

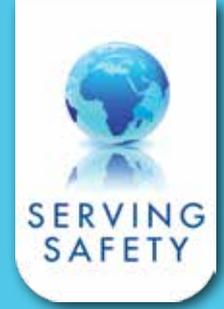


SERVING
SAFETY



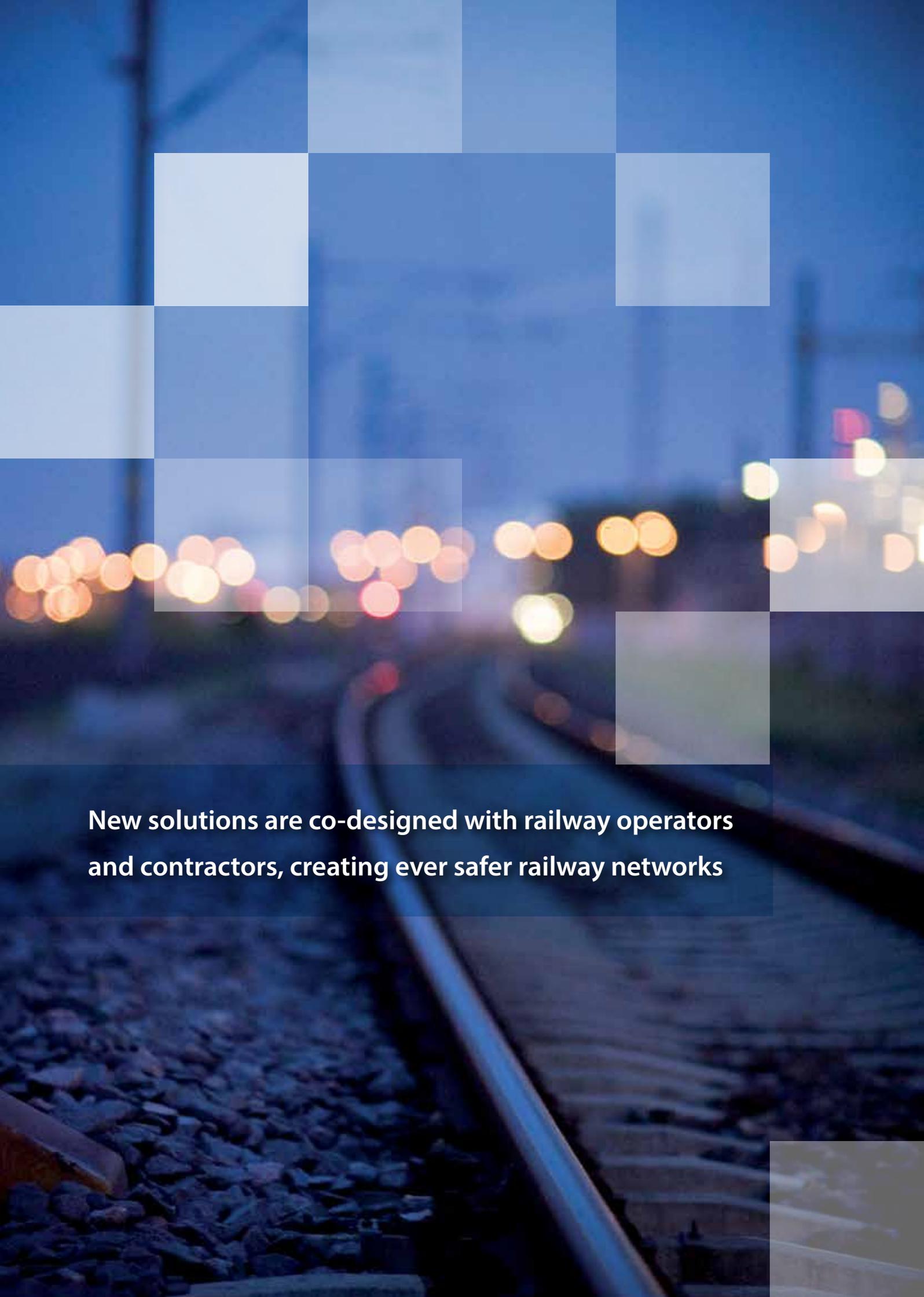
Mors Smitt Railway Technology

N.S1 Signalling and vital relays



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**New solutions are co-designed with railway operators
and contractors, creating ever safer railway networks**

Introduction



Mors Smitt a well known railway relay supplier has expanded it's wide range of relay products with N.S1 signalling and vital relays comforted by three decades experience in the field.

Unique features

Mors Smitt N.S1 relays incorporate unique features such as spring enhanced gravity function in combination with "non weldable" double make -double break contacts, weld no transfer function, gold bifurcated signal contacts, ensuring the compliance with the highest safety demands.

Our experience

Our factory offers automated vision system and operator inspection as well as an automated end of line testing with conformity certificates with each order. Also included are recertification and repair services.

Not just our products and services but also our production sites are focused on environmental performance improvements by certifications according to the IRIS, ISO 9001:2008 and ISO 14001 standards.

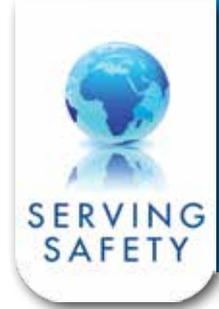
Safety functions. Reliability. Mors Smitt.





Quality and safety are the drivers of our thinking and doing

Proven reliable



Standards

N.S1 relays are fully compliant to French railway and SNCF standards:

- | | |
|------------|--|
| NF F70-021 | Railway fixed equipment
Modulated switchgear enclosures
Classification, definition of test and approval procedures |
| NF F70-020 | Fixed railway equipment
Case of modular equipment
Engineering and designing rules |
| NF F70-032 | Railway fixed equipment
Safety electromechanical relays
Routing tests |
| NF F70-031 | Fixed railway equipment
Safety electromechanical relays
Approval procedure and type test |
| NF F70-030 | Railway applications - Fixed installations -
Safety electromechanical relays -
Engineering and designing rules |



N.S1 series

Product range

N.S1 signalling and vital relays are a consistent, adaptable range of relays with plug-in connection, small size, modular construction, low power consumption, compliant to French and SNCF standards, conformity to UIC recommendation, Ag / Ag CdO contacts and 24 V standard.

