



ACE2000 type 292

Single Phase Electricity Meter with Real Time Clock

- ▶ Up to 6 tariff registers
- ▶ Display available without mains power
- ▶ Maximum demand for each tariff
- ▶ Display is backlit (option)
- ▶ Compact & lightweight
- ▶ BS terminal configuration



▶ ACE2000 type 292

The Actaris ACE2000 type 292 meter with integral **Real Time Clock** is a compact, cost-effective meter offering complex tariff functionality. The meter is well equipped for the modern utility environment with a number of enhanced features including communications capability that meets with international standards.

LCD Display

In keeping with present day customer requirements, the meter features a large LCD with a facility for reading without power and an optional backlight.

Tariff Management

The fully flexible program management catered for within the meter, realises full **Time Of Use (TOU)** metering without the need for an external timing device.

In addition the meter is able to manage load switching depending upon rate selection, thus ensuring consumers' high consumption devices are managed for maximum efficiency.

Maximum Demand information can also be measured for all six tariff rates allowing optimum billing of high consumption customers in particular.

Meter Sealing

The meter is constructed to allow two-point sealing using traditional sealing arrangement for the meter cover and a single sealing point on the terminal cover.

Historic Readings

The meter can store up to 6 sets of historic meter reading data.

| | |
|--------------------------------|--|
| Number of tariff rates | Up to 6 |
| Number of maximum demand rates | Up to 6 |
| Seasonal definition | Up to 4 seasons |
| Weekdays / weekends | Independent day type Weekend days configurable |
| Special days | Up to 12 per year, 10 year calendar |
| Switching times | Up to 8 per day type and season |
| Historic registers | Up to 6 sets of data MD and kWh |
| Billing period | Definable (1, 2, 3, 4, 6 or 12 times/year) Meter reading taken at 00:00 on due date |

► Tariff time switch specifications

Metering

The meter can be supplied with either Class 1 or Class 2 accuracy as defined by IEC 62053-21. The rated voltage of the meter can be specified for either the 220V- 240V 50 or 60Hz range. The meter has a **wide and flexible current dynamic**.

The two standard current ranges are 10(100)A and 20(100)A. Additionally **Class accuracy of the meter is extended down to 100mA**.

The meter is able to offer two registration modes to meet customer requirements for fraud prevention and home generation. The measurement mode, which is programmed at the factory prior to dispatch, allows reverse energy to be recorded separately or simply ignored.

► Mode 1- Import only

The meter records only the import energy, the meter stops registering during reverse energy flow

► Mode 2 - Bidirectional

The meter records import and reverse energy flow in separate registers, labelled import and export

Real Time Clock

The time clock used by the meter is run from a quartz crystal clocking unit with an accuracy of +/- 5ppm at 25°C. This provides exceptional short term management of time. In addition the meter can be **synchronised to the mains frequency** providing long term time stability.

Optionally the ACE2000 type 292 meter can provide an output for switching load. The output relay contact (4A, 250V latching) is configured to switch load when the meter is in the highest tariff rate number.

Tariff Control

The ACE2000 type 292 meter has a built-in real time clock function that manages rate changes to enable **multi rates and complex tariffs**.

The meter is able to manage up to six Time of Use tariff rates for both consumption and Maximum Demand values.

The meter is able to **generate "End of Period" information** as defined by the user, usually based around billing dates. The meter is able to save register information for both consumption and Maximum Demand for up to six billing periods. This removes the need to visit the meter on a frequent basis.

Additionally if a power outage occurs at the same time that an "end of period" reading is due, the meter will take a reading as soon as power is restored.

The tariff management facility is able to support up to four seasons and **weekday / weekend tariffication possibilities**. It is also possible to define which days are allocated weekend tariffs.

In addition the meter also has provision for up to twelve Special Days for which alternative rate switching patterns can be defined.

For each of the day types up to **eight switching times** can be programmed. The days used for weekends can be programmed to allow for local needs.

The tariff facility is able to manage changes in time to accommodate **Daylight Savings hour changes** according to a look up table that can be programmed with up to twenty five years' of adjustment information.

Maximum Demand

The meter calculates and displays Maximum Demand data for each tariff register. The Maximum Demand window is fixed at a **15 minute integration period**. Maximum Demand is displayed in kW to a resolution of 00000.00 kW.

Communications

The ACE2000 type 292 is fitted with an **optical port** to allow the unit to be programmed in the workshop or in the field under security control. Communication is in accordance with the protocol defined by **IEC 62056-21** which has replaced, but which is compatible with, the IEC 61107 standard. The port is also enabled for meter reading in accordance with the same standard.

The port is secured, under password and encryption control, to prevent reprogramming access. The same level of security also applies to changes in the real time clock and the resetting of Maximum Demand and historic registers. If required, **meter rate registers can also be set to zero under security control.**

The programming tool can be configured on a User by User basis to allow or **deny an operator access to any or all of the functions** described above. In addition the tool can be configured to take a set of meter readings (all rate registers and Maximum Demand registers) before any changes are made to either the tariff or time.

As an optional alternative, the meter can be **configured to download meter reading data** without the need for operator intervention using one way communication only. The Hand Held terminal identifies and logs on to the meter and a full set of meter readings are taken.

