NELSA

SAFEDGE

PRESSURE SENSITIVE SAFETY SYSTEM

INSTALLATION & USER MANUAL

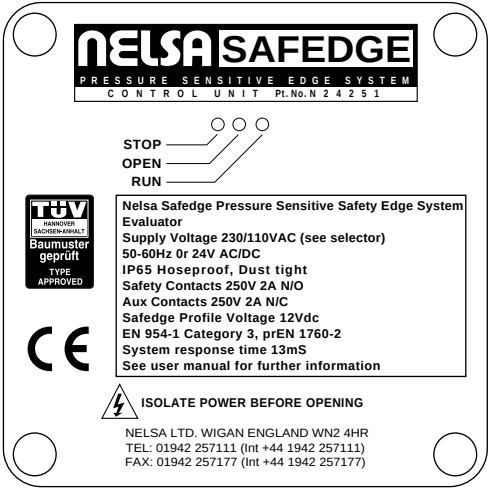
READ THIS MANUAL IN FULL BEFORE INSTALLATION

After installation this manual should be retained in a safe and accessible place

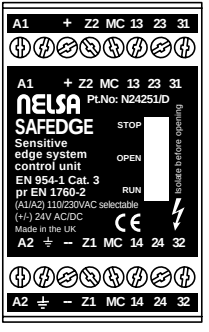
AUDIN 7 bis rue de Tinqueux - 51100 Reims - France - Tel : 03.26.04.20.21 - Fax : 03.26.04.28.20 - Web : http: www.audin.fr - Email : info@audin.fr

NELSA Safedge

Sensitive edge sensing system
Installation and user manual



SURFACE MOUNTING



DIN RAIL MOUNTING

EC Declaration of Conformity

NELSA LIMITED *(Manufacturer and Responsible Person)*
Hindley Green Industrial Estate, Wigan, Lancashire, England WN2 4HR.
declares that the safety component described:

Make NELSA

Model SAFEDGE PRESSURE SENSITIVE SAFETY EDGE SYSTEM

fulfils the following safety function:

The detection of a force on the edge strip profile.

conforms to the following directives:

The EC MACHINERY DIRECTIVE 89/392/EEC, as amended by EC Directives 91/368/EEC, 93/44/EEC and 93/68/EEC.

The EC ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 89/336/EEC as amended by EC Directives 92/31/EEC and 93/68/EEC.

The LOW VOLTAGE DIRECTIVE 73/23/EEC as amended by EC Directive 93/68/EEC.

uses the following standards:

prEN 1760-2 Safety of machinery - Pressure sensitive protective devices - Part 1: General principles for the design and testing of pressure sensitive edges and pressure sensing bars.

EN 954-1 (Category 3) Safety of machinery - Safety related parts of control systems - Part 1. General principles for design.

EN 50081- 1 & 2: Electromagnetic compatibility- Generic emission standard. Part 1: Residential, commercial and light industrial environment. Part 2: Industrial environment.

EN 50082- 1 & 2: Electromagnetic compatibility- Generic immunity standard. Part 1: Residential, commercial and light industrial environment. Part 2: Industrial environment.

BS EN 60204-1: 1993 Safety of machinery - Electrical equipment of machines - Part 1. Specification for general requirements.

Resulting in the following additional third party certification:

File No. 441775/91 and Certificate No. 08/205/B1-7591 - covering prEN 1760-2 & EN 954-1 (Category 3).

EMC Test Certificate No. 0536 (Cranage EMC Testing Ltd).
Vibration Testing Certificate 97-0300 (ERA Technology Ltd).

and conforms to the safety component example for which the approved body below has issued EC Type-examination certificate no. 08/205/B1-7591

Approved body: TÜV (Technischer Überwachungs-Verein) Hannover/Sachsen-Anhalt e.V.
Zentralabteilung PP, Am TÜV 1, 30519 Hannover, Germany.

Signed by: K. Lomax (*authorised person*) *Date:* 31st July 1997
Managing Director - Nelsa Limited.

Note 1: This declaration of conformity is valid when one or more Safedge profiles, a Safedge Evaluator and other relevant Safedge components, as defined in the Safedge installation and user manual, are combined to form a Safedge system. This declaration is not valid if the afore-mentioned components are not used or are from another source of manufacture.

Note 2: EC Machinery Directive requires that safety components do not have CE Marking but shall state compliance with that Directive by means of a Declaration of Conformity. Therefore, in order to achieve full compliance with all the Directives referenced on this document, including their differing CE Marking requirements, the CE Marking is applied only with respect to the EC
ELECTROMAGNETIC COMPATIBILITY DIRECTIVE and the LOW VOLTAGE DIRECTIVE.

Publication No. 1274P

INTRODUCTION

The Nelsa Safedge sensitive edge sensing system is ideal as a safety sensor in applications such as power operated doors, automated vehicles and moving machinery beds etc. It can provide a continuous line of high sensitivity touch sensing along or around practically anything.

