

AEMC MESURES

Competent Body

(J.O.R.F of June 29, 1995)

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TECHNICAL REPORT OF ANALYSIS IN ELECTROMAGNETIC COMPATIBILITY

PROCEDURE 10.2 OF DIRECTIVE 89/336/EEC

N°: L02395TE

**COMPANY: SECURITRON MAGNALOCK CORP.
550 VISTA BOULEVARD
SPARKS NV 89434**

PRODUCTS: Magnetics locks

DATE: September 11, 2002

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**TECHNICAL REPORT OF ANALYSIS
IN ELETROMAGNETIC COMPATIBILITY**

**CONFORMITY WITH MARKING " CE " ACCORDING TO
PROCEDURE 10.2 OF 89/336/EEC DIRECTIVE**

Products: Magnetics locks products family
Manufacturer: SECURITRON
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Estimate number: L02369.1D
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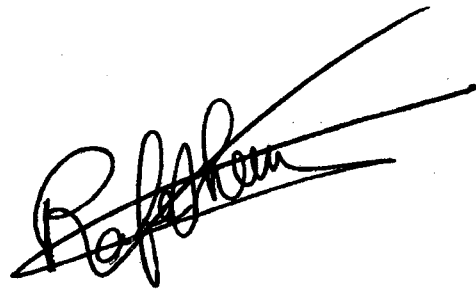
Bibliographical references: 89/336/EEC Directive
modified by 91/263/EEC, 92/31/EEC, 93/68/EEC, 93/97/EEC, 99/5/EEC directives

Observations:

This interpretation report covers only the test results of the equipment mentioned above.
No partial reproduction of this report can be carried out without the approval of the testing laboratory.

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The purpose of this report is marking CE within the meaning of directive 89/336/CEE of magnetics locks products family manufactured by company SECURITRON.

This document is accompanied by a technical construction file written by the company "SECURITRON" making it possible to appreciate the respect of the essential requirements of the directive. This technical file is composed of a list of the electromagnetic locks entering into the family, a list of components integrated in the electromagnetic locks, the plans of the magnetic locks.

This report is based on the following test report of electromagnetic compatibility :
Report L02319E (see the abstract in next pages). The magnetic lock tested in this report is the item M82SC with the PCB number MDV682 rev C with 2 coils.

The differences between the devices are :

- The letter M (Magnetic lock) or SAM (Shear Aligning Magnetic lock) or MCL (Mini magnetic lock) or SAM2 (Mini Shear Aligning Magnetic lock) : this difference is a mechanical difference and a PCB difference : PCB number MDV682 rev C for type M and PCB number MDV 34 rev B for type SAM.

The SAM2 and MCL shemes are the same. He is more simple than the others devices : only 2 components (a coil and a surtensor).

- The indication the holding force : -32 or 34 for 273kg
 - 62 for 545kg
 - 82 for 818kg
 - 455kg for SAM
 - 275kg for SAM2

- the main voltage (12VDC or 24VDC),

- the letter M for assembly Metrics screws,

- the letters SC : Sensor Contact. A cable is connected to the magnetic lock for information,

- the letter FM : Face Mount. The difference is the face for the mecanical assembly,

- the SAM model is transversal magnetic lock. For this model the PCB is different because the volume of the model is different. The integrated components are the sames.

The tested sample contain the 2 biggest coils (for 818kg of holding force) and the sensor contact. The main voltage is 24VDC.

The PCB are the same in the items M32, M34, M62, M82 (with or without the components option SC).

The 2 coils and/or the main voltage may be changed.

All these differences aren't changes the test results obtain in the sample tested.

The list of devices family is :

M32-12: Magnetic lock 273kg holding force, 12 volts.

M32M-12: Magnetic lock 273kg holding force, 12 volts, metric screws.

M32F-12: Magnetic lock 273kg holding force, 12 volts, face mount.

