To: _____

Specification Document

Multi-circuit Water Leakage Detector
AD-AS-10DRM

Date : ( )

<Manufacturer >
System Equipment Division
Electronic Materials & System Equipment Group
TATSUTA Electric Wire & Cable Co., Ltd.

System Division		
Approved by:	Checked by:	Prepared by:

<<<Important Safety Precautions>>>

⚠ Warning

Erroneous operation of this water leakage detector not complying with the warning labels or the following warnings may not only lead to possible fatality or serious injury, but also fire, electric shock or failure.

⚠ Warnings!

⚠ Strictly Prohibited!

- ☐ Never modify or disassemble the detector.
- ☐ The unqualified persons are forbidden to carry out the installation and the internal inspection and spot check.
- ☐ After the detector is installed, do not leave the cover open, except for the periodic inspection and maintenance.
- ☐ Do not touch any internal component with wet hands.
- ☐ When performing maintenance on the product, avoid using organic solvent. Use dry cotton wastes for gentle wiping.

⚠ Checkpoints!

- ☐ Check its rated voltage and its supply voltage before the detector installation.
- ☐ The installation and electric connection of the detector are carried out according to this instruction manual.
- ☐ The maintenance and periodical inspection are carried out according to this instruction manual.
- ☐ When the control output contacts are used, please check the rated loads of these contacts in the operating instruction manual.

⚠ Do not install the detector in the following locations!

- ☐ Locations easily accessible to the general public.
- ☐ Locations close to sources of vibration, corrosive gas or strong electromagnetic induction.
- ☐ Locations with much waste and dust.
- ☐ Locations where there is possibility of water leakage and the temperature and humidity are high.

Table of contents

1. Scope of application

This specification is applicable for the multi-circuit water leakage detector (AD–AS–10 DRM), which has been developed in order to protect computer rooms, important facilities and warehouses, and valuable information, etc. from damage resulting from unpredictable water leakage.