This manual covers the use of all parts of the Safedge. If joints or corners are required, refer to the Nelsa catalogue. All installation work must be carried out by suitably trained and qualified personnel and should be in accordance with statutory requirements for safety. READ THIS MANUAL IN FULL BEFORE INSTALLATION. After installation this manual should be retained in a safe and accessible place. For any further assistance, please contact Nelsa or your supplier.

1.0 STORAGE & HANDLING

STORAGE

The Safedge control unit and Profiles should be stored within the temperature range of - 10°C to + 55°C.

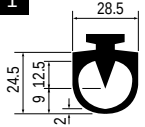
HANDLING AND TRANSPORT

The control unit and Profile should be transported within the temperature range of - 10°C to + 55°C and should not be subjected to any impact or heavy loads. The original packaging should be used to give protection from excessive flexing. Always un-pack carefully and avoid damage by the use of knives etc.

2.0 SYSTEM DESCRIPTION

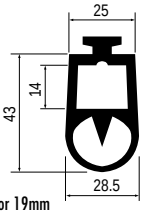
The Safedge system comprises of up to 50 metres of Profile, cable connector, a terminating resistor, “C” rail and a control unit. The control unit can monitor lengths of up to 50 metres. All Profiles have the same principle of operation.

fig. 1



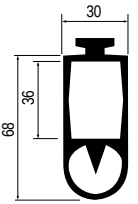
Cushion factor 5mm
N24 0110
N24 0110I : **Increased resistance to conductive fluids**
N24 0110N : **Increased resistance to oil.**

fig. 2



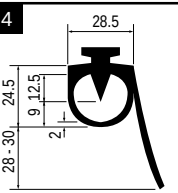
Cushion factor 19mm
N24 1610
N24 1610N : **Increased resistance to oil.**

fig. 3



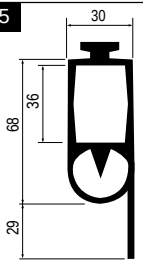
N24 0310
Cushion factor 41mm

fig. 4



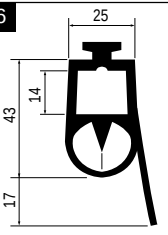
N24 0510
Cushion factor 5mm
with sealing lip

fig. 5



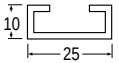
N24 0210
Cushion factor 41mm
with sealing lip.

fig. 6

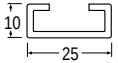


N24 0804
Cushion factor 19mm
with sealing lip

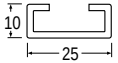
FOR VARIOUS CONNECTION PIECES AND ACCESSORIES, PLEASE REFER TO OUR CATALOGUE



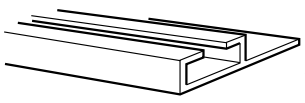
"C" rail-aluminium C112/A
N24 1212
Suitable for the fixing of all the Safedge Profiles.

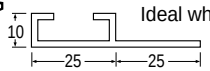


"C" rail-zinc coated steel C112/S
N24 1112
Suitable for the fixing of all the Safedge Profiles.

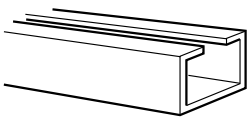


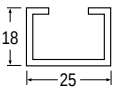
"C" rail-PVC- C112/PB = Black
C112/PR = Red or C112/PY = Yellow
N24 1212PB, N24 1212PR or N24 1212PY
Suitable for the fixing of all the Safedge Profiles. 3 colours available.



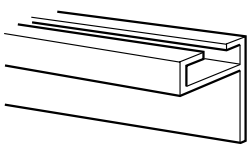


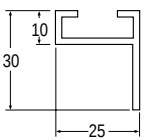
"C" rail-aluminium C112/A3
N24 1215
Ideal when external fixings of "C" rail is required. Accepts all profiles.





"C" rail-aluminium C112/A4
N24 1216
Deeper rail allows cables to be run through channel under safedge profile. Accepts all profiles.

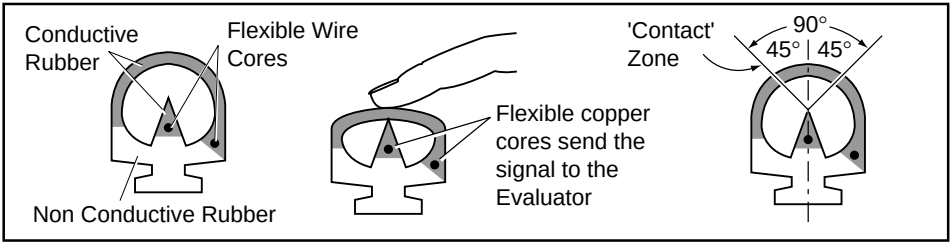




"C" rail-aluminium C112/A3
N24 1214
Ideal when external fixings of "C" rail is required. Accepts all profiles.

