



EU Type Examination Certificate Number: **0120/ SGS0253**

Ningbo Sanxing Smart Electric Co., Ltd.

No 16 Fengwan Road
Cicheng Town
Jiangbei District
Ningbo
China

Instrument Identification:
M12U02 Series & SX300 Series

Single Phase, Active Import/Export, Outdoor, Electricity Meter

Instrument Traceable Number
0120/ SGS0253

has been assessed and certified as meeting the requirements of

EU Directive 2014/32/EU **on Measuring Instruments Annex II, Module B**

It is certified that the manufacturer's technical design and specimen for the above instrument has been examined and, based on the evidence submitted, it is considered that the instrument conforms to the requirements of Annex V of EC Directive 2014/32/EU

This certificate must be used in conjunction with a certificate covering the product verification as required in Annex II, Module D or Annex II, Module F


This certificate is valid until 3rd August 2026
Issue 5

Certification is based on report number(s) SHES160700553301 dated 4th August 2016, SHES171201208801 dated 26th January 2018, SHES180700758201 dated 9th August 2018

Authorised Signature


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1. Technical Data

Manufacturer	Ningbo Sanxing Smart Electric Co., Ltd.			
Meter Types	M12U02 Series & SX300 Series			
Voltage Rating (U_n)	220V, 230V, 240V			
Current Rating ($I_{min} - I_{ref} (I_{max})$)	0.25-5(60)A, 0.25-5(40)A, 0.25-5(30)A, 0.5-10(40)A, 0.5-10(30)A, 0.5-10(60)A, 0.25-5(80)A, 0.5-10(80)A			
Frequency (F_n)	50Hz			
Active Accuracy Class (kWh)	A or B (kWh)			
Type of circuit	1p2w			
Temperature Range	-40°C to +70°C			
Software/ Firmware Version No's	V1.00.01	V1.00.02	V1.00.03	V1.00.04
CRC Checksum No's.			1B76	D0B9
Identification Location	LCD	LCD	LCD	LCD
Bill Of Materials Numbers	SX0.354.000284.QJ SX3.417.000275.JG, 24419023893, 242003010089			
IP Rating	IP54			
Insulation Protective Class	Class II			
LED Pulse Constant	1000 imp/kWh, 1600 imp/kWh, 2000 imp/kWh, 3200imp/kWh			
Impulse Voltage Rating	6kV (1.2/50μs)			
AC Voltage Rating	4kV (50Hz)			
Main Cover Sealing Types	Screw with seal, Screw with plastic plug Ultrasonic welding, Ultrasonic welding with holographic sticker, Ultrasonic welding with screw + seal Ultrasonic welding with screw + plastic plug, Glue + Screw + Holographic Sticker			
Integrity of meter	Inaccessible without breaking seals			
Intended Location of the Meter	Outdoor			
Type of Register	LCD			
Terminal Arrangement(s)	DIN or BS			
Mechanical Environment	M2			
Electromagnetic Environment	E2			

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2. Photograph of Meter and Sealing Points




