



EU Type Examination Certificate Number: **0120/SGS0403**

**Bytronic S.r.l.**

Como No.55  
21050 Cairate (VA)  
Italy

Instrument Identification:  
**BY70DR-MID**

**Single Phase, Active Import (kWh) Indoor, Electricity Meter**

Instrument Traceable Number  
**0120/SGS0403**

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 EU 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 17<sup>th</sup> February 2024  
Issue 1

Certification is based on report number(s) SHES130800321401 dated 18<sup>th</sup> February 2014  
EMA264737

Authorised Signature


SGS United Kingdom Limited, Notified Body 0120  
Unit 202B Worle Parkway, Weston-super-Mare, BS22 6WA, UK  
t +44 (0)1934 522917 f +44 (0)1934 522137 [www.sgs.com](http://www.sgs.com)

Contact Address  
SGS United Kingdom Limited, Units 12A & 12B, South Industrial Estate, Bowburn, Durham, DH6 5AD, UK  
t +44 (0)191 377 2000 f +44 (0)191 377 2020 [www.sgs.com](http://www.sgs.com)

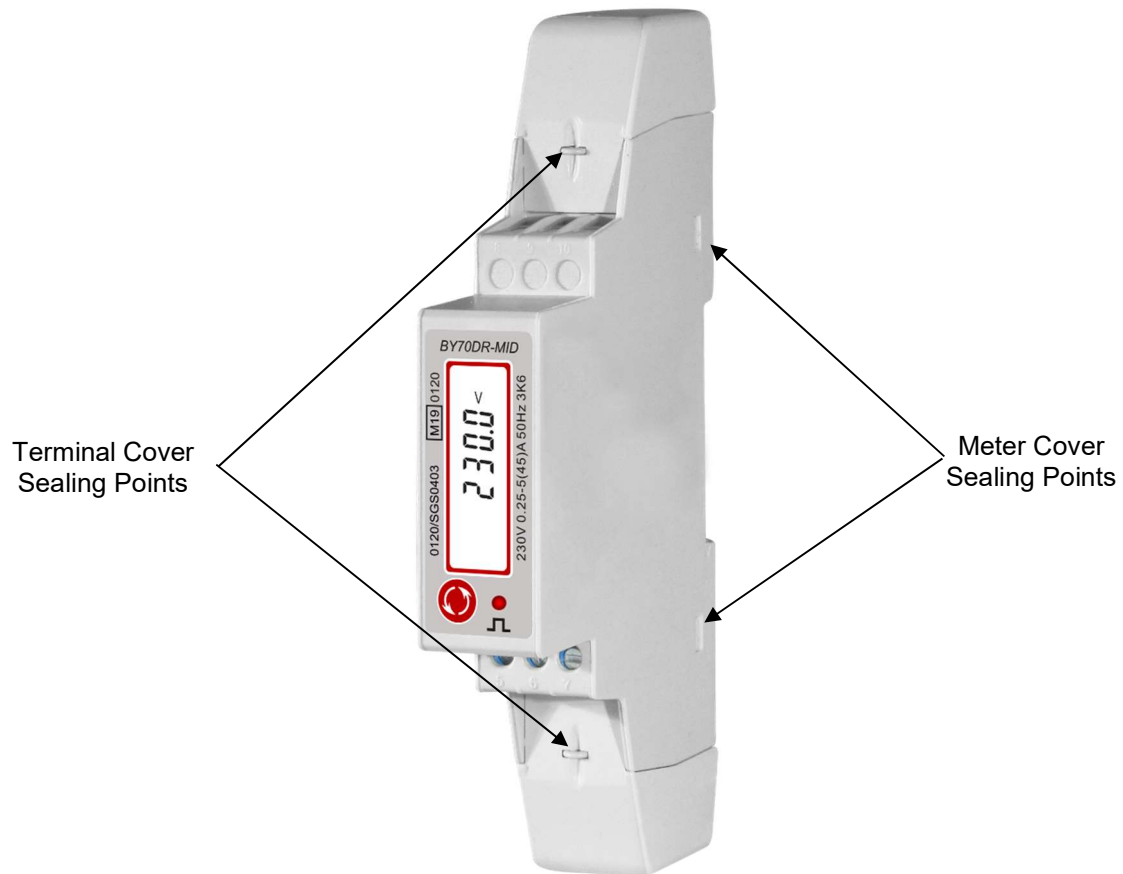
	EU-Type Examination Certificate Number:	
	<b>0120/SGS0403</b>	
	Issue Number: 1	Dated: 4 <sup>th</sup> March 2019


