



EU Type Examination Certificate Number: **0120/SGS0411**

Selec Controls Pvt Limited

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

Instrument Identification:
MFM384-C-CU-MID

Active Import/Export (kWh), Transformer Operated. Electricity Meter with Auxiliary Power Supply

Instrument Traceable Number
0120/SGS0411

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 13th September 2026
Issue 1

Certification is based on report number(s) TCM 221/16 – 5392
EMA265549

Authorised Signature


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1. Technical Data

Manufacturer	Selec Controls Pvt Limited
Meter Type	MFM384-C-CU-MID
Voltage Rating (U_n)	3x230/400V, 3x240/415V
Current Rating ($I_{min} - I_{ref} (I_{max})$)	0.05-5(6)A
Frequency (F_n)	50Hz
Active Accuracy Class (kWh)	B (kWh)
Type of circuit	1p2w, 3p3w, 3p4w
Temperature Range	-10°C to +55°C
Software/ Firmware Version No	V4.02, V4.03
CRC Checksum	49794, 51967
Identification Location	LCD
Bill Of Materials Number	DDCAD RID140-G-C
IP Rating	IP54
Insulation Protective Class	Class II
LED Pulse Constant	100imp/kWh
Impulse Voltage Rating	6kV
AC Voltage Rating	4kV
Main Cover Sealing Type	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.
Integrity of meter	Inaccessible without breaking seals
Intended Location of the Meter	Indoor
Type of Register	LCD
Terminal Arrangement(s)	DIN
Location of Manufacturers Address	Nameplate and Associated Documents

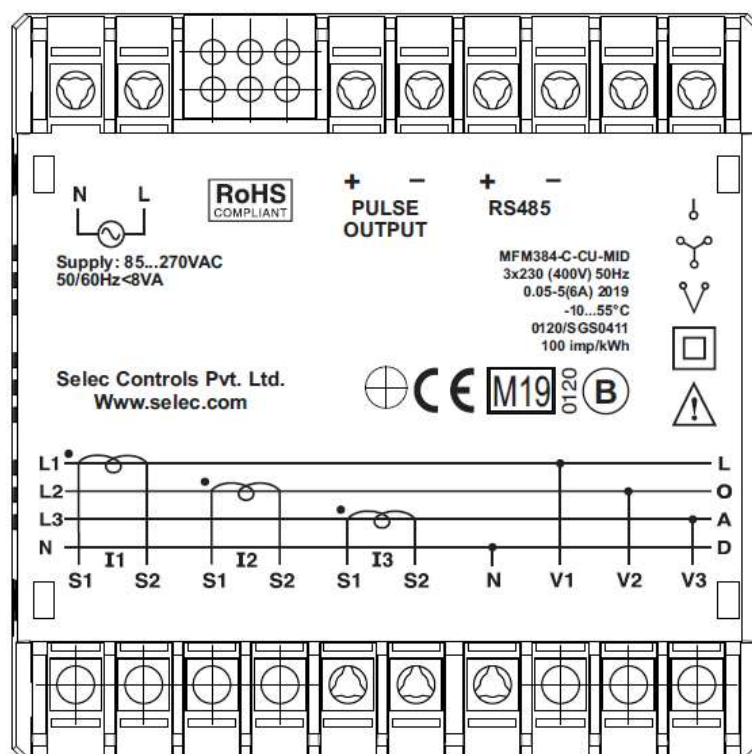
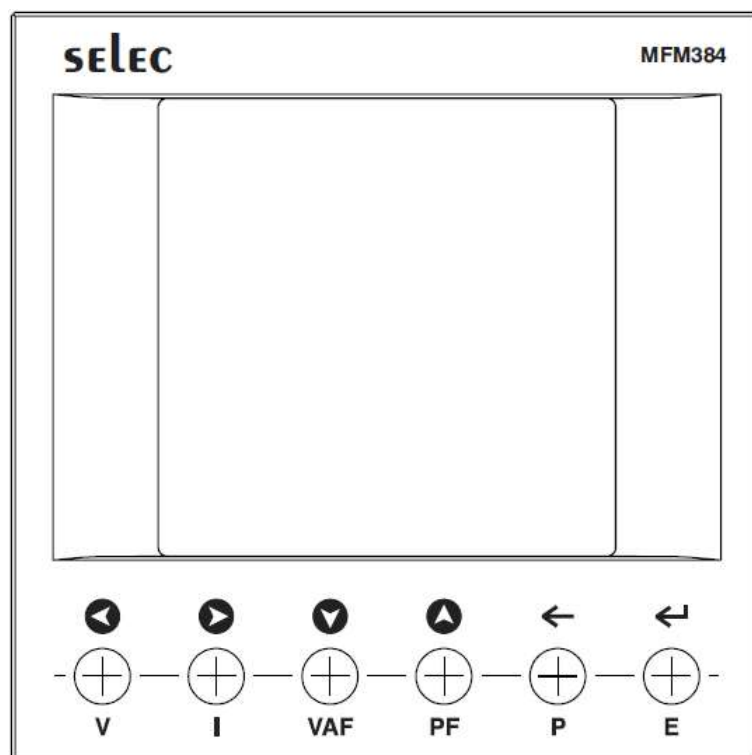
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2. Photograph of Meter and Sealing Plan