M32FM-12: Magnetic lock 273kg holding force, 12 volts, face mount, metric screws.

M32SC-12: Magnetic lock 273kg holding force, 12 volts, senstat.

M32SCM-12: Magnetic lock 273kg holding force, 12 volts, senstat, metric screws.

M32SCF-12: Magnetic lock 273kg holding force, 12 volts, senstat, face mount.

M32SCFM-12: Magnetic lock 273kg holding force, 12 volts, senstat, face mount, metric screws.

M32-24: Magnetic lock 273kg holding force, 24 volts.

M32M-24: Magnetic lock 273kg holding force, 24 volts, metric screws.

M32F-24: Magnetic lock 273kg holding force, 24 volts, face mount.

M32FM-24: Magnetic lock 273kg holding force, 24 volts, face mount, metric screws.

M32SC-24: Magnetic lock 273kg holding force, 24 volts, senstat.

M32SCM-24: Magnetic lock 273kg holding force, 24 volts, senstat, metric screws.

M32SCF-24: Magnetic lock 273kg holding force, 24 volts, senstat, face mount.

M32SCFM-24: Magnetic lock 273kg holding force, 24 volts, senstat, face mount, metric screws.

M34: Magnetic lock 273kg holding force, dual voltage.

M34M: Magnetic lock 273kg holding force, dual voltage, metric screws.

M34F: Magnetic lock 273kg holding force, dual voltage, face mount.

M34FM: Magnetic lock 273kg holding force, dual voltage, face mount, metric screws.

M34R: Magnetic lock 273kg holding force, dual voltage, recessed mounting.

M34RM: Magnetic lock 273kg holding force, dual voltage, recessed mounting, metric screws.

M34RSC: Magnetic lock 273kg holding force, dual voltage, recessed mounting, senstat.

M34RSCM: Magnetic lock 273kg holding force, dual voltage, recessed mounting, senstat, metric screws.

M34SC: Magnetic lock 273kg holding force, dual voltage, senstat.

M34SCM: Magnetic lock 273kg holding force, dual voltage, senstat, metric screws.

M34SCF: Magnetic lock 273kg holding force, dual voltage, senstat, face mount.

M34SCFM: Magnetic lock 273kg holding force, dual voltage, senstat, face mount, metric screws.

M62: Magnetic lock 545kg holding force, dual voltage.

M62M: Magnetic lock 545kg holding force, dual voltage, metric screws.

M62F: Magnetic lock 545kg holding force, dual voltage, face mount.

M62FM: Magnetic lock 545kg holding force, dual voltage, face mount, metric screws.

M62SC: Magnetic lock 545kg holding force, dual voltage, senstat.

M62SCM: Magnetic lock 545kg holding force, dual voltage, senstat, metric screws.

M62SCF: Magnetic lock 545kg holding force, dual voltage, senstat, face mount.

M62SCFM: Magnetic lock 545kg holding force, dual voltage, senstat, face mount, metric screws.

M82SC: Magnetic lock 818kg holding force, dual voltage, senstat (item tested)

M82SCM: Magnetic lock 818kg holding force, dual voltage, senstat.

M82SCF: Magnetic lock 818kg holding force, dual voltage, senstat, face mount.

M82SCFM: Magnetic lock 818kg holding force, dual voltage, senstat, face mount.

MCL-24: Mini magnetic lock 90kg holding force, 24 volts.

MCL-24M: Mini magnetic lock 90kg holding force, 24 volts, metric screws.

SAM: Shear Aligning magnetic lock 455kg holding force, dual voltage.

SAMM: Shear Aligning magnetic lock 455kg holding force, dual voltage, metric screws.

SAMSC: Shear Aligning magnetic lock 455kg holding force, dual voltage, senstat.

SAMSCM: Shear Aligning magnetic lock 455kg holding force, dual voltage, senstat, metric screws.

SAM2-24: Mini shear aligning magnetic lock 275kg holding force, 24 volts.

