

# Watt-hour and Var-hour Meters

## General information

### Watt-hour and var-hour meters

#### ■ Description

It is essential that electricity meters used for billing purposes retain a high standard of accuracy over long period of operation as well as requiring little attention.

These meters have earned an excellent reputation for their extreme accuracy, rugged construction and stable performance in extended service often in unfavorable conditions. This has been achieved through FUJI's high standards of production combined with the efforts of its R and D laboratories, which have made it possible to produce quality meters in volume at competitive prices with early delivery. FUJI watt-hour meters have been developed in close cooperation with leading power companies and are capable of meeting all legal, mechanical and electrical requirements.

#### ■ Design features – F series

##### ● Block construction

FUJI watt-hour meters are built on the 'block' system. When sections require inspection or replacement single elements can be detached without disturbing the other parts of the meter. And guide points make sure that components are accurately returned to their original positions. FUJI meters are simple to adjust, repair and service.

##### ● High dielectric strength – Low current requirements

The driving elements and voltage coils have high dielectric strength to guard against impulse and short circuits. The drive has a low friction value and draws very little current in operation.

##### ● Low watt losses

Both voltage and current coil laminated cores are fabricated from high quality silicon electric steel strip. This results in an improved electromagnetic performance and reduced power losses.

The shape and position of the cores are so arranged to produce the most effective magnetic flux.

##### ● Precision mounted in a sturdy protective case

The metering element is affixed to a sturdy diecast aluminum alloy frame, and is installed in a protective sealable case of either metal or plastic. Driving elements, brake magnets, register, rotor assembly and other components are secured with fixing screws and are accurately located by means of setting guides.

##### ● Low friction losses

The register and other moving parts use wear-resistant gears to reduce friction and so increase accuracy. Bearings require no oil. Low friction torque, responsive electrical components and highly efficient mechanical parts all combine to reduce error and improve performance.

##### ● Stable performance over a long service life

Two types of bottom bearing can be supplied. A highly efficient double jewelled ball bearing or a magnetic thrust bearing. Both types keep friction at negligible values even after prolonged use. A worm gear on the rotor shaft drives the register with a drive reduction ratio of 80:1. Power losses are very small, and the large driving torque of the rotor is more than sufficient to operate the register train.

##### ● Space-saving one-disk type three phase meter

FUJI watt-hour meters are more compact and lighter than conventional two-disk types. This results in neater, more efficient installations.

##### ● Simple adjustment

All adjustments are micrometric and are easily carried out from the front of the meter using only a screw driver.

##### ● Additional equipment

Various special purpose accessories are available which can easily be installed on the standard meter.

### Standard type watt-hour meters

#### Single-phase 2-wire system

##### Surface mounting



F11F

SP-754

##### Flush mounting



F13F-V

SP-763

#### Single-phase 3-wire system

##### Surface mounting



F21F

SP-750

##### Flush mounting



F23F-V

SP-740

#### 3-phase 3-wire system

##### Surface mounting



F31F

SP-750

##### Flush mounting



F33F-V

SP-740

#### 3-phase 4-wire system

##### Surface mounting



F41F

SP-745

### Watt-hour meters with pulse initiator



CP00-2789

**F11F-K23**

### Precision-type watt-hour meters with pulse initiator, solid-state type



**FP3C-S22VR**

### Watt-hour and var-hour meters with pulse initiator, solid-state type



**F3C-S22VR, FV3C-S22VR**

- **Watt-hour meters with pulse initiator**

These meters transmit electric signals indicating the amount of power consumed to indicating, controlling or recording instruments at a distance by cable.  
*For further information see page 09/79.*

- **Precision-type watt-hour meters with pulse initiator, solid-state type**

These are used for the accurate and reliable measurement of energy.  
*For further information see page 09/84.*

- **Watt-hour and var-hour meters with pulse initiator, solid-state type**

These are watt-hour and var-hour meters with a wide variety of output pulses and easy-to-read display.  
*For further information see page 09/84.*