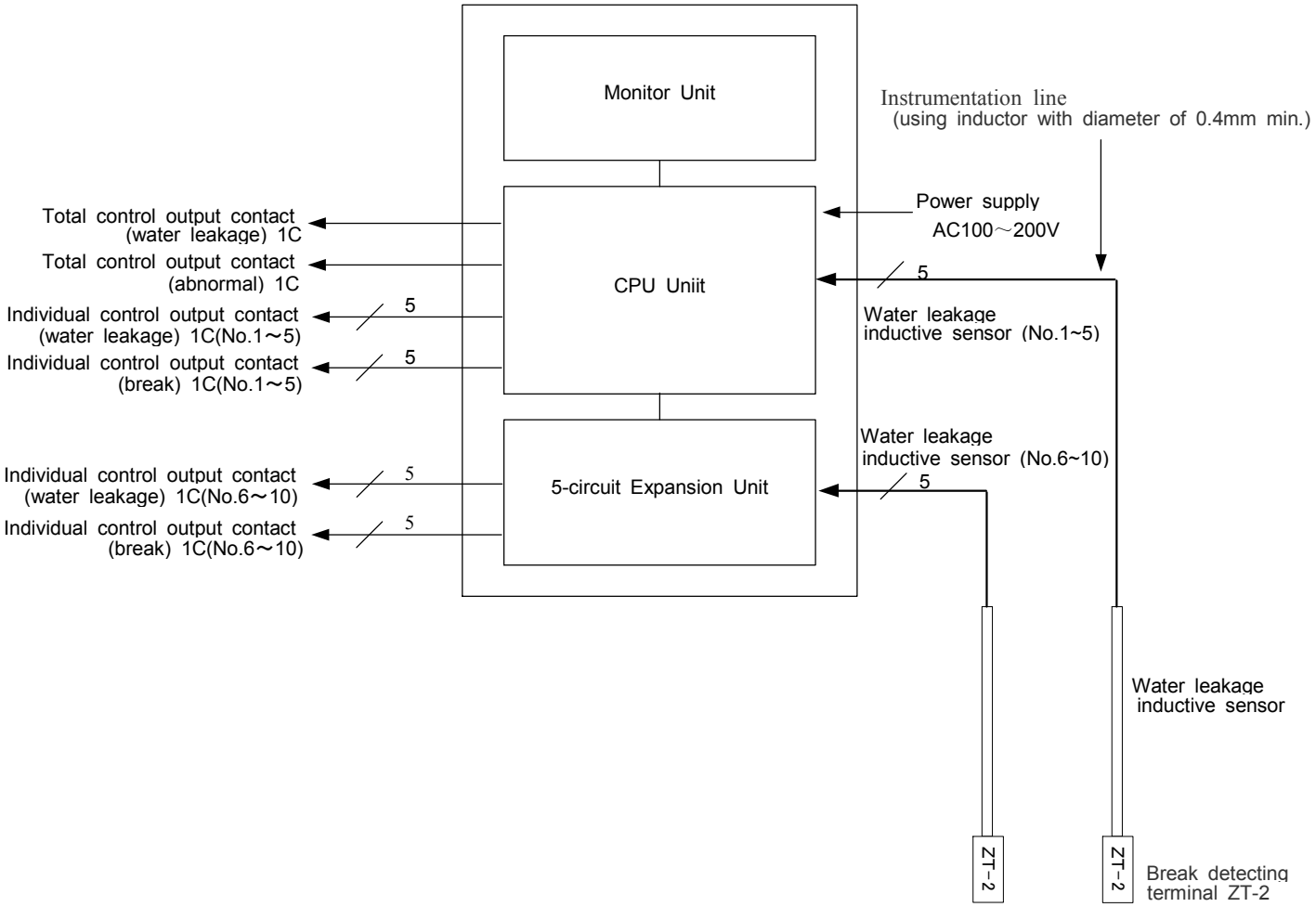
2. Overview of Detector

2-1. Overview of Detector

Table 1 . Unit structure

Item	Designation	Number of units
CPU unit	AD-AS-CPU	1
5-circuit expansion unit	AD-AS-UINT	1
Display Unit	AD-AS-DISP	1

2-2. The structure of the water leakage detection system



3. Specifications

3-1. Ratings

See Table 2 for the ratings.

Table 2 Ratings

Item	Specifications
Rated voltage	AC100-200V (for 50Hz/60Hz)
Fluctuation range of supply voltage	± 10% of the rated voltage
Power consumption	20VA max.
Control output contacts	*Check “Subsection 3-3 Control Output Contact Specifications”.
Sensor applied voltage	AC5.5V (max。)
Working ambient temperature	-10˚C to 50˚C (no icing)
Working ambient humidity	35%RH to 85%RH (no condensation)

3-2. Performance

See Table 3 for performance.

Table 3 Performance

Item	Specifications	
Number of sensor circuits	10 circuits	
Water leakage detection accuracy	5kΩ±10% (set with an interval of 2~9kΩ± for 0.5 kΩ)	
Precision in recovery from water leakage	(Detection accuracy+2kΩ）±10%	
Break detection accuracy	30kΩ±10%	
Surface operation panel operation switch function	For buzzer alarm stop use	
	For the indicator test (all clear)	
Surface operation panel LED indication	Power display red: 1 digit (lighting up)	
	Water leakage display red: 10 digits (lighting up)	
	Break display red: 10 digits (lighting up)	
	Display during buzzer stop red: 1digit (lighting up)	
Alarm buzzer	Maximum sound pressure level of 70dB / 30 cm (Catalogue value by manufacturer), adjustable	
Control output contacts	Contact configuration	Total contacts (For specifications, refer to Section 3-3). Water leakage: 1c Abnormality (water leakage or Break): 1c Individual contact Water leakage: 1c×10 contacts Break: 1c×10 contacts
Withstand voltage	AC1500V (50/60Hz)/1 minute (between power supply terminal and the body shell)	
Insulation resistance	10 kΩ min. (DC500V Megger)/1 minute (between power supply terminal and the body shell)	
Noiseproof property	±1000V pulse width: 1μSEC (noise simulator) /1 minute (between each phase and the grounding terminal)	
Outside dimensions	(W) 300 x (H) 330 x (D) 100 (unit: mm) (see Attached Drawing 1) * Excluding the raised portions of hinges and handles.	
Weight and color	Approx. 5.5kg, gray (5Y7/1 semi-gloss)	

3-3 Control Output Contact Specifications

Refer to Table 4 for control output contacts.

Table 4 Control Output Contact Specifications

Item	Resistance load	Inductive load
Rated load	AC125V 0.4Ａ DC 30V 2.0Ａ	AC125V 0.2A DC 30V 1.0A
Minimum applied load	DC10mV 10μA (reference value)	

(Relay contacts: G6E-134P-US Catalogue Values by OMRON Corporation)

4. Operation Chart

4-1 Standard Operation Chart

(* No failure-safe and alarm continuation setting)

Refer to Fig. 2 for the operation chart.

