



EU Type Examination Certificate Number: **0120/ SGS0096**

## **Itron Metering Solutions Ltd**

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**Manufacturing Centre**  
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Hungary

Instrument Identification:  
**EM425-UK**  
**EM425-UK2**  
**EM425-UK2 5T**

**Single Phase, Active, Reactive, Import/ Export, Credit, Smart, Electricity Meter**

Instrument Traceable Number  
**0120/ SGS0096**

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 24<sup>th</sup> March 2022**  
**Issue 24**

Certification is based on report number(s)  
EMA157023/1 Dated 23<sup>rd</sup> March 2012, EMA164994/1 Dated 12<sup>th</sup> October 2012  
EMA174016/1/MID Dated 12<sup>th</sup> April 2013, EMA190820/1/MID Dated 9<sup>th</sup> July 2014  
EMA226613/1/MID Dated 11<sup>th</sup> August 2016, EMA226613/1/MID issue 2 dated 3<sup>rd</sup> October 2016  
EMA226613/1/MID issue 3 dated 30<sup>th</sup> November 2016  
EMA255281/1 dated 20<sup>th</sup> August 2018, EMA255281/1/TR50579 dated 20<sup>th</sup> August 2018

Authorised Signature


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	Issue Number: 24	Dated: 8 <sup>th</sup> January 2019


## 1. Technical Data - EM425-UK

<b>Manufacturer</b>	ltron
<b>Meter Type</b>	EM425-UK
<b>Voltage Rating (<math>U_n</math>)</b>	230V
<b>Current Rating (<math>I_{min}</math> – <math>I_{ref}</math> (<math>I_{max}</math>))</b>	0,25-5(100)A 0,5-10(100)A 1-20(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/ Firmware Version No's</b>	Metrology firmware version: V02.03 Application Fix Firmware Version: 3.11 Application Flex Firmware Version: 03.00.03.46 Zigbee Secure Boot loader Firmware Version: 2.02 Zigbee Router Firmware Version: 03.53.17
<b>Metrology CRC Checksum</b>	0x1F8CC38B
<b>Identification Location</b>	LCD
<b>Bill Of Materials Number</b>	F204151 Rev AB
<b>IP Rating</b>	IP53
<b>Insulation Protective Class</b>	Class II
<b>LED Pulse Constant</b>	1000 imp/ 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>	BS
<b>Location of Manufacturers Name &amp; Address</b>	Nameplate

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### Technical Data - EM425-UK2

Manufacturer	Itron
Meter Type	EM425-UK2
Voltage Rating ( <i>Un</i> )	230V
Current Rating ( <i>I<sub>min</sub></i> – <i>I<sub>ref</sub></i> ( <i>I<sub>max</sub></i> ))	0,25-5(100)A, 0,5-10(100)A, 1-20(100)A
Frequency ( <i>Fn</i> )	50Hz
Active Accuracy Class ( <i>kWh</i> )	A or B (kWh)
Type of circuit	1p2w
Temperature Range	-25°C to +55°C
Software/ Firmware Version No's	Metrology Firmware Version: 5.1.2.12 Application Fix Firmware Version: 04.01 Application Flex Firmware Version: 04.90 ZigBee Secure Bootloader Firmware Version: 4.04 ZigBee Router Firmware Version: 04.56
CRC Checksum No's	Application and Metrology Firmware Checksum: 181a56063f1aa3ae5f32a1a0028fd097b3b5fd84c46fe5aaeb8fc328de718499 ZigBee Router Firmware Checksum: 18ED800A ZigBee Bootloader Firmware Checksum: CA265E7D
Identification Location	LCD
Bill Of Materials Number	A5003948 PCBAB
IP Rating	IP52
Insulation Protective Class	Class II
LED Pulse Constant	1000 imp/ kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	Ultrasonic Weld Sealed for life
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	BS
Location of Manufacturers Name & Address	Nameplate

