

Electronic Test Meter

TR-IV

Operation Manual

Aichi Tokei Denki Co., Ltd.

## [1] General

Electronic Test Meter TR- IV is a portable test meter which uses a electronic water meter (EDS 20) for measurement, and is equipped with a counter which can selectively display the momentary flow rate and trip accumulated amount (with reset) based on the pulse output from the water meter.

This test meter is designed to check instrumental errors of installed water meters on site.

## [2] How to install the test meter

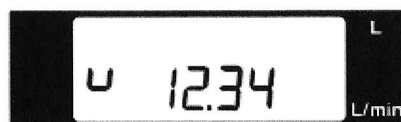
Refer to the "Installation Diagram TR-IV-APP" (on Page 6).

- (1) Check the flow direction of the body.
- (2) Connect each of the supplied hoses with one-touch joint (connector) (i.e., a transparent hose with connectors on the both ends for the upstream side and one with a connector on one end for the downstream side) to each joint (nipple) of the body. (Pull each hose gently to check if it is firmly connected.)
- (3) Choose one of the joints (nipples) below according to the type of the tap where the test meter is to be installed and attach it to the tap:
  - 1) Tap nipple with band (pipe-type flexible faucet 1/2 caliper (13) for tap)
  - 2) Nipple for foam tap (e.g., single-lever type)
- (4) Connect the one-touch joint (connector) on the other end of the hose connected to the upstream side of the body (i.e., the hose with connectors on both ends) to the joint (nipple) connected to the tap.

## [3] Test method

3-1. Preparation (Refer to "[4] Operation procedure" for the details of how to operate the test meter to display measured data.)

- (1) Remove air from the test meter to ensure that it is full of water.
- (2) Arrange the downstream hose so that it is partially higher than the test meter to prevent air from entering the meter when the water flow stops. Also be sure to place the meter horizontally.
- (3) Close the valve of the body and confirm that there is no leak from the pipe.
- (4) Set the counter display to the momentary flow rate.  
"U" is shown to the left of the figures while the momentary flow rate is displayed, and up to four digits are displayed.





- (5) Fully open the valve of the body and adjust the flow rate for inspection by adjusting the valve aperture. Use the flow rates for inspection as listed in the instrumental error achievement table (see the table below).

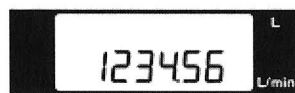
Note that the unit for the momentary flow rate is "L/min." Use the following formula to convert it to "L/h."

$$\text{Converted flow rate (L/h)} = \text{Actual flow rate (L/min)} \times 60 \text{ (min/h)}$$

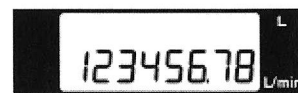
Flow rate listed in the instrumental error achievement table	Flow rate	
	L/h	L/min
High	1000	16.67
Middle	200	3.33
Low	100	1.67

- (6) Close the valve of the body after adjusting the flow rate.
- (7) Switch the counter display to the trip accumulated amount display in up to six digits or accumulated flow amount display in up to eight digits by pressing  and holding for approximately 3 seconds. (Display returns to the state immediately before switching to the momentary flow rate display.)


If the display has switched to the trip accumulated amount display (in up to six digits), retain it. If it has switched to the accumulated flow amount display (in up to eight digits), press  to switch to the trip accumulated amount display.



**Trip accumulated amount display**  
(in up to six digits)



**Accumulated flow amount display**  
(in up to eight digits)

- (8) Press  to reset the displayed value to zero.

### 3-2. Inspection

- (1) Read the value indicated on the inspection target meter.
- (2) Fully open the valve of the body to flow 100 L of water (recommended).
- (3) Close the valve of the body and read the value indicated on the inspection target meter.
- (4) The instrumental error can be calculated with the following formula:

$$\text{Instrumental error (\%)} = \frac{\text{Accumulated amount value of the inspection target meter} - \text{Accumulated amount value of the test meter}}{\text{Accumulated amount value of the test meter}} \times 100 + \text{Instrumental error compensation value}$$

Instrumental error compensation value: Add the instrumental error value for the corresponding flow rate as listed on the attached instrumental error achievement table.

(Subtract the instrumental error if it is negative.)

