

Designer's Guide

to Modular Wiring Installation

Better life. With electricity.

Our systems adapt so you don't have to. Our selection offers comprehensive solutions for commercial building electrical installations.

ensto.com

Ensto offers its customers

Consultancy during planning phase of the investment with experts having many years of experience in project implementation

Support in customizing of solutions in large projects, for technical and financial optimization

Technical support and professional training during development and implementation of the project

Benefits of Ensto Net

- Modular design facilitates implementation of large projects
- Easy to plan
- Saves time and money
- Quick installation
- Easy to modify
- Components can be reused
- More accurate estimation of costs at an early stage of investment
- Less design constraints due to decentralization of the installation

Designer's Guide to Modular Wiring Installation

Modular wiring installation system is used to facilitate installation work and to meet requirements electrical installations in smart buildings.

Prefabricated installation system is a part of an advanced construction process, where flexibility, installation speed, as well as reconfiguration possibilities are combined. It is based on prefabricated modules. Thus, installation work is faster and future changes in installation are are easy to carry out and free of errors.

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Ensto Net's modular installation system prevents incorrect installation of electrical connections, in accordance with EN61535.

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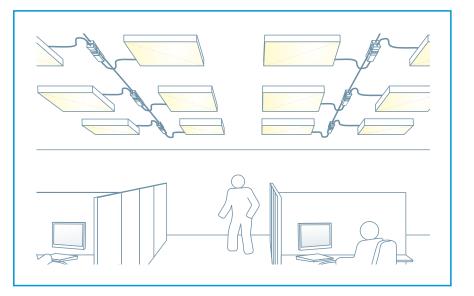
Lighting Installation with Distribution Block

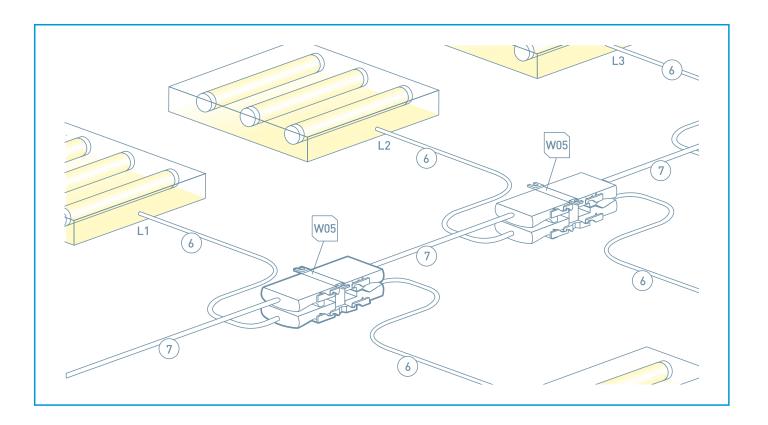
Luminaire installation with single phase continuous supply and two outputs to light fitting. Light fittings are connected to one phase L1, L2 or L3.

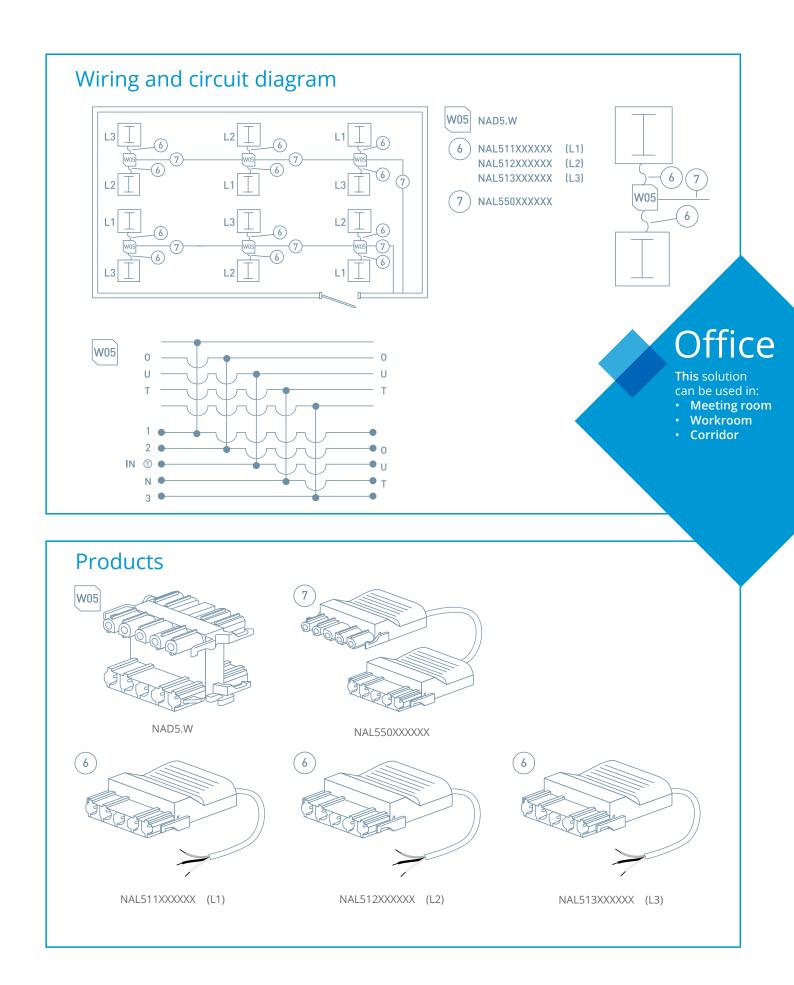
When factory equipped with EnstoNet plug leads or fixed connector the installation of the luminaires can be made without tools very efficiently.