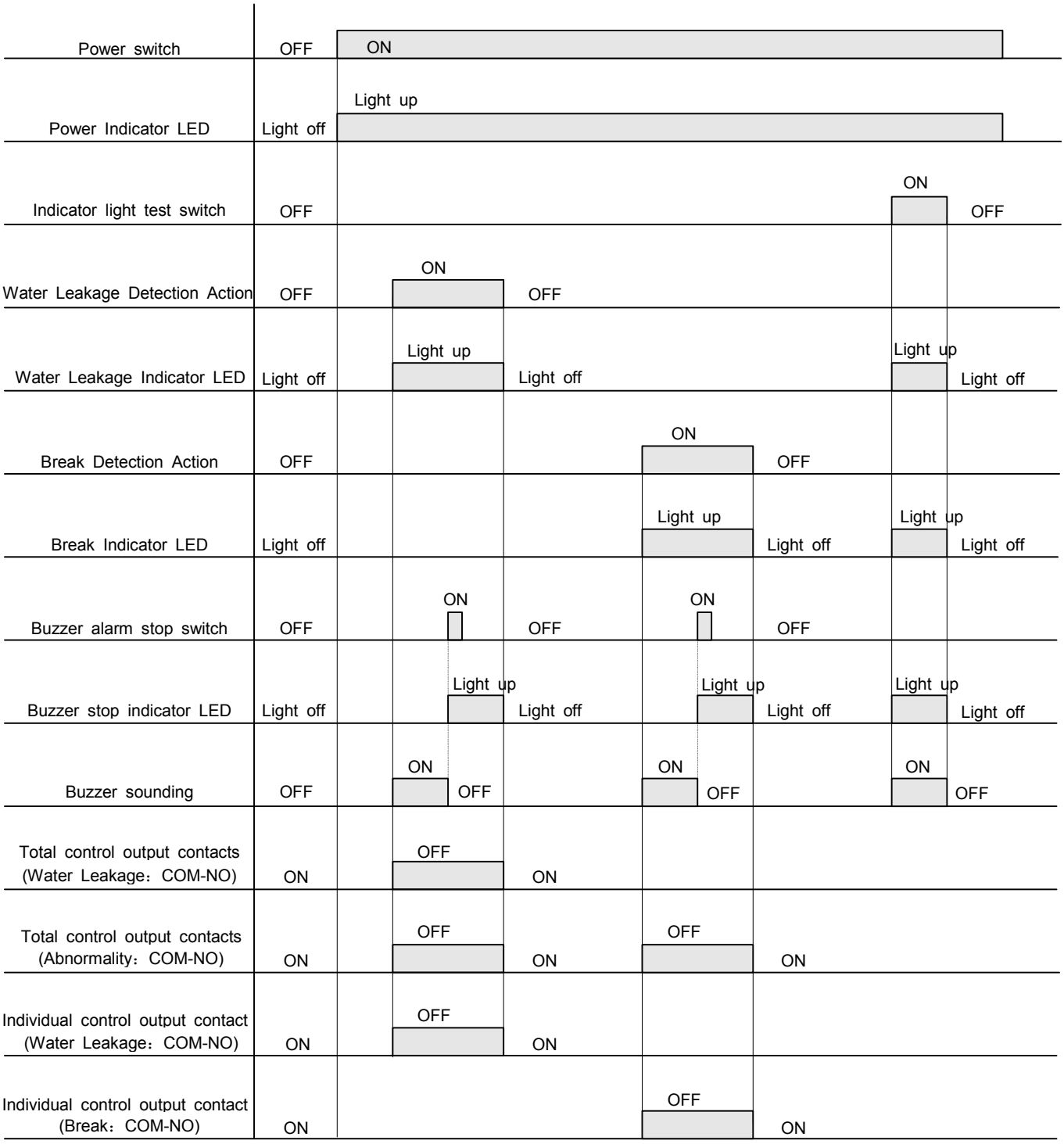


Figure 2 Operation Chart 1

Buzzer operation

Press the buzzer stop switch and the buzzer stops.

But in case of any alarm at the same circuit or other circuit, the buzzer sounds again.

If the buzzer is required not to fully sound, No.8 for SW2 of the CUP unit is set ON.

Failure Safe Function

If the failure-safe function is active, the action of output contact is in inverted running.

4-2. Operation Chart When Alarm Hold Setting is Activated

(When the water leakage, break indication, total control output contacts and individual control output contract are in alarm hold setting)

For the operation chart, refer to Figure 3.