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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	-10°C	5°C	30°C	40°C	55°C
I _{min}	1.0	0.04	0.02	0.01	0.01	0.01
I _{tr}	1.0	0.22	0.12	0.01	0.02	0.03
10I _{tr}	1.0	0.05	0.03	0.03	0.07	0.14
I _{max}	1.0	0.01	0.01	0.02	0.06	0.11
I _{tr}	0.5ind	1.83	1.00	0.40	0.98	1.84
10I _{tr}	0.5ind	0.15	0.08	0.04	0.10	0.19
I _{max}	0.5ind	0.10	0.05	0.04	0.10	0.19
I _{tr}	0.8cap	0.31	0.17	0.07	0.16	0.31
10I _{tr}	0.8cap	0.03	0.02	0.29	0.04	0.07
I _{max}	0.8cap	0.00	0.00	0.02	0.06	0.11
L1						
I _{tr}	1.0	0.21	0.21	0.21	0.21	0.21
10I _{tr}	1.0	0.11	0.06	0.02	0.06	0.11
I _{max}	1.0	0.08	0.04	0.02	0.05	0.10
I _{tr}	0.5ind	0.02	0.02	0.03	0.05	0.10
10I _{tr}	0.5ind	0.20	0.11	0.05	0.12	0.22
I _{max}	0.5ind	0.22	0.12	0.04	0.11	0.20
L2						
I _{tr}	1.0	0.27	0.27	0.27	0.27	0.27
10I _{tr}	1.0	0.01	0.01	0.02	0.06	0.11
I _{max}	1.0	0.02	0.01	0.02	0.04	0.08
I _{tr}	0.5ind	1.51	0.85	0.28	0.43	0.71
10I _{tr}	0.5ind	0.13	0.07	0.04	0.10	0.19
I _{max}	0.5ind	0.07	0.04	0.04	0.09	0.17
L3						
I _{tr}	1.0	0.13	0.13	0.13	0.13	0.13
10I _{tr}	1.0	0.08	0.04	0.03	0.07	0.13
I _{max}	1.0	0.06	0.03	0.03	0.07	0.13
I _{tr}	0.5ind	1.53	0.83	0.06	0.07	0.07
10I _{tr}	0.5ind	0.11	0.06	0.04	0.10	0.19
I _{max}	0.5ind	0.07	0.04	0.04	0.10	0.19


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5. Annex of Variants

Product Variant Identification Details:

Type Designation	Description of meter
MFM-384-C-CU-MID	Three Phase, Transformer Operated, Active Import/Export (kWh), Single Tariff, RS485 Modbus communications and pulse output

Modifications to the meter(s) described according to approval No.**0120/SGS0411** 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

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END OF CERTIFICATE