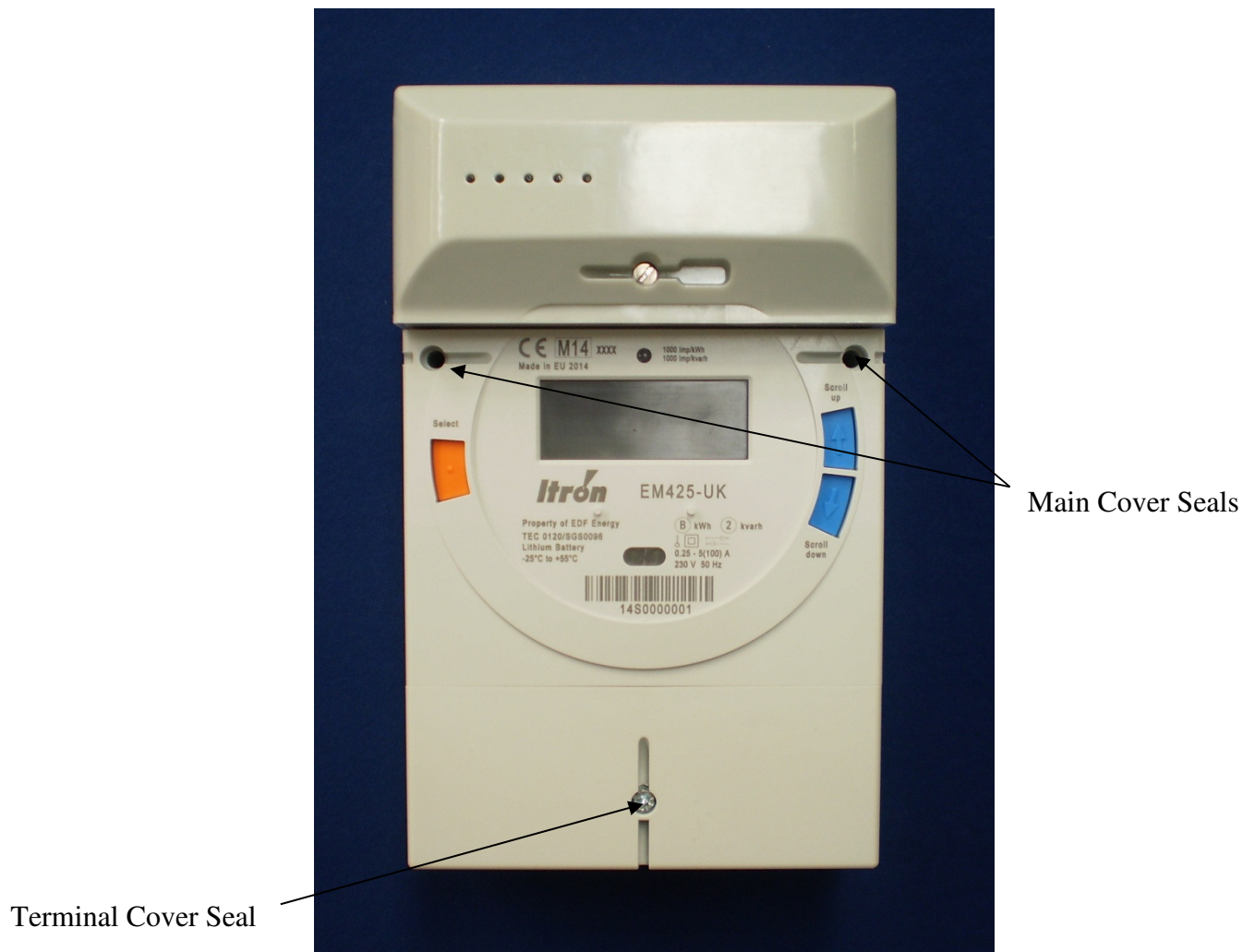
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### Technical Data - EM425-UK2 5T

