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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This report contains 11 pages.

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
Contact:	M. BOULEAU
Estimate number:	L02369.1D
Writer:	Thierry RAFESTHAIN

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.

Issued date 2002 : 2002-09-11

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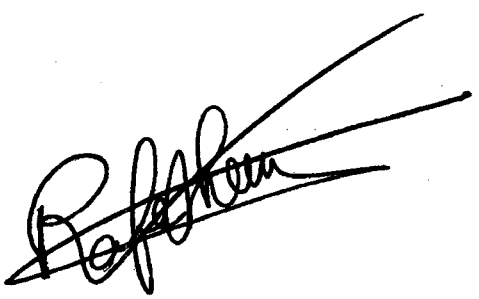

Thierry RAFESTHAIN

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 abstact 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 prejudge 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 dBµV Average de 56 à 46 dBµV Linear decrease with the logarithm of the frequency	**EN 55022 Class B**	**Fulfils**	
	0.5 à 5 MHz	Quasi-peak 56 dBµV Average 46 dBµV			
	5 à 30 MHz	Quasi-peak 60 dBµV Average 50 dBµV			
AC power supply	0.15 to 30 MHz	See the fundamental standard, article: discontinuous disturbances.	**EN 55014-1**	**Fulfils**	
Enclosure	30 to 230 MHz 230 MHz to 1 GHz	30 dBµV/m at 10 m 37 dBµV/m at 10 m	**EN 55022 Class B**	**Fulfils**	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 61000-6-2standard, 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**	**Fulfils**	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**	**Fulfils**	

Note 1: applicable only to equipment containing devices susceptible to magnetic field, such as Hall elements, electrodynamics 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 61000-6-2standard, 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 Veff (rms, unmod AM 80 % 1 kHz	**EN 61000-4-6**	**A**	**Fulfils**	See notes 1and 2
Fast Transient	+/- 1 kV 5 / 50 Tr / Th ns Repetition frequency: 5 kHz	**EN 61000-4-4**	**B**	**Fulfils**	See note 2 Capacitive coupling clamp used
Shocks waves	1,2/50 µs +/- 1 kV in common mode	**EN 61000-4-5**	**B**	**Fulfils**	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 61000-6-2standard, 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 Veff (rms, unmod AM 80 % 1 kHz	**EN 61000-4-6**	**A**	**Fulfils**	See notes 1 et 2
Fast Transient	+/- 2 kV 5 / 50 Tr / Th ns Repetition frequency: 5 kHz	**EN 61000-4-4**	**B**	**Fulfils**	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**	**Fulfils**	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 61000-6-2standard, 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 Veff (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 61000-6-2standard, 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 Veff (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.