The portfolio & functions are as follow:

Line relay



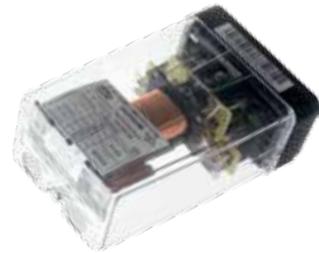
N.S1-L-24-4.0.4

Point operating relay



N.S1-R-24-4.0.4

Post relay



N.S1-P-24-4.0.4



N.S1-L-24-12.0.8



N.S1-P-24-12.0.8

Ordering code

N.S 1 - P - 24 - 12 . 0 . 8

N
Non monitored
acc. to UIC 736

S
Signalling

1
France

L Line relay
P Post relay
R Point operating
relay

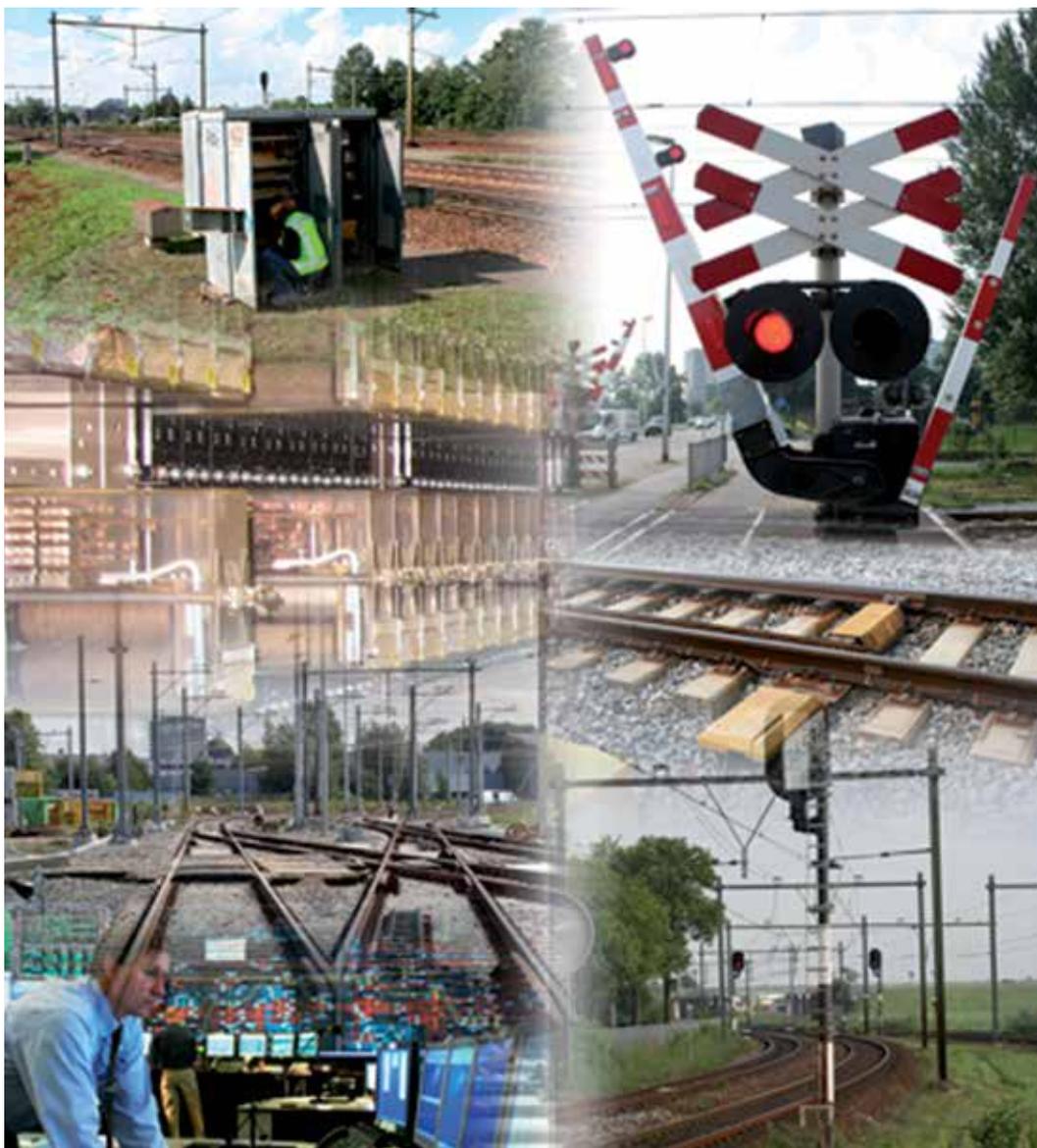
24
Nominal operating
voltage

N/O / C/O / N/C
Number and function
of contacts

References

N.S1 relays are implemented in the applications by:

- Railways : SNCF, RENFE, ENR (Egypt), NS (Netherlands), Spoornet (South Africa) and various networks in Algeria, Argentina, Australia, Bangladesh, Belgium, Brasil, Canada, China, Chili, Cuba, Greece, Hong Kong, India, Indonesia, Italy, Latvia, Luxemburg, Mexico, Morocco, New Zealand, Portugal, Singapore, Slovenia, South Korea, Spain, Switzerland, Tunesia, Turkey, UK and Vietnam
- Mass-transits and metros: RATP Paris, Lyon, Marseille, (France) MTRC (Hong-Kong), Santiago (Chile), Caracas (Venezuela), Mexico city (Mexico), Cairo (Egypt) and more



Features

Characteristics

N.S1 relays are modular plug-in relays designed for safety functions in railway signalling installations. They are in conformity with UIC recommendations and French National Railways specifications.

N.S1 relays operating characteristics are guaranteed at any temperature between -25°C to +70°C and mechanical performance of 10 million operations.

Contact breaking power:

- Front contact: 3 A, 24 VDC
- Front contact (breaker): 5 A, 380 VAC
- Back contact: 3 A, 24 VDC

N.S1 relays and modules :

- Consistent, adaptable range of relays
- Plug-in connection
- Small size
- Modular construction
- Low power consumption
- French and SNCF standards
- Driver-type contacts: Front contacts: Ag / Ag CdO
Front contacts (breaker): Ag Ni / Ag Ni
Back contacts: Ag / Ag CdO
- Standard voltage: 24 VDC

Description	Function	No. of modules	Contacts			Weight (kg)	Coils resistance or impedance (Ohm)	Rated voltage (VDC)
			Front or right	Two ways	Back or left			
N.S1-P-24-4.0.4	Post	1	4	0	4	<0.85	250	24
N.S1-L-24-4.0.4	Line	1	4	0	4	<0.95	600	24
N.S1-R-24-4.0.4	Point operating	1	4*	0	4	<0.95	150	24
N.S1-P-24-12.0.8	Post	2	12	0	8	<1.50	250	24
N.S1-L-24-12.0.8	Line	2	12	0	8	<1.75	600	24

* (breaker)

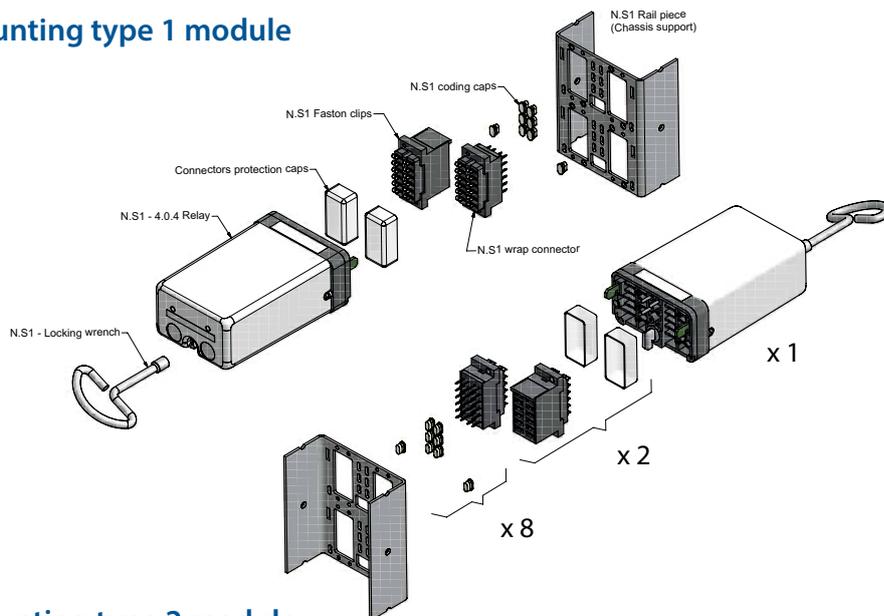
Modular concept

The N.S1 equipment is removable i.e. the relay itself and its accessories which can be plugged into the “ fixed ” equipment.