meter sealing

Meter case sealing points. Screw with plastic plugs

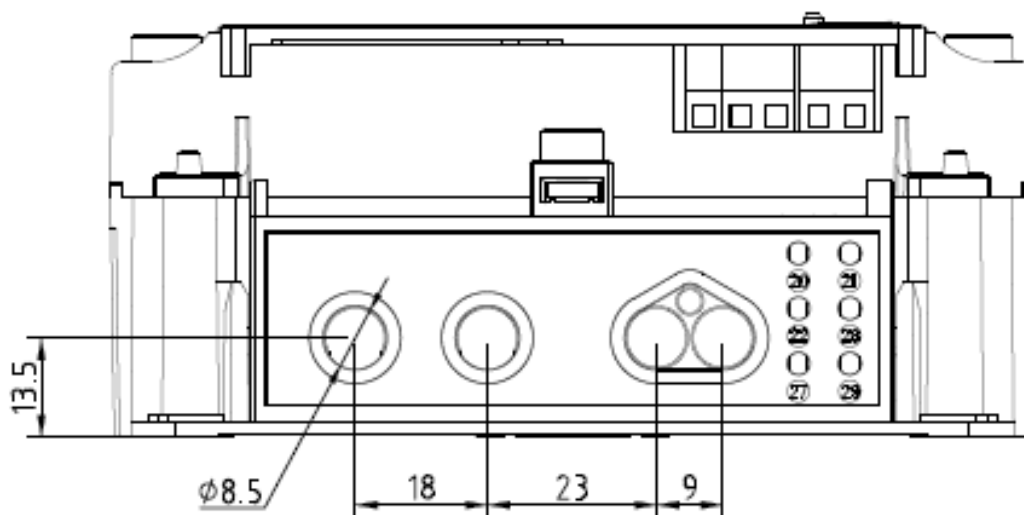


Anti-counterfeiting labeling. Meter with ultrasonic welding

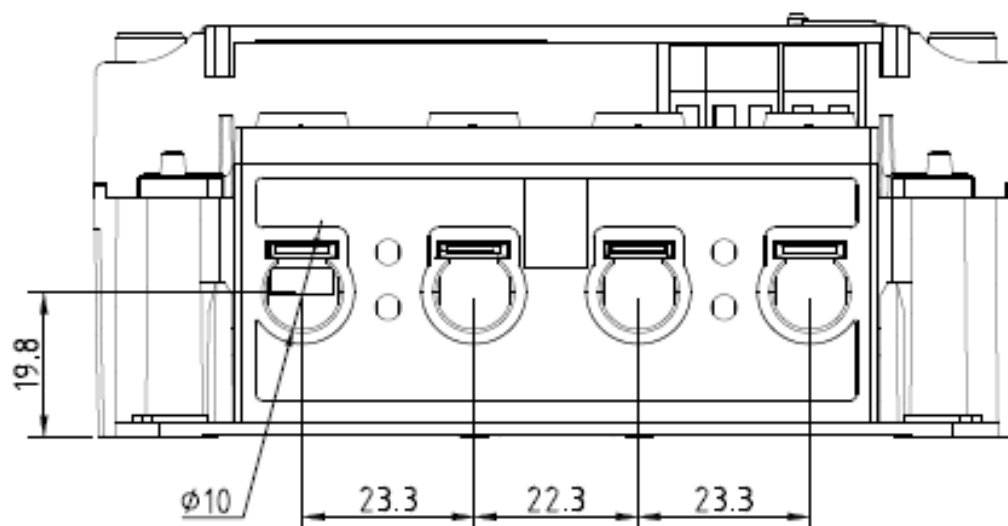
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3. Terminal Block Dimensions


DIN standard



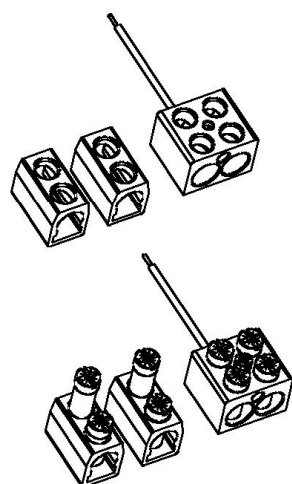
BS standard



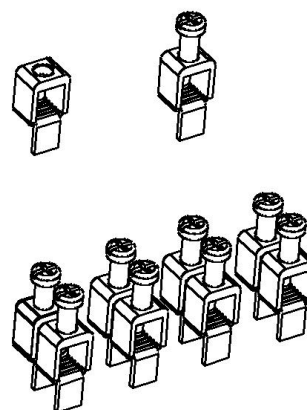
For M12U02 Series and SX300 Series connecting wires with a cross-section in range between $2.5\text{mm}^2 \sim 25\text{mm}^2$