Standard H-type distributors allow continuous feed of luminaire circuit and two adjacent luminaires per unit.

- For larger groups use 6-output distributor (NAD36.*)
- For controlled luminaires use 5-pole Dali-distributors (NCD5.G).

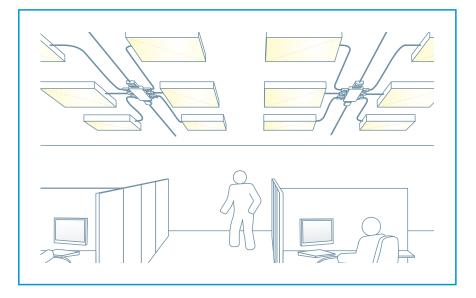


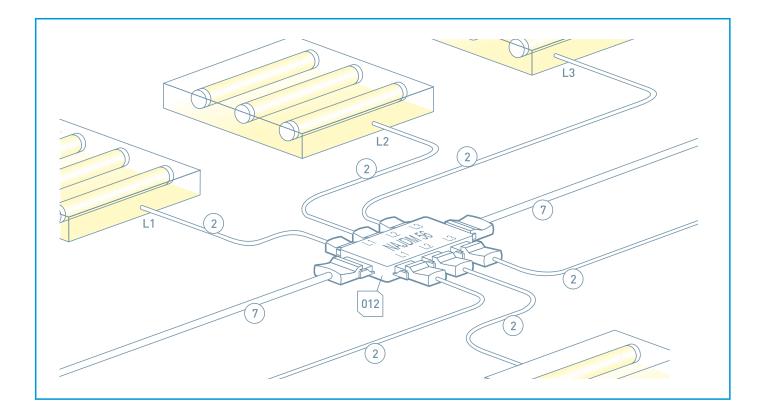


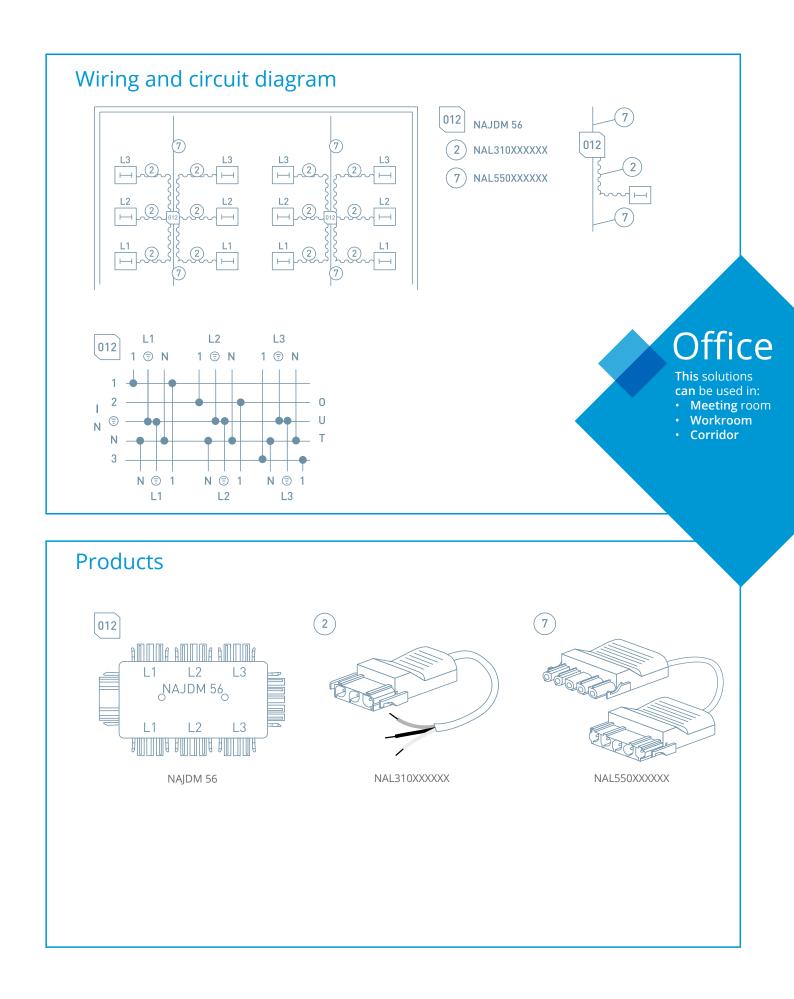


Lighting Installation with Distribution Box

Installation with three phase continuous supply and six single phase outputs to light fittings.

