



**PT. INTEGRA AUTOMA SOLUSI**  
*Integrated Electrical and Automation Solution*

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## HXE313-KP

Three Phase

Smart prepaid Meter

*Focus on creating value for clients*

HXE313-KP is a new evolution smart prepaid keypad meter from HXE34 with four sensor for anti-tamper, ground terminal, rechargeable super capacitor and replaceable battery, special long terminal cover with MCB; designed to fulfill the Indonesia SPLN prepaid standard, also meet the requirements of IEC62052-11, IEC62053-21 and STS standards. it can normally measure and operated under very low voltage 85V, and can remotely read and control by two way communication integrated PLC modem(optional) or external GPRS/3G modem (through RJ45 port). It support prepaid mode and credit mode (postpaid), can be switched based on different applications or users.

## n Highlights

- Ø 20 digit encryption STS prepayment
- Ø Four measurement sensor(phase and neutral) and three relay(phase)
- Ø Active energy, reactive energy and apparent energy measurement
- Ø Total energy include fundamental and harmonics up to the 80th
- Ø Three phase current and voltage THD
- Ø Up to 32th harmonic current and harmonic voltage(optional)
- Ø Wide operation voltage 85-276V(phase to neutral)
- Ø Normal measurement and operation under 500mT magnetic interference
- Ø RJ45 communication port with DLMS/HDLC protocol for external modem
- Ø Power outage supply by replaceable battery and super capacitor, if only super capacitor can last for 48h
- Ø Multiple tamper detection, include reverse current, bypass, reverse phase sequence, reverse polarity, loss phase, neutral line cut off, magnetic interference, opening meter cover and opening terminal cover
- Ø Integrated three phase MCB under meter terminal cover
- Ø Support prepaid mode and credit mode (postpaid)

## n Smart Prepay Solution

HXE313-KP is suitable for Three phase commercial and residential users. It supports smart prepay and AMI function, can meet the requirements of different markets.



## n Application

With the popularity of three phase prepaid keypad meters used one-way standard transfer system (token), utility can't get the electricity information, such as energy consumption, balance and tampering information, which is very difficult for utility to manage the users and protect the revenue. Three phase smart prepaid meter HXE313-KP support two-way communication PLC/GPRS/3G can solve those problems and meet the requirement of smart prepay system and AMI system.

Main application including:

- Auto-report tampering event, send users tampering information to the utility in time.
- Support user value added service such as remote recharge, mobile recharge and online management.
- Read meter information remotely, including balance, energy consumption, instantaneous and relay status.
- Remotely control relay to cut electricity to control grid load if needed.
- Calculate line loss of distribution transformer by MDM/MDC system and data concentrator.
- Provide user electricity information for third party billing system, vending system and other custom service system.

## n Main Functionalities

## Measurement

- Class 1.0 accuracy
- Three element four quadrant
- Compliance with IEC 62052-11, 62053-21, 62053-23
- Import/Export kWh, kvarh and kVAh
- Phase A, B, C & Total
- Power: kW, kvar, kVA
- True RMS Voltage (3 phase)
- True RMS Current (3 phase), neutral current
- Power factor (per phase and total)
- Frequency, Phase Angles

## Voltage & Power Supply

- Nominal Voltage: 100V – 240V (phase to neutral)
- Operating Limit: 85V – 290V (phase to neutral)
- Frequency: 50/60Hz

## Power Quality Indication

- Unbalance
- Total Harmonic Distortion (THD)
- Fundamental Voltage, Current and Active Power (optional)
- Up to 32th harmonics (optional)

## Prepayment

- 20 digit encryption STS
- Open relay automatically if credit run out
- Up to 99 two digit short code for customer to operate and get meter information
- LED indication and Buzzer for Low credit alarm, programmable alarm thresholds (in kWh) and buzzer delay setting (in Minutes) through keypad
- Power and current overload control and Configurable limit
- Prepaid mode and credit/postpaid mode
- Open relay automatically if power outage

## LCD display

- Large 7-Segment LCD Display, easy for reading
- LCD with backlight display
- Default display balance
- Display readable without main power

## Time Clock & Calendar

- Accuracy within 15 Seconds per Month at 23°C
- Backup Time of 2 Years without Power (Lithium Battery)

- Internal Crystal Timing
- Support Gregorian Calendars

## Load profile

- AMI ready
- Up to 16 channels
- 3072K bytes available in total
- Intervals programmable from 5 to 60 minutes
- Energy date, Instantaneous value, THD

## Load control

- Up to 80A, 100 A and 120A (optional)
- Over load control with fixed logic
- Programmable power limit and current limit

## Anti-tamper

- Open meter cover
- Open terminal cover
- Bypass
- Reverse current
- Reversed phase sequence
- Reversed polarity
- Loss phase
- Neutral line cut off
- Magnetic interference (500mT)
- Open relay automatically if tampering

## Data storage

- Up to 50 grid event log (include power off, unbalance and overload)
- Up to 50 tampering log
- Up to 100 recharge token and credit
- Up to 50 engineering token
- Up to 12 history month billing data

## Battery Options

- Internal rechargeable super capacitor (48h)
- Replaceable external battery
- Internal battery (optional)

