



DECLARATION

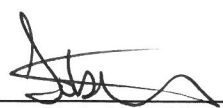
With reference to the **EM540DINAV23XS1XXX** and **EM540DINAV23XS1PFXXX**, the estimated value of the MTTF (Mean Time To Failure) is **101** years, calculated according to the Siemens Norm SN29500 (Failure rate of components), taking into consideration the following condition:

Mean ambient temperature: 50°C.

The value of MTBF (Mean Time Between Failures) is the sum of MTTF and MTTR (Mean Time To Repair).

For the products EM540DINAV23XS1XXX and EM540DINAV23XS1PFXXX, the MTTR is negligible with respect to the MTTF, so that we can consider MTBF = MTTF.

Belluno, June 5th, 2023



Fabrizio Merz
General Manager

Carlo Gavazzi Controls SPA
Via Safforze, 8
32100 BELLUNO (ITALY)



DECLARATION

With reference to the **EM540DINAV23XO1XXX** and **EM540DINAV23XO1PFXXX**, the estimated value of the MTTF (Mean Time To Failure) is **100** years, calculated according to the Siemens Norm SN29500 (Failure rate of components), taking into consideration the following condition:

Mean ambient temperature: 50°C.

The value of MTBF (Mean Time Between Failures) is the sum of MTTF and MTTR (Mean Time To Repair).

For the products EM540DINAV23XO1XXX and EM540DINAV23XO1PFXXX, the MTTR is negligible with respect to the MTTF, so that we can consider MTBF = MTTF.

Belluno, June 5th, 2023

Fabrizio Merz
General Manager

Carlo Gavazzi Controls SPA
Via Safforze, 8
32100 BELLUNO (ITALY)



DECLARATION

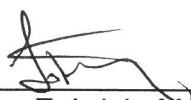
With reference to the **EM540DINAV23XM1XXX** and **EM540DINAV23XM1PFXXX**, the estimated value of the MTTF (Mean Time To Failure) is **98** years, calculated according to the Siemens Norm SN29500 (Failure rate of components), taking into consideration the following condition:

Mean ambient temperature: 50°C.

The value of MTBF (Mean Time Between Failures) is the sum of MTTF and MTTR (Mean Time To Repair).

For the products EM540DINAV23XM1XXX and EM540DINAV23XM1PFXXX, the MTTR is negligible with respect to the MTTF, so that we can consider MTBF = MTTF.

Belluno, June 5th, 2023



Fabrizio Merz
General Manager

Carlo Gavazzi Controls SPA
Via Safforze, 8
32100 BELLUNO (ITALY)



CERTIFICATO DI ESAME UE DEL TIPO No. 385/MID

EU TYPE EXAMINATION CERTIFICATE

VISTO L'ESITO DELLE VERIFICHE CONDOTTE IN CONFORMITA' ALL'ALLEGATO II – **MODULO B**
DELLA DIRETTIVA 2014/32/UE SI DICHIARA CHE I SEGUENTI PRODOTTI:

ON THE BASIS OF OUR VERIFICATIONS CARRIED OUT ACCORDING TO ANNEX II – MODULE B OF THE DIRECTIVE
2014/32/EU WE HEREBY DECLARE THAT THE FOLLOWING PRODUCTS:

CONTATORI DI ENERGIA ELETTRICA ATTIVA / ACTIVE ELECTRICAL ENERGY METERS

MARCA / TRADE MARK

CARLO GAVAZZI

MODELLO / MODEL

**EM540DINAV23XO1PFA, EM540DINAV23XO1PFB, EM540DINAV23XO1PFC,
EM540DINAV23XS1PFA, EM540DINAV23XS1PFB, EM540DINAV23XS1PFC,
EM540DINAV23XM1PFA, EM540DINAV23XM1PFB, EM540DINAV23XM1PFC**

FABBRICANTE / MANUFACTURER

NOME / NAME

CARLO GAVAZZI CONTROLS S.p.A.