<b>Manufacturer</b>	ltron
<b>Meter Type</b>	EM425-UK2 5T
<b>Voltage Rating (<math>U_n</math>)</b>	230V
<b>Current Rating (<math>I_{min}</math> – <math>I_{ref}</math> (<math>I_{max}</math>))</b>	0,25-5(100)A 0,5-10(100)A 1-20(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/ Firmware Version No's</b>	Metrology firmware version: 5.1.2.12 Application Flex Firmware Version: 04.86 ZigBee Secure Bootloader Firmware Version: 4.04 ZigBee Router Firmware Version: 04.50
<b>Metrology CRC Checksum No's</b>	Application and Metrology Firmware Checksum: EEE8A36A ZigBee Router Firmware Checksum: 37DC2570
<b>Identification Location</b>	LCD
<b>Bill Of Materials Number</b>	A5003943
<b>IP Rating</b>	IP52
<b>Insulation Protective Class</b>	Class II
<b>LED Pulse Constant</b>	1000 imp/ 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>	BS
<b>Location of Manufacturers Name &amp; Address</b>	Nameplate

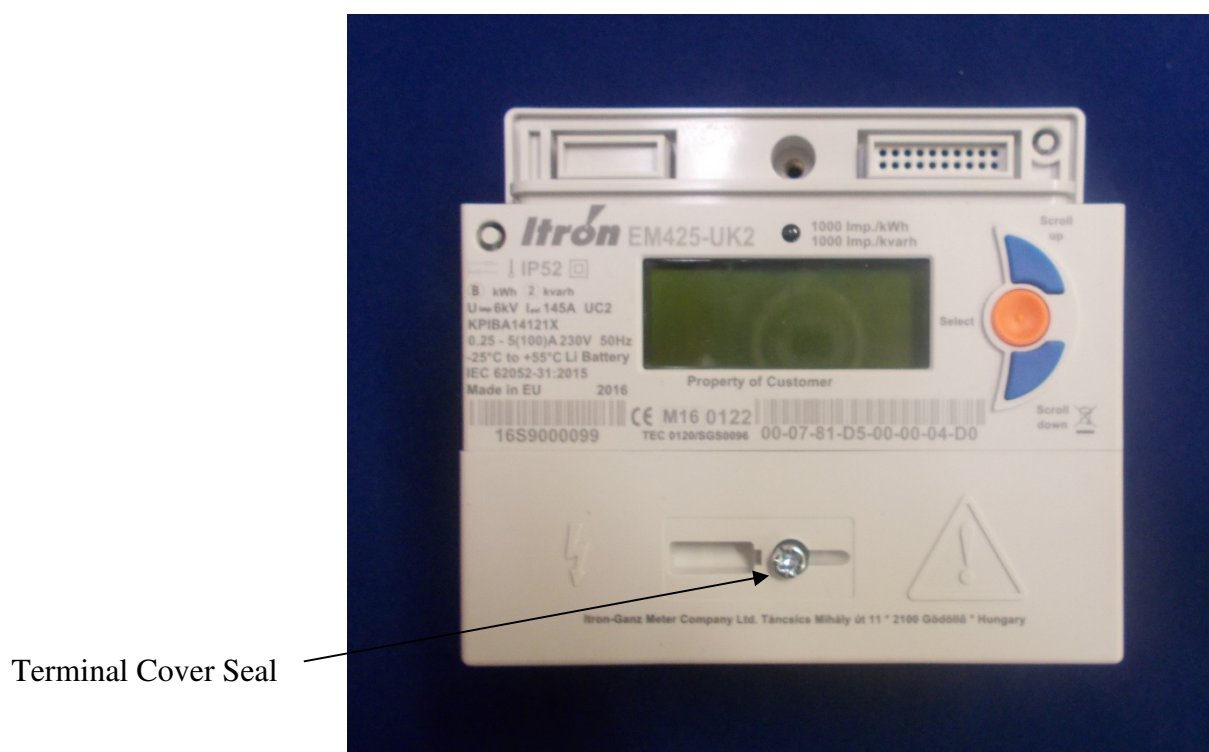
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## 2. Photograph of Meter and Sealing Plan – EM425-UK