The meter can also be configured with a **standard pulse output** in accordance with IEC 62053-31.

| Type of comms | Uses |
|--------------------|--------------------------------------|
| Optical Port | Field/workshop |
| Data port (option) | Field data collection for AMR |
| Pulse output | Data Bus Output (DBO) Data Output |

Display

The LCD used on the meter has been extensively tested and offers a 20 year life. The LCD is configured with an optional **backlight to enhance reading** in low light conditions. Additionally, the meter can be set to provide the capability to operate the **display when the meter is not powered.**

This means that a reading can always be taken ending the need to re-visit due to power outage and simplifying the meter installation operation and control.

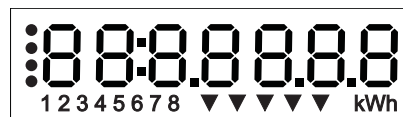
The display can either be configured to **scroll automatically** at a frequency that can be programmed between 2 seconds and 20 seconds per display, **or to cycle under the control of a button** mounted on the front cover. The order in which the displays are shown is programmable. A test display is included to verify correct operation of all display segments.

On power up the meter will show the high resolution dial test display for 1 hour to enable a meter function check.

The display is also used to indicate items such as Active Rate, Rate Number etc. using icons that are not language specific.

Indications include:

- ▶ Total import value
- ▶ Total export value
- ▶ Export energy flow
- ▶ No load/low load
- ▶ Reverse energy flow
- ▶ Relay on
- ▶ kWh or kW reading indicator

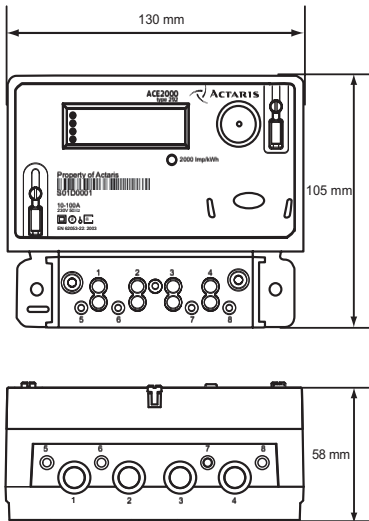


Tariff registers can be **reset under security control** using a hand-held terminal or portable PC. Maximum Demand registers are reset in the same manner.

Display parameters

- ▶ Display viewable size 15mm X 51mm
- ▶ Character size 8mm high x 5mm wide with minimum 2mm between characters
- ▶ Language independent Icons for rate and function details
- ▶ Display configurable to show 5, 5+1, 5+2, 6 and 6+1 integer/decimal digits
- ▶ Display configuration reverts to 5+2 kW for Maximum Demand display

Dimensions



Terminal Identification

- | | |
|------------------|-----------------|
| 1. Live (in) | 5. Aux (+) |
| 2. Neutral (in) | 6. Aux (-) |
| 3. Neutral (out) | 7. Relay output |
| 4. Live (out) | 8. Relay output |

NOTE: The mains supply and load should be connected to the meter as shown in the connection diagram which can be found inside the meter terminal cover.

NOTE: The installation of the meter should be carried out by a qualified electrician and in accordance with any current national wiring regulations which are applicable.

Technical Specifications

| Parameter | Characteristic |
|--------------------------------------|--|
| Meter type | Static, single phase watt-hour meter |
| Approval | IEC 62052-11 & IEC 62053-21 |
| Mechanical / electrical compliance | BS standards |
| Measuring scope | Active energy (both import and export) |
| Registers | LCD display - up to 6 tariff rates 5+0, 5+1, 5+2, 6, 6+1 Programmable display cycling Optional push button controlled display reading Maximum Demand registers - 5+2 (kW) |
| Historic registers | 6 sets of historic data |
| Connection type | Single phase 2 wire |
| Reference voltage/frequency | 220V 230V 240V 50 and 60 Hz |
| Operating voltage range | -20% to +15% |
| Power consumption | Voltage circuit - <1.3W <9VA @230V Current circuit - <0.3VA @10A |
| Class Index | Class 1 or Class 2 |
| Basic current | 10A or 20A |
| Maximum current | 100A |
| Meter starting current | <40mA |
| Meter constant | 1000 imp/kWh |
| Operating temperature range | -20°C to + 60°C (-40°C approval pending) |
| Limit temperature range of operation | -20°C to + 70°C |
| Storage temperature for storage | -25°C to + 70°C (storage and transportation of the meter should only be at the extremes of this temperature range for a maximum period of 6 hours) |
| Relative humidity | Up to 95% for 30 days per year |
| Degree of protection (IEC 60529) | IP51 |
| Terminal material | Brass (copper cables) - Standard |
| Load management | Relay output: 4A, 250V latching drum throw (optional) |
| Optical port | IEC 62056-21 optical port, readout Read/Write |
| Battery | Internal lithium battery to support RTC Display reading without power |
| Pulse output | In accordance with IEC 62053-31 |
| Data output | Read only, streamed data output (in place of pulse output) |
| Wiring capacities | Main cables must be a min. of 25mm ² and a max. of 35mm ² |
| Meter and terminal cover seals | Provision for sealing using conventional wire or plastic seals |
| Meter weight | 0.47kg |
| Dimensions (L x W x D) | 105mm x 130mm x 58mm |

CE The ACE2000 type 292 complies with Council Directive 89/336/EEC on Electromagnetic Compatibility as amended by Council Directives 92/31/EEC and 93/68/EEC

Manufactured under a quality system approved to ISO9001

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