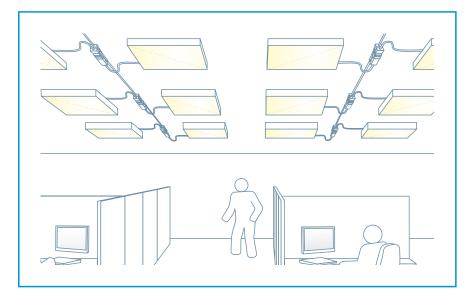


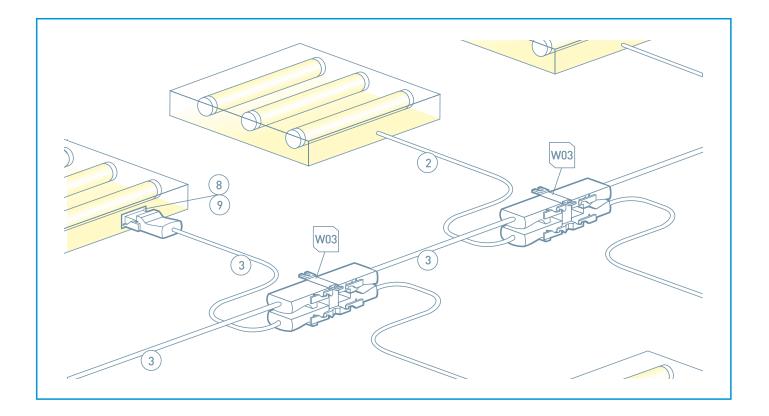


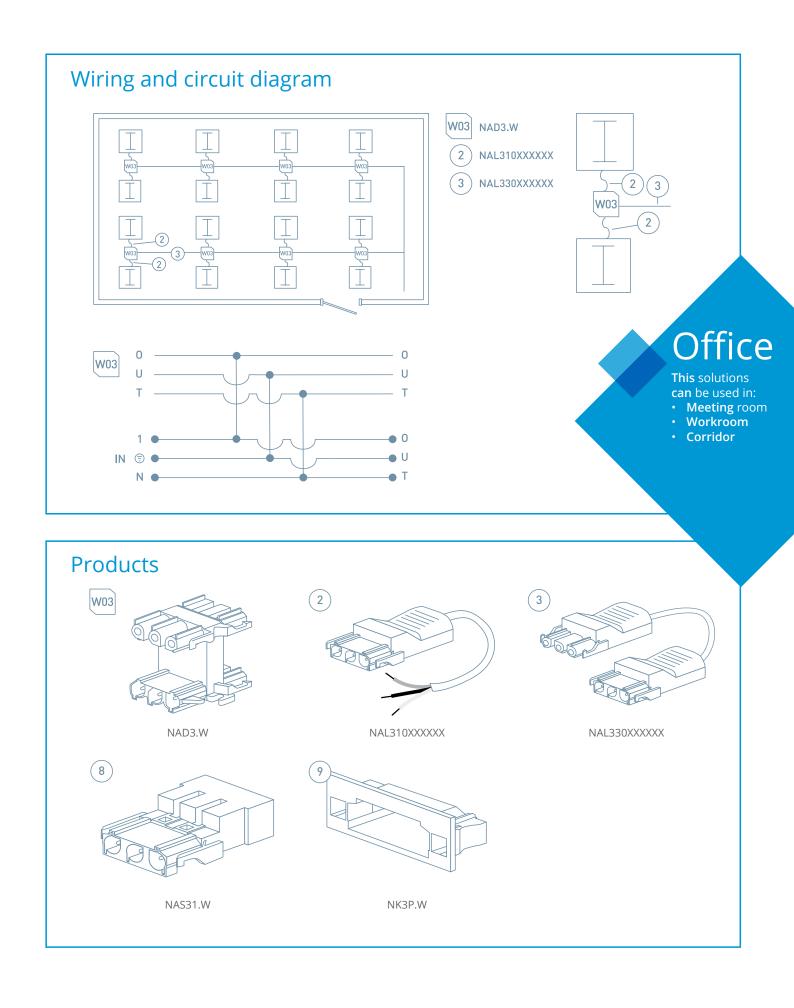


Lighting Installation with Distribution Block

Installation with one single phase continuous supply and two outputs to light fittings.





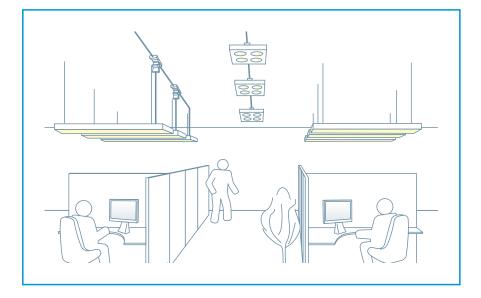


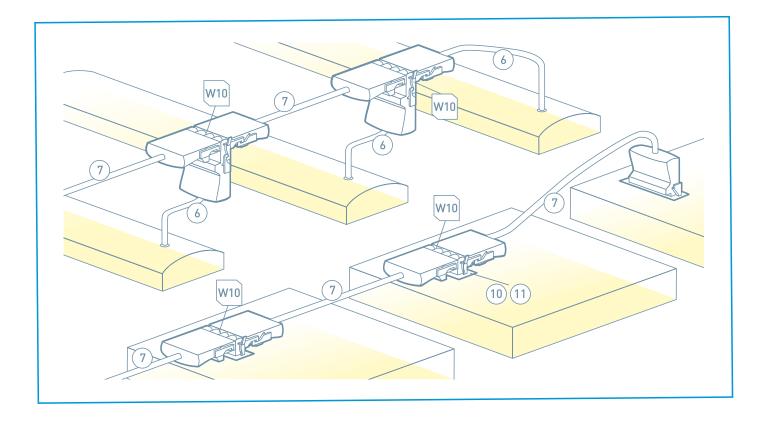
Lighting Solution with T-distribution Block and Three Phase Supply