SAM2-24M: Mini shear aligning magnetic lock 275kg holding force, 24 volts, metric screws.

To conclude, the family of magnetics locks listed above manufactured by the company "SECURITRON" is supposed to respect the essential requirements of European directive 89/336/CEE and can be marked EC within the meaning of this directive for a use in the environment residential, commercial and industrials.

This report relates to only the products quoted in the technical dossier and does not prejudice essential requirements of other directives, nor of a change of manufacture compared to the technical dossier of construction.

INTERPRETATION OF TEST RESULTS OF THE L02319E REPORT**Conformity of the E.U.T.****In accordance with the EN 50081-1 standard, edition 1992****Emission**

Environmental phenomena	Test specification		Basic standard	Test result	Remarks
Harmonics current emission	0 kHz à 2 kHz		EN 61000-3-2	Not applicable	See note 2
AC power supply	0.15 à 0.5 MHz	Quasi-peak from 66 to 56 dB μ V Average de 56 à 46 dB μ V Linear decrease with the logarithm of the frequency	EN 55022 Class B	Fulfilis	
	0.5 à 5 MHz	Quasi-peak 56 dB μ V Average 46 dB μ V			
	5 à 30 MHz	Quasi-peak 60 dB μ V Average 50 dB μ V			
AC power supply	0.15 to 30 MHz	See the fundamental standard, article: discontinuous disturbances.	EN 55014-1	Fulfilis	
Enclosure	30 to 230 MHz 230 MHz to 1 GHz	30 dB μ V/m at 10 m 37 dB μ V/m at 10 m	EN 55022 Class B	Fulfilis	See note 1

Note 1: Applicable uniquement aux appareils contenant des dispositifs de traitement de données, par exemple microprocesseurs, fonctionnant à des fréquences supérieures à 9 kHz.

Note 2: Applicable aux appareils couverts par l'EN 60555-2 et l'EN 60555-3. Les limites pour les appareils non couverts actuellement par l'EN 60555-2 et l'EN 60555-3 sont à l'étude.

INTERPRETATION OF TEST RESULTS OF THE L02319E REPORT**Conformity of the E.U.T.****In accordance with the EN 61000-6-2 standard, edition 1999****Immunity****Enclosure port**

Environmental phenomena	Test specification	Basic standard	Performance criteria	Test result	Remarks
Radio-frequency electromagnetic field Amplitude modulated	80 à 1000 MHz 10 V/m (rms., unmod.) AM 80 % 1 kHz	EN 61000-4-3	A	Fulfil	The level is the field strength of the unmodulated signal.
Power-frequency magnetic field	50 Hz 3 A/m	EN 61000-4-8	A	Not applicable	See notes 1 and 2
Electrostatic discharge	+/- 4 kV contact discharge +/- 8 kV air discharge	EN 61000-4-2	B	Fulfil	

Note 1: applicable only to equipment containing devices susceptible to magnetic field, such as Hall elements, electrodynamic microphones, magnetic field sensors, etc.

Note 2:

INTERPRETATION OF TEST RESULTS OF THE L02319E REPORT**Conformity of the E.U.T.****In accordance with the EN 61000-6-2 standard, edition 1999****Immunity****Signal and data ports**

Environmental phenomena	Test specification	Basic standard	Performance criteria	Test result	Remarks
Radio-frequency common mode	0.15 à 80 MHz 10 V _{eff} (rms, unmod AM 80 % 1 kHz	EN 61000-4-6	A	Fulfil	See notes 1 and 2
Fast Transient	+/- 1 kV 5 / 50 Tr / Th ns Repetition frequency: 5 kHz	EN 61000-4-4	B	Fulfil	See note 2 Capacitive coupling clamp used
Shocks waves	1,2/50 µs +/- 1 kV in common mode	EN 61000-4-5	B	Fulfil	See note 3

Note 1: the level of test can be also defined like the equivalent current in a load of 150 ohms.