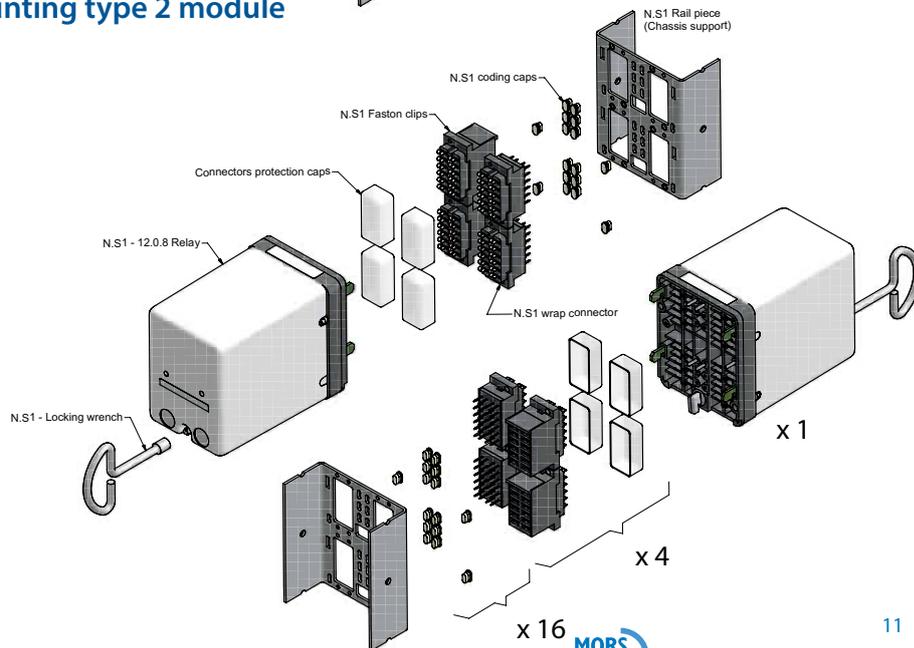
The removable equipment is accommodated in separate plug-in housing. The moving part of the plug-in connector consists of a molded base bearing the mechanism and the contact blades of the relay.

A modular component is specified with reference to a basic module. Only the height of the component can vary, depending on how many modules are necessary to accommodate its constituents.

N.S1 mounting type 1 module



N.S1 mounting type 2 module



Accessories

Bill of material for N.S1 modules

Relays		SNCF symbol	Part number	Quantity
N.S1 relay	N.S1-P-24-4.0.4	7.954.0230	Q43PF0061	1
	N.S1-L-24-4.0.4	7.954.4062	Q43PF0062	1
	N.S1-R-24-4.0.4	7.954.0234	Q43PF0063	1
	N.S1-P-24-12.0.8	7.954.0231	Q43PF0058	1
	N.S1-L-24-12.0.8	7.954.3824	Q43PF0059	1

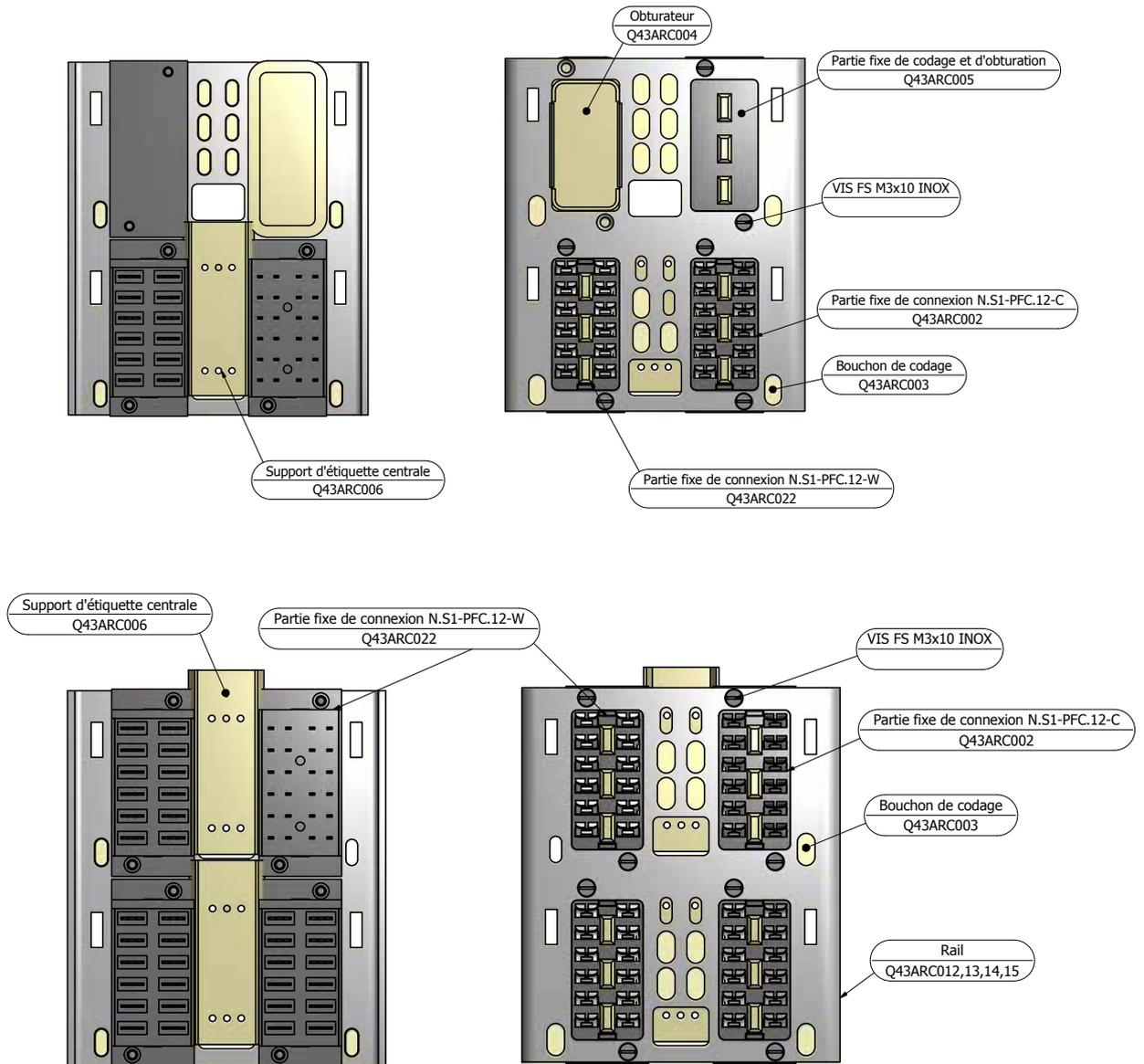
Rail mounting accessories				
N.S1 rail	4 modules		Q43ARC012	1
	10 modules		Q43ARC013	1
	20 modules		Q43ARC014	1
	30 modules		Q43ARC015	1
Marking labels with rivets for	N.S1-P-24-4.0.4		Q43ARC007	1
	N.S1-L-24-4.0.4		Q43ARC008	1
	N.S1-R-24-4.0.4		Q43ARC009	1
	N.S1-P-24-12.0.8		Q43ARC010	1
	N.S1-L-24-12.0.8		Q43ARC011	1
No relay snap-on cover	N.S1-PFO	7.954.0381	Q43ARC004	Optional
No relay empty connector with screws and contacts coding	N.S1-PFCO	7.954.4543	Q43ARC005	Optional
Coding cap		7.966.0496	Q43ARC003	8 per module
Marking holder		7.966.0494	Q43ARC006	1
Screw stainless steel M3x10			211643011	4 per module
Screw zinc brichomated M3x10			60301106	4 per module
Clip connector	N.S1-PFC.12-C	7.954.0380	Q43ARC002	2 per module
Wrapping connector	N.S1-PFC-12.W	7.954.4436	Q43ARC022	2 per module