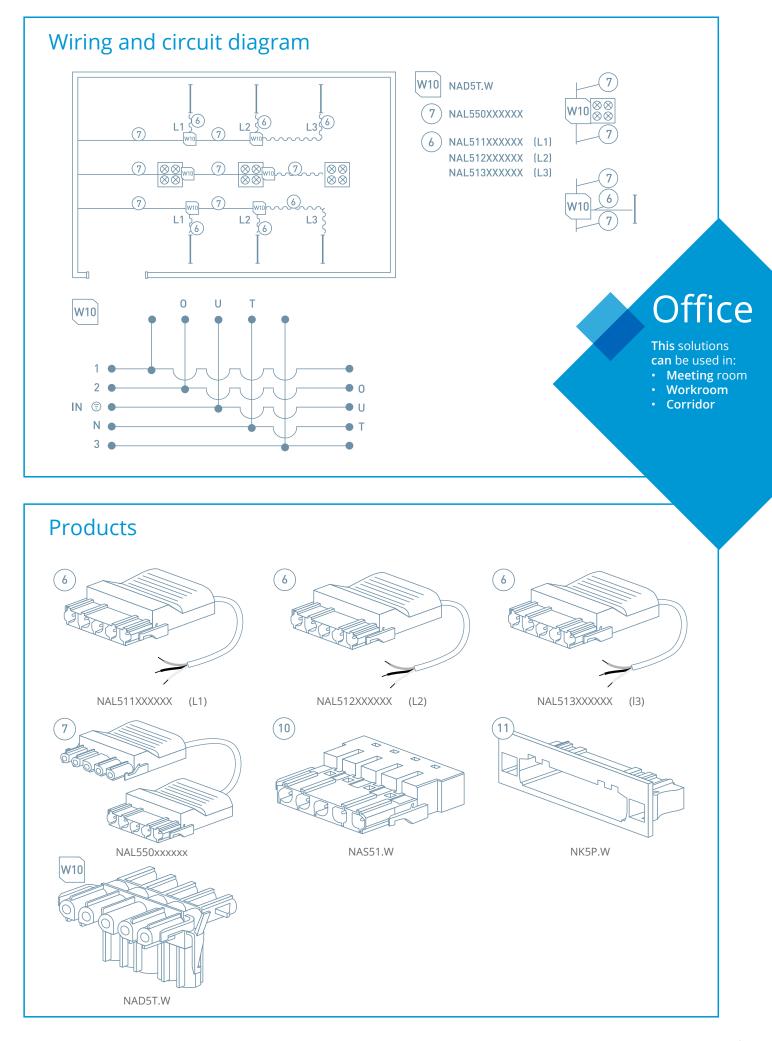
Installation with three phase continuous supply and single branching of phase supply to light fitting.

When factory equipped with EnstoNet plug leads or fixed connector the installation of the luminaires can be made without tools very efficiently.

Three phase luminaire circuits can be distributed NAD56.* with 5-pole continuous and two outputs per phase. This allows connection of up to six luminaires with phase-rotation.