INDIRIZZO / ADDRESS

VIA SAFFORZE, 8 – 32100 BELLUNO - I

SODDISFANO LE DISPOSIZIONI DELL'ALLEGATO I E DELL'ALLEGATO V DELLA SUDETTA DIRETTIVA

MEET THE REQUIREMENTS OF ANNEX I AND ANNEX V THE AFOREMENTIONED DIRECTIVE

QUESTO CERTIFICATO DI ESAME UE DEL TIPO È RILASCIATO DA IMQ IN QUALITÀ DI ORGANISMO NOTIFICATO PER LA DIRETTIVA
2014/32/UE. IL NUMERO IDENTIFICATIVO DI IMQ S.p.A. QUALE ORGANISMO NOTIFICATO È: **0051**

THIS EU TYPE EXAMINATION CERTIFICATE IS ISSUED BY IMQ AS NOTIFIED BODY FOR THE DIRECTIVE 2014/32/EU
IDENTIFICATION NUMBER OF IMQ S.p.A. AS NOTIFIED BODY IS: **0051**

QUESTO CERTIFICATO DI ESAME UE DEL TIPO CONSENTE L'APPOSIZIONE DELLA MARCATURA CE E DELLA MARCATURA METROLOGICA
SUPPLEMENTARE M SUI PRODOTTI IN QUESTIONE A CONDIZIONE CHE SIA SODDISFATTA UNA DELLE PROCEDURE DI VALUTAZIONE DELLA CONFORMITÀ DI CUI
AI MODULI F O D DELLA DIRETTIVA 2014/32/UE

THIS EU-TYPE EXAMINATION CERTIFICATE ALLOWS THE CE MARKING AND THE SUPPLEMENTARY METROLOGICAL MARKING M ON THE SUBJECT PRODUCTS IF ONE OF THE
EVALUATION PROCEDURE OF THE CONFORMITY INDICATED IN MODULES F OR D OF DIRECTIVE 2014/32/EU, ARE SATISFIED

QUESTO DOCUMENTO È COMPOSTO DA 6 PAGINE COMPREDENTI 1 ALLEGATO

THIS DOCUMENT IS COMPOSED OF 6 PAGES INCLUDING 1 ANNEX

PRIMA EMISSIONE:

FIRST ISSUE

2021-03-02

EMISSIONE CORRENTE:

CURRENT ISSUE

2021-03-04

EMISSIONE PRECEDENTE:

PREVIOUS ISSUE

2021-03-02

DATA DI SCADENZA:

EXPIRING DATE

2031-03-01

B.U. PRODUCT CONFORMITY ASSESSMENT
CERTIFICATION SECTOR - MANAGER

Questo Certificato può essere riprodotto solo integralmente e senza alcuna variazione. Esso è soggetto alle condizioni generali e
particolari di fornitura dei servizi di valutazione della conformità ai sensi delle Direttive comunitarie per le quali IMQ opera come
Organismo Notificato.

This Certificate may only be reproduced in its entirety and without any change. It is subject to the general and particular
Rules for the provision of conformity assessment services under the EU Directives for which IMQ acts as Notified Body.



PRD N° 005 B

Membro degli Accordi di Mutuo
Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC
Mutual Recognition Agreements

RAPPORTO DI VALUTAZIONE / ASSESSMENT REPORT

SV20-0051157-01

1.0 DATI TECNICI – CARATTERISTICHE ESSENZIALI / TECHNICAL DATA – ESSENTIAL CHARACTERISTICS

Tipo di strumento / Type of measuring instrument :	CONTATORE STATICO TRIFASE DI ENERGIA ELETTRICA ATTIVA / THREE-PHASE STATIC WATT-HOUR METER FOR ACTIVE ENERGY
Marca / Trade mark :	CARLO GAVAZZI
Modello / Model :	EM540DINAV23XO1PFA, EM540DINAV23XO1PFB, EM540DINAV23XO1PFC, EM540DINAV23XS1PFA, EM540DINAV23XS1PFB, EM540DINAV23XS1PFC, EM540DINAV23XM1PFA, EM540DINAV23XM1PFB, EM540DINAV23XM1PFC
Tensione di riferimento / Reference voltage:	3x120/208 V 3x230/400 V con o senza neutro / with or without neutral connection
Frequenza di riferimento / Reference frequency :	50 Hz
Corrente minima / Minimum current :	0,25 A
Corrente transitoria / Transitional current:	0,50 A
Corrente di riferimento o nominale / Reference or rated current:	5 A
Corrente massima / Maximum current:	65 A
Costante di integrazione / Integration constant:	1000 imp/kWh
Indice di classe / Class index:	B
Misura dell'energia / Energy measure:	Bidirezionale con indicatore dell'energia sempre positiva, per i modelli EM540DINAV23XO1PFA, EM540DINAV23XS EM540DINAV23XM1PFA, Monodirezionale per i modelli EM540DINAV23XO1PFB, EM540DINAV23XO1PFC, EM540DINAV23XS1PFB, EM540DINAV23XS1PFC, EM540DINAV23XM1PFB, EM540DINAV23XM1PFC / Bidirectional with always positive register for EM540DINAV23XO1PFA, EM540DINAV23XS1PFA, EM540DINAV23XM1PFA models, Monodirectional for EM540DINAV23XO1PFB, EM540DINAV23XO1PFC, EM540DINAV23XS1PFB, EM540DINAV23XS1PFC, EM540DINAV23XM1PFB, EM540DINAV23XM1PFC models
Alimentazione / Power supply:	Interna / Inside