Wall mounting accessories				
AV front connector	N.S1-PFC-AV-24	7.954.3895	Q43ARC017	1 per module

Accessories				
N.S1 locking wrench			Q43ARC001	

For N.S1-PFC.12-C				
Tinned clip 2.8 x 0.5 (red)	Faston 2.8 x 0.5	7.847.1903	OEA408221	tbd*
Gold plated clip 2.8 x 0.5 (red)	Faston 2.8 x 0.5	7.847.1902	OEA408222	tbd*
Gold plated clip 2.8 x 0.5 (white)	Faston 2.8 x 0.5	7.847.1901	OEA408223	tbd*

Installation of N.S1 relays



Specifications

N.S1-L-24-4.0.4 - Instantaneous vital relay

Description

Instantaneous electro-mechanical vital relay



Features

The N.S1-L-24-4.0.4 is a 24 VDC track side safety relay for the signalling railway market. It is a single module plug-in relay with positive mechanical keying, equipped with 4 normally open contacts and 4 normally closed contacts.

Standard

NF F70-030 August 2004

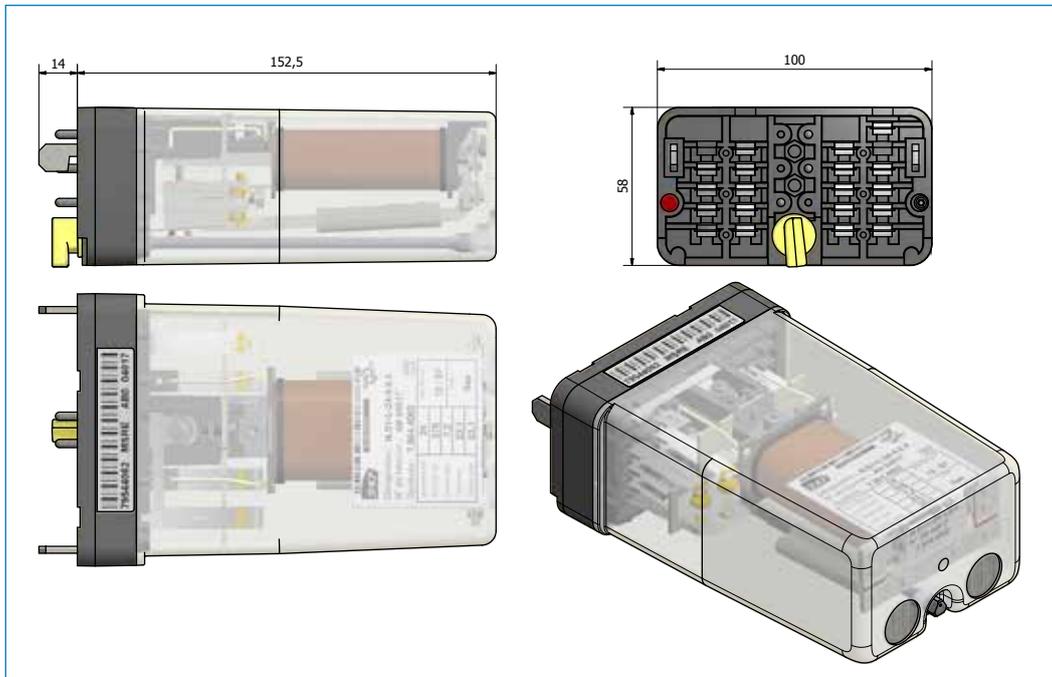
NF F70-020 September 1991

SNCF symbol: 7.954.4062 mechanical keying: 245

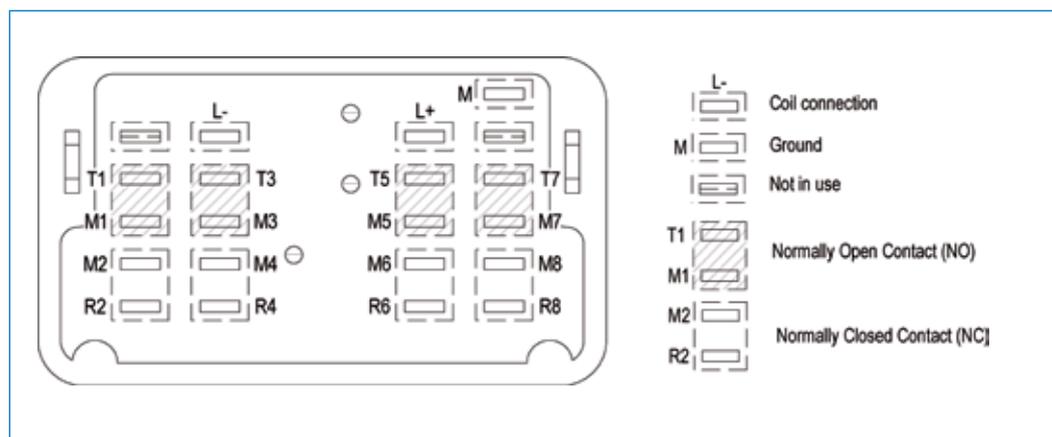
General specifications

N.S1-L-24-4.0.4	
Function	Line
Housing type (# modules)	1
Contact arrangement	N/O : 4 C/O : 0 N/C : 4
Command elements (coils)	1
Operating temperature range	-25 °C...+70 °C
Nominal voltage (operating voltage range)	24 VDC (-6%, +20%)
Coil resistance at 15 °C	600 ohm \pm 5%
Minimal drop out torque	0.15 Nm
Relay socket	2x N.S1-PFC.12-C or 1x N.S1-PFC.AV-24
Dimensions (l x w x h)	152,5 x 100 x 58 mm
Weight	< 0.95 kg

Dimensions



Contacts position and marking



Specifications

N.S1-L-24-12.0.8 - Instantaneous vital relay

Description

Instantaneous electro-mechanical vital relay



Features

The N.S1-L-24-12.0.8 is a 24 VDC track side safety relay for the signalling railway market. It is a dual module plug-in relay with positive mechanical keying, equipped with 12 normally open contacts and 8 normally closed contacts.