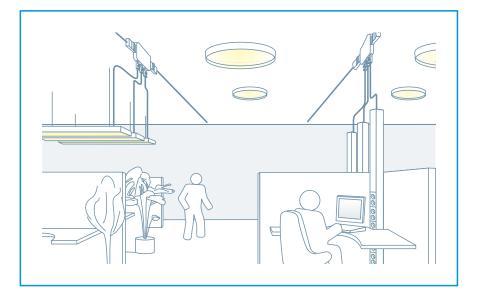


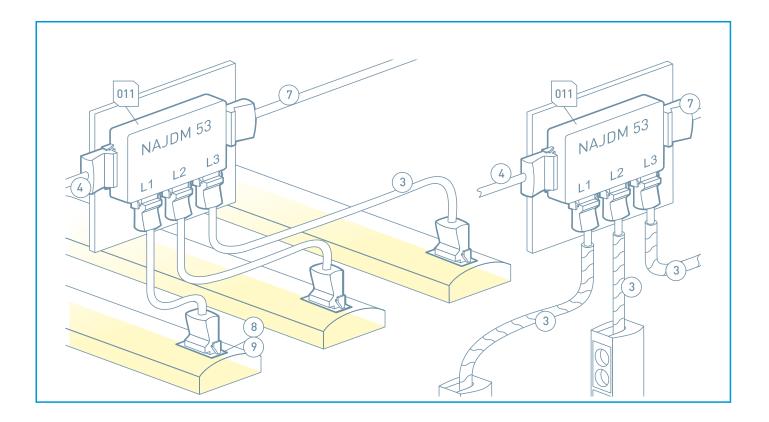


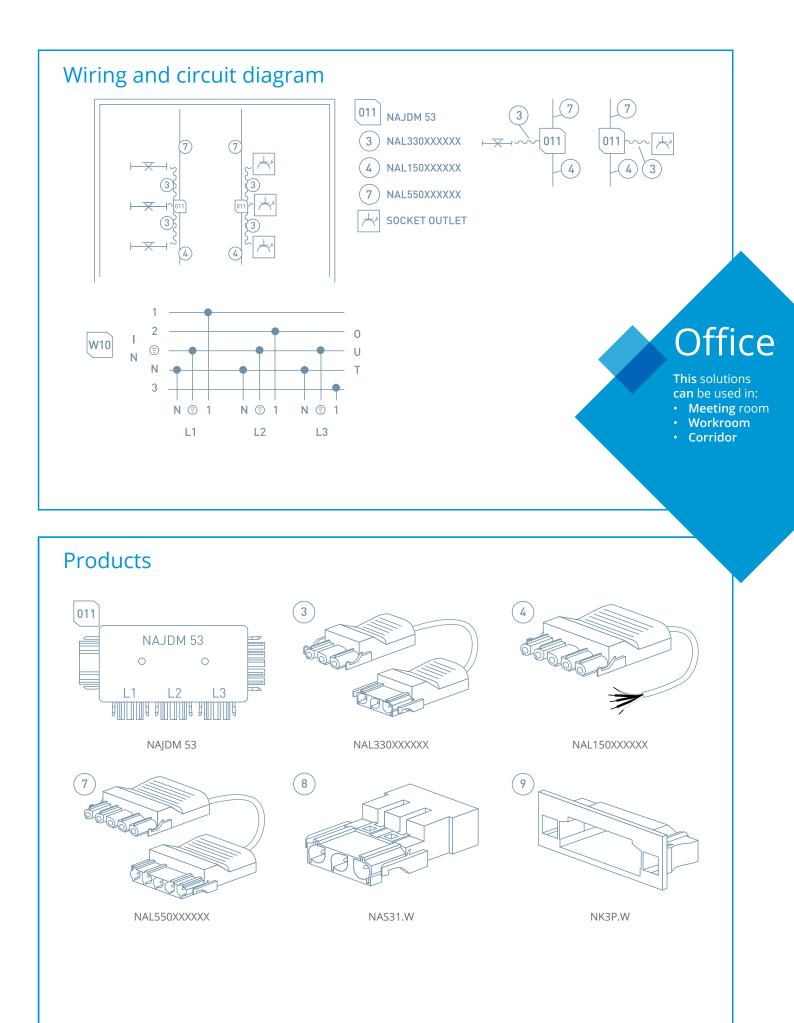
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Lighting Solution with T-distribution Block and Three Phase Supply

Installation with three phase continuous supply and three one phase branching to light fittings or sockets.