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### Photograph of Meter and Sealing Plan – EM425-UK2

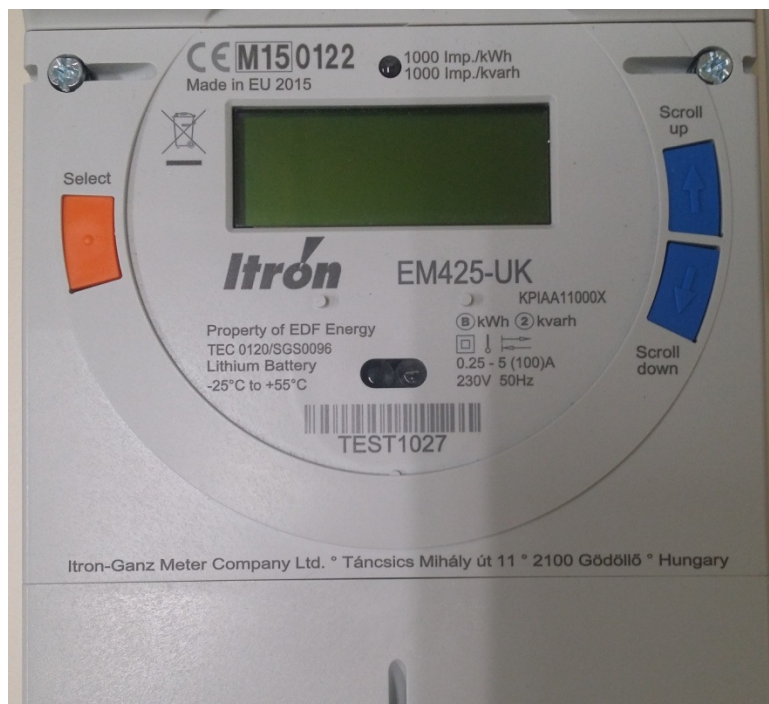




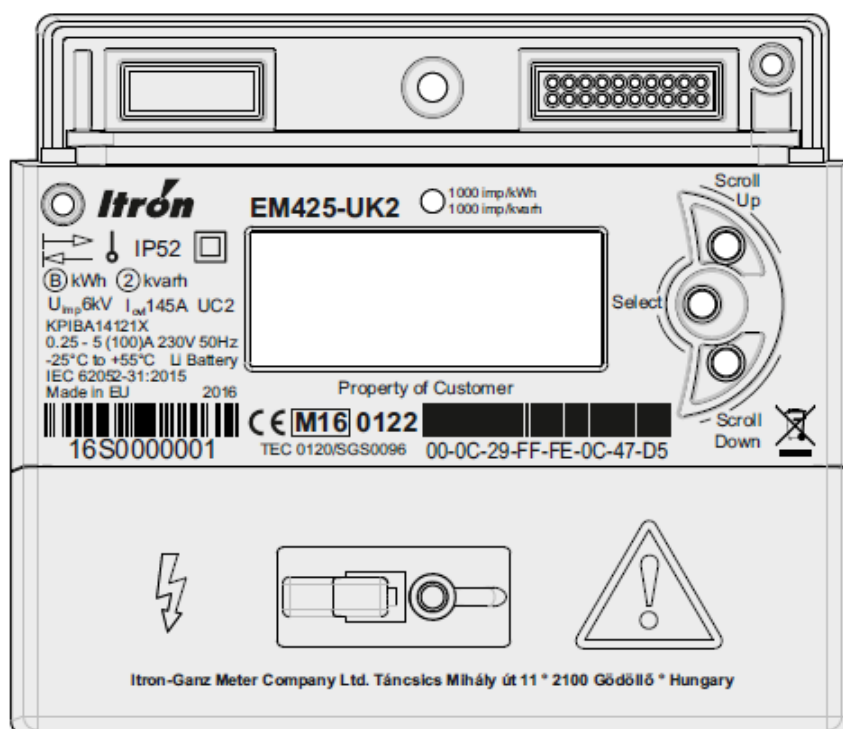
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#### 4. Nameplates

