

STATIC METERS

Product Features

Elymer SM-101 series single phase and SM-301 series three phase electronic kWh energy meters are designed to measure accurately in varying environmental field and supply conditions.

The robustness of design is verified by the fact the meters operate satisfactorily in large varying ambient temperature conditions (-20°C to +65°C), varying humidity conditions (25% to 100%), voltage variation from U_n (-50% to +20%), frequency variation from 50-60Hz ($\pm 10\%$) and power factor variation (0.3 lagging to 0.5 leading).

The circuit is developed using reliable and proven ASICs with SMT technology to suit the rough tropical environmental conditions. The meter is guaranteed to perform in Class 1 accuracy as per IS:13779 and IEC 1036 and remain unaffected in characteristics with temperature and other influencing factors over long periods in field installation.

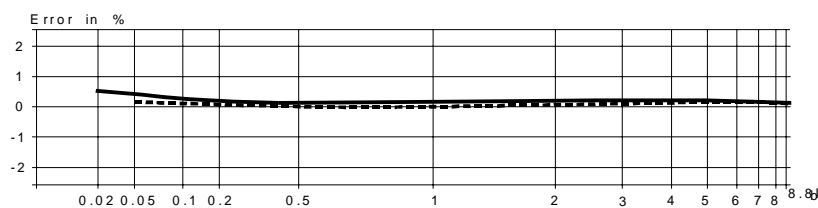
The meters have been designed on the most advanced CAD/CAE systems for ease of installation and maintenance. The manufacturing is carried out in controlled atmosphere on in-house SMT machines. All calibration is carried out on Class 0.1 standards

The salient features are as described below:

- Conform to IS:13779:1999
- Compact dimensions, light weight
- Encased in unbreakable undeformable casing moulded from engineering plastic with transparent UV stabilized polycarbonate cover and terminal cover
- Accuracy Class 1 - guaranteed over the entire product life of over 15 years
- Wide availability of current range - maintains high accuracy in a voltage range of 120V to 288V ac for single phase and 200V to 480V for three phase meters.
- Registers complete energy consumption on Phase Reversal and neutral disconnection in three phase meters
- Option of correct reading when load connected between Neutral-Earth in single phase
- Quality assured with reliable DIGITAL ASIC, with SMD electronic components
- Pulse LED for external calibration and testing
- Low burden pulse cyclometer counter or LCD display
- Can be mounted in any position without affecting accuracy
- Safety Protection to 450V ac
- Practically free from external influencing effects like waveform distorting harmonics, external electromagnetic interference, RF Interference, variation in Temperature, frequency etc.
- Tamper Proof - details of tamper-proofing are given in Technical Characteristics

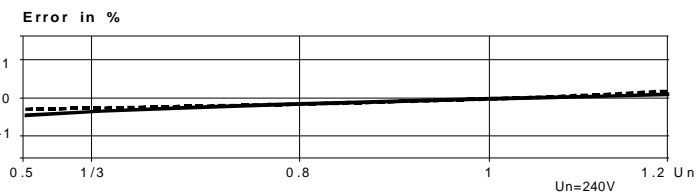
Typical Load curves

- $U_n \cos \phi = 1$
- - - $U_n \cos \phi = 0.5$



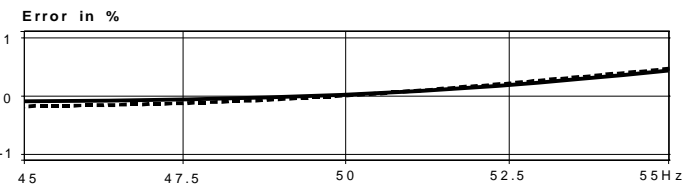
Effects of voltage variations

- $I_b \cos \phi = 1$
- - - $I_b \cos \phi = 0.5$



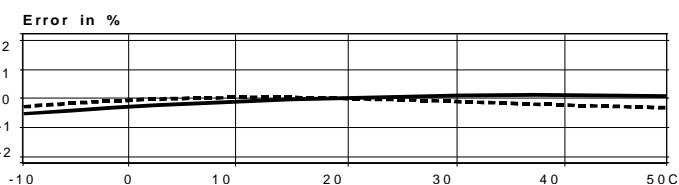
Effects of frequency variations

- $I_b \cos \phi = 1$
- - - $I_b \cos \phi = 0.5$



Effects of temperature variations

- $I_b \cos \phi = 1$
- - - $I_b \cos \phi = 0.5$



TECHNICAL INFORMATION

| | Single Phase Meters | Three Phase |
|-------------------------------------|---|---|
| Rated Current $I_b(I_{max})$ | 5(20)A, 10(40)A, 20-80A 10(30)A, 20(60)A | 5(30)A, 10-60A, 5(40)A, 10-80A 5(20)A, 10(40)A, 20(80)A, 30(120)A 10(60)A, 20(120)A, 5(40)A, 10(80)A |
| Reference Voltage | 240V, (-50%,+20%) | 3 x 240V, (-50%,+20%) |
| Frequency | 50/60 Hz ($\pm 10\%$) | 50/60 Hz ($\pm 10\%$) |
| Rated Thermal Current | $>150\%$ of I_{max} | $>150\%$ of I_{max} |
| Accuracy Class | Class 1 (as per IS:13779) | Class 1 (as per IS:13779) |
| Starting Current | 0.4% of I_b , at U_n and upf | 0.4% of I_b , at U_n and upf |
| Voltage Creep | No creep | No creep |
| Voltage circuit loss | < 0.7 W | < 0.7 W, per phase |
| Display | Impulse Counter (99999.9) | Impulse Counter (99999.9 or 999999) |
| Meter Constant | 3200 pulses/kWh or customer specific | 1600 pulses/kWh or customer specific |
| Dielectric Test | 50 Hz, 2500 V Pc | 50 Hz, 2500 V Pc |
| Insulation Resistance | More than 20 Mohm at 500Vdc | More than 20 Mohm at 500Vdc |
| Voltage Shock | 8 KV Impulse Voltage, 1.2/50 | 8 KV Impulse Voltage, 1.2/50 |
| Meter Weight | 0.54 kg (approx.) | 0.82 kg (approx.) |
| Relevant Standard | IS:13779, IEC 1036 | IS:13779, IEC 1036 |
| Anti-tamper features | Reverse current - Auto correction, energy registration and LED indication Earthed load - Auto correction, energy registration and LED indication Phase Neutral Reversal - Auto correction, energy registration and LED indication Phase Missing - LED indication (normally ON) | Reverse current - Auto correction, energy registration Phase Loss - energy registration, LED indication (normally ON) Loss of Neutral - Auto correction, energy registration |

Specifications subject to change without notice, and can be improved to suit customer requirement.