Standard

NF F70-030 August 2004

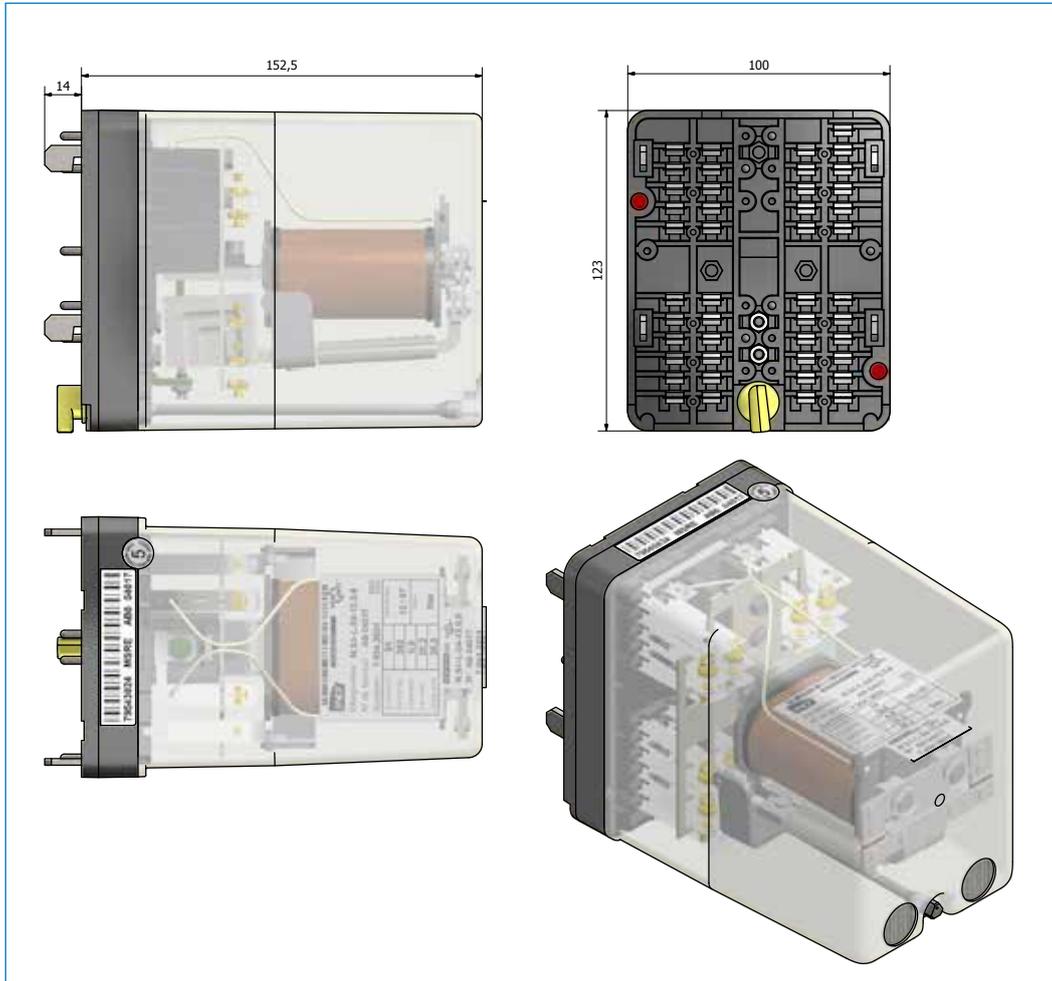
NF F70-020 September 1991

SNCF symbol: 7.954.3824 mechanical keying: 238.23

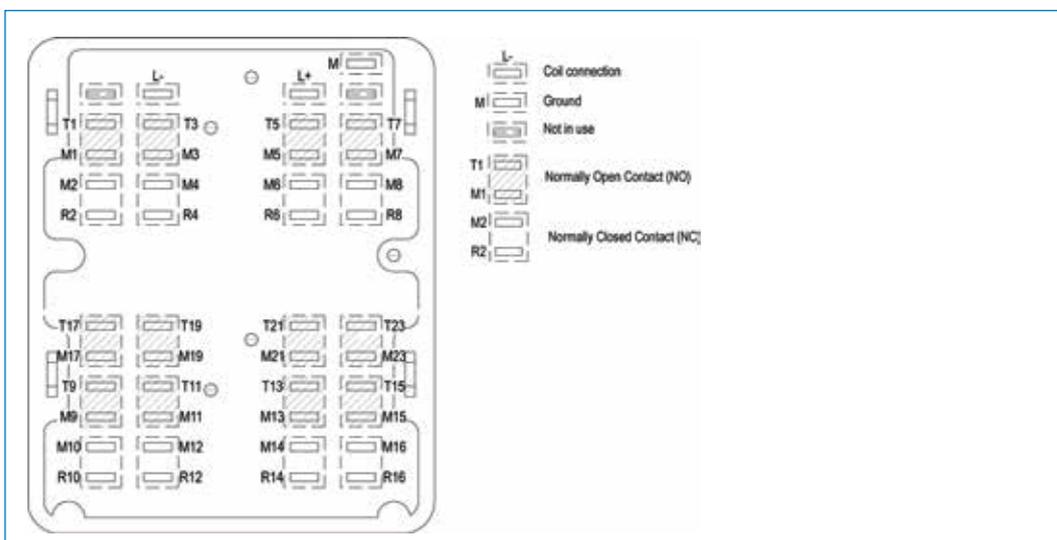
General specifications

N.S1-L-24-12.0.8	
Function	Signalling, trackside
Housing type (# modules)	2
Contact arrangement	N/O : 12 C/O : 0 N/C : 8
Command elements (coils)	1
Operating temperature range	-25 °C...+70 °C
Nominal voltage (operating voltage range)	24 VDC (-6%, +20%)
Coil resistance at 15 °C	600 ohm \pm 5%
Minimal drop out torque	0.15 Nm
Relay socket	4x N.S1-PFC.12-C or 2x N.S1-PFC.AV-24
Dimensions (l x w x h)	152.5 x 100 x 123 mm
Weight	< 1.75 kg

Dimensions



Contacts position and marking



Specifications

N.S1-P-24-4.0.4 - Instantaneous vital relay

Description

Instantaneous electro-mechanical vital relay



Features

The N.S1-P-24-4.0.4 is a 24 VDC track side safety relay for the signalling railway market. It is a single module plug-in relay with positive mechanical keying, equipped with 4 normally open contacts and 4 normally closed contacts.