ALLEGATO / ANNEX

2.0 CARATTERISTICHE ELETTRICHE / ELECTRICAL CHARACTERISTICS

Tipo di contatore / Type of meter:	Statico / Static
Numero delle fasi / Number of phases:	3
Conduttori del circuito nel quale è inserito / Number of wires of circuit:	3 or 4
Tipo di inserzione / Type of connection:	Diretta / Direct
Se mediante trasformatore, la corrente secondaria nominale / If by mean transformer, the rated secondary current:	No / Not
Per reti con neutralizzatori di guasti verso terra / for networks with earth fault neutralizers:	No / Not

3.0 CONDIZIONI AMBIENTALI / ENVIRONMENT CONDICTION

Campo di temperatura / Temperature range:	-25°C ÷ 55°C
Umidità / Humidity:	Non condensata / Not condensing
Condizioni di utilizzo / Operation condition:	Per interno / For indoor use
Ambiente Meccanico / Mechanical Environment:	M2
Ambiente Elettromagnetico / Electromagnetic Environment:	E2

ALLEGATO / ANNEX

4.0 MATERIALI / MATERIAL CHARACTERISTICS

Materiale della custodia / *Material of cover:* PBT-RG151 Polybutylene Teraphthalate

Materiale della morsetteria / *Material of terminal-block:* PBT-RG151 Polybutylene Teraphthalate

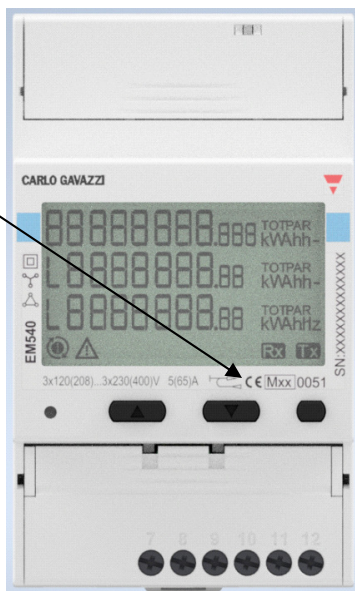
5.0 CARATTERISTICHE SOFTWARE / SOFTWARE CHARACTERISTICS

Versione software / *Software version:* 1.1.

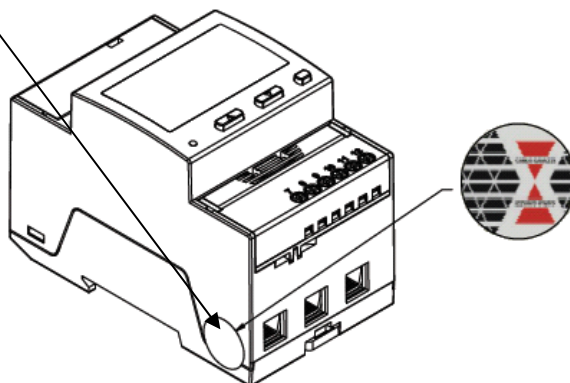
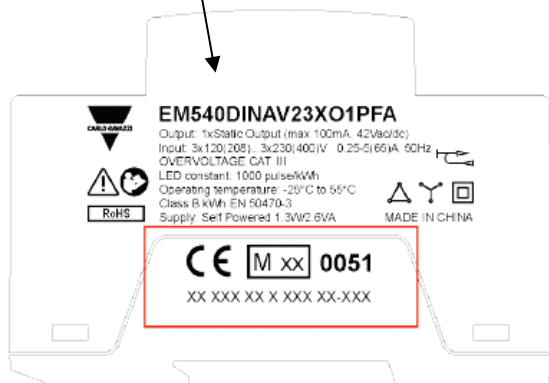
Identificativo software / *Software identification:* 0x4B4698BB

6.0 RIFERIMENTO INDICATIVO AL POSIZIONAMENTO DEI SIGILLI E DELLE MARCATURE / EXAMPLE OF POSITION OF SEALS AND MARKING

Targa, marcatura / *Marking plate*



Riferimento al posizionamento dei sigilli / *Indications about where seals have been applied*



Questo Certificato può essere riprodotto solo integralmente e senza alcuna variazione. Esso è soggetto alle condizioni generali e particolari di fornitura dei servizi di valutazione della conformità ai sensi delle Direttive comunitarie per le quali IMQ opera come Organismo Notificato.