##### EM425-UK



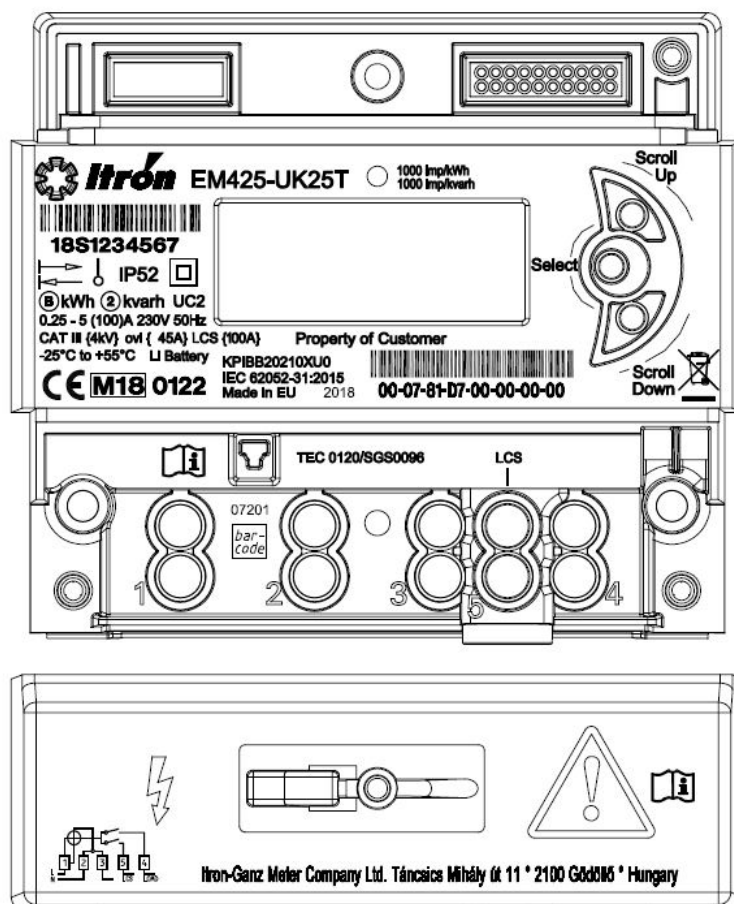
##### EM425-UK2




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## Nameplates (cont.)

### EM425 UK2 5T





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## 5. 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 tables 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



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**EM425-UK**


		Influence Factors for Temperature, Frequency & Voltage					
Current	PF Cos	-25 °C	-10 °C	5 °C	30 °C	40 °C	55 °C
I <sub>min</sub>	1.0	0.92	0.75	0.59	0.10	0.38	0.32
I <sub>tr</sub>	1.0	0.67	0.51	0.36	0.05	0.15	0.08
10I <sub>tr</sub>	1.0	0.47	0.30	0.15	0.05	0.05	0.14
I <sub>max</sub>	1.0	0.58	0.45	0.33	0.20	0.17	0.11
I <sub>tr</sub>	0.5ind	0.74	0.57	0.45	0.09	0.23	0.16
10I <sub>tr</sub>	0.5ind	0.26	0.12	0.05	0.04	0.23	0.31
I <sub>max</sub>	0.5ind	0.39	0.27	0.17	0.14	0.09	0.11
I <sub>tr</sub>	0.8cap	0.79	0.63	0.49	0.06	0.29	0.21
10I <sub>tr</sub>	0.8cap	0.54	0.38	0.25	0.06	0.05	0.06
I <sub>max</sub>	0.8cap	0.59	0.50	0.41	0.06	0.25	0.21

