



EU Type Examination Certificate Number: **0120/SGS0413**

## **Selec Controls Pvt Limited**

EL-27/1, Electronic Zone,  
TTC Industrial Area, MIDC, Mahape,  
400 710, Maharashtra,  
India

Instrument Identification:  
**MFM384-R-C-MID**

**Poly phase, Active Import/ Export (kWh), Transformer Operated, Auxiliary Power Supply**

Instrument Traceable Number  
**0120/SGS0413**

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 5<sup>th</sup> April 2027  
Issue 2

Certification is based on report number(s) EMA231682/1 Dated 17th February 2017  
EMA265549

Authorised Signature


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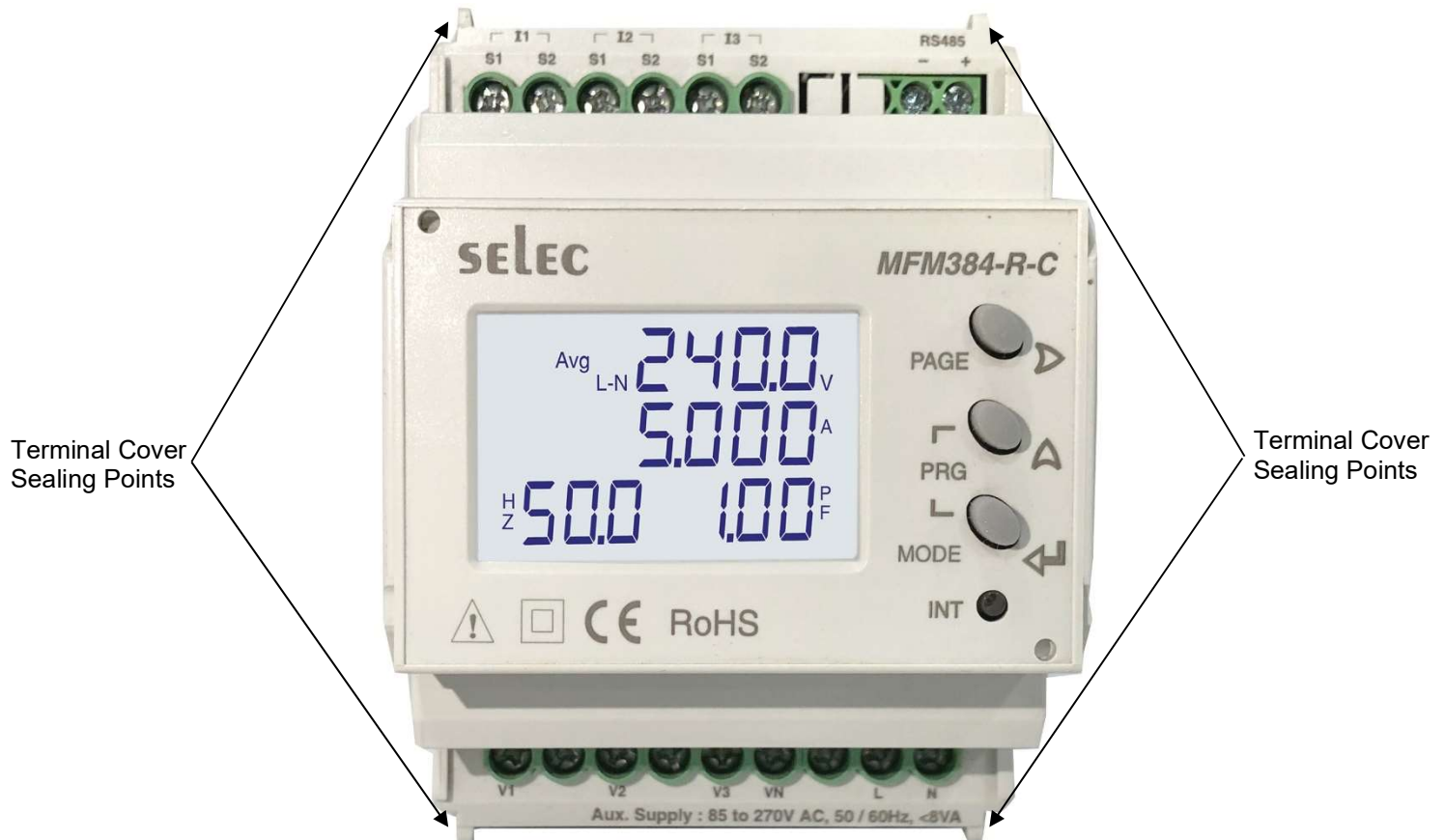
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## 1. Technical Data