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7.0 FUNZIONI ASSOCIATE / ASSOCIATED FUNCTIONS

Programma di gestione tariffe.

Misura dell'energia reattiva.

I soli modelli EM540DINAV23XO1PFA, EM540DINAV23XS1PFA, EM540DINAV23XM1PFA sono bidirezionali con indicatore dell'energia sempre positiva.

Il monitoraggio del consumo di energia viene eseguito tramite uscita ad impulso S0 per i modelli EM540DINAV23XO1PFA, EM540DINAV23XO1PFB, EM540DINAV23XO1PFC, porta seriale RS-485 per i modelli EM540DINAV23XS1PFA, EM540DINAV23XS1PFB, EM540DINAV23XS1PFC, porta di comunicazione integrata M-Bus per i modelli EM540DINAV23XM1PFA, EM540DINAV23XM1PFB, EM540DINAV23XM1PFC.

Program for tariff management.

Measurement of reactive energy.

The EM540DINAV23XO1PFA, EM540DINAV23XS1PFA, EM540DINAV23XM1PFA models are bidirectional with always positive register.

The consumption of energy is performed by pulses interface S0 for EM540DINAV23XO1PFA, EM540DINAV23XO1PFB, EM540DINAV23XO1PFC models, RS-485 serial interface for EM540DINAV23XS1PFA, EM540DINAV23XS1PFB, EM540DINAV23XS1PFC models, M-Bus communication for EM540DINAV23XM1PFA, EM540DINAV23XM1PFB, EM540DINAV23XM1PFC models.

8.0 CONDIZIONI D'USO PARTICOLARI / PARTICULAR USE CONDITIONS

Il grado di protezione IP51 è garantito solo se il contatore è installato in una scatola o quadro di distribuzione con grado di protezione IP51 o superiore / *The IP 51 protection degree is warranted only if the energy meter is installed in a box or distribution panel with IP degree or better*

9.0 FATTORI DI INFLUENZA PER TEMPERATURA, TENSIONE E FREQUENZA / INFLUENCE FACTORS FOR TEMPERATURE, VOLTAGE AND FREQUENCY

Durante l'esame di approvazione del tipo sono stati determinati i fattori di influenza per la temperatura, la tensione e la frequenza per ciascun valore di carico. In tabella sono riportate le somme quadratiche dei valori di variazione d'errore percentuale per ciascun valore di carico, l'elaborazione è stata eseguita mediante la seguente formula / *During the type-examination were determined influencing factors for the temperature, voltage and frequency for each value of load. Table shows the quadratic sums of the values of variation of percentage error for each value of the load, the processing was performed using the following formula:*

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

Dove:

$\delta e(T, U, f)$ Sommatoria dei fattori di influenza / *Sum of the factors of influence;*

$\delta e(T, I, \cos \varphi)$ errore percentuale addizionale dovuto alla variazione della temperatura allo stesso valore di carico / *additional percentage error due to the variation of the temperature at the same load value;*

$\delta e(U, I, \cos \varphi)$ errore percentuale addizionale dovuto alla variazione della tensione allo stesso valore di carico / *additional percentage error due to the variation of the voltage at the same load value;*

$\delta e(f, I, \cos \varphi)$ errore percentuale addizionale dovuto alla variazione della frequenza allo stesso valore di carico / *additional percentage error due to the frequency change to the same load value.*