ALL “C” RAILS ARE SUPPLIED WITHOUT FIXING HOLES
“C” Rail C112/A can be supplied curved to meet most applications

Each Profile uses a combination of non-conductive rubber and a flexible wire cored conductive rubber, bonded together to form a variety of energy absorbing Profiles. The Profile has no rigid internal parts which can “break through” or cause fatigue failures after prolonged use. The maximum operating voltage of the Profile is 12 VDC so no dangerous voltage is exposed if the Profile is accidentally cut or sheared. The copper wire core throughout the length of the Profile ensures that there is no significant build up of resistance over long lengths.



The circuit through the Profile is monitored by the Safedge control unit which, when a 6K8 resistance is present (i.e. normal run conditions), produces a signal to the machine control circuit.
When the Profile is pressed, from any direction through 90° as shown above, the top conductive rubber strip compresses and touches the middle conductive rubber so creating a “short circuit” and the overall resistance drops. This is monitored by the control unit which shuts the machine down. Any single fault in the Profile or the wiring connections to the Profile will be detected and the control unit outputs will go to a safe (OFF) state.

Individual Profiles connect to each other by wires, axial connectors or standard 90° connectors. Contact Nelsa if any other angles are required. The Profiles are connected to the control units by two wires. The control unit has fully cross monitored safety relays and it is possible to configure the unit so that an external contactor fault will be detected.

Compliance with the requirements of Category 3 of EN 954-1 and pr EN 1760-2 is achieved for the control unit regarding electrical faults and can be met for the associated part of the machine control system. Compliance with the requirements of Category 1 of EN 954-1 is achieved for the Profile.

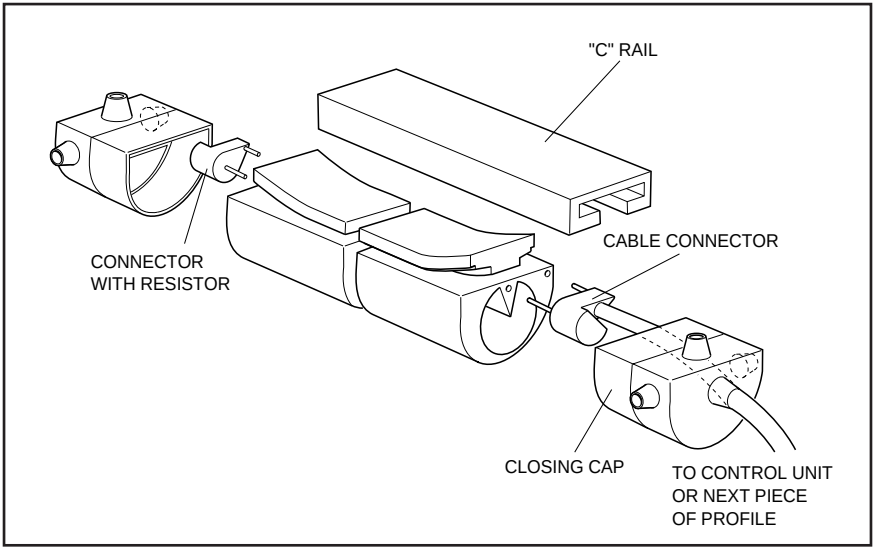
The Safedge complies with the requirements of the European EMC Directive. Normal operation under interference conditions likely in industrial environments is assured as it has been tested and certified. NOTE:- Special measures may be required in the presence of abnormally high levels of EMI e.g. near to welding or induction heating equipment or near to radio transmitters / transceivers.

3.0 INSTALLATION OF THE SAFEDGE SYSTEM

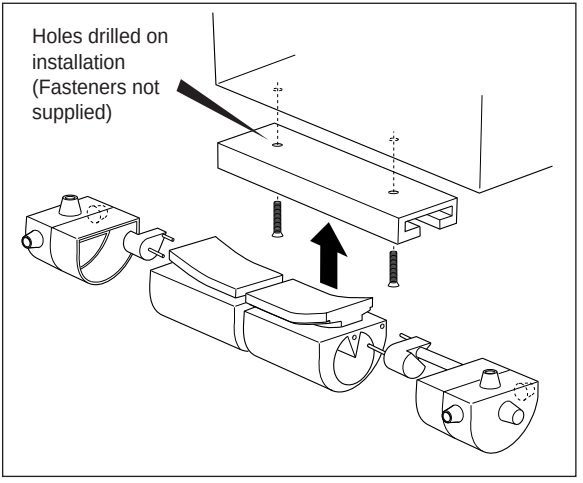
ONLY USE NELSA COMPONENTS.
The NELSA cyanoacrylate adhesive ensuring a lasting sealing and high protection to IP65.

EC-CONFORMITY DECLARATION
The test results of the EC type-approval test, refer in some parts also to the sensor as a signal device.