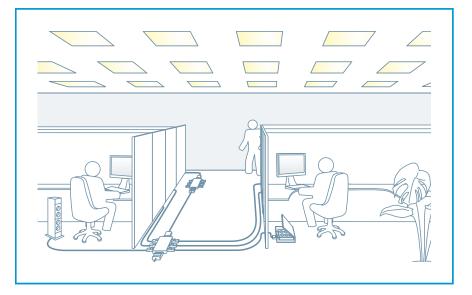


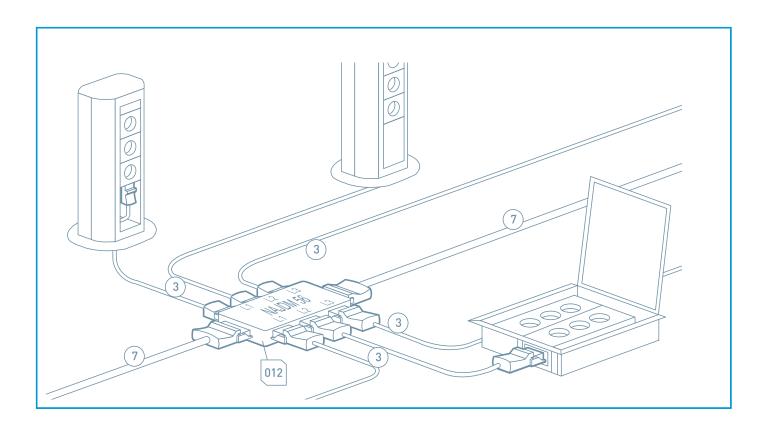


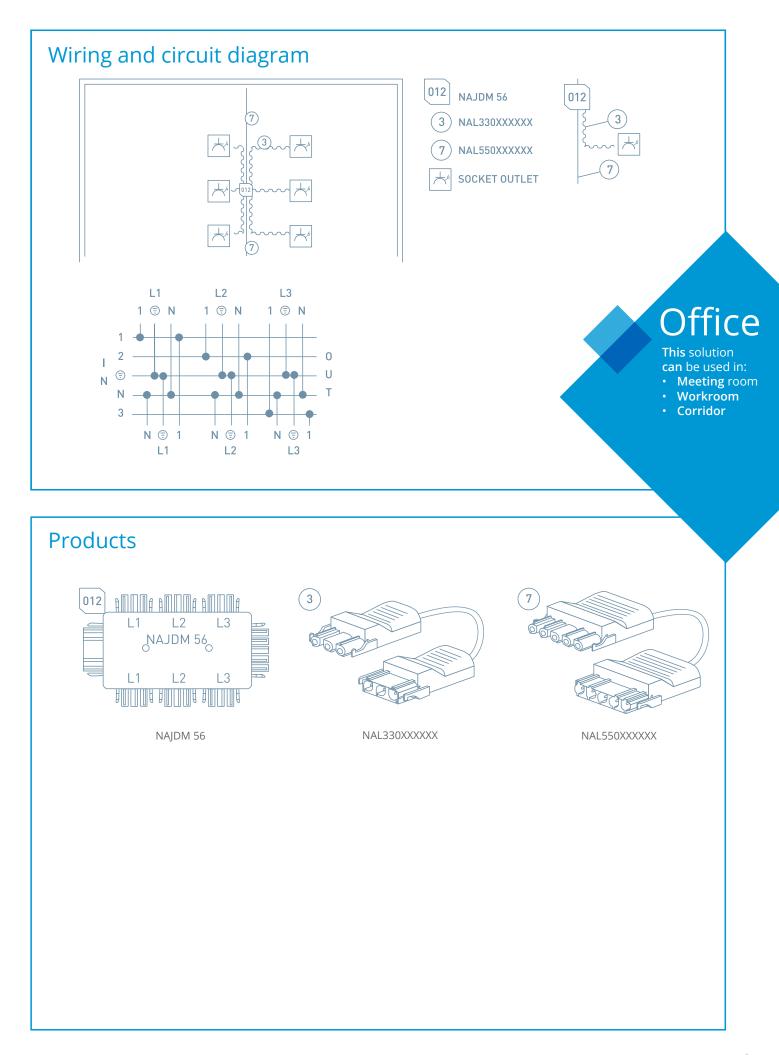


Socket Outlet Installation with Distribution Box

Installation with single phase continuous supply and two single phase outputs to light fittings. Light fitting chain is presence detection controlled.

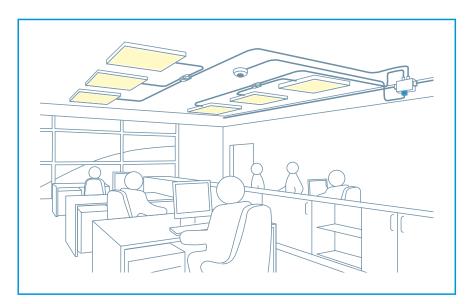


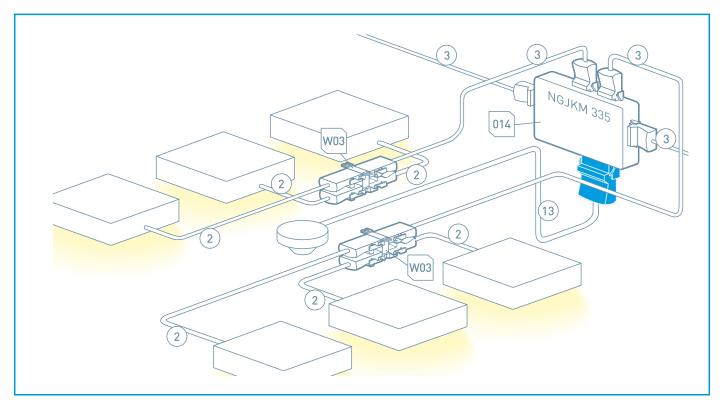


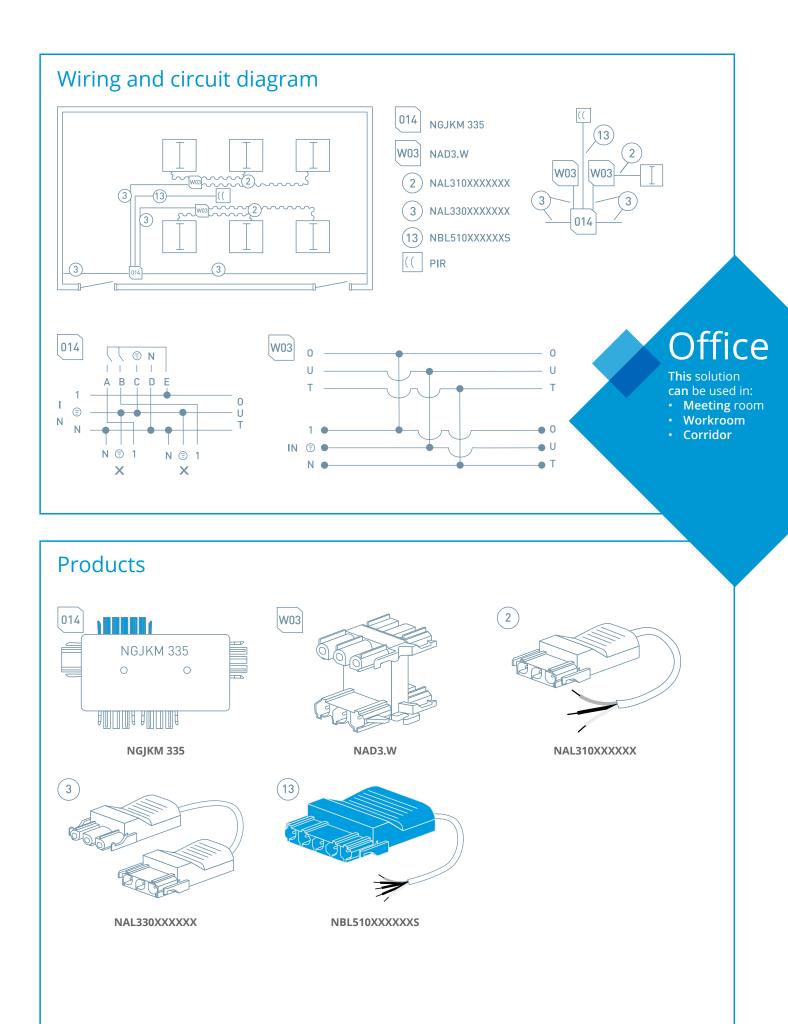


Energy-saving Solution for Lighting with Switch Box and Presence Detector

Installation with single phase continuous supply and two single phase outputs to light fittings. Light fitting chain is presence detection controlled.