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Crimp Type Terminal



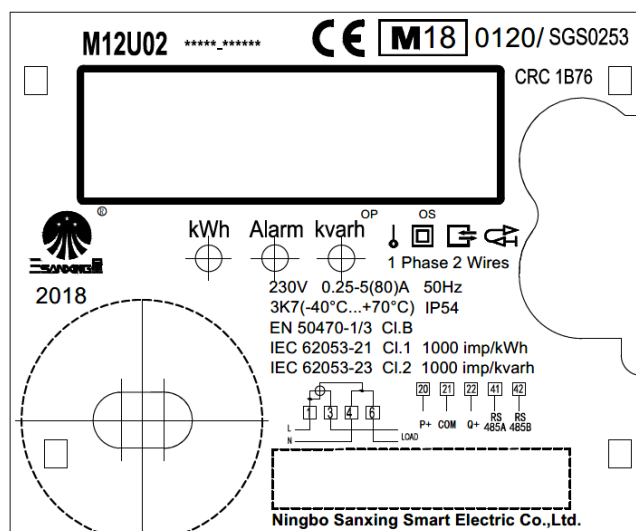
Cage Type Terminal



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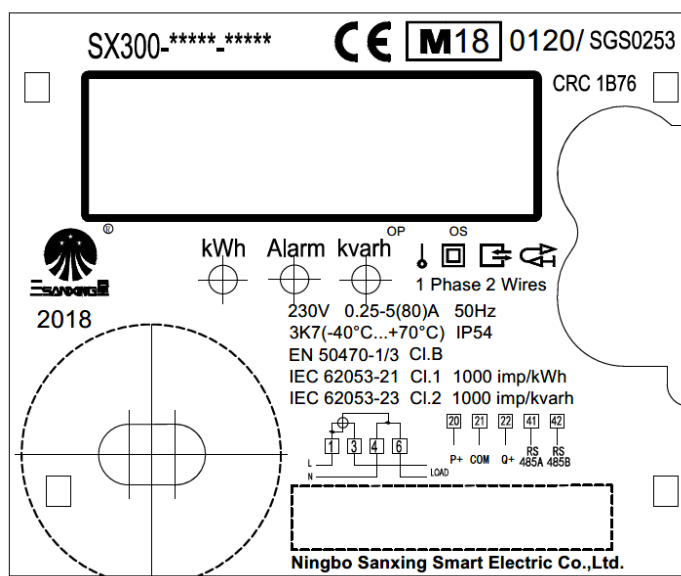
4. Examples of Nameplates

M12U02




The contents are changeable depending on the meter variant

SX300




The contents are changeable depending on the meter variant

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5. The description given on the meter must include at least the following information:

- 1) Manufacturer's name, registered trade name or registered trade mark
- 2) Conformity marking - supplementary metrology marking and notified body number
- 3) Number of the EU-type examination certificate or the EU design examination certificate;
- 4) Serial number
- 5) Year of manufacture
- 6) Meter's type designation
- 7) Accuracy class
- 8) The type of distribution network (graphic symbol or description)
- 9) Nominal voltage and frequency
- 10) Nominal, Minimal and Maximal currents
- 11) Operating temperatures range
- 12) Meter's constant
- 13) Connection diagram or its number
- 14) Graphic symbol of protection class
- 15) CE marking

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6. Calculation of the composite error/ MPE


During the type approval examination the influence factors for temperature, frequency and voltage are determined per load point. The table below represents the sum of the square values per load, determined via the following formula:-

$$\delta e(T, U, f) = \sqrt{(\delta e^2(T, I, \cos\phi) + \delta e^2(U, I, \cos\phi) + \delta e^2(f, I, \cos\phi))}$$

where


$\delta e(T, I, \cos\phi) =$ Additional error due to variation of the temperature at the same load
 $\delta e(U, I, \cos\phi) =$ Additional error due to variation of the voltage at the same load
 $\delta e(f, I, \cos\phi) =$ Additional error due to variation of the frequency at the same load