Standard

NF F70-030 August 2004

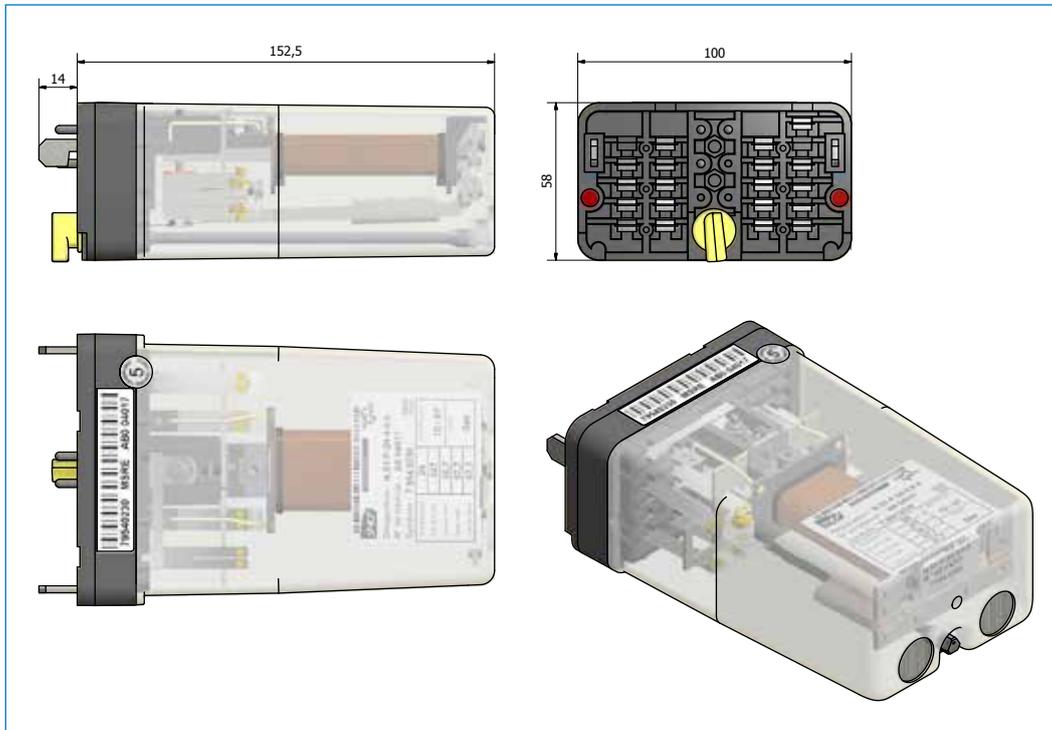
NF F70-020 September 1991

SNCF symbol: 7.954.0230 mechanical keying: 123

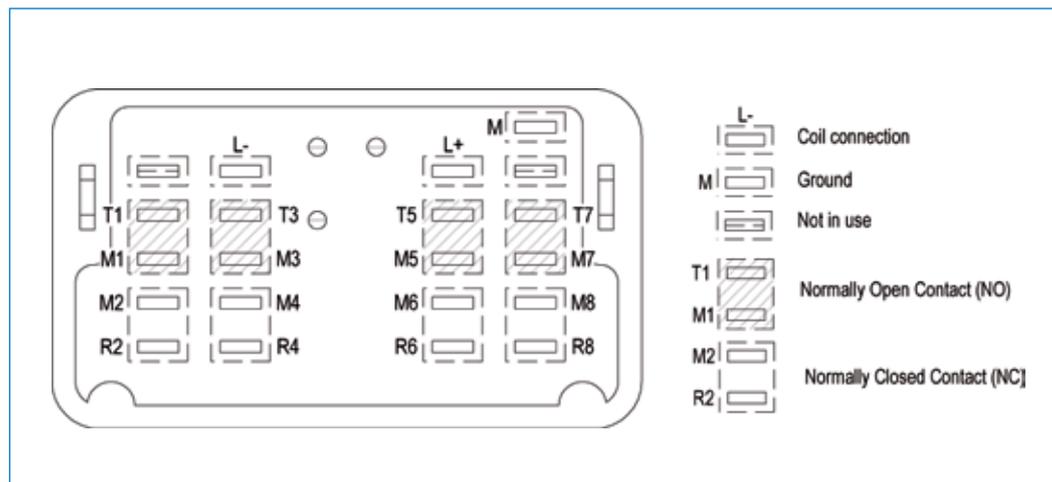
General specifications

N.S1-P-24-4.0.4	
Function	Post
Housing type (# modules)	1
Contact arrangement	N/O : 4 C/O : 0 N/C : 4
Command elements (coils)	1
Operating temperature range	-25 °C...+70 °C
Nominal voltage (operating voltage range)	24 VDC (-6%, +20%)
Coil resistance at 15 °C	250 ohm ± 5%
Minimal drop out torque	0.15 Nm
Relay socket	2x N.S1-PFC.12-C or 1x N.S1-PFC.AV-24
Dimensions (l x w x h)	152.5 x 100 x 58 mm
Weight	< 0.95 kg

Dimensions



Contacts position and marking



Specifications

N.S1-P-24-12.0.8 - Instantaneous vital relay

Description

Instantaneous electro-mechanical vital relay



Features

The N.S1-P-24-12.0.8 is a 24 VDC track side safety relay for the signalling railway market. It is a dual module plug-in relay with positive mechanical keying, equipped with 12 normally open contacts and 8 normally closed contacts.

