

EC Type Examination Certificate Number: **0120/ SGS0111**

## **Owen Brothers Metering UK**

New Phoenix Works  
Glen Trading Estate  
Wellyhole Street  
Oldham  
OL4 3BF

Instrument Identification:

**OB400+**

**Single Phase, Active Import, Electricity Meter, With RS485 comms**

Instrument Traceable Number

**0120/ SGS0111**

has been assessed and certified as meeting the requirements of

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

**on 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 16<sup>th</sup> August 2012 until 15<sup>th</sup> August 2022  
Issue 1

Certification is based on report number(s)  
SHES1203000458MI Issue 15<sup>th</sup> August 2012


Authorised Signature

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	Issue Number: 1	Dated: 16 <sup>th</sup> August 2012


## 1. Technical Data

<b>Manufacturer</b>	Owen Brothers
<b>Meter Type</b>	OB400+
<b>Voltage Rating (<math>U_n</math>)</b>	230V
<b>Current Rating (<math>I_{min} - I_{ref} (I_{max})</math>)</b>	0,25-5(80)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/ Firmware Version No Identification Location</b>	V1.0 Nameplate
<b>Bill Of Materials Number</b>	DDS353B BOM Rev 1
<b>IP Rating</b>	IP51
<b>Insulation Protective Class</b>	Class II
<b>LED Pulse Constant</b>	1600 imp/ kWh
<b>Impulse Voltage Rating</b>	6kV
<b>AC Voltage Rating</b>	4kV
<b>Main Cover Sealing Type</b>	Wire & Crimp & Sticker
<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 and Sealing Plan**



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### 3. Calculation of the composite error/ MPE

In addition to the accuracy requirements the composite error  $e_c$  of the meter is shown below

The composite error at a certain load is calculated from the following formula:


$$e_c = \sqrt{e^2(l.\cos\theta) + e^2(T.l.\cos\theta) + e^2(U.l.\cos\theta) + e^2(f.l.\cos\theta)}$$

where

$e^2(l.\cos\theta)$	=	Intrinsic error of meter at a certain load
$e^2(T.l.\cos\theta)$	=	Additional error due to variation of the temperature at the same load
$e^2(U.l.\cos\theta)$	=	Additional error due to variation of the voltage at the same load
$e^2(f.l.\cos\theta)$	=	Additional error due to variation of the frequency at the same load

Ambient Temperature Range 5 to 30 Degrees C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
Imin	1.0	0.00	0.46	0.02	0.01	<b>0.46</b>
Itr	1.0	0.03	0.33	0.02	0.09	<b>0.34</b>
10Itr	1.0	0.09	0.29	-0.02	-0.08	<b>0.31</b>
Imax	1.0	0.07	0.33	-0.03	-0.07	<b>0.35</b>
Itr	0.5ind	0.32	-0.03	-0.11	-0.13	<b>0.36</b>
10Itr	0.5ind	0.39	-0.05	0.01	-0.09	<b>0.40</b>
Imax	0.5ind	0.26	0.09	0.02	-0.10	<b>0.29</b>
Itr	0.8cap	-0.03	0.45	0.01	-0.06	<b>0.46</b>
10Itr	0.8cap	0.03	0.34	-0.02	-0.06	<b>0.35</b>
Imax	0.8cap	-0.10	0.34	-0.01	-0.05	<b>0.36</b>

Ambient Temperature Range -10 to 40 Degrees C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
Imin	1.0	0.00	0.46	0.02	0.01	<b>0.46</b>
Itr	1.0	0.03	0.33	0.02	0.09	<b>0.34</b>
10Itr	1.0	0.09	0.34	-0.02	-0.08	<b>0.36</b>
Imax	1.0	0.07	0.34	-0.03	-0.07	<b>0.36</b>
Itr	0.5ind	0.32	-0.37	-0.11	-0.13	<b>0.52</b>
10Itr	0.5ind	0.39	-0.29	0.01	-0.09	<b>0.49</b>
Imax	0.5ind	0.26	-0.19	0.02	-0.10	<b>0.34</b>
Itr	0.8cap	-0.03	0.45	0.01	-0.06	<b>0.46</b>
10Itr	0.8cap	0.03	0.40	-0.02	-0.06	<b>0.41</b>
Imax	0.8cap	-0.10	0.45	-0.01	-0.05	<b>0.46</b>

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Ambient Temperature Range -25 to 55 Degrees C						
Current	PF Cos	e(lcos)	e(Tlcos)	e(Ulcos)	e(flcos)	%MPE
Imin	1.0	0.00	0.48	0.02	0.01	<b>0.48</b>
Itr	1.0	0.03	0.32	0.02	0.09	<b>0.33</b>
10ltr	1.0	0.09	0.34	-0.02	-0.08	<b>0.36</b>
I <sub>max</sub>	1.0	0.07	0.34	-0.03	-0.07	<b>0.36</b>
Itr	0.5ind	0.32	-0.51	-0.11	-0.13	<b>0.63</b>
10ltr	0.5ind	0.39	-0.37	0.01	-0.09	<b>0.55</b>
I <sub>max</sub>	0.5ind	0.26	-0.19	0.02	-0.10	<b>0.34</b>
Itr	0.8cap	-0.03	0.46	0.01	-0.06	<b>0.46</b>
10ltr	0.8cap	0.03	0.4	-0.02	-0.06	<b>0.41</b>
I <sub>max</sub>	0.8cap	-0.10	0.45	-0.01	-0.05	<b>0.46</b>

#### 4. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
OB400+	0,25-5(80)A - Single Phase, Active Import, Electricity Meter, With RS485 comms

Modifications to the meter(s) described according to approval No. **0120/ SGS0111** 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	16/08/2012	Initial Issue