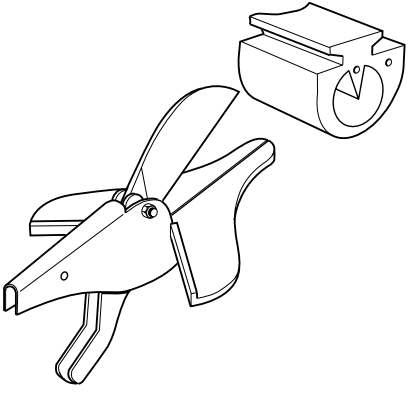
3.1 INSTALLATION OF “C” RAIL



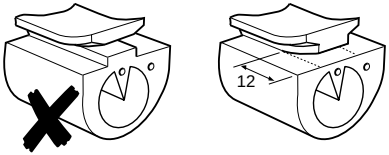
3.1.1 MOUNTING THE “C” RAIL



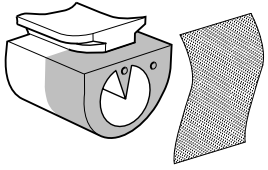
3.2 ASSEMBLY & INSTALLATION OF THE SAFEDGE PROFILE



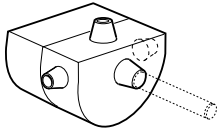
3.2.1 Cut the Safedge Profile to length.
Profiles without coasting chamber should be cut with NELSA rubber shears.
Profiles with coasting chamber should be cut with a fine tooth saw.



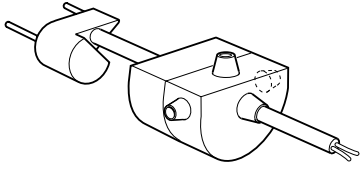
3.2.2 When using the closing cap 130/2 with sealing lip, the profile base has to be cut back to a length of 12mm. The cut must be made carefully to ensure that the profile base is completely trimmed off, leaving a flush surface.



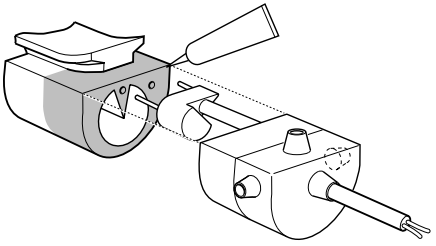
3.2.3 The shaded areas must be roughened with emery paper



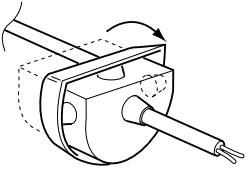
3.2.4 The closing caps are moulded with 4 grommets, each with a rubber plug. When fitting a resistor, leave the plug intact. When making a cable connection, select the required cable exit and remove the plug from the grommet with a hole punch.



3.2.5 Pull the connecting cable through the hole.

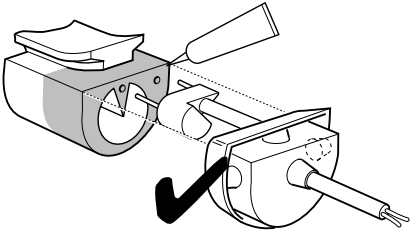


3.2.6 Prick each of the copper wires with one of the needles. Press the needle contacts of the connector in the direction shown: (wedge outwards), straight into the copper wires.



3.2.7 CAUTION

The narrow side (wedge) of the connector must show outwards.

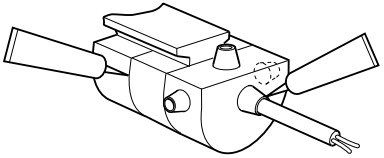


3.2.8 Fold back the sealing lip of the cap;

a) Apply adhesive to end of profile, applying pressure for 10 seconds to ensure adhesion.

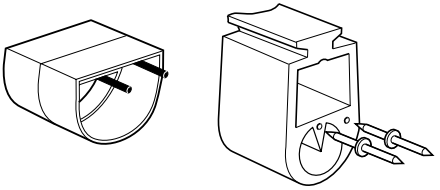
b) Apply adhesive to remainder of shaded area and allow sealing lip to make contact with profile.

IMPORTANT: Spread the adhesive evenly over the whole area! Do not allow adhesive to enter inside the profile.



3.2.9 To ensure complete seal apply more adhesive on the Safedge Profile around grommet/cable exit and sealing lip of the closing cap.

006/1



3.2.10 Axial profile connector 006/1 is used for extensions and repairs (see steps 1, 2, 3, 6 and 7) for the 0110 series of profiles only. For other types, use straight pin connectors.

