

EC Type Examination Certificate Number: **0120/SGS0192**

# Shanghai Fangqiu Electric Co., Ltd

Room 1903  
No 1958 North Zhongshan Road  
Putuo District  
Shanghai

Instrument Identification:  
**EM418**

Instrument Traceable Number  
**0120/SGS0192**

Single Phase, Active Import/ Export (kWh), Indoor, Electricity Meter

has been assessed and certified as meeting the requirements of

## **EC Directive 2004/22/EC**

**Measuring Instruments Annex 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 MI-003 of EC Directive 2004/22/EC

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

This certificate is valid for 10 years from 3<sup>rd</sup> August 2015 to 2<sup>nd</sup> August 2025  
Issue 1

Certification is based on report number(s) SHES150600288201 dated 3<sup>rd</sup> August 2015


Authorised Signature

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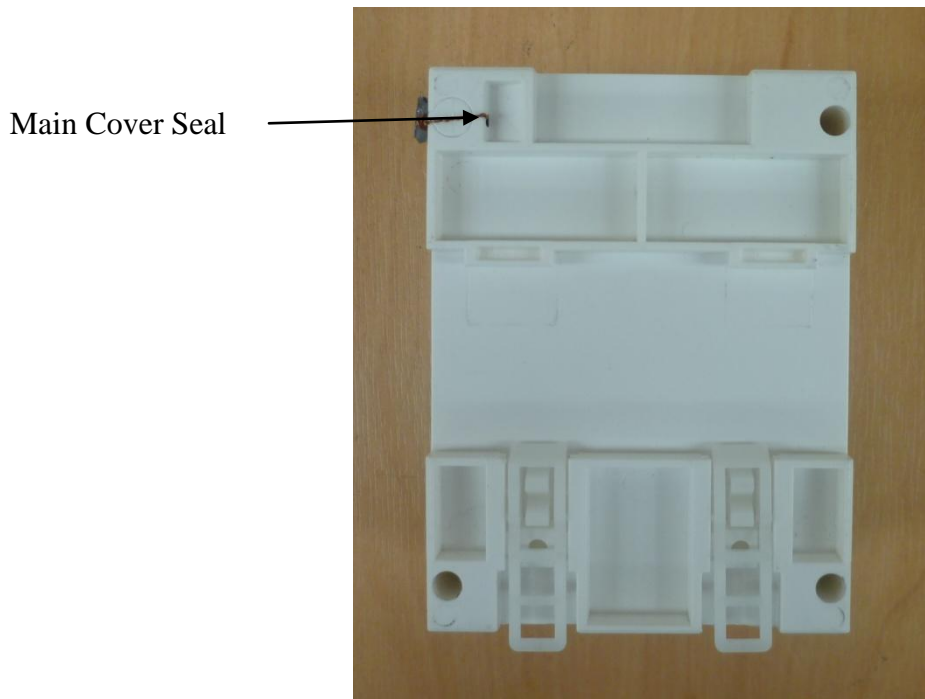
|   |   |                                    |
|---|---|------------------------------------|
|  | EC-Type Examination Certificate Number: |                                    |
|   | <b>0120/ SGS0192</b>                    |                                    |
|   | Issue Number: 1                         | Dated: 3 <sup>rd</sup> August 2015 |


## 1. Technical Data

|  |                                     |
|--|-------------------------------------|
| <b>Manufacturer</b>  | Shanghai Fangqiu Electric Co., Ltd. |
| <b>Meter Type</b>  | EM418                               |
| <b>Voltage Rating (<math>U_n</math>)</b>                         | 230V                                |
| <b>Current Rating (<math>I_{min} - I_{ref} (I_{max})</math>)</b> | 0.5-10(100)A                        |
| <b>Frequency (<math>F_n</math>)</b>                              | 50Hz                                |
| <b>Active Accuracy Class (<math>kWh</math>)</b>                  | A or B ( $kWh$ )                    |
| <b>Type of circuit</b>   | 1p2w                                |
| <b>Temperature Range</b>   | -25°C to +55°C                      |
| <b>Software Version No.</b>                                      | 0418.00.03                          |
| <b>Identification Location</b>                                   | LCD                                 |
| <b>Bill Of Materials No.'s</b>                                   | FQ-JS-201-207                       |
| <b>IP Rating</b>   | IP51                                |
| <b>Insulation Protective Class</b>                               | Class II                            |
| <b>LED Pulse Constant</b>  | 1600imp/ kWh                        |
| <b>Impulse Voltage Rating</b>                                    | 6kV                                 |
| <b>AC Voltage Rating</b>   | 4kV                                 |
| <b>Main Cover Sealing Type</b>                                   | Wire & Crimp                        |
| <b>Integrity of meter</b>  | Inaccessible without breaking seals |
| <b>Intended Location of the Meter</b>                            | Indoor                              |
| <b>Type of Register</b>  | LCD                                 |
| <b>Terminal Arrangement(s)</b>                                   | DIN                                 |

|   |   |                                    |
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**2. Photograph of Meter**



|   |   |                                    |
|---|---|------------------------------------|
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### 3. Influence factors for temperature, frequency and voltage


|                   |        | Influence Factors for temperature, frequency and voltage |       |      |      |      |      |
|-------------------|--------|--|-------|------|------|------|------|
| Current           | PF Cos | -25°C  | -10°C | 5°C  | 30°C | 40°C | 55°C |
| I <sub>min</sub>  | 1.0    | 1.43   | 1.07  | 0.60 | 0.29 | 0.64 | 1.17 |
| I <sub>tr</sub>   | 1.0    | 1.42   | 1.11  | 0.61 | 0.29 | 0.61 | 1.16 |
| 10I <sub>tr</sub> | 1.0    | 1.50   | 1.20  | 0.69 | 0.20 | 0.52 | 1.05 |
| I <sub>max</sub>  | 1.0    | 1.53   | 1.24  | 0.72 | 0.19 | 0.51 | 1.01 |
|                   |        |  |       |      |      |      |      |
| I <sub>tr</sub>   | 0.5ind | 1.78   | 1.48  | 1.07 | 0.71 | 0.81 | 1.19 |
| 10I <sub>tr</sub> | 0.5ind | 1.97   | 1.71  | 1.25 | 0.69 | 0.64 | 0.89 |
| I <sub>max</sub>  | 0.5ind | 1.67   | 1.57  | 0.99 | 0.45 | 1.03 | 1.92 |
|                   |        |  |       |      |      |      |      |
| I <sub>tr</sub>   | 0.8cap | 1.25   | 0.94  | 0.50 | 0.56 | 0.89 | 0.51 |
| 10I <sub>tr</sub> | 0.8cap | 1.18   | 0.88  | 0.49 | 0.69 | 1.01 | 1.52 |
| I <sub>max</sub>  | 0.8cap | 1.77   | 1.50  | 1.07 | 0.83 | 0.82 | 0.92 |

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

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

where

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

|   |   |                                    |
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#### 4. Annex of Variants

Product Variant Identification Details:

| Type Designation | Description of meter  |
|------------------|---|
| EM418            | 0.5-10(100)A – Single Phase, Active Import/Export kWh, Multifunction, Electricity Meter |

Modifications to the meter(s) described according to approval No.**0120/ SGS0192** must be notified to the issuing body to confirm the meter(s) continuing compliance to the relevant pattern approval standard(s).

#### 5. Document Revision History

| Issue | Date       | Comments      |
|-------|------------|---------------|
| 1     | 03/08/2015 | Initial Issue |
|       |            |               |