<b>Manufacturer</b>	Selec Controls Pvt Limited
<b>Meter Type</b>	MFM384-R-C-MID
<b>Voltage Rating (<math>U_n</math>)</b>	3 x 85/147 – 240/415V
<b>Auxillary Supply Voltage</b>	85 - 270V
<b>Current Rating (<math>I_{min}</math> – <math>I_{ref}</math> (<math>I_{max}</math>))</b>	0.05-5(6)A
<b>Frequency (<math>F_n</math>)</b>	50Hz
<b>Active Accuracy Class (<math>kWh</math>)</b>	B ( $kWh$ )
<b>Type of circuit</b>	3P4W, 1P2W
<b>Temperature Range</b>	-25°C to +55°C
<b>Software/ Firmware Version No</b>	V1.0
<b>CRC Checksum</b>	10841
<b>Identification Location</b>	LCD
<b>Bill Of Materials Number</b>	DDCAD RI-D140-G-C
<b>IP Rating</b>	IP51 Front Display Meter body not rated. Must be installed in a suitable IP rated enclosure
<b>Insulation Protective Class</b>	Class II
<b>LED Pulse Constant</b>	Dependant on CT Ratio
<b>Impulse Voltage Rating</b>	6kV
<b>AC Voltage Rating</b>	4kV
<b>Main Cover Sealing Type</b>	4 clips, one of which is covered by a self destructive label. A self destructive label is also present across the joint between base and side of case.
<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>	Nameplate & Documentation

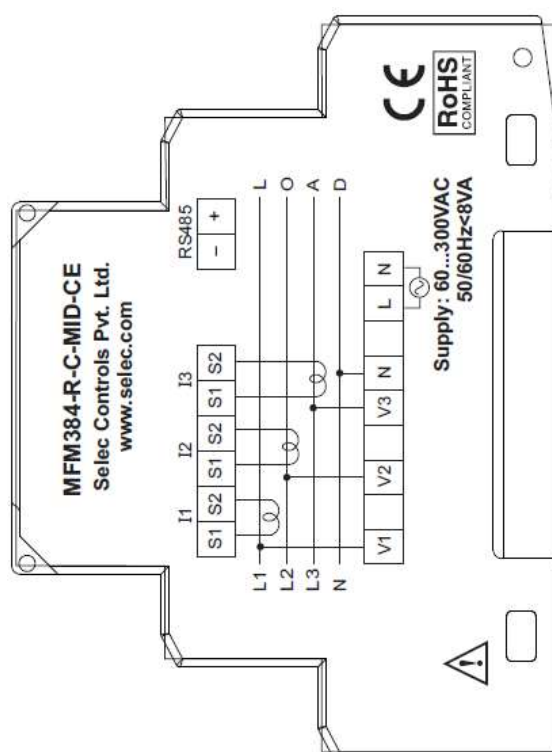
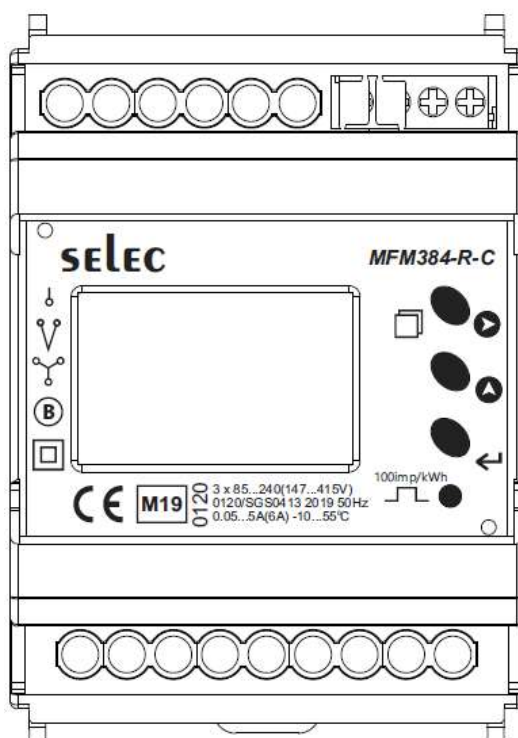
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## 2. Photograph of Meter and Sealing Plan