3.3 CONTROL UNIT

3.3.1 TECHNICAL SPECIFICATION

Conformity:	prEN 1760-2, EN 954-1: CATEGORY 3
Power Supply - user select:	110/230V AC (50-60Hz) and 24V AC/DC +10% -15%
System response time:	13mS
Environmental protection:	IP65 (Surface mounting). Enclosure IP40 DIN0470 (Din rail mounting) Terminals IP20 DIN0470 (Din rail mounting)
Max. Safedge profile voltage:	12V DC (open circuit).
Nominal operating voltage:	4V (run condition).
Max. output fuse:	2A quick acting (Surface mounting) 5A quick acting (Din rail mounting)
Impulse withstand voltage:	2500V.
Over voltage:	Category 2
Contamination level:	III
Min. switched current/voltage:	10mA/10V
Power consumption:	<6 VA
Relay outputs:	2 x independant volt free N/O safety contacts 1 x volt free N/C auxiliary contact **NOTE: Auxiliary should not be used for safety**

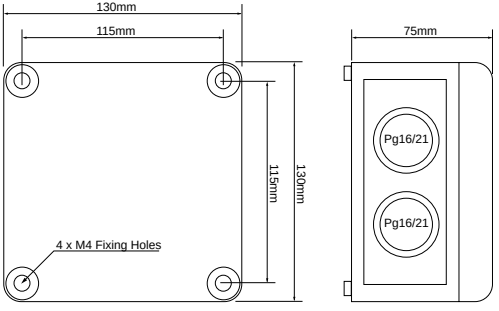
Utilisation category:	AC - 15; 2A / 250V DC
	DC - 13; 2A / 30V DC
Safety inputs:	Safedge profile (open resistance 6K8)
Indication LED 1:	Green: Run.
LED 2:	Yellow: Open.
LED 3:	Red: Stop.
Internal controls:	AC voltage selector
Internal fuses: (Surface mounting)	2A safety fuses replaceable (2 off)
	500mAT supply fuse replaceable (1 off)
: (Din rail mounting)	500mAT supply fuse replaceable (1 off)
Max. output fuse:	4A on AC / 2A on DC (Din rail mounting)
	N/A (Surface mounting)
Ambient temperature range	
Safedge Control Unit:	-10°C to + 55°C.
Safedge Profile:	-5°C to +55°C excluding)110N & 01610N (0°C to 55°C)
Humidity:	Up to 90% RH at + 55°C.
Vibration:	Tested in accordance with IEC 68-2-6, frequency range
	10 - 55Hz, displacement 0.15mm
	10 cycles per axis, sweep rate, 1 octave per minute
MC-MC contactor monitor loop:	N/C (normally closed) contactor loop
Max. conductor size:	1 x 1 mm^2 stranded with sleeves stripped
	5mm, 1 x 1.5mm^2 solid conductor. (Surface mounting)
	1 x 2.5 mm^2 stranded with sleeves stripped
	8mm, 1 x 4 mm^2 solid conductor. (Din rail mounting)
Terminals:	Minus terminal screws M2 spring action. (Surface mounting)
	Plus-minus terminal screws M3.5 with self lifting connection,
	washer terminal boards separately removable. (Din rail mounting)
Installation group:	C in accordance with VDE 0110.
Material and colour:	Clear lid, beige base polycarbonate. (Surface mounting).
	Polycarbonate black base with beige lid. (Din rail mounting).
Fixing details:	4 x M4 holes. (Surface mounting).
	35 mm DIN Rail. (Din rail fixing).
Housing:	D=75mm, H=130mm, W=130mm (Surface mounting)
	D=120mm, H=73mm, W=45.5mm, 16 way (Din rail mounting)
Weight:	650g. (Surface mounting). 450g. (Din rail mounting).
Miscellaneous:	The Safedge Profile must be terminated with a 6K8 resistor.

	00110N	00110	00310	01610N	01610
actuating distance:	6.4mm	6.6mm	8.0mm	7.8mm	9.4mm
response distance:	1.2mm	1.9mm	27.2mm	8.4mm	5.0mm

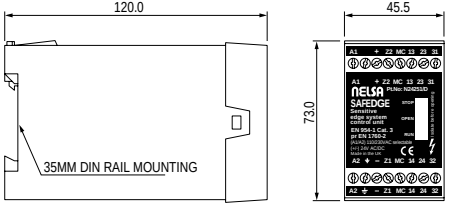
• max. speed: 100 mm/s
• suitable for the detection of fingers

The control unit must not be mounted inside the hazard zone. Access to the control unit is required for manual reset or for routine indicator observation so it must be able to be seen operating. The control unit can be mounted on either side of power doors, as long as the only hazard is the actual doors. In all other cases the control unit can be mounted anywhere convenient outside the hazard zone, taking into account the access requirements for test and maintenance.