[4] Operation procedure



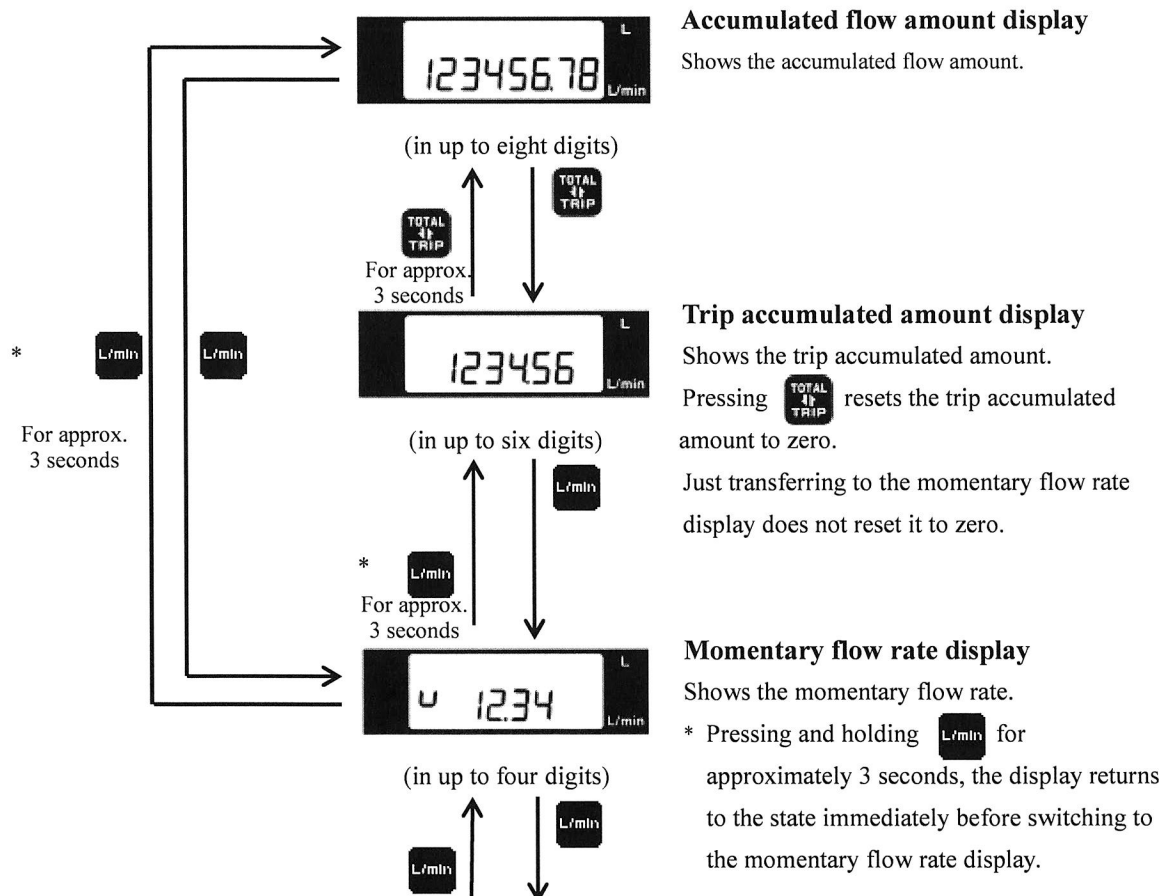
⚠ Do not hold **TOTAL TRIP** and **L/min** depressed for a long time simultaneously.

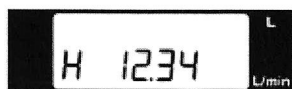
This operation transfers to the configuration mode (blinking display). If you change the configuration setting incorrectly, correct measurement will not be guaranteed.

Return to the measurement mode (solid display) by leaving the test meter for 10 seconds or longer without any operation or by pressing **TOTAL TRIP**.

⚠ Ensure that the display is not blinking.

Blinking display indicates that the test meter is in the configuration mode. If you change the configuration setting incorrectly, correct measurement will not be guaranteed. Return to the measurement mode (solid display) by leaving the test meter for 10 seconds or longer without any operation or by pressing **TOTAL TRIP**.





(in up to four digits)

#### Momentary flow rate hold display

Holds the momentary flow rate value.

Measurement of the momentary flow rate, accumulated amount, and trip accumulated amount continues during the hold display.

#### [5] Storage and maintenance

- (1) Discharge water from the test meter completely.
- (2) Attach the caps on the connection ports of the test meter to prevent dusts and foreign matters from entering the meter.
- (3) Regular inspection (once in two years) is recommended in order to maintain precision of the instrumental errors.  
(While the meter used in the measurement part is an officially approved device, regular inspection of the instrumental error precision is recommended since this test meter is designed to be portable.)

Instrumental error achievement table	
Product name	TR-IV
Serial No.	
Official approval term of validity	

This product contains a battery powered water meter which is a specified measuring instrument.

Test date		
Test tank	0.5m <sup>3</sup> tank	
Instrumental error		
High flow rate	Middle flow rate	Low flow rate
1000 L/h	200 L/h	100 L/h
16.7 L/min	3.3 L/min	1.7 L/min
%	%	%
Aichi Tokei Denki Co., Ltd. Inspection Division, Quality Assurance Headquarters 1-2-70 Chitose, Atsuta-ku, Nagoya		
Regular inspection (once in two years) is recommended in order to maintain precision of the instrumental errors.	Approval	Creation

Instrumental Error Achievement Table (Standard Sample)

## [6] Warranty and after-sales service

## ● Warranty period

If a defect which is subject to our liability should occur during the warranty period under normal use, we shall repair the product or replace it with a normal product for free.

## ● Repair request

When there is a failure with the meter, consult our local branch or sales office for repair with detailed description of the failure.

Note that for a repair after the warranty period, we shall repair it by your request for a charge only if the product can be restored to the functional state by the repair.

