

## /// Plug-in railway relay

Rugged plug-in relays for extreme reliability, within long endurance applications and harsh environments

### N.S1-R-24-4.0.4

Instantaneous relay, signalling, switch machine motor command



#### Description

The N.S1-R-24-4.04 24 VDC instantaneous electro-mechanical vital relay is a 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.




#### Application

The N.S1-R-24-4.04 is designed for applications such as signaling light control, automatic gate control, point mechanism control, control room.

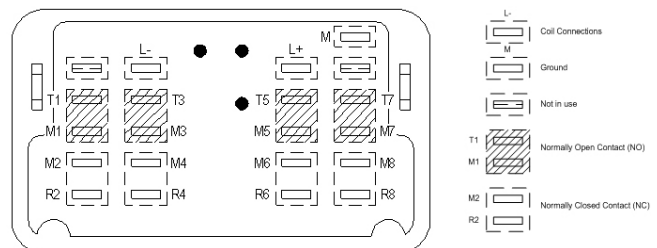
#### Features

- Instantaneous electro-mechanical vital relay
- Weld resistant contacts
- Weld no transfer contacts
- Gravity drop out
- Solid gold and bifurcated contacts
- -25 °C...+70 °C operating temperature

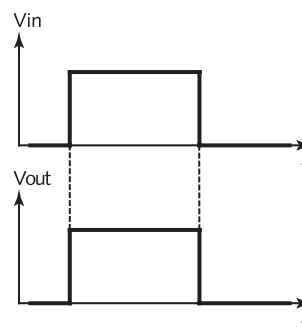
#### Marking

	MS RELAIS SAS	
Désignation : N.S1-R-24-4.0.4		
N° de fabricat. : 05		
Symbole : 7.954.0234		
		ISO 
U nominal (V)	24	Date Recept.
R à 15°C (Ω)	150	3...94
I chute (mA)	24.9	Code K...74
I attr. (mA)	54.9	
I comp. (mA)	54.9	
MS RELAIS SAS		
MORS SMITT		
N.S1-R-24-4.0.4		
N° 05		
7.954.0234		

#### Contact & marking

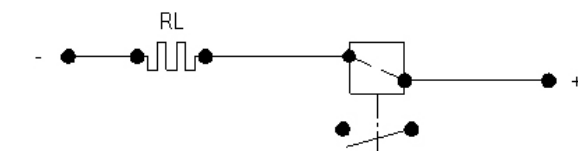


#### Timing diagram



#### Railway compliancy

- NF F70-030 August 2004
- NF F70-020 September 1991
- NF F70-031 - Type approval testing procedure
- NF F70-032 - Series acceptance test procedure



## Technical specifications

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

### Function

Function	Switch machine motor command
Housing type (# modules)	1
Contact arrangement: Normally Open (N/O) Change Over (C/O) Normally Closed (N/C)	4 0 4
Number of command elements (coils)	1

### Contact characteristics

Travel and minimum contact gap: Minimum travel between the opening of the last making contact and the closing of the first breaking contact (neutral) Minimum fixed contact over travel Normally open contacts minimum gap when mobile armature is in rest position Normally closed contacts minimum gap when mobile armature is picked up	0.7 mm 0.5 mm 1.2 mm 1.2 mm
Alignment	All contacts of the same type must close simultaneously, with a tolerance of 0.3 mm between making of the first and the last contact
Contact pressure	Normally closed: $\geq 0.2$ N Normally open: $\geq 0.5$ N
Maximum contact bounce time	20 ms

### Operating time (ms)

Total pick-up time	$5 \text{ ms} < T_a < 70 \text{ ms}$
Normally open contacts opening time on drop-out	$5 \text{ ms} < T_c < 20 \text{ ms}$
Pick-up transfer time	$1 \text{ ms} < t_a < 40 \text{ ms}$
Drop-out transfer time	$1 \text{ ms} < t_c < 20 \text{ ms}$