3.3.2 MOUNTING

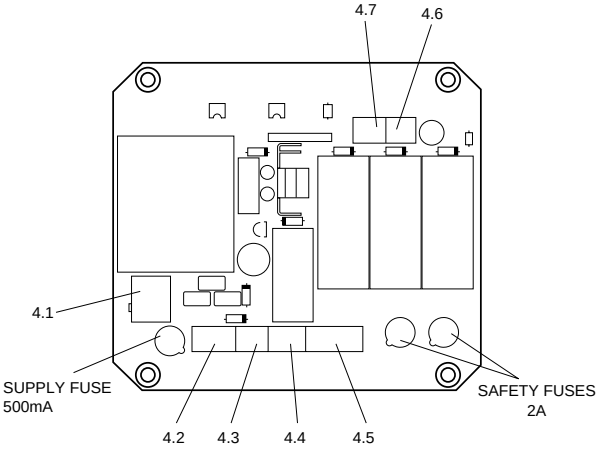


N24251 (Surface Mounted)

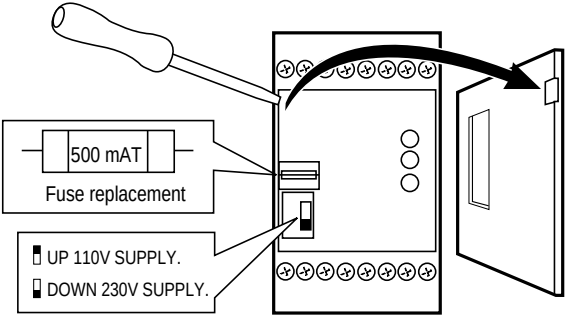


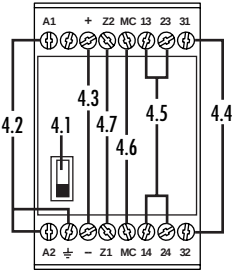
N24251/D (Din Rail Mounted)

4.0 ELECTRICAL CONNECTIONS - Safedge control unit



N24251 (Surface Mounted)





N24251/D (Din Rail Mounted)

N24251 SURFACE MOUNTED CONTROL UNIT ONLY

4.1 Mains selector switch

If using a 110V AC or a 230V AC supply, the voltage selector switch should be set as appropriate before turning the power on. The unit is set to 230V AC when manufactured.

4.2 Mains input terminal LN ⏚ (A1, A2, ⏚)

If a 110V AC or 230V AC supply is used it should be wired, together with a protective earth to the terminals shown. The size of the protective earth wire should be at least equal to that of the supply wire. Also check (4.1). If these terminals are used, ignore (4.3).

4.3 24V AC/DC input terminal +ve and -ve

If a 24V AC/DC supply is being used, the supply should be connected to these terminals, ensuring that the correct polarity is observed. Do not make any connections to the terminal block of (4.2). Where a 24V AC or DC supply is used, it must be isolated from the mains supply in accordance with international electrical safety pratice (IEC 364-4-41). One pole should be earthed. For 24V DC the negative pole should be earthed. with 24V AC the earthed pole of the power supply should be connected to the -ve terminal.

4.4 Aux Output terminal 31 and 32

This terminal provides an auxiliary normally closed contact (i.e. closed when the green “Run” light is off) which is suitable for indication or for alarm devices. As this is an auxiliary, it must not be connected to the safety circuit.

4.5 Safety Output terminal 13, 14, 23 and 24

These are volt free contacts for connection to the machine safety circuits i.e, they are connected in series with the machine contactor control circuit. (Max. rating 2A at 250V AC). Both of these safety circuits are internally fused but must also be externally protected with a 2A quick acting fuse. If one contactor is being used, terminals 13 and 24 are required and terminals 14 and 23 should be linked together. For 2 contactors with 2 independent control circuits (i.e. a dual channel system), use 13-14 for one contactor and 23-24 for the other. For 2 contactors, also see (5.3).

4.6 Reset terminal MC-MC

These terminals are used for a number of different functions. The unit is supplied with these terminals linked. When the link is removed the terminals can be connected to positively guided normally closed auxiliary contacts on the machine contactors to provide monitoring of the contactors in dual channel control systems. If one contactor fails to isolate the power at de-energisation of its control coil, the Safedge will not allow the other contactor to be energised until the fault has been rectified.

This terminal is also used for auto/manual reset. If the MC-MC terminal is left linked or connected up to the contactors normally closed contact only, the unit is in automatic reset mode. In automatic reset mode the output is achieved solely by removal of the actuating force. The output is also achieved at power up of the actuator (when there is no actuation force present). If a spontaneous restart may generate a risk, based on the result of a risk assessment to EN1050, then this mode must not be used. See EN 60204 Pt.1 and EN954 Pt.1. For manual reset mode a normally open spring return (not latching) push button must be connected across the MC-MC terminals or in series with the contactors normally closed. When the actuating force is removed, the unit will not operate until the button is pressed. The button will also have to be pressed after power up of the control unit.

4.7 Profile connection to control units

These terminals are used to connect the Profile to the:-

Z1 = Brown (inner conductor).

Z2 = IWhite (outer connector).

Refer to page 20.

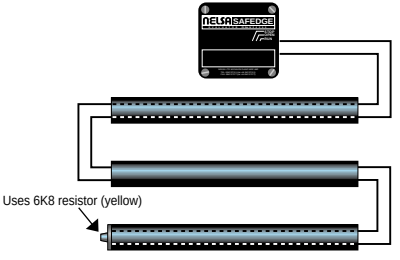
NOTE: Profile must be terminated with a 6K8 Resistor (yellow) for series connection. When two profiles are connected directly to Z1 and Z2 (parallel) then each profile should be terminated with a 15K resistor (blue).