Note 2: applicable only to the accesses intended for cables of which the total length, according the specifications of the manufacturer, can exceed 3 meters.

Note 3: applicable only to the accesses intended for cables of which the total length, according the specifications of the manufacturer, can exceed 30 meters.

INTERPRETATION OF TEST RESULTS OF THE L02319E REPORT**Conformity of the E.U.T.****In accordance with the EN 61000-6-2 standard, edition 1999****Immunity****Input DC power ports**

Environmental phenomena	Test specification	Basic standard	Performance criteria	Test result	Remarks
Radio-frequency common mode	0.15 à 80 MHz 10 V _{eff} (rms, unmod AM 80 % 1 kHz	EN 61000-4-6	A	Fulfil	See notes 1 et 2
Fast Transient	+/- 2 kV 5 / 50 Tr / Th ns Repetition frequency: 5 kHz	EN 61000-4-4	B	Fulfil	See note 3
Shocks waves	1,2/50 µs +/- 0.5 kV in common mode +/- 0.5 kV in differential mode.	EN 61000-4-5	B	Fulfil	See note 3

Note 1: the level of test can be also defined like the equivalent current in a load of 150 ohms.

Note 2: applicable only to the accesses intended for cables of which the total length, according the specifications of the manufacturer, can exceed 3 meters.

Note 3: no applicable to the accesses intended to be connected to refillable piles or batteries which must be withdrawn or disconnected apparatus to be able to be reloaded. The apparatus provided with an input for DC current intended to be used with a current adapter of feeding alternate-continuous current must be tested on the input in AC current of the adapter specified by the manufacturer or a typical adapter, when the manufacturer does not specify any of it. The test is applicable to the inputs of power DC current intended to be connected permanently to cables length higher than 10 meters.

INTERPRETATION OF TEST RESULTS OF THE L02319E REPORT**Conformity of the E.U.T.****In accordance with the EN 61000-6-2 standard, edition 1999****Immunity****Input AC power ports**

Environmental phenomena	Test specification	Basic standard	Performance criteria	Test result	Remarks
Radio-frequency common mode	0.15 à 80 MHz 3 V _{eff} (rms, unmod AM 80 % 1 kHz	EN 61000-4-6	A	Not applicable	See note 1
Fast Transient	+/- 1 kV 5 / 50 Tr / Th ns Repetition frequency: 5 kHz	EN 61000-4-4	B	Not applicable	
Shocks waves	1,2/50 µs +/- 2 kV in common mode +/- 1 kV in differential mode.	EN 61000-4-5	B	Not applicable	See note 2
Voltage dips	Duration (in period) : 10 ms Ut = 70%	EN 61000-4-11	B	Not applicable	
	Duration (in period) : 100 ms Ut = 40%		C	Not applicable	
Voltage short interruption	Duration (in period) : 5000 ms Ut < 5%		C	Not applicable	

Note 1: the level of test can be also defined like the equivalent current in a load of 150 ohms.**Note 2:** applicable only to input accesses.

INTERPRETATION OF TEST RESULTS OF THE L02319E REPORT**Conformity of the E.U.T.****In accordance with the EN 61000-6-2 standard, edition 1999****Immunity****Functional ground port**

Environmental phenomena	Test specification	Basic standard	Performance criteria	Test result	Remarks
Radio-frequency common mode	0.15 à 80 MHz 3 V _{eff} (rms, unmod) AM 80 % 1 kHz	EN 61000-4-6	A	Not applicable	See note 1
Fast Transient	+/- 1 kV 5 / 50 Tr / Th ns Repetition frequency: 5 kHz	EN 61000-4-4	B	Not applicable	See note 2

Note 1: the level of test can be also defined like the equivalent current in a load of 150 ohms.

Note 2: applicable only to the accesses intended for cables of which the total length, according the specifications of the manufacturer, can exceed 3 meters.