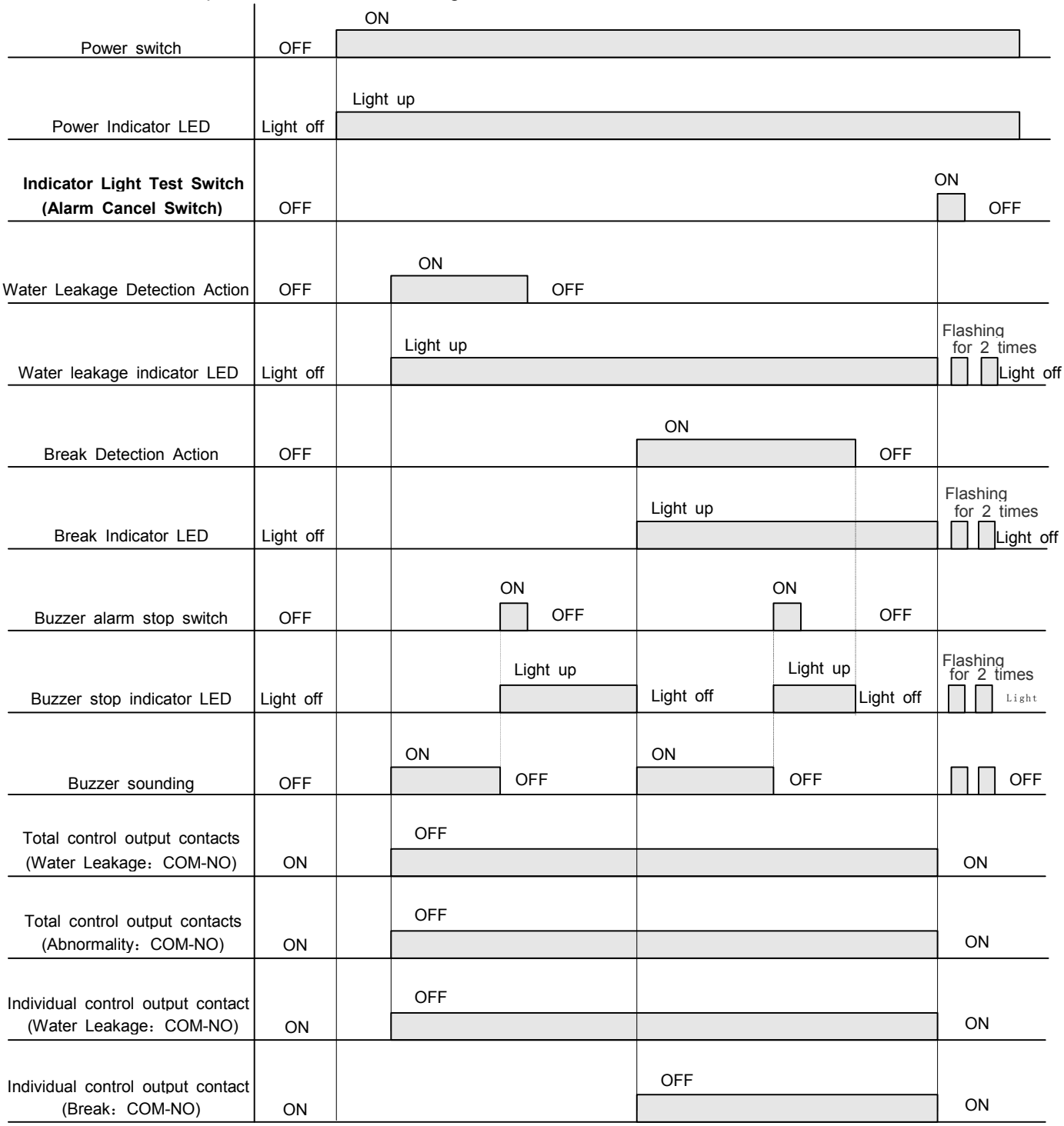
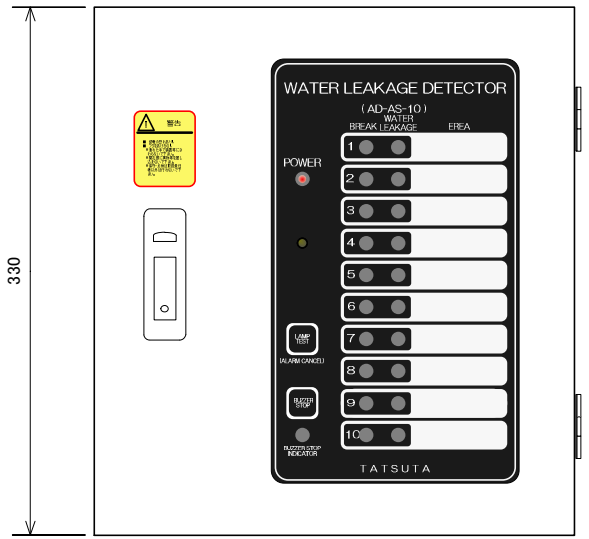


