



EC Type Examination Certificate Number: **0120/SGS0221**

Smart Process & Controls Ltd

Unit 11 Totman Close
Brook Road Ind Est
Rayleigh
Essex
SS6 7UZ
United Kingdom

Instrument Identification:
SMARTRAIL X45 Series

Instrument Traceable Number
0120/SGS0221

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 until 17th February 2024
Issue 1

Certification is based on report number(s) SHES130800321401 dated 18th February 2014
EMA 185971/1 dated 18th February 2014
EMA 219509/1 dated 9th February 2016

Authorised Signature

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1. Technical Data

Manufacturer	Smart Process & Controls Ltd.
Meter Type(s)	SMARTRAIL X45A SMARTRAIL X45D SMARTRAIL X45DB SMARTRAIL X45M
Voltage Rating (U_n)	230V
Current Rating ($I_{min} - I_{ref} (I_{max})$)	0.25-5(45)A
Frequency (F_n)	50Hz
Active Accuracy Class (kWh)	A or B (kWh)
Type of circuit	1p2w
Temperature Range	-25°C to +55°C
Software Version No.	SMARTRAIL X45A, SMARTRAIL X45D, SMARTRAIL X45DB: V1.2 SMARTRAIL X45M: V2.3
Identification Location	Nameplate
Bill Of Materials No.'s	SDM120-Measure – V2.1 SDM120-Power – V2.1 SDM120-Pulse – V2.0 SDM120Modbus – V151119
IP Rating	IP51
Insulation Protective Class	Class II
LED Pulse Constant	1000imp/ kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	4 cover clips at least one of which is ultra sonic welded
Integrity of meter	Inaccessible without using tools and breaking weld
Intended Location of the Meter	Indoor
Type of Register	LCD: SMARTRAIL X45D, SMARTRAIL X45DB, SMARTRAIL X45M Mechanical: SMARTRAIL X45A

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2. Photograph of Meters and Sealing Plans



SMARTTRAIL X45A

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Terminal
Cover Sealing
Points



Cover Sealing
Security

SMARTTRAIL X45D

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Terminal
Cover Sealing
Points



Cover Sealing
Security

SMARTTRAIL X45DB

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Terminal
Cover Sealing
Points



Cover Sealing
Security

SMARTTRAIL X45M

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3. Influence factors for temperature, frequency and voltage

		Influence Factors for temperature, frequency and voltage					
Current	PF Cos	-25	-10	5	30	40	55
I _{min}	1.0	0.12	0.12	0.12	0.13	0.12	0.12
I _{tr}	1.0	0.16	0.16	0.16	0.16	0.16	0.16
10I _{tr}	1.0	0.17	0.16	0.16	0.16	0.16	0.16
I _{max}	1.0	0.13	0.13	0.13	0.13	0.13	0.13
I _{tr}	0.5ind	0.29	0.29	0.29	0.29	0.29	0.29
10I _{tr}	0.5ind	0.40	0.40	0.40	0.40	0.40	0.40
I _{max}	0.5ind	0.16	0.16	0.16	0.16	0.16	0.16
I _{tr}	0.8cap	0.24	0.24	0.24	0.24	0.24	0.24
10I _{tr}	0.8cap	0.31	0.31	0.31	0.31	0.31	0.31
I _{max}	0.8cap	0.09	0.09	0.09	0.09	0.09	0.09

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:-

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

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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4. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
SMARTRAIL X45A	Single Phase 230V, 0.25-5(45)A Mechanical register
SMARTRAIL X45D	Single Phase 230V, 0.25-5(45)A LCD register
SMARTRAIL X45DB	Single Phase 230V, 0.25-5(45)A LCD register with backlight
SMARTRAIL X45M	Single Phase 230V, 0.25-5(45)A, LCD register, 2 Pulse Outputs, RS485 Communication Port, Modbus

Modifications to the meter(s) described according to approval No.**0120/SGS0221** 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	09/02/2016	Initial Issue