Tabella riportata alla pagina seguente / *Table on the following page*

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ALLEGATO / ANNEX

Tabella / Table

Fattori di influenza / Influence factors				
Condizioni di carico / Load conditions		Campo di temperatura / Temperature range		
Fattore di Potenza / Power factor	Corrente / Current	5°C÷30°C	-10°C÷5°C 30°C÷40°C	-25°C÷10°C 40°C÷55°C
(cosφ)	(I)	(%)		
1	I _{min}	0,19	0,20	0,19
	I _{tr}	0,07	0,08	0,11
	I _{ref}	0,05	0,10	0,14
	I _{max}	0,07	0,10	0,14
0,5 ind.	I _{tr}	0,82	0,95	0,95
	I _{ref}	0,87	1,15	1,43
	I _{max}	0,57	0,73	0,77
0,8 cap.	I _{tr}	0,39	0,46	0,57
	I _{ref}	0,25	0,38	0,46
	I _{max}	0,31	0,41	0,41
L 1				
1	I _{tr}	0,16	0,23	0,25
	I _{ref}	0,08	0,13	0,25
	I _{max}	0,09	0,13	0,23
0,5ind.	I _{tr}	0,92	1,34	1,48
	I _{ref}	0,76	1,00	1,01
	I _{max}	0,55	1,32	1,32
L 2				
1	I _{tr}	0,08	0,13	0,14
	I _{ref}	0,08	0,09	0,12
	I _{max}	0,07	0,07	0,12
0,5ind.	I _{tr}	1,64	1,77	1,79
	I _{ref}	0,57	1,17	1,86
	I _{max}	1,28	1,28	1,09
L 3				
1	I _{tr}	0,09	0,10	0,18
	I _{ref}	0,08	0,09	0,15
	I _{max}	0,06	0,06	0,08
0,5ind.	I _{tr}	2,06	2,06	2,15
	I _{ref}	0,81	1,26	1,35
	I _{max}	1,53	1,53	1,16

EU Declaration of Conformity

We manufacturer

CARLO GAVAZZI CONTROLS SPA,

Via Safforze 8, 32100 - BELLUNO - ITALY. Tel. +39 0437 355811 - Fax +39 0437 355880

declare that the product(s)

Three-phase energy meters

**EM540DINAV23XO1PFA, EM540DINAV23XO1PFB, EM540DINAV23XO1PFC,
EM540DINAV23XS1PFA, EM540DINAV23XS1PFB, EM540DINAV23XS1PFC,
EM540DINAV23XM1PFA, EM540DINAV23XM1PFB, EM540DINAV23XM1PFC**

Production year: 2023. Id: first five characters of s/n from BX001 to BX365

is(are) in conformity with the applicable essential requirements of the following Directives:

MID Directive 2014/32/EU

(Type examination: Annex II module B. Quality assurance of production process: Annex II module D)

EN 50470-1:2006

Electricity metering equipment (a.c.) - Part 1: General requirements, tests and test conditions
- Metering equipment (class indexes A, B and C)

EN 50470-3:2006

Electricity metering equipment (a.c.) - Part 3: Particular requirements - Static meters for active energy (class indexes A, B and C)

Type examination certificate

n. 385/MID by IMQ

Quality assurance certificate

n. 387/MID by IMQ, Notified Body n. 0051

RoHS Directives 2011/65/EU, 2015/863/EU

EN 63000: 2018

Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances



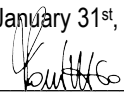
CE marking: design and manufacturing follow the provisions of the European Directives above mentioned

Manufacturer

Place/date

January 31st, 2023

**Signature
Name**


Vittorio Rossi
(Chief Executive Officer)

Notes:

This Manufacturer's Declaration of Conformity is only valid under the condition that:

- the above-mentioned products are protected against accidental touch and are installed as prescribed in the installation documentation.
- we are correctly informed about RoHS compliance of all components and raw material by the relevant suppliers.



EU Declaration of Conformity

We manufacturer

CARLO GAVAZZI CONTROLS SPA,

Via Safforze 8, 32100 - BELLUNO - ITALY. Tel. +39 0437 355811 - Fax +39 0437 355880

declare that the product(s)

Three-phase energy meters

**EM540DINAV23XO1X, EM540DINAV23XO1X, EM540DINAV23XO1X,
EM540DINAV23XS1X, EM540DINAV253XS1X, EM540DINAV23XS1X,
EM540DINAV23XM1X, EM540DINAV23XM1X, EM540DINAV23XM1X**

(may be followed by suffixes)

is(are) in conformity with the applicable essential requirements of the following Directives:

EMC Directive 2014/30/EU

EN 62052-11:2003 + A1:2017

Electricity metering equipment (AC) - General requirements, tests and test conditions.
Part 11: Metering equipment

RoHS Directives 2011/65/EU, 2015/863/EU

EN 63000: 2018

Technical documentation for the assessment of electrical and electronic products with respect
to the restriction of hazardous substances



CE marking: design and manufacturing follow the provisions of the European Directives above mentioned

ManufacturerPlace/date

Belluno, August 27th, 2021

**Signature
Name**


Fabio Fior
(General Manager)

Notes:

Electricity meters are not included in the scope of the Low Voltage Directive. Safety of products included in this Declaration was evaluated according to Standard EN 61010-1: 2010 (Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements.)

This Manufacturer's Declaration of Conformity is only valid under the condition that:

- the above-mentioned products are protected against accidental touch and are installed as prescribed in the installation documentation.
- we are correctly informed about RoHS compliance of all components and raw material by the relevant suppliers.