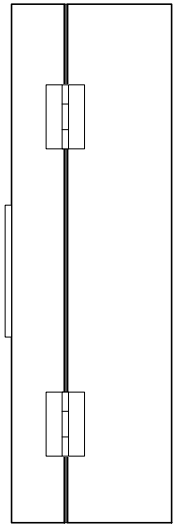
Figure 3 Operation Chart 2

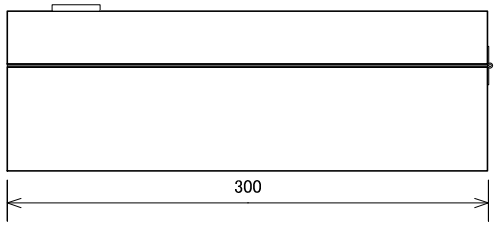
When the alarm hold setting is activated, the alarm status is maintained until the indicator test switch (alarm cancel switch) is pressed electric power failure or power-off returns the contact operation status to that when the power source is shut off.

* If the alarm hold setting is not activated, refer to “Figure 2 Operation Chart-1”.

Attached Drawing 1

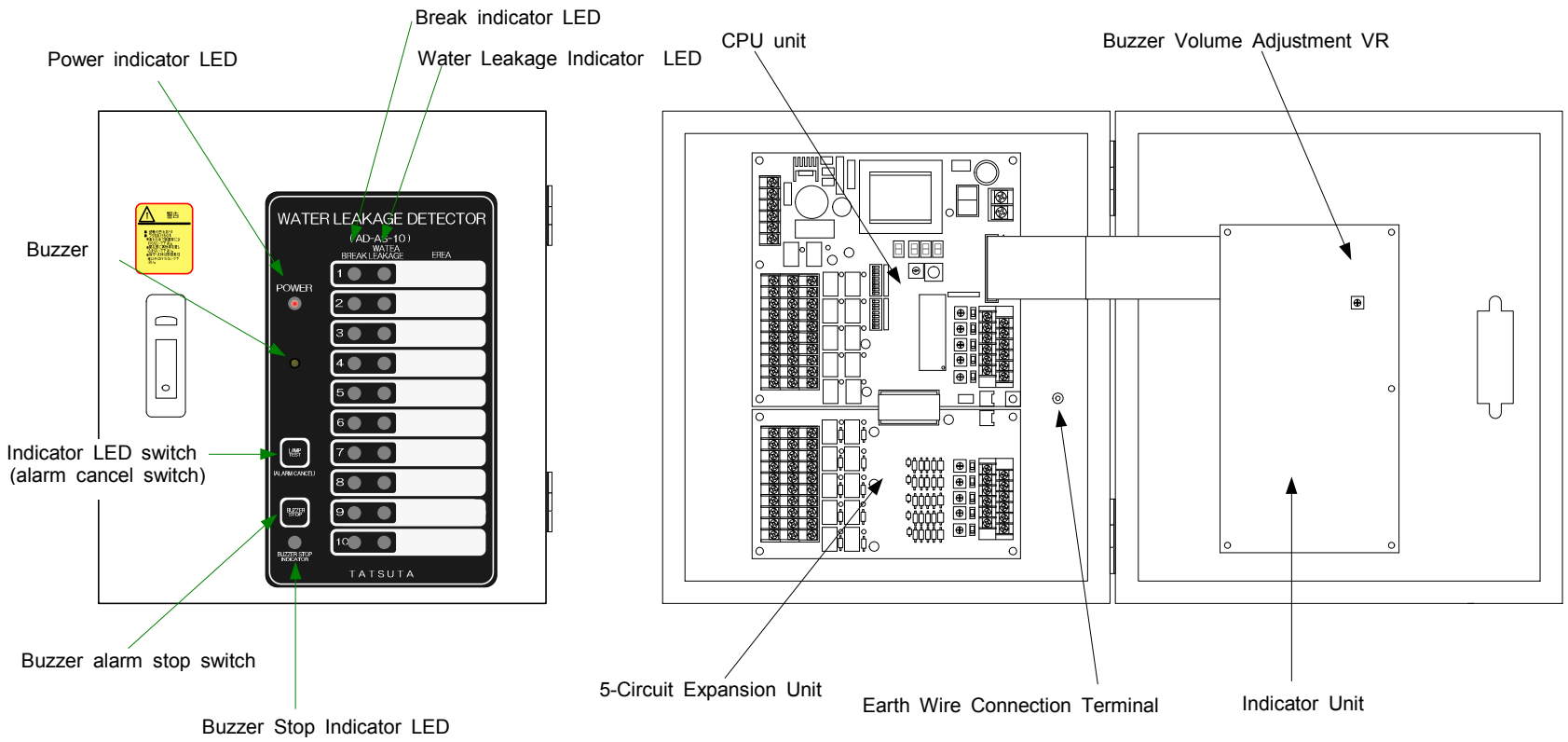






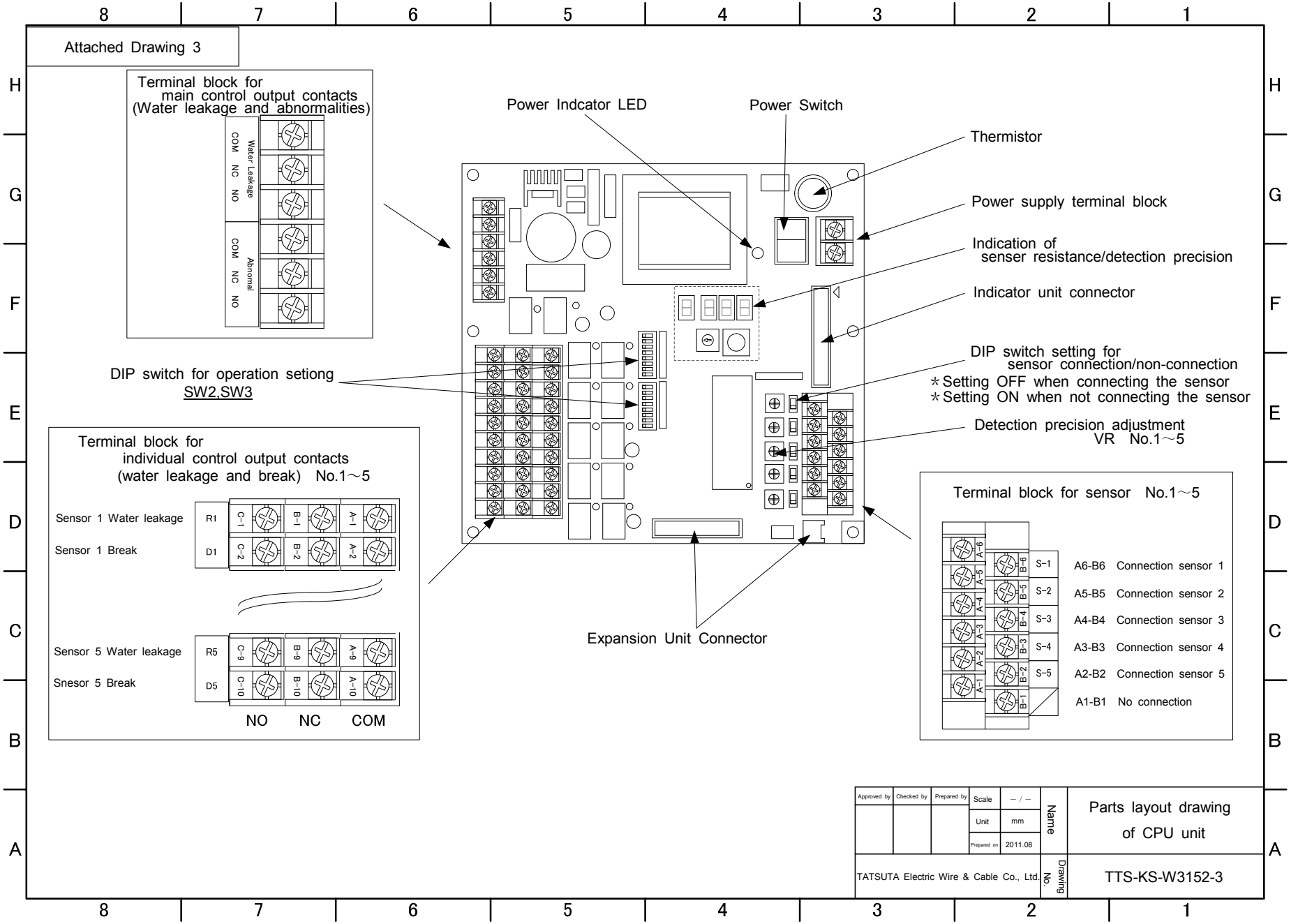
Approved by	Checked by	Prepared by	Scale	— / —	Name	Outer dimension drawing of water leakage detector AD-AS-10DRM
			Unit	mm		
			Prepared on	2011.08		
Tatsuta Electric Wire & Cable Co., Ltd.					Drawing No.	TTS-KS-W3150-2

