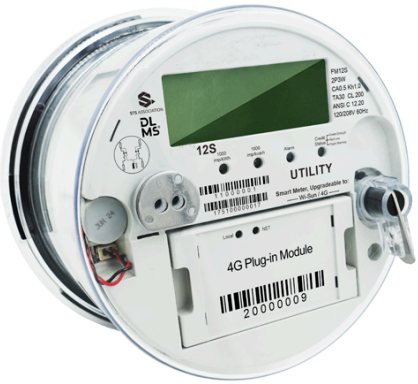
AETHEREDGE · ANSI FORM 12S

# FM12S ANSI Smart Meter




Illustrative configuration. Nameplate and communication options are confirmed for the selected project.

The FM12S is a polyphase ANSI Type C12.20 smart meter (120/208V) built for high-current revenue metering, integrated prepayment, and remote service control. With internal latching relay support for load limiting, load shedding, and disconnection/reconnection, full STS/CTS prepayment compatibility, and optional PLC communication, the FM12S is engineered for utilities deploying advanced metering infrastructure with active demand-side management.

| NOMINAL VOLTAGE | BASIC / MAXIMUM CURRENT | ACCURACY CLASS |
|---|---|---|
| **120 / 208 V** | **30 A \| 200 A** | **CA0.5** |

## Key features

- Plug-and-play communication module architecture
- Large LCD for at-a-glance meter status
- Non-volatile memory — no backup battery required to retain data
- Local and remote firmware upgrade support
- Anti-tamper design with full event logging
- Field-replaceable RTC battery
- UV-resistant transparent polycarbonate cover

## Standards referenced

- ANSI C12.1
- ANSI C12.10
- ANSI C12.18
- ANSI C12.20
- IEC 62052-11 — Metering Equipment: General Requirements, Tests and Test Conditions
- IEC 62053-21 — Static Meters for Active Energy (Classes 1 and 2)
- IEC 62053-23 — Static Meters for Reactive Energy (Class 2 & 3)
- IEC 62055-41 — Standard Transfer Specification (STS), One-Way Token Carrier Systems
- DLMS / COSEM — Device Language Message Specification / Companion Specification for Energy Metering

For configuration details and applicable compliance documentation, contact Archai.

METERING AND UTILITY OPERATIONS

# Functions and communications

## Measurements

- kWh / kvarh / kVAh (import, export, and absolute)
- Maximum kW / kvar demand (import, export)
- Cumulative kW / kvar demand (import, export)
- Instantaneous voltage, current, phase angle, active power, reactive power, and power factor
- Current date and time
- Frequency

## Billing

- Automatic monthly billing reset at 00:00:00 on the 1st day of each month, fully configurable
- Manual billing reset via demand-reset button
- Remote billing reset from the AMI system
- Up to 12 months of billing data retained in meter memory

## Prepayment Functions

- Online prepayment supported remotely via the AMI system
- Low-balance alerts via audible alarm and LED indicator to prompt top-up
- Emergency credit and friendly-hours (holiday) modes supported
- Switchable STS / CTS token modes
- Switchable prepaid / postpaid operating modes

## Load Profiles

- Up to 100 days of 15-minute load profiles across 16 channels, FIFO basis
- Load profile interval configurable from 1–60 minutes

## LCD Display

- 8-digit LCD with 3 decimal places for power/demand and 2 for energy (programmable)
- Display area exceeds 14 cm², with 10 mm digit height
- Scrolling and manual (push-button) display modes

## Tariff Functions

- Time-of-Use (TOU) metering of import/export energy (kWh, kvarh) and demand (kW, kvar) — up to 4 tariffs, 12 seasons, 8 weeks, 12 switch times, and 100 special days
- Up to 32 energy tariff and 32 demand tariff registers
- Battery and supercapacitor-backed clock and calendar

## Power Quality

- Voltage unbalance detection
- Current-reversal detection
- Over-voltage and under-voltage detection with configurable thresholds
- Long- and short-duration outage detection with configurable thresholds
- Over-current detection with configurable thresholds
- All power quality events logged to non-volatile meter memory

## Anti-Tamper

- Detection of cover removal, external magnetic field interference, current bypass, and other tamper conditions
- Tamper alarms displayed on LCD and LED indicators
- All tamper events logged to meter memory

## Disconnection / Reconnection

- Internal latching relay supporting load limiting, load shedding, and prepayment service control
- Remote disconnection and reconnection from the AMI system

## Communication

- Optical port compliant with ANSI C12.18
- Plug-and-play 4G / Wi-SUN communication module
- Optional PLC communication with UIU

ELECTRICAL AND MECHANICAL DATA

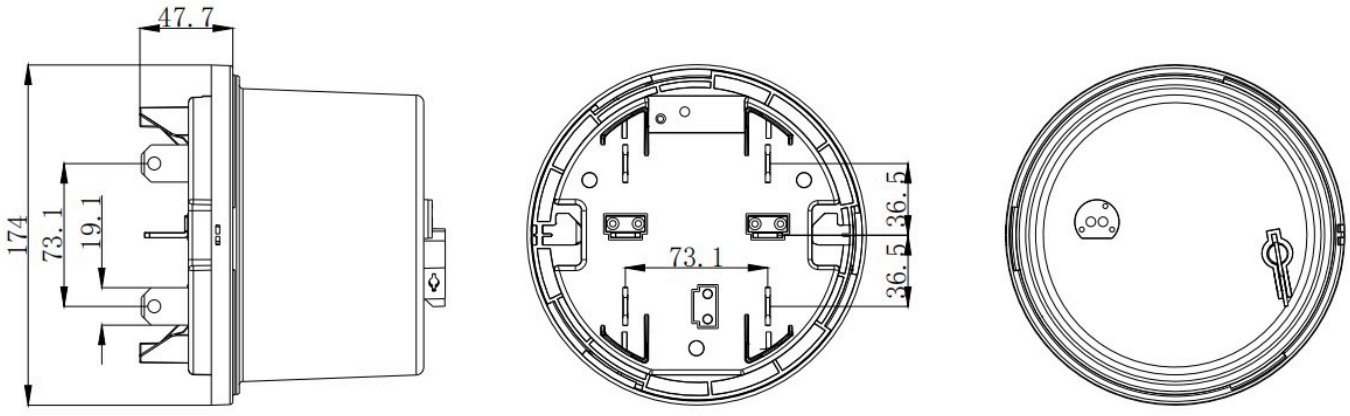
# Technical specifications

| | |
|---|---|
| **Nominal Voltage** | 120 / 208 V |
| **Current** | Basic current: 30 A \| Maximum current: 200 A |
| **Frequency** | 60 Hz ± 5% |
| **Accuracy Class** | CA0.5 |
| **Real-Time Clock Accuracy** | < 0.5 s / day |
| **Battery** | ER14250, 2 mm 2-pin JST plug |
| **Operating Temperature** | –40 °C to +85 °C |
| **Humidity** | 0% to 100%, non-condensing |
| **Enclosure protection** | IP54 |

## Electromagnetic immunity

| | |
|---|---|
| **ESD — Contact Discharge** | 8 kV |
| **ESD — Air Discharge** | 15 kV |
| **Fast Transient Burst Test** | 4 kV |
| **Surge Immunity Test** | 6 kV |
| **Electromagnetic RF Field** | 10 V/m (with current) \| 30 V/m (without current) |

## Dimensions




Dimensions in millimetres. Drawing supplied for the corresponding Form 12S model.

Enclosure standard reference: UL50. Confirm the applicable configuration and compliance documentation with Archai.