## 1. Technical Data

<b>Manufacturer</b>	Bytronic S.r.l.
<b>Meter Type</b>	BY70DR-MID
<b>Voltage Rating (<math>U_n</math>)</b>	230V
<b>Current Rating (<math>I_{min} - I_{ref} (I_{max})</math>)</b>	0.25-5(45)A
<b>Frequency (<math>F_n</math>)</b>	50Hz
<b>Active Accuracy Class (kWh)</b>	A or B (kWh)
<b>Type of circuit</b>	1p2w
<b>Temperature Range</b>	-25°C to +55°C
<b>Software/ Firmware Version No</b>	V2.4
<b>CRC Checksum</b>	0x0000272C
<b>Identification Location</b>	Meter Case
<b>Bill Of Materials Number</b>	DH-JS-170009-1.2
<b>IP Rating</b>	IP51
<b>Insulation Protective Class</b>	Class II
<b>LED Pulse Constant</b>	1000imp/kWh
<b>Impulse Voltage Rating</b>	6kV
<b>AC Voltage Rating</b>	4kV
<b>Main Cover Sealing Type</b>	4 x 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
<b>Location of Manufacturers Address</b>	Associated Documents

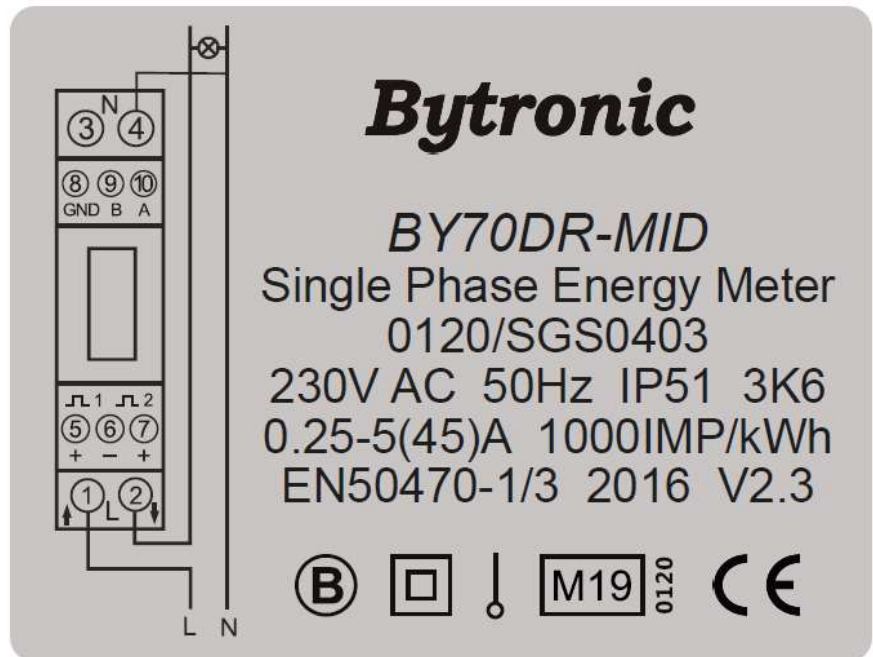
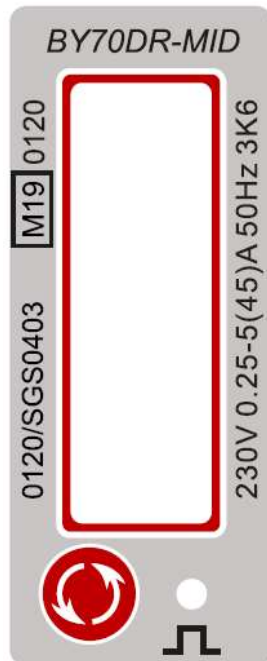
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	<b>0120/SGS0403</b>	
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## 2. Photograph of Meter and Sealing Plan



	EU-Type Examination Certificate Number:	
	<b>0120/SGS0403</b>	
	Issue Number: 1	Dated: 4 <sup>th</sup> March 2019

### 3. Example of Nameplate



	EU-Type Examination Certificate Number:	
	<b>0120/SGS0403</b>	
	Issue Number: 1	Dated: 4 <sup>th</sup> March 2019

#### 4. 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, Voltage & Frequency					
Current	PF Cos	-25°C	-10°C	5°C	30°C	40°C	55°C
I <sub>min</sub>	1.0	0.12	0.12	0.12	0.13	0.12	0.12
I <sub>tr</sub>	1.0	0.16	0.16	0.16	0.16	0.16	0.16
10I <sub>tr</sub>	1.0	0.17	0.16	0.16	0.16	0.16	0.16
I <sub>max</sub>	1.0	0.13	0.13	0.13	0.13	0.13	0.13
I <sub>tr</sub>	0.5ind	0.29	0.29	0.29	0.29	0.29	0.29
10I <sub>tr</sub>	0.5ind	0.40	0.40	0.40	0.40	0.40	0.40
I <sub>max</sub>	0.5ind	0.16	0.16	0.16	0.16	0.16	0.16
I <sub>tr</sub>	0.8cap	0.24	0.24	0.24	0.24	0.24	0.24
10I <sub>tr</sub>	0.8cap	0.31	0.31	0.31	0.31	0.31	0.31
I <sub>max</sub>	0.8cap	0.09	0.09	0.09	0.09	0.09	0.09


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## 5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
BY70DR-MID	Single Phase 230V, 0.25-5(45)A, RS485 Modbus

Modifications to the meter(s) described according to approval No.**0120/SGS0403** 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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## 6. Document Revision History

Issue	Date	Comments
1	04/03/2019	Initial Issue

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**END OF CERTIFICATE**