Attached Drawing 2



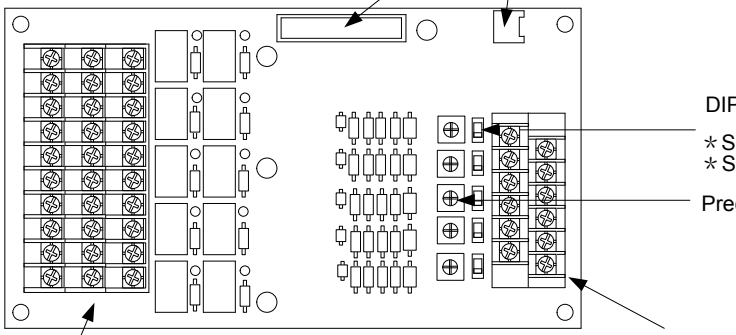
Approved by	Checked by	Prepared by	Scale	— / —	Name	Parts layout drawin of water leakage detector AD-AS-10DRM
			Unit	mm		
			Prepared by	2011.08		
Tatsuta Electric Wire & Cable Co., Ltd.					Drawing No.	TTS-KS-W3151-2

Attached Drawing 3

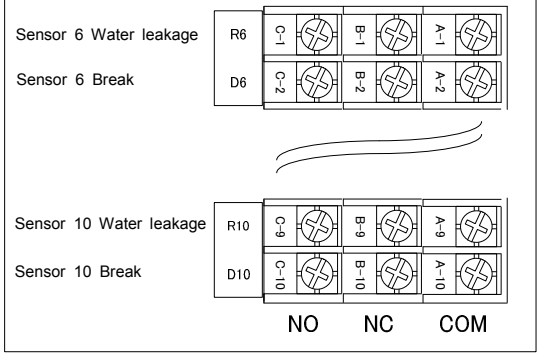


Approved by	Checked by	Prepared by	Scale	– / –	Name	Parts layout drawing of CPU unit
			Unit	mm		
			Prepared on	2011.08		
TATSUTA Electric Wire & Cable Co., Ltd.					Drawing No.	TTS-KS-W3152-3

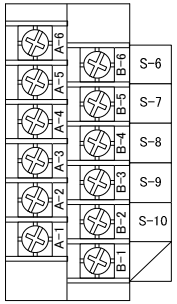
Attached Drawing 3



Terminal block for
individual control output contacts
(water leakage and break) No.6～10