Standard

NF F70-030 August 2004

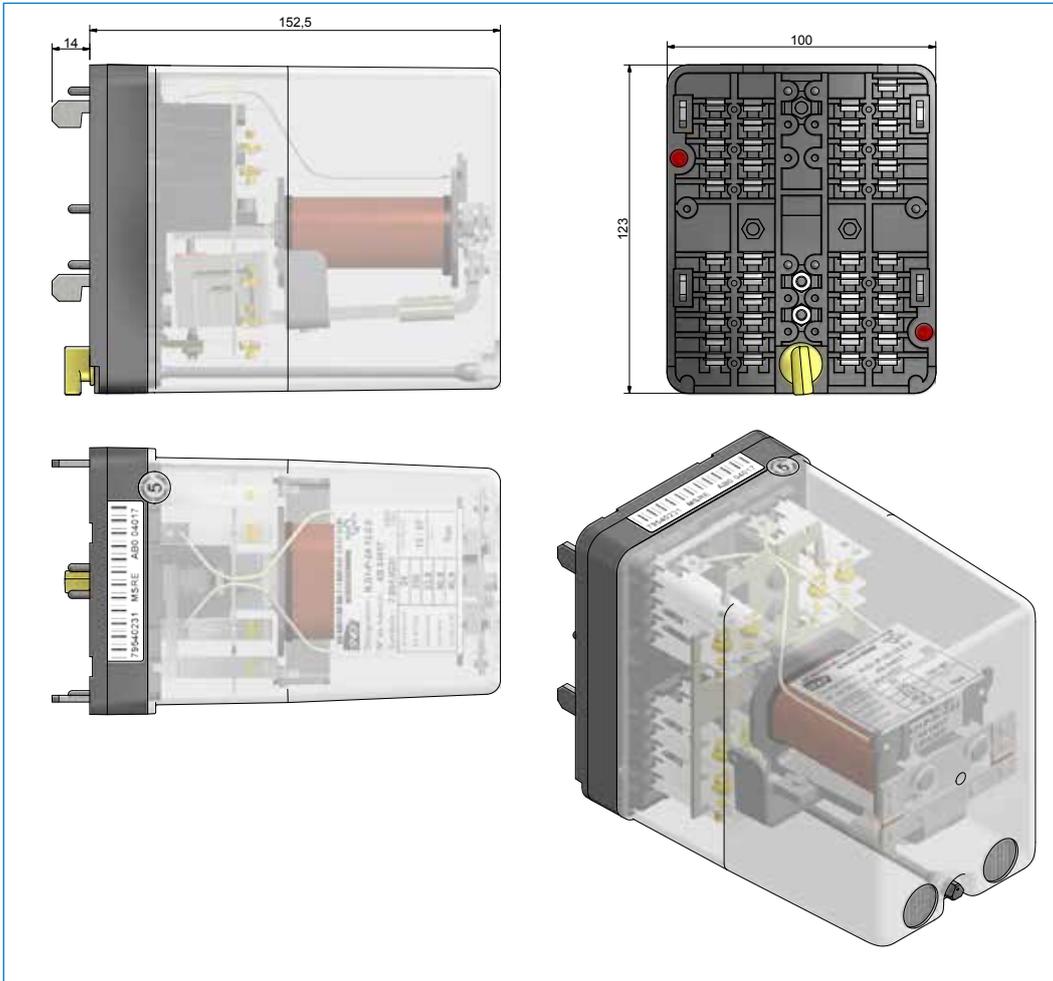
NF F70-020 September 1991

SNCF symbol: 7.954.0231 mechanical keying: 128-12

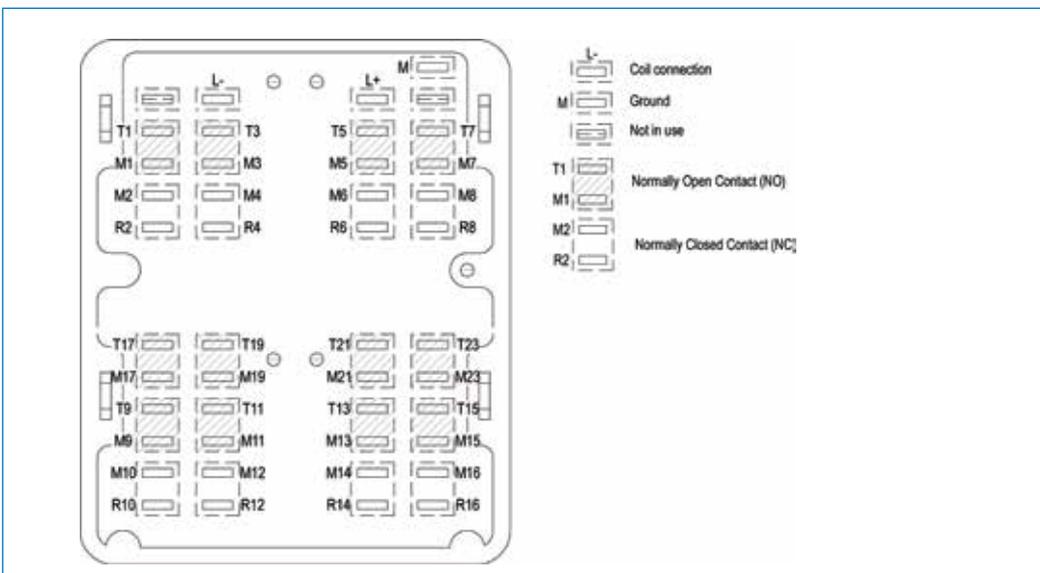
General specifications

N.S1-P-24-12.0.8	
Function	Signalling, trackside
Housing type (# modules)	2
Contact arrangement	N/O : 12 C/O : 0 N/C : 8
Command elements (coils)	1
Operating temperature range	-25 °C...+70 °C
Nominal voltage (operating voltage range)	24 VDC (-6%, +20%)
Coil resistance at 15 °C	250 ohm \pm 5%
Minimal drop out torque	0.15 Nm
Relay socket	4x N.S1-PFC.12-C or 2x N.S1-PFC.AV-24
Dimensions (l x w x h)	152.5 x 100 x 123 mm
Weight	< 1.50 kg

Dimensions



Contacts position and marking



Specifications

N.S1-R-24-4.0.4 - Instantaneous vital relay

Description

Instantaneous electro-mechanical vital relay for switch machine motor command.



Features

The N.S1-R-24-4.0.4 is a 24 VDC track side safety relay for the signalling railway market. It is a single module plug-in relay with positive mechanical keying, equipped with 4 heavy duty normally open contacts and 4 normally closed contacts.

