery of extensometer and rain gauge
	Honduras	Delivery of extensometer, rain gauge, water level gauge, and alarm unit
	Bolivia	Preliminary survey for the disaster prevention on Route 7 of Bolivia
	Sri Lanka	Delivery of extensometer, rain gauge, water level gauge, and pipe strain gauge
	Croatia	Delivery of extensometer, rain gauge, water level gauge, and alarm unit
	Mauritius	Anti-landslide project
	Ethiopia	Delivery of anti-landslide equipment (including pipe strain gauge)
	Viet Nam	Delivery of extensometer, rain gauge, water level gauge, and other equipment