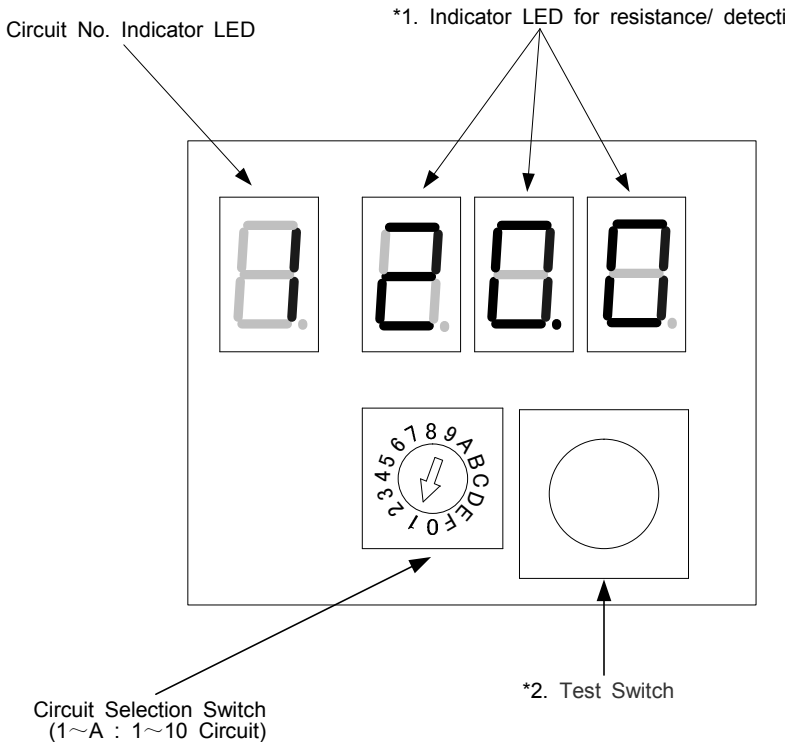
Terminal block for sensor No.6～10



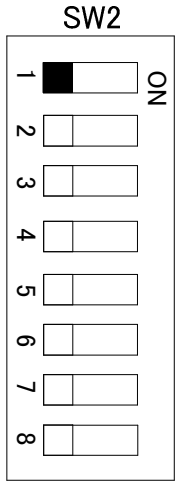
A6-B6 Connection sensor 6
A5-B5 Connection sensor 7
A4-B4 Connection sensor 8
A3-B3 Connection sensor 9
A2-B2 Connection sensor 10
A1-B1 No connection

Approved by	Checked by	Prepared by	Scale	— / —	Name	Parts layout drauwing of 5-Circuit Expansion Unit
			Unit	mm		
			Prepared on	2011.08		
Tatsuta Electric Wire & Cable Co., Ltd.					Drawing No.	TTS-KS-W3153-2

Attached Drawing 5



Has been set ”0” when dispatched from the factory, circuit No. Indicator Indicator LED for resistance / detection sensitivity lights out



*1. Indicate that the circuit selection switch has selected the circuit information.
SW2 No. 1 of DIP is set
ON ⇒ indicate detection sensitivity
OFF ⇒ indicate sensor resistance
E.g. Sensor resistance for No. 1 circuit is indicated as 20.0kΩ.

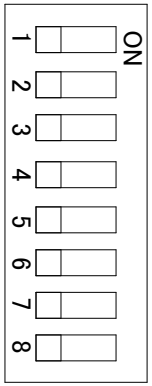
*2. Check the operation of individual control output contacts concerning indicator unit LED corresponding to the circuit selected through circuit selection switch.

Under this condition, when pressing the test switch, break indicator LED, water leakage indictor LED, individual control output contact (water leakage and break) and main control output contact (water leakage and abnormality) for the No. 1 circuit are activated.

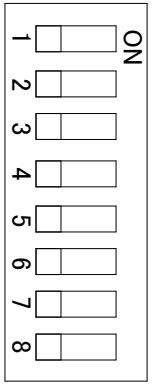
Approved by	Checked by	Prepared by	Scale	– / –	Name	Instructions to resistance/ detection precision operation
			Unit	mm		
			Prepared on	2011.08		
Tatsuta Electric Wire & Cable Co., Ltd.					Drawing No.	TTS-KS-W3154-2

Attached Drawing 6

SW2



SW3



No.	Factory setting	Operation
1	OFF	Resistance / detection sensitivity switchover OFF : Indicate the resistance of the sensor ON : Indicate detection sensitivity
2	OFF	Main relay alarm hold OFF : Not activated ON : Activated
3	OFF	Individual relay alarm hold OFF : Not activated ON : Activated
4	OFF	Indicator LED alarm hold OFF : Not activated ON : Activated
5	OFF	Fail- safe performance (main relay) *relay operation when the sensor is normal. OFF : Not activated ON : Activated
6	OFF	Failure safe performance (individual relay) *relay operation when the sensor is normal. OFF : Not activated ON : Activated
7	OFF	Abnormal contact operation switchover OFF : Abnormal contact operation when water leakage and break occur ON : Abnormal contact operation only when break occurs
8	OFF	Buzzer operation setting OFF : Activated ON : Not activated

*Changing setting of SW2, allows operations such as indication and rela
Inadvertent setting change may result in unintended operations, so care should be taken.

*SW3 is the setting dispatched from the factory, do not change.
(For AD-AS-10DRM, please set OFF)

Approved by	Checked by	Prepared by	Scale	– / –	Name	Instructions to operation switchover DIP switch AD-AS-10DRM
			Unit	mm		
			Prepared on	2011.08		
Tatsuta Electric Wire & Cable Co., Ltd.					Drawing No.	TTS-KS-W3155-3