**EM425-UK2**

		Influence Factors for Temperature, Frequency & Voltage					
Current	PF Cos	-25 °C	-10 °C	5 °C	30 °C	40 °C	55 °C
I <sub>min</sub>	1.0	0.19	0.17	0.15	0.07	0.10	0.20
I <sub>tr</sub>	1.0	0.14	0.13	0.10	0.05	0.07	0.13
10I <sub>tr</sub>	1.0	0.17	0.13	0.08	0.02	0.05	0.11
I <sub>max</sub>	1.0	0.28	0.21	0.15	0.05	0.06	0.13
I <sub>tr</sub>	0.5ind	0.26	0.21	0.19	0.10	0.12	0.13
10I <sub>tr</sub>	0.5ind	0.23	0.17	0.09	0.04	0.05	0.10
I <sub>max</sub>	0.5ind	0.33	0.22	0.12	0.03	0.06	0.11
I <sub>tr</sub>	0.8cap	0.14	0.13	0.09	0.04	0.11	0.17
10I <sub>tr</sub>	0.8cap	0.14	0.11	0.07	0.02	0.06	0.14
I <sub>max</sub>	0.8cap	0.24	0.18	0.11	0.02	0.08	0.17

**EM425-UK2 5T**

		Influence Factors for Temperature, Frequency & Voltage					
Current	PF Cos	-25 °C	-10 °C	5 °C	30 °C	40 °C	55 °C
I <sub>min</sub>	1.0	0.03	0.04	0.06	0.10	0.08	0.14
I <sub>tr</sub>	1.0	0.03	0.02	0.02	0.06	0.08	0.09
10I <sub>tr</sub>	1.0	0.01	0.01	0.02	0.07	0.08	0.12
I <sub>max</sub>	1.0	0.06	0.04	0.03	0.10	0.12	0.17
I <sub>tr</sub>	0.5ind	0.16	0.12	0.11	0.09	0.08	0.09
10I <sub>tr</sub>	0.5ind	0.07	0.07	0.04	0.01	0.02	0.02
I <sub>max</sub>	0.5ind	0.08	0.06	0.03	0.10	0.11	0.14
I <sub>tr</sub>	0.8cap	0.05	0.02	0.02	0.05	0.08	0.12
10I <sub>tr</sub>	0.8cap	0.04	0.03	0.04	0.09	0.11	0.15
I <sub>max</sub>	0.8cap	0.02	0.02	0.05	0.13	0.16	0.23

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## 6. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
Code :	K P I A A 1 1 0 0 0 X K 0
Position :	1 2 3 4 5 6 7 8 9 10 11 12 13
Model Type	
Model Status	
Elements / Contactor	
Terminal Screws	
Auxiliary Output	
Cover / Comms Module	
Sealing	
Range	
Accuracy Class	
Customer Code	


### Positions

1, 2 & 3	Model Type:-	Product Family = K P I
4	Model Status :-	Mk 3 = A Mk 4 = B
5	Elements / Contactor :-	1 Element, 1 Contactor = A 1 Element, 2 Contactor = B (Mk 4 only)
6	Terminal Screws:-	Standard Terminal Screw = 1 Slotted Terminal Screw = 2 (Mk 4 only)
7	Auxiliary Output:-	No Relay Fitted = 0 5A Relay Fitted = 1 (Not possible if posn 5 = B)
8	Cover / Communications Module :-	4-Terminal cover, With Intimate Communication Hub Module = 0 4-Terminal cover, Without Intimate Communication Hub Module = 1 5-Terminal cover, Without Intimate Communication Hub Module = 2 (Mk4 only, Posn 5 must be B)
9	Sealing :-	Wire & Ferrule Seal = 0 (Mk 3 only) Ultrasonically Sealed = 1 (Mk4 only)
10	Range :-	1x230V 5-100A = 0
11	Accuracy Class:-	MID Class B = X
12 & 13	Customer :-	See <a href="http://rcsweb/qip58/index.html">http://rcsweb/qip58/index.html</a>