Connection in Parallel & Series

STANDARD CONNECTION METHOD

CONNECTING IN SERIES

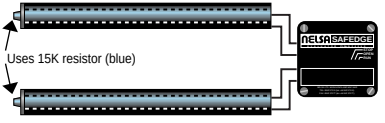
If more than one profile is to be used they are normally connected in series as shown.



ALTERNATIVE CONNECTION METHOD

CONNECTING IN PARALLEL

A maximum of two profiles can be connected in parallel to assist in ease of wiring in certain applications.



5.0 Commissioning & Use Sequence of operation

When the unit is installed, check the following sequence of operation.

5.1 Manual reset mode.

1) Turn the Power on
a) No LED's illuminate.

2) Press the reset switch
a) Run "Green" LED illuminates.
b) Safety contacts close.
c) Auxiliary contacts open.
d) Contactors energise.

3) Press the Profile
a) Run "Green" LED extinguishes.
b) Stop "Red" LED illuminates.
c) Safety contacts open.
d) Auxiliary contacts close.
e) Contactors de-energise.

4) Release the Profile
a) Stop "Red" LED extinguishes.
b) System has returned to step 1a.

5) If Profile is pressed before reset
a) Stop "Red" LED will illuminate each time the Profile is pressed but the safety contacts will not energise.

5.2 AUTOMATIC RESET MODE

1) Turn the power on
- a) Run “Green” LED illuminates.
- b) Safety contacts close.
- c) Auxiliary contacts open .
- d) Contactors energise.

2) Press the Profile
- a) Run “Green” LED extinguishes.
- b) Stop “Red” LED illuminates.
- c) Safety contacts open.
- d) Auxiliary contacts close.
- e) Contactors de-energise.

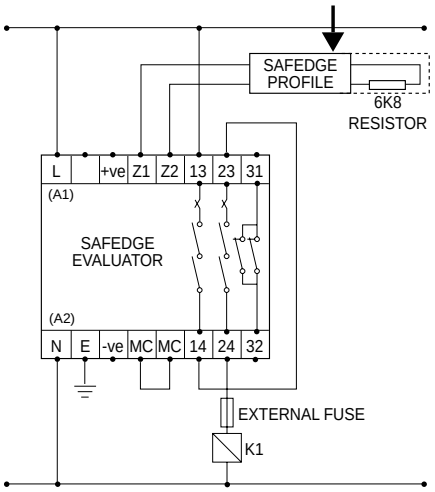
3) Release the Profile
- a) System has returned to step 1a.

Comparative properties

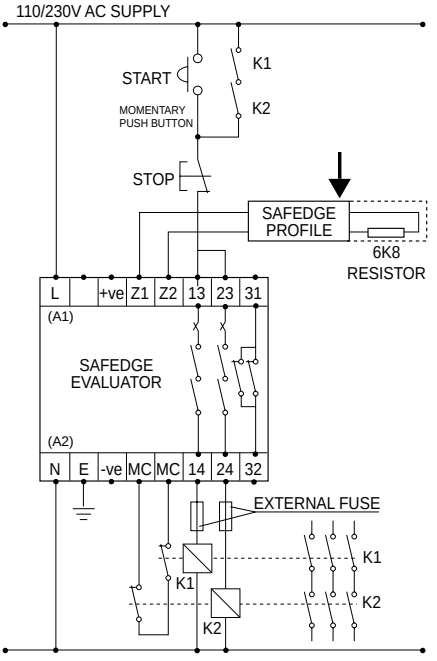
	Profiles 0110N 1610N	**Profiles 0110 0804**	**0110I 0310**	**0510 0210**	**1610**
Tensile strength (reinforced) MPa	26		20		
Resilience (20°C)	F		G		
Low temperature flexibility	F		G		
Resistance to sunlight	G		G		
Resistance to heat ageing	G		G		
Resistance to oxidation	F		G		
Resistance to ozone	F		G		
Resistance to H_2O	G		G		
Resistance to dilute acids	F		G		
Resistance to concentrated acids	F		G		
Resistance to oils & greases	G		P		

Key:- G = Good F = Fair P = Poor

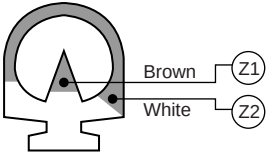
5.3 APPLICATIONS



110/230V AC Application with 1 contactor.
(Shown with profile pressed).