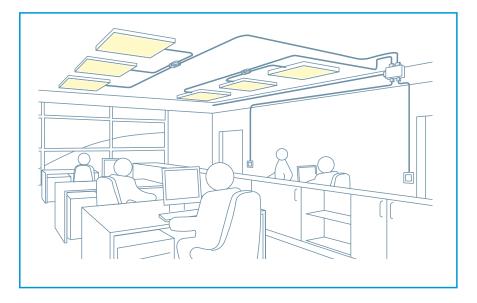


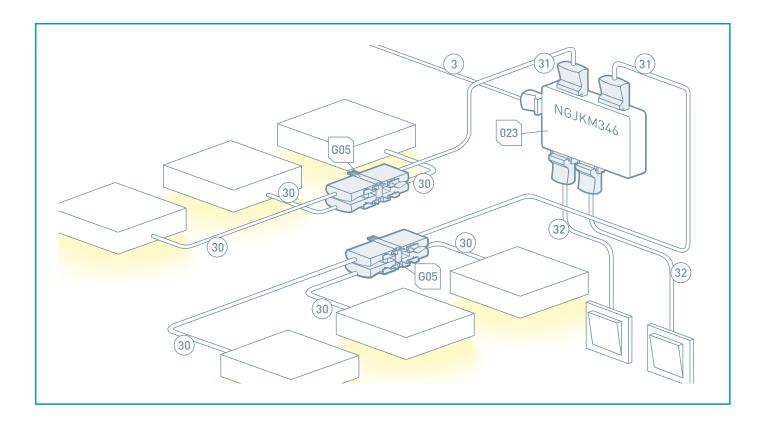


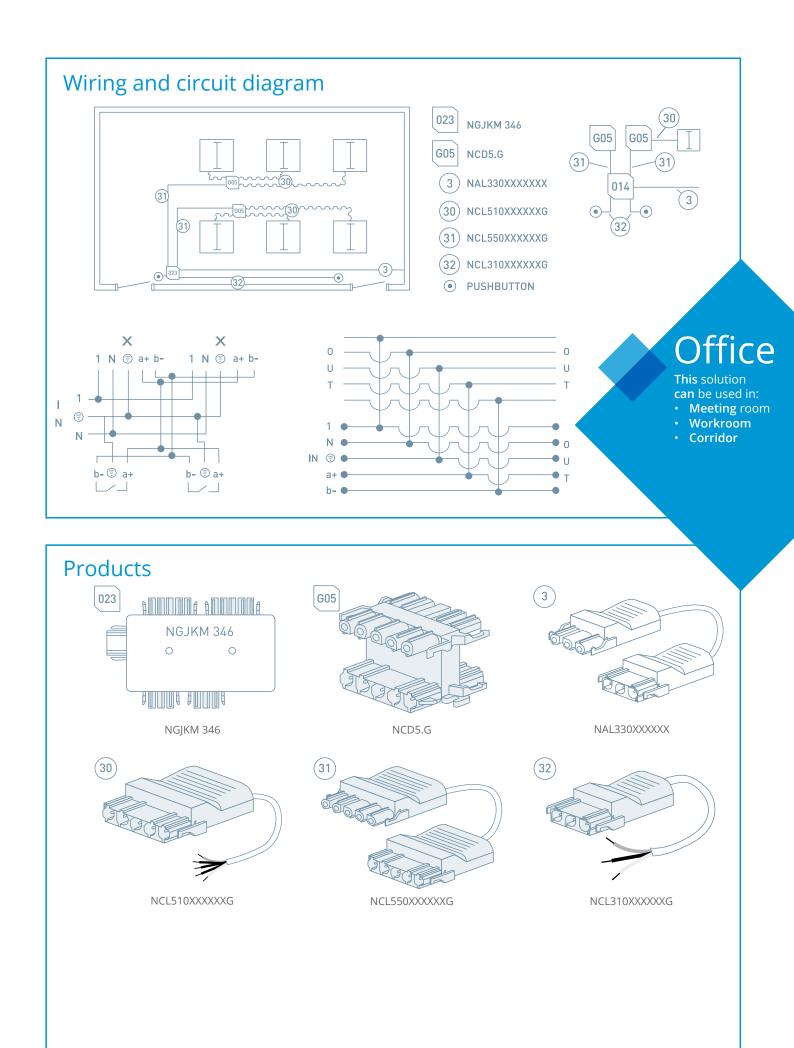


Office - open space Lighting Installation with Control Box by DALI

Installation with single phase power supply where supplies for light fittings are dimmer controlled via two parallel connected push buttons by DALI. Power supplies and DALI are branched with five pole cable sets to light fittings.