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## 7. Document Revision History

Issue	Date	Comments
1	23/03/2012	Initial Issue
2	05/04/2012	All Firmware Versions listed on certificate
3	12/10/2012	Minor hardware change. Firmware version update
4	12/04/2013	Minor hardware change. Firmware version update
5	09/07/2014	PCB modification and case design change
6	22/07/2014	Add Manufacturing site, remove UK from Itron Metering Solutions Ltd
7	03/09/2014	Flex firmware version change from 03.00.00.08 to 03.00.00.14 Zigbee firmware versions added
8	24/10/2014	Minor PCB change to transpose the RX and TX lines from the meter to the communications hub
9	15/01/2015	Change of manufacturing address
10	09/04/2015	Flex firmware version change from 03.00.00.14 to 03.00.00.52 Zigbee firmware version change from 03.00.39 to 03.02.50
11	29/05/2015	Flex firmware version change from 03.00.00.52 to 03.00.00.62 Zigbee firmware version change from 03.02.50 to 03.06.51
12	18/08/2015	Flex firmware version change from 03.00.00.62 to 03.00.00.68 Zigbee firmware version change from 03.06.51 to 03.03.52
13	25/11/2015	Application Flex Firmware change from version:03.00.00.68 to version:03.00.00.87
14	11/04/2016	Application Flex Firmware change from version 03.00.00.87 to version 03.00.02.12. Zigbee firmware change from version 03.03.52 to version 3.52.06
15	19/08/2016	New model EM425-UK2 added to approval. EM425 MK 3 : Application Flex Firmware change from version 03.00.02.12 to version 03.00.02.24. Zigbee firmware version change from version 03.52.06 to version 03.52.10
16	09/11/2016	EM425-UK Model Application Flex Firmware change from version 03.00.02.24 to version 03.00.03.38. Zigbee firmware version change from version 03.52.10 to version 03.53.14 Location of manufacturers name and address added to technical data. Picture of MK3 nameplate replaced with nameplate with manufacturers name and address on. New directive EU/2014/32/EU referenced .
17	30/11/2016	EM425-UK2 model: Application Flex Firmware change from version 04.10 to version 04.12 Zigbee router firmware change from version 04.05 to version 04.07 BOM rev number change from A5003948 PCBA to EM425 UK2 BOM Rev AB
18	08/03/2017	EM425-UK Model: Application Flex Firmware version change from version 03.00.03.38 to version 03.00.03.42 Zigbee firmware version change from version 03.53.14 to version 03.53.15
19	23/06/2017	Zigbee Secure bootloader firmware change from version 2.01 to version 2.02
20	17/07/2017	EM425 MK 3 Application Flex Firmware version change from 03.00.03.42 to version 03.00.03.44 Zigbee Router Firmware version change from 03.53.15 to version 03.53.17
21	08/09/2017	EM425-UK2 Model: Application Flex Firmware version change from 04.12 to 04.46. Zigbee Secure bootloader firmware change from 03.01 to 4.04. Zigbee Router Firmware version change from 04.07 to 04.22

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Issue	Date	Comments
22	23/11/2017	EM425-UK Model: Application Flex Firmware version change from 03.00.03.44 to 03.00.03.46
23	20/08/2018	Model EM425-UK2 5T added to approval
24	08/01/2019	EM425-UK2 Model: Application Flex firmware change from 04.46 to 04.90 and ZigBee Router firmware version change from 04.22 to 04.56.

Modifications to the meter(s) described according to approval No.**0120/ SGS0096** 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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