

# Network Measurement System Monitoring System Controller **MD-111**

## Easy construction of observation system with sensor network



The monitoring system is a measurement system utilizing the networked measurement system TML-NET.

The system consists of a controller, network module, and TML-NET-compatible transducers.

The controller controls the network module and TML-NET-compatible transducers at specified measurement intervals and records the measurement data on an SD card.

The controller is suitable for installation in an instrument storage box or cabinet, and is equipped with I/Fs for contact input/output and mail transducer, making it ideal for constructing a relatively small-scale disaster prevention system.

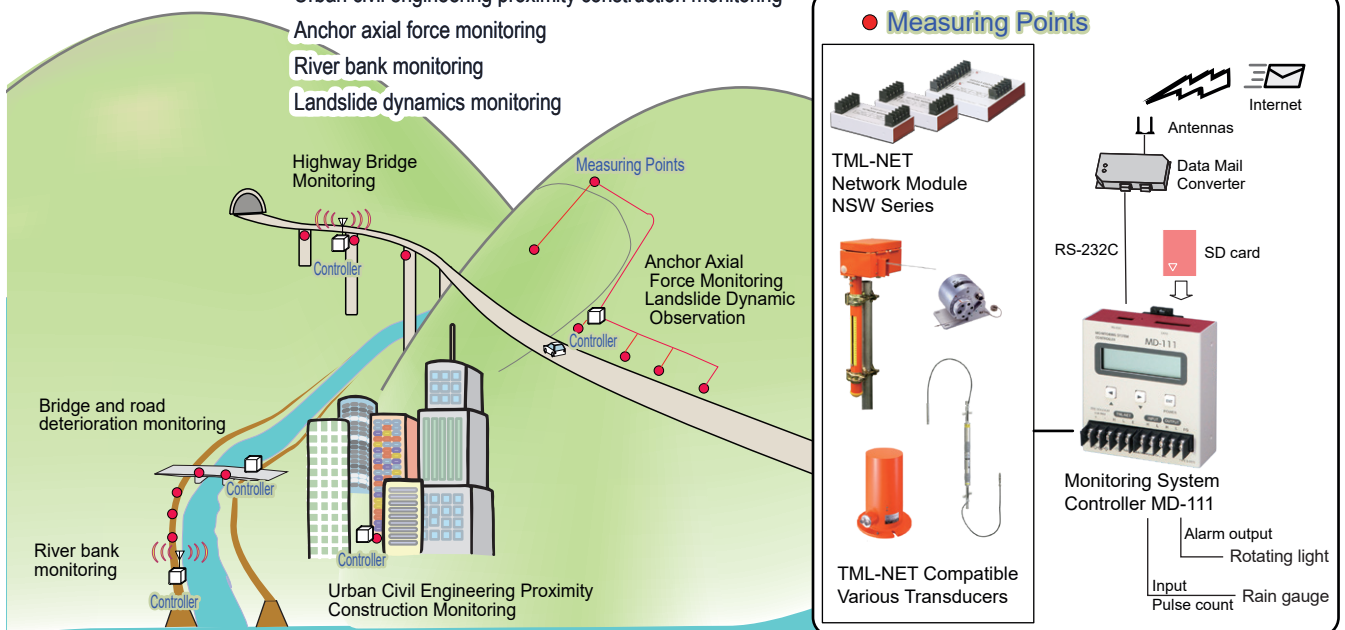
### Features

- Automatic measurement with sleep interval
- Compact and lightweight for DIN rail mounting
- Easy to expand the number of measurement points with the distributed measurement system TML-NET
- Easy data management from remote locations by connecting to a mail converter
- Measurement data can be recorded by SD card.
- Counting and recording of rain gauge pulses by contact input
- Alarm output by contact output

### Application Image/Block Diagram

#### Application Examples

- Deterioration monitoring of bridges and roads
- Urban civil engineering proximity construction monitoring
- Anchor axial force monitoring
- River bank monitoring
- Landslide dynamics monitoring



## Specifications

### TML-NET Drive Unit

Type	NSW series, TML-NET compatible transducers	
Maximum number of connection	Low-consumption module (excluding counter module NSW-01CC)	100 modules
	Conventional module (Connection distance up to 150 m)	20 modules
Maximum extension distance	Low-consumption module	1km or less
	Conventional module (for 10 modules or less)	1km or less
Connecting cable	Exclusive 2-core shielded cable 2-1.25L1	