## ● Warranty scope

We are making every effort to produce our products with high quality, however if a defect which is subject to our liability should occur during the warranty period under normal use, we shall repair the product or replace it with a normal product for free.

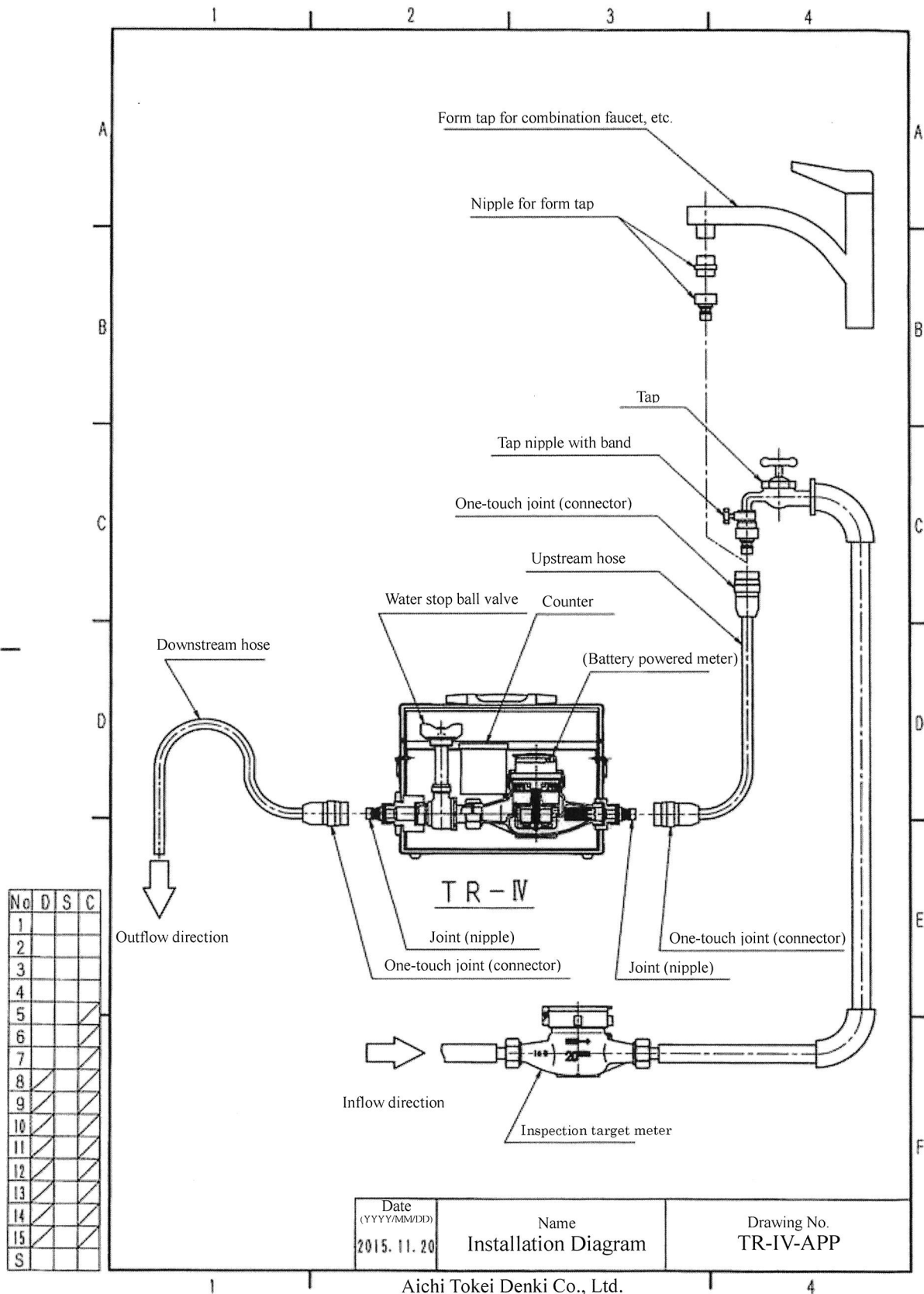
Please understand that we shall determine whether the free remedy shall apply to your situation after our investigation of the product.

Also please understand that the free remedy shall not be applied to a defect:

- 1) Caused by use which does not follow the instructions given in our catalog, product specifications, and/or operation manual,
- 2) Caused by disaster such as a fire, earthquake, storm, flood, or lightning, or a destructive act such as a crime,
- 3) Caused by corrosion due to use in a corrosive environment,
- 4) Caused by acts of animals such as a dog, cat, rat, or insect,
- 5) Caused by a factor other than our product,
- 6) Which could not be foreseen with the science and technology levels at the time of shipment,
- 7) Caused by a repair or alteration other than done by or specified by us, and/or
- 8) Caused by an inappropriate inspection and/or maintenance or replacement of a consumable.

Please note that "warranty" in this context means warranty for our product alone and we shall not be liable for any damage resulting from a defect of our product, including but not limited to a damage to equipment other than our product, loss of profit, loss of opportunity, transportation fee, and construction fee.

Concluded



Aichi Tokei Denki Co., Ltd.