### General characteristics

Nominal voltage	24 VDC (-6...+20 %)
Coil resistance at 15 °C	150 ohm $\pm 5$ %
Maximum resistance which can be connected in series with the coil	10 ohm
Minimal drop-out torque	0.15 Nm
Dimensions	152.5 x 100 x 58 mm
Weight	< 0.85 kg

### Electrical characteristics

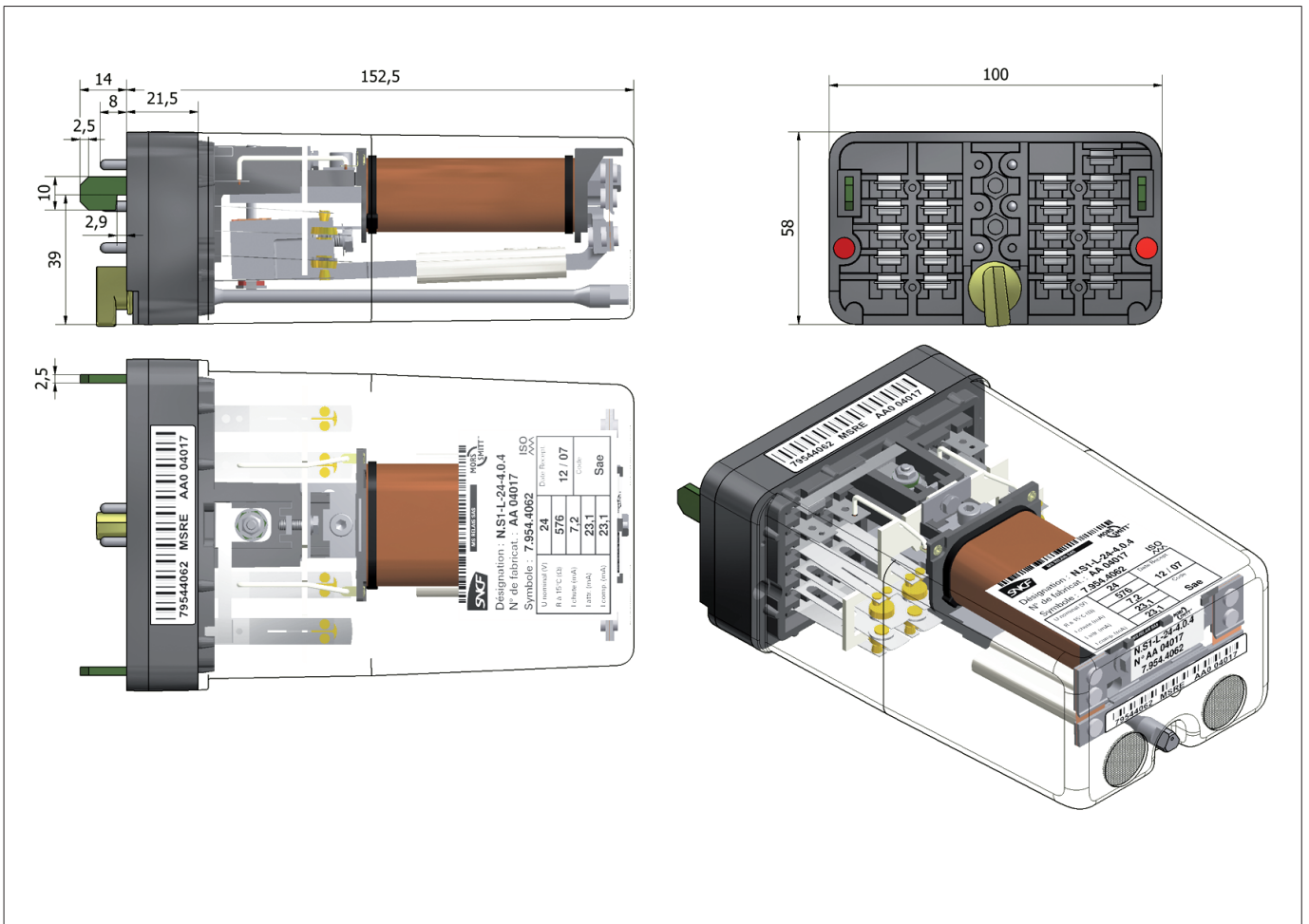
Pick up current	$I_t < 107 \text{ mA}$
Drop out current	$14 \text{ mA} < I_c < 40 \text{ mA}$
Sensivity ( $I_c/I_t$ ratio)	$s > 0.15$

