

MODEL 590F HV C.T. TESTER



APPLICATION

The Model 590F is a retrofit kit available for our popular Model 590G/G-V2 C.T. tester. The first part of the kit is the 590F1, as shown above, which is a clipon unit mounted on the end of a hot stick. This unit has a battery powered electronic compensation circuit for the clipon which greatly improves accuracy over a wide operating range, typically 50A to 1500A.

A microprocessor is also used to control the clipon compensation, drive relays for internal range changing and provide communications to a fibre optic interface. The 590F1 is supplied complete with a standard 100M drum of fibre optic cable. The combination of hot stick and cable has been tested to 100kV, line to ground.

The C.T. primary current measured by the clipon is sent via the cable to the 590G, which can be up to 100M distant. The 590G/G-V2 can measure the C.T. secondary current, either 1A or 5A nominal, and then calculate the C.T. ratio to 0.1% accuracy.

1.0. FEATURES

1.1. The 590F1 is powered by an internal re-chargeable 12V 1.2Ah sealed lead acid battery.

1.2. Battery charging is via mains supply or 12V/24V car battery. A fully charged battery is typically good for 30 tests. A spare battery is included in the kit.

1.3. The battery supply is switched on with a recessed pushbutton, shown by a LED. The supply is needed on only while the 590F1 is hoisted onto the HV line.

1.4. High quality Swiss connectors are used for connecting the optical cable from 590F1 to cable drum, and from cable drum to 590G/G-V2.

1.5. In situations where the C.T. 5A secondary circuit access is remote from the 590F1, one person must operate the 590 unit which has a 10M test lead for connecting to the C.T. 5A circuit. They must key the C.T. test data into the 590 unit.

The other person can hoist the 590F1 onto the HV line and it then takes about 1 minute for the 590F to auto range and compensate correctly, and send measurements to the 590 G/G-V2.

1.6. The 590 unit always performs an initial quick test to ensure the polarity is correct and ratio error is not excessive (due to wrongly keyed data). A full 10 measurements is made and an average current and phase error shown.

1.7. Where needed a cable drum can be supplied with a longer optical fibre cable.

1.8. For testing LV C.T.s there is also an LV kit available. This has a large jaw clipon which can be used on busbars up to 2500A, plus a small jaw clipon for use up to 750A.

These clipons connect directly to the 590G/G-V2 and are electronically compensated for maximum accuracy.

1.9. The kit can be supplied with a new Model 590G/G-V2, or can be retrofitted to an existing 590 unit.

For retrofitting, the 590 unit must be returned to the factory for additional circuitry and wiring.

1.10. The 590F kit can be purchased in 3 forms:
HV kit only.
LV kit only.
Combined HV and LV kit.

The kit is always matched to a particular 590G/G-V2, since it is calibrated with that 590 Model.

2.0. SPECIFICATIONS

2.1. MEASUREMENT ACCURACY:

+/- 0.1% current ratio, +/- 5' phase error over following ranges:

a) HV primary current as measured by 590F1:
75A – 1500A.

Secondary current as measured by 590G/G-V2:
0.06A – 7.2A.

b) LV primary current as measured by large jaw clipon:
150 – 2500A.

Secondary current as measured by 590C/G:
0.06A – 7.2A.

c) LV primary current as measured by small jaw clipon:
50A – 750A.

Secondary current as measured by 590G/G-V2:
0.06A – 7.2A.

2.2. CLIPON JAW SIZE:

HV clipon: 50mm dia.

Large jaw LV clipon: 125mm X 45mm

Small jaw LV clipon: 60mm X 30mm.

2.3. BATTERY & CHARGING:

590F1 internal battery: 12V, 1.2Ah.

The 590F1 has a charging socket, and this is connected to a switchmode charger unit when required using the plug and lead provided.

The charger unit can, in turn, be connected to a mains plugpack with 12V output.

It can also be connected to either a 12V or 24V car battery, which is convenient for charging while in a vehicle.

Maximum charging current is 0.5A to full capacity, then a trickle charge of 5mA is maintained.

A spare battery plus charging lead is supplied with the kit for emergency changeover.

2.4. HOT STICK:

The standard hot stick is a telescopic type, 2.2M long when extended.

It is tested to 100kV.

An adjustable clamp is fitted to allow tilting of the 590F1 unit.

2.5. OPERATING TEMPERATURE:

0 to +40°C.

2.6. SIZE AND WEIGHT:

590F1 unit: 155mm X 130mm X 110mm.

Total weight of 590F1 and hot stick is: 3.5kg.

2.7. TRANSIT CASE:

The kit is supplied in a custom made transit case. The heaviest kit is a combined HV and LV kit, weighing 26kg when a 100M cable drum is included.

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