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### 3. Examples of Nameplates



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#### 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

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		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	0.23	0.15	0.13	0.13	0.20	0.32
I <sub>tr</sub>	1.0	0.47	0.22	0.22	0.20	0.26	0.36
10I <sub>tr</sub>	1.0	0.25	0.25	0.25	0.25	0.34	0.34
I <sub>max</sub>	1.0	0.41	0.41	0.41	0.42	0.42	0.53
I <sub>tr</sub>	0.5ind	0.24	0.21	0.22	0.22	0.33	0.48
10I <sub>tr</sub>	0.5ind	0.41	0.54	0.54	0.50	0.78	0.78
I <sub>max</sub>	0.5ind	0.33	0.33	0.34	0.53	0.79	0.59
I <sub>tr</sub>	0.8cap	0.64	0.35	0.32	0.33	0.36	0.43
10I <sub>tr</sub>	0.8cap	0.36	0.35	0.44	0.36	0.36	0.59
I <sub>max</sub>	0.8cap	0.39	0.43	0.40	0.43	0.40	0.40
L1					0.00	0.00	0.00
I <sub>tr</sub>	1.0	0.58	0.25	0.14	0.08	0.11	0.27
10I <sub>tr</sub>	1.0	0.21	0.21	0.21	0.21	0.30	0.30
I <sub>max</sub>	1.0	0.35	0.35	0.35	0.35	0.37	0.37
I <sub>tr</sub>	0.5ind	0.61	0.48	0.55	0.45	0.36	0.32
10I <sub>tr</sub>	0.5ind	0.43	0.43	0.43	0.23	0.22	0.25
I <sub>max</sub>	0.5ind	0.44	0.43	0.53	0.46	0.25	0.34
L2							
I <sub>tr</sub>	1.0	0.43	0.29	0.25	0.29	0.31	0.46
10I <sub>tr</sub>	1.0	0.46	0.39	0.38	0.44	0.46	0.46
I <sub>max</sub>	1.0	0.26	0.26	0.26	0.28	0.25	0.29
I <sub>tr</sub>	0.5ind	0.18	0.10	0.10	0.16	0.24	0.35
10I <sub>tr</sub>	0.5ind	0.52	0.51	0.48	0.48	0.49	0.63
I <sub>max</sub>	0.5ind	0.36	0.36	0.36	0.33	0.38	0.39
L3							
I <sub>tr</sub>	1.0	0.44	0.26	0.23	0.26	0.33	0.47
10I <sub>tr</sub>	1.0	0.47	0.47	0.51	0.50	0.51	0.67
I <sub>max</sub>	1.0	0.41	0.38	0.38	0.38	0.39	0.71
I <sub>tr</sub>	0.5ind	0.34	0.37	0.31	0.45	0.54	0.72
10I <sub>tr</sub>	0.5ind	1.05	0.81	1.01	1.06	1.01	1.24
I <sub>max</sub>	0.5ind	0.77	0.59	0.60	1.08	0.94	0.97


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## 5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
MFM384-R-C-MID	Polyphase, Active Import/Export (kWh), Transformer Operated with RS485 Modbus communications

Modifications to the meter(s) described according to approval No.**0120/SGS0413** 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	29/03/2019	Initial Issue
2	07/04/2020	Amendments to manufacturers address and technical data parameters

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