### Function

Number of measurement points	100
Function	Interval measurement and monitoring
Setting	First channel, last channel
Measurement Mode	Simple measure mode
TML-NET Setting Function	Channel number setting for network module (only when one unit is connected)

### Interval timer

Function	Measurement by set time interval
Time interval	1, 2, 5, 10, 15, 20, and 30 minutes, 1, 2, 3, 4, 6, 12, 24 hours (measurement start time can be specified)
Sleep function	Automatic power on/off during interval measurement when sleep function is enabled

### Clock

Function	Year, month, day, hour, minute, second
Accuracy	Daily difference $\pm 3$ sec( $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ )
Retention	Approx. 1 hour (when fully charged)

### Display and Operation

Indicator	7-segment LCD
Operation key	Operated by key switch

### Memory

Function	Recording of measurement data and setting files Readout
Adaptation Card	SD card (specified by the company)
Applicable Physical Format	FAT16
Recording Format	CSV format
Card Capacity	512M to 2GB

### Contact input

Number of contact	1
Input signal	No-voltage contact, open collector signal
Response pulse width	0.01s or more
Measuring range	0 to 31999 counts
Accuracy	Within $\pm 1$ digit
Recorded content	Record pulse integrations for each recording interval
Measurement Data	Integral count

### Contact output

Number of contact	1
Contact	Semiconductor Relay
Contact capacity	AC140V/DC200V MAX. Fixed current 0.5A MAX. Surge current 1.5A MAX.
Output form	a-contact
Comparison format	Relative value, upper and lower bound

### Interface

RS-232C	Compliant with RS-232C Baud rates 9600, 19200, 38400 bps For various settings, measurement, and data collection
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### Battery power supply

Rated power supply voltage	DC4.2 to 6.8V
Battery life	Approx. 3 months
	Conditions Battery : 4 AAA alkaline batteries
	Temperature : $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$
	Measurement : 1 hour interval Number of connected units : 10 units (when using low-consumption network module)
Current consumption	Current consumption in sleep mode 1mA MAX.
	Current consumption during operation 300mA MAX. (when driving 1 unit) 360mA MAX. (when driving 10 units) 900mA MAX. (when driving 100 units)

### External DC power supply

Rated power supply voltage	DC 9 to 18V
Current consumption	Current consumption in sleep mode 1mA MAX.
	Current during operation 500mA MAX. (when driving 100 units)

### Environment

Operating temperature and humidity range	-10 to $+50^{\circ}\text{C}$ , 85%RH or less (excluding condensation)
Dimensions	95(W) $\times$ 30(H) $\times$ 100(D)mm (excluding protruding parts)
Weight	Approx. 200g

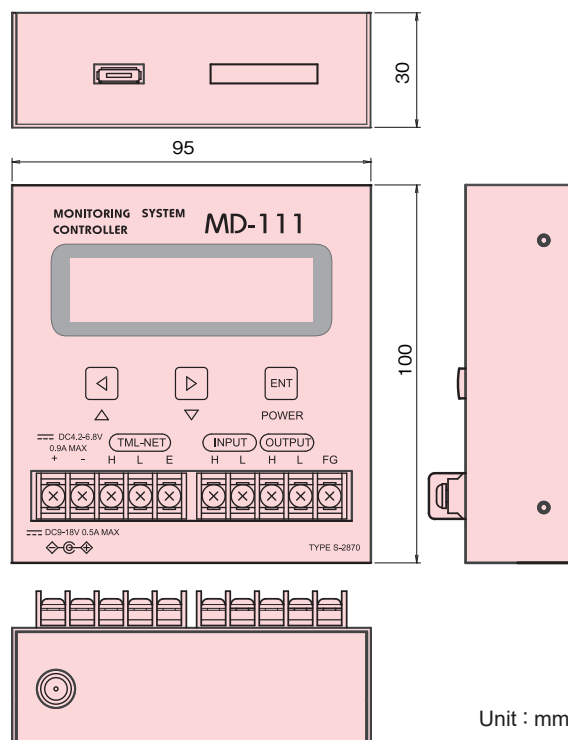
### Standard accessories

User's manual	1
Certificate of Warranty	1
SD card (512MB)	1

### Related Products

AC Adapter
SD card (512MB to 2GB)
DIN rail mounting base

### External Dimensions



Unit : mm

The contents of this catalog are subject to change without prior notice.  
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