Standard

NF F70-030 August 2004

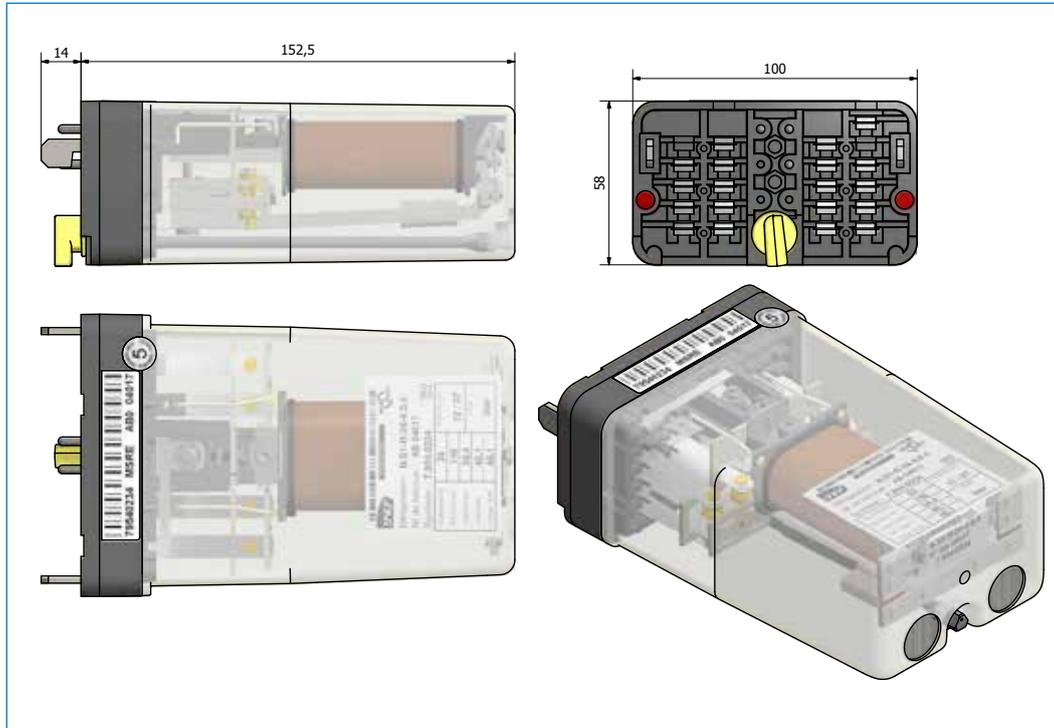
NF F70-020 September 1991

SNCF symbol: 7.954.0234 mechanical keying: 124

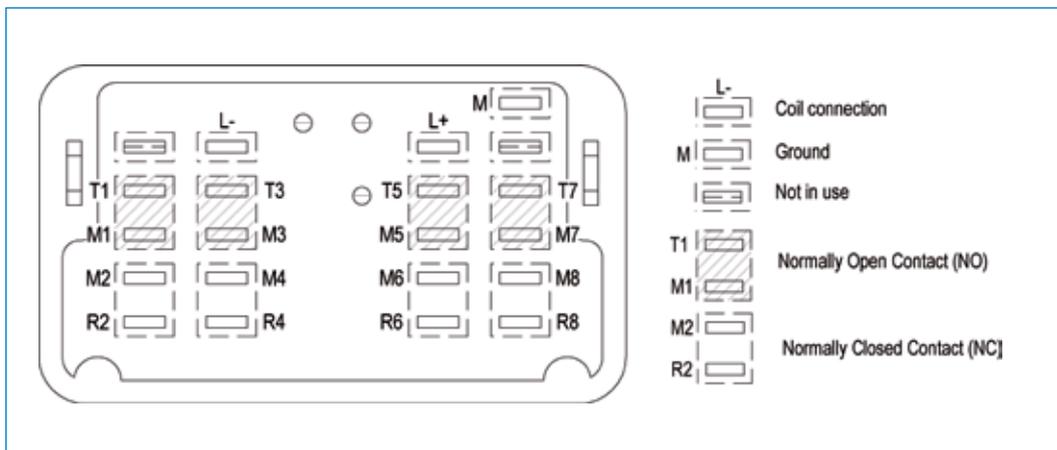
General specifications

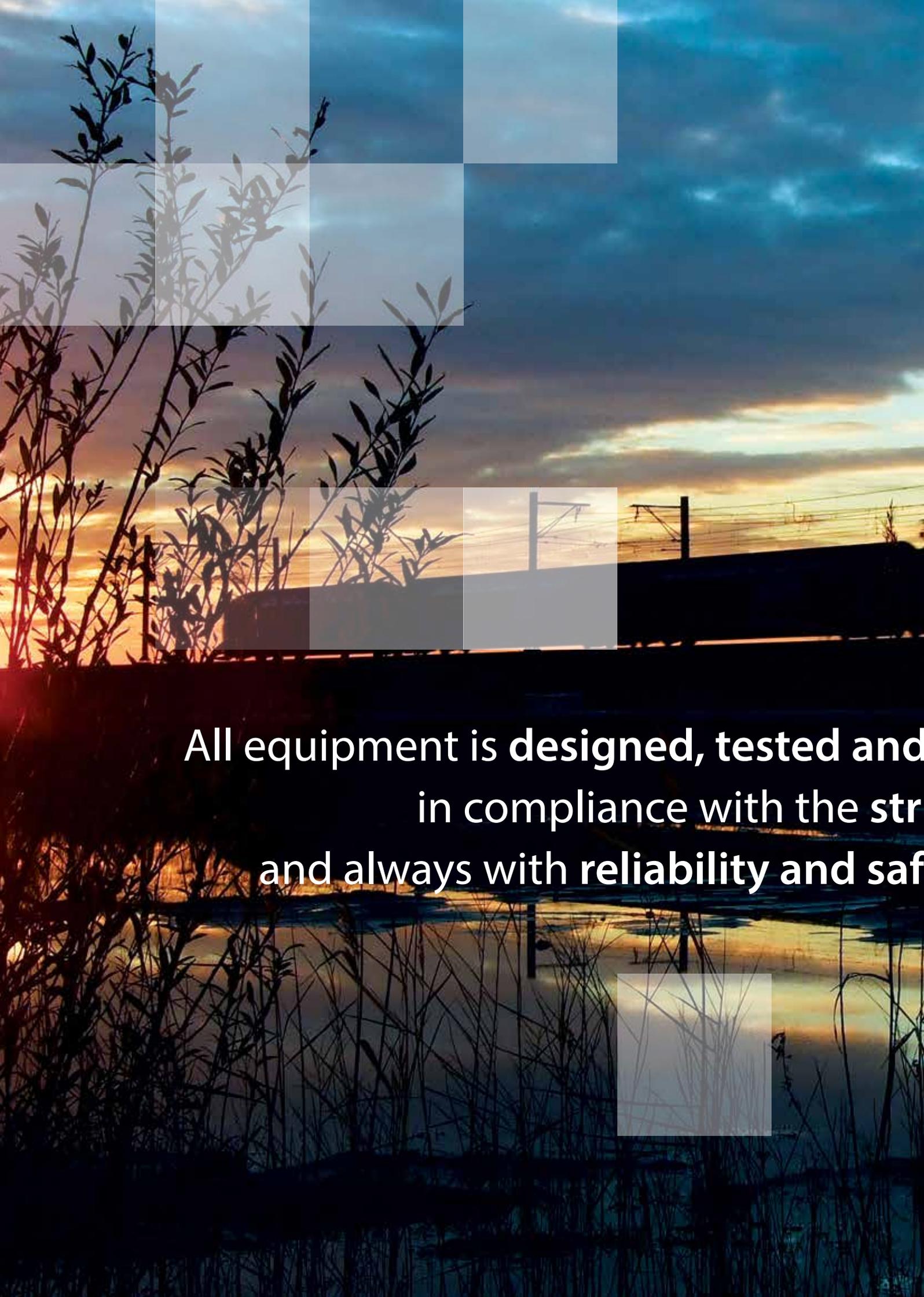
N.S1-R-24-4.0.4	
Function	Switch machine motor command
Housing type (# modules)	1
Contact arrangement	N/O : 4 C/O : 0 N/C : 4
Command elements (coils)	1
Operating temperature range	-25 °C...+70 °C
Nominal voltage (operating voltage range)	24 VDC (-6%, +20%)
Coil resistance at 15 °C	150 ohm ± 5%
Minimal drop out torque	0.15 Nm
Relay socket	2x N.S1-PFC.12-C or 1x N.S1-PFC.AV-24
Dimensions (l x w x h)	152.5 x 100 x 58 mm
Weight	< 0.95 kg

Dimensions



Contacts position and marking



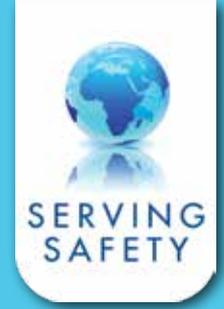


**All equipment is designed, tested and
in compliance with the str
and always with reliability and saf**



**l manufactured
tictest international standards
ety in the front of our mind**





Mors Smitt Railway Technology

Signalling and vital relays N.S1

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