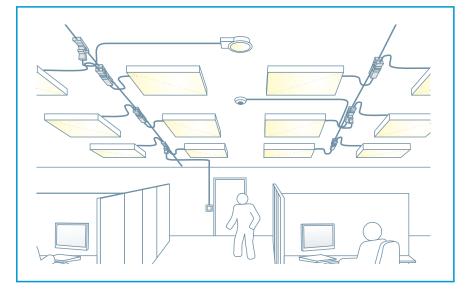


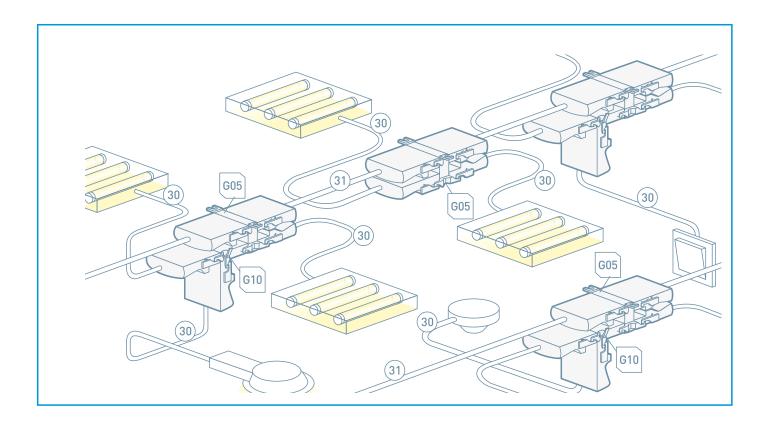


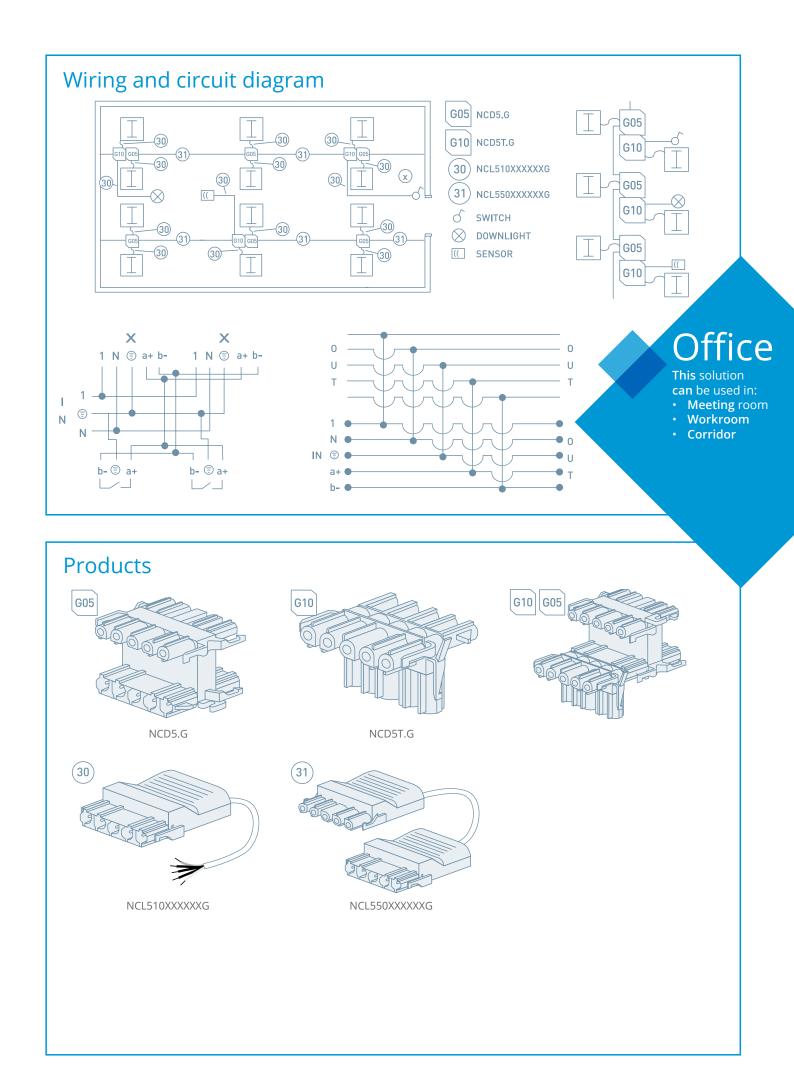


Lighting Installation with Distribution Blocks and T-blocks by DALI

Installation with single phase power supply where supplies for light fittings are dimmer controlled via two parallel connected push buttons by DALI. Power supplies and DALI are branched with five pole cable sets to light fittings.





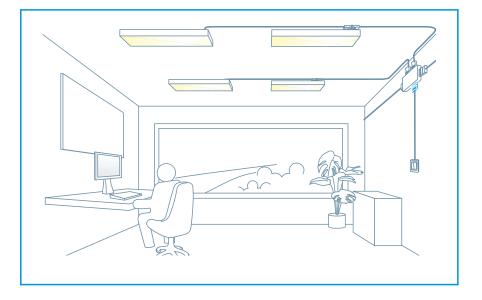


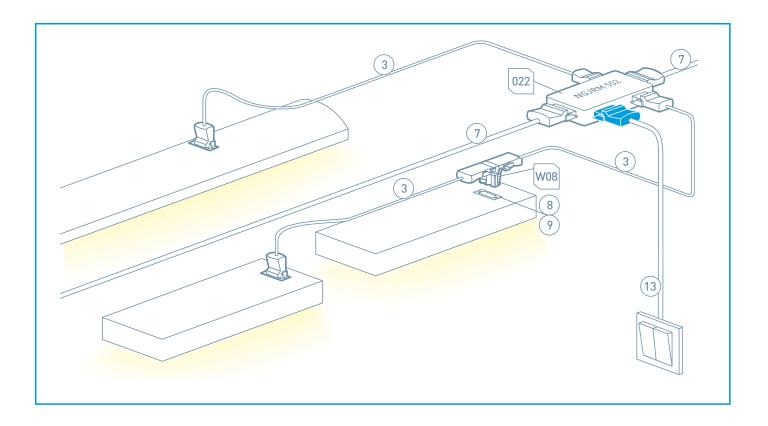
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