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

### Environmental characteristics

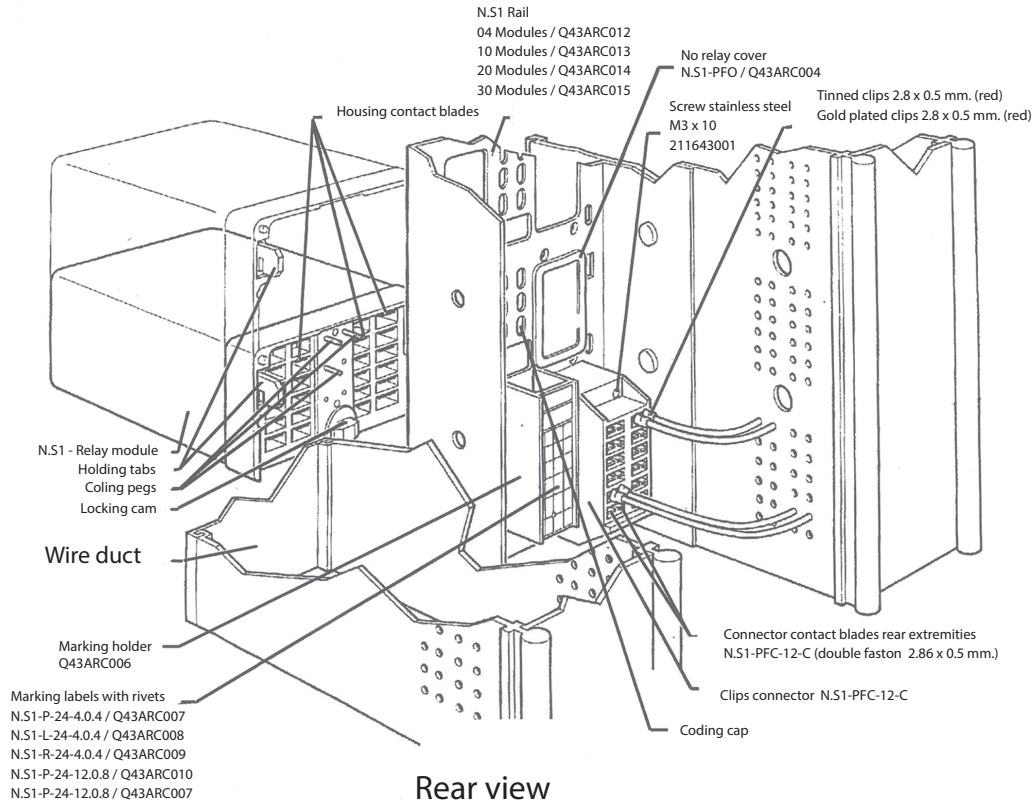
Vibration	0.25 g in X, Y, Z axis
Shock	n/a (track side relay)
Operating temperature	-25 °C...+70 °C
Humidity	95 % @ 20 °C
Salt mist	ISO 9227 for 96 h
Protection	IP 40
Fire & Smoke	Polycarbonate (cover) / polyphenylene (base)