## Communications

- Optical with IEC62056-21 (E mode)
- RJ45 port with DLMS/HDLC

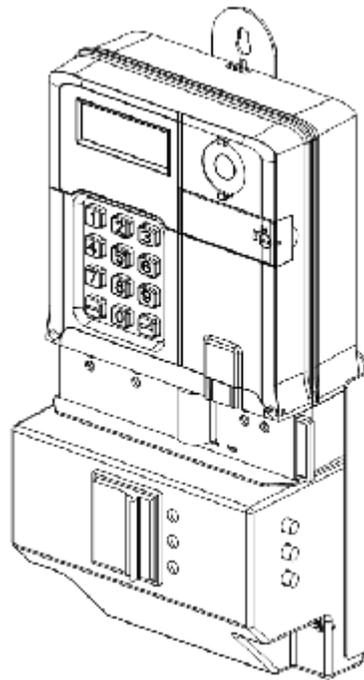
## n specifications

Description	Value
<b>Accuracy</b>	Class 1.0(Active); Class 2(Reactive)
<b>Voltage</b>	
Reference voltage	3*220/380V, 3*230/400V, 3*240/415V
Operating voltage range	85-288V(phase to neutral)
<b>Current</b>	
Basic current	5A
Maximum current	80A,100A,120A
Starting current	10mA (0.2%I <sub>b</sub> )
<b>Frequency</b>	50Hz or 60Hz
<b>Constants</b>	
Active energy	1000imp/kwh
Rective energy	1000imp/kvarh
<b>Temperature</b>	
Operation range	-20°C to +55°C
Limit range for storage and transport	-40°C to +75°C
<b>Humidity</b>	<b>Up to 95%</b>
<b>Power Consumption</b>	
Power consumption in voltage circuit (active)	≤1 W
Power consumption in voltage circuit (apparent)	≤10 VA
Power consumption in current circuit	≤1 VA
<b>Insulation Strength</b>	
AC voltage test	4kV during 1min
Impulse voltage test	1.2/50μs mains connections 6kV
<b>EMC</b>	
Electrostatic discharges(Contact discharges)	8kV
Electrostatic discharges(Air discharges)	15kV
Surge immunity test	4kV
Fast transient burst test	4kV
Electromagnetic RF fields (80MHz to 2000MHz)	10V/m(with current), 30V/m(without current)
<b>Housing</b>	
Protection degree	IP54
<b>Display</b>	
Digit size	10.5mm x 5mm
Number of digits	8
<b>Communication Interface</b>	
Optical communication	DLMS/COSEM
RJ45	DLMS/COSEM
<b>Dimension</b>	373.5mm×199.5mm×124.9mm

## n Standard

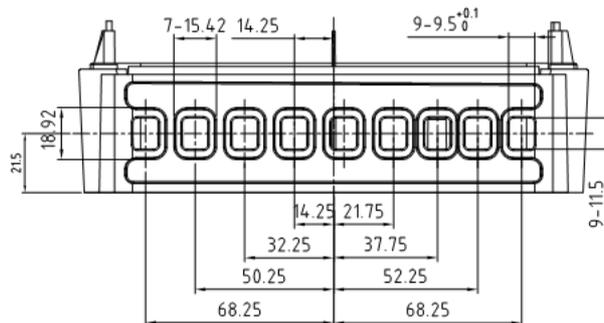
<b>IEC62052-11</b>	Electricity metering equipment (a.c.) General requirements, tests and test conditions – Part 11: Metering equipment
<b>IEC62053-21</b>	Electricity metering equipment (a.c.) Particular requirements –Part 21:Static meters for active energy(classes 1 and 2)
<b>IEC62053-23</b>	Electricity metering equipment (a.c.) – Particular requirements –Part 23: Static meters for reactive energy (classes 2 and 3)
<b>IEC62055-41</b>	Electricity metering - Payment systems - Part 41: Standard transfer specification (STS) - Application layer protocol for one-way token carrier systems
<b>IEC62055-51</b>	Electricity metering - Payment systems - Part 51: Standard transfer specification (STS) - Physical layer protocol for one-way numeric and magnetic card token carriers
<b>IEC62056-21</b>	Electricity metering – Data exchange for meter reading, tariff and load control – Part 21:Direct local data exchange
<b>IEC62056-46</b>	Electricity metering – Data exchange for meter reading, tariff and load control – Part 46: Data link layer using HDLC protocol
<b>IEC62056-47</b>	Electricity metering – Data exchange for meter reading, tariff and load control – Part 47:COSEM transport layer for IP networks
<b>IEC62056-53</b>	Electricity metering – Data exchange for meter reading, tariff and load control – Part 53:COSEM Application layer
<b>IEC62056-62</b>	Electricity metering – Data exchange for meter reading, tariff and load control – Part 62:Interface classes
<b>SPLN D3.009-0: 2013</b>	Three Phase Static Energy Meters Prepaid Direct Connect with Standard Transfer Specification (STS)

## n Dimension



Mounting dimension

Length\*width\*high are: 373.5mm\*199.5mm\*124.9mm.



View of terminal (Dissymmetrical DIN connection)

## n Connection Diagram