		Influence Factors for Temperature. Frequency & Voltage							
Current	PF Cos	-40 °C	-25 °C	-10 °C	5 °C	30 °C	40 °C	55 °C	70 °C
I _{min}	1.0	0.28	0.27	0.27	0.27	0.27	0.27	0.28	0.31
I _{tr}	1.0	0.19	0.17	0.17	0.16	0.17	0.17	0.17	0.17
10I _{tr}	1.0	0.13	0.10	0.07	0.07	0.07	0.07	0.07	0.08
I _{max}	1.0	0.17	0.17	0.18	0.18	0.17	0.16	0.17	0.17
I _{tr}	0.5ind	0.41	0.41	0.42	0.42	0.42	0.42	0.42	0.45
10I _{tr}	0.5ind	0.11	0.09	0.07	0.07	0.07	0.07	0.07	0.09
I _{max}	0.5ind	0.18	0.19	0.19	0.19	0.18	0.18	0.18	0.18
I _{tr}	0.8cap	0.20	0.19	0.20	0.20	0.20	0.20	0.20	0.24
10I _{tr}	0.8cap	0.09	0.05	0.05	0.05	0.05	0.05	0.06	0.07
I _{max}	0.8cap	0.10	0.11	0.12	0.11	0.10	0.10	0.10	0.11


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7. Product Variant Identification Details

M12U02/SX300	-	D	7	D	3	2	-	T	I	F	O	P	4
Connection standard													
DIN standard	D												
BS standard	B												
Current range													
230V,0.25-5 (60) A	1												
230V,0.25-5 (40) A	2												
230V,0.25-5 (30) A	3												
230V,0.5-10 (60) A	4												
230V,0.5-10 (40) A	5												
230V,0.5-10 (30) A	6												
230V,0.25-5 (80) A	7												
230V,0.5-10 (80) A	8												
220V,0.25-5 (60) A	A												
220V,0.25-5 (40) A	B												
220V,0.25-5 (30) A	C												
220V,0.5-10 (60) A	D												
220V,0.5-10 (40) A	E												
220V,0.5-10 (30) A	F												
240V,0.25-5 (60) A	J												
240V,0.25-5 (40) A	K												
240V,0.25-5 (30) A	L												
240V,0.5-10 (60) A	M												
240V,0.5-10 (40) A	N												
240V,0.5-10 (30) A	O												
Reserved													
Accuracy													
Active Class A	A												
Active Class B	B												
Active Calss A. Rective Class 2	C												
Active Calss B. Rective Class 2	D												
Reserved													


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Reserved							
Const							
Reserved							
Reserved							
1000	3						
1600	4						
2000	5						
3200	6						
Reserved							
Mechanical(Terminal cover)							
Long transparent terminal cover	1						
Long none transparent terminal cover	2						
Short transparent terminal cover	3						
Short none transparent terminal cover	4						
Reserved							
Power Supply and Neutral measurement							
Transformer power supply		T					
Transformer,Neutral measurement		Y					
Reserved							
Reserved							
Auxiliary Power							
Internal Battery		I					
External Battery		E					
Super-capacitor		S					
Internal + External battery		1					
Internal Battery + Supercap		2					
Externall Battery + Supercap		3					
Internal Battery + External Battery + Supercap		F					
No Auxiliary Power		N					
Reserved							
Backlight and Flash							
Backlight + No Flash		B					
Backlight + Flash		2					

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No Backlight + Flash	F			
No Backlight + No Flash	N			
Optical interface				
Optical interface	O			
Infrared interface	I			
None	N			
Reserved				
Buttons				
0 button		N		
1 button		M		
2 buttons		P		
Reserved				
Inputs and outputs				
1 S0 output				1
2 S0 ouptut				2
reserved				3
RS485				4
1 S0 output + RS485				5
2 S0 ouptut + RS485				6
None				N

Modifications to the meter(s) described according to approval No.**0120/ SGS0253** must be notified to the issuing body to confirm the meter(s) continuing compliance to the relevant pattern approval standard(s).

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8. Document Revision History

Issue	Date	Comments
1	04/08/2016	Initial Issue
2	15/03/2017	Minor pcb and non metrology component change. New software version added.
3	14/02/2018	Minor pcb and non metrology component change.
4	14/08/2018	MCU, transformer, FET replaced. PCB layout changed, Software update.
5	30/08/2018	Additional software version V1.00.04 & CRC number D0B9

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**** End of Document ****