### Dimensions



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

### Accessories

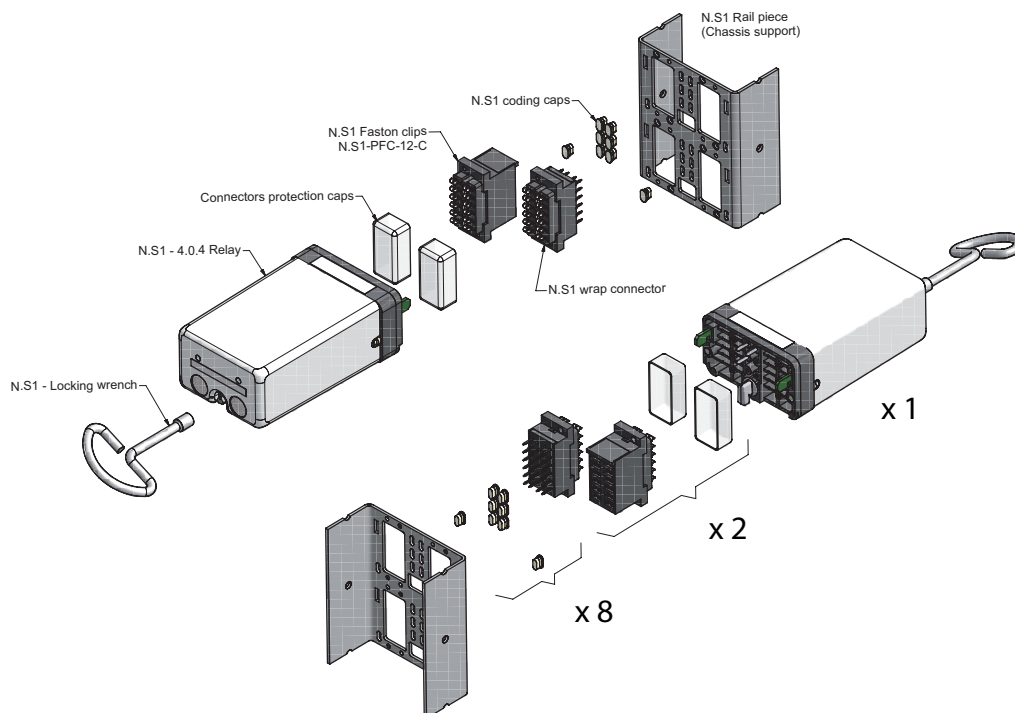


Rail mounting accessories				
N.S1 rail	4 modules		Q43ARC012	quantity varies
	10 modules		Q43ARC013	quantity varies
	20 modules		Q43ARC014	quantity varies
	30 modules		Q43ARC015	quantity varies
Marking labels with rivets		Q43ARC009	1	
No relay snap-on cover	N.S1-PFO	7.954.0381	Q43ARC004	optional
No relay empty connector with screws and contacts coding	N.S1-PFCO	7.954.4543	Q43ARC005	optional
N.S1 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
N.S1 Locking wrench			Q43ARC001	quantity varies
Tinned clips 2.8 x 0.5 mm (red)	AMP 140 822-1 or MTR 51031-2	7.847.4609	OEA408221	quantity varies
Gold plated clips 2.8 x 0.5 mm (red)	AMP 140 822-3 or MTR 51027 (gold)	7.847.4593	OEA408222	quantity varies
Clip connector	N.S1-PFC.12-C		Q43ARC002	2 per module
Wall mounting Front mount connector	N.S1-PFC-AV-24	7.954.3895	Q43ARC017	1 per module

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

### Instructions for use

#### Installation



N.S1 relay are modular with automatic connector and cam locking.

Through wall mounting: 2x N.S1-PFC12-C rear connection with faston clip, or 2x N.S1-PFC12-W rear wrap connection.

Wall mounting: 1x N.S1-PFC-AV-24 front connection with screw terminals

Check the relay pin code before installation. The relay must be installed in its natural position (i.e. horizontal with mobile part above). Lock the relay in position.

#### Operation

Before operating, check the integrity of the relay.

#### Maintenance

Correct operation of relay can easily be checked as transparent cover gives good visibility on the contacts. Relay service life, specified by the end user, depends of the circuit the relay is in use. For regular inspection process of our signalling relays please refer to our instruction document reference IQ2000-030.

RMA procedure see [www.morssmitt.com](http://www.morssmitt.com)

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

**Ordering scheme**

N.S1	-	R-24	-	4	.	0	.	4
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 **Over 10 million Mors Smitt relays in use in rail transport applications worldwide!**

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