110/230V AC Application with 2 contactors, contactor monitoring and START/STOP circuit. (Shown with profile pressed)



6.0 MAINTENANCE AND SERVICE

6.1 FAULT FINDING GUIDE

Symptom	Probable Cause	Check
"Yellow" LED Illuminates.	Open circuit in profile or connecting wiring.	Z1-Z2 Terminals are secure. Cable for breaks Profile for damage.
No LED's illuminate even if Profile is pressed.	Supply failure.	Voltage selector switch is set correctly. Supply fuse. Supply voltage is present.
No LED's illuminate unless Profile is pressed and then the stop "Red" LED illuminates.	Failure to reset.	If using contactor monitoring, check each contactor is functioning correctly. MC-MC terminals are secure. Link is in place or Reset button functions correctly.
Unit appears to work correctly but there is no output.	Blown fuse. Damaged or incorrect wiring. Fault on Safedge causing the Outputs to fail safe	Output fuses. All wiring for damage. Movement on any internal relays. **CONTACT NELSA IMMEDIATELY.**
Machine does not stop if Profile pressed. Run "Green" LED goes off.	Incorrect external connections	All wiring to contactors for mistakes.
Machine does not stop if Profile pressed. Run "Green" LED stays on.	**DO NOT ALLOW THE USE OF THE MACHINE CONTACT NELSA IMMEDIATELY.**	

6.2 MAINTENANCE

This section should be read in full before any maintenance work is attempted.

Attention is drawn to regulations for planned preventative maintenance under E.U. Directive 89/655/EEC (Implemented in Great Britain as the Provision and Use of Work Equipment Regulations 1992).

During maintenance operations, disconnect the machine's prime mover before working on the Safedge system. Observe electrical safety precautions.

6.2.1 Profile Cleaning

The Profiles should be kept clean of deposits such as swarf and other materials to prevent damage or dead-zones. It is permissible to use warm water and a mild detergent to clean the surface area.
DO NOT USE SOLVENTS.

6.2.2 Routine maintenance inspection and test - (*recommended weekly or after repair*)
Stop the machine, clean the Profile(s) and allow to dry off. Inspect the surface of the Profile for damage. Any damage that punctures the profile could let material or liquid in. It must be dealt with immediately. Check that all end caps, corners and joints are secure and free from damage. Damaged parts must be replaced immediately.

Test the Profile operation. Two people may be required, one to press the Profile and one to observe the operation of the control unit. On systems using Manual reset mode, the reset button must be continuously pressed. Check that the RUN “Green” LED is illuminated when the profile is not pressed and that the STOP “Red” LED is illuminated when it is. Start the machine, press the Profile and check that the machine stops immediately.

If these checks reveal any problems, do not allow use of the machine until they are rectified. Record all inspections and tests in a written log.

6.2.3 Thorough examination and test - (*twice yearly or after repair*)
Contact Nelsa Ltd for information on an authorised testing service if required.
To be undertaken by a person competent in electrical and mechanical engineering.

a) Carry out tests at 6.2.2
b) Isolate the power source to the machine and Safedge system. Observe electrical safety precautions.
c) Inspect the Profile and components thoroughly for mechanical damage.
d) Disconnect the wires to the Profile at terminals Z1-Z2.
e) Connect the wires from the Profile to the input of an ohmmeter. One person should now press the Profile with one hand at every point on the strip. The resistance should measure 6K8 +/- 10% when the profile is not pressed and no greater than 1K when it is.

If these checks reveal any problems, do not allow the use of the machine until they are rectified.
Record the inspection and test in a written log.

6.2.4 Repair

Prior to working on a Safedge system or machine control system, isolate the power souce to the machine and Safedge system. Observe electrical safety precautions.

User repairs are limited to replacement with new Safedge system parts. In the event of any problems, the units should be returned to Nelsa Ltd.

Any repairs to the connecting wires should be made using heat shrink butt splice connectors.

After replacing any parts the inspection and test shown at 6.2.2 & 6.2.3, must be carried out with special attention given to those parts replaced.

WARNING
After maintenance or repair operations it is important that all fastenings, cable protection etc, are correctly refitted. Failure to do this or the use of non approved parts may result in the Safedge system failing to achieve it's specified performance.

6.2.5 Service

For service or assistance please contact:
Nelsa Ltd
Hindley Green Ind Est ,
Wigan, Lancashire,
England. WN2 4HR
Tel: (01942) 257111 (Int: +44 1942 257111)
Fax: (01942) 257177 (Int +44 1942 257177)
E-mail: general@nelsa.co.uk
www.nelsa.co.uk

It is the policy of Nelsa Limited to improve their designs wherever new materials or innovations may prove advantageous. Therefore Nelsa Limited reserves the right to amend or alter information contained in this manual without prior notice. No responsibility can be accepted for errors or omissions.

Tampering with component parts will invalidate warranty.
WARRANTY INVALID IF QUALITY SEAL IS BROKEN ON DIN RAIL CONTROL UNIT

Record of **Routine Inspection And Test** *(see section 6.2.2 and 6.2.3)*

Date	Inspected By	Comments

Record of **Routine Inspection And Test** *(see section 6.2.2 and 6.2.3)*

Date	Inspected By	Comments

Record of **Thorough Inspection And Test** *(see section 6.2.2 and 6.2.3)*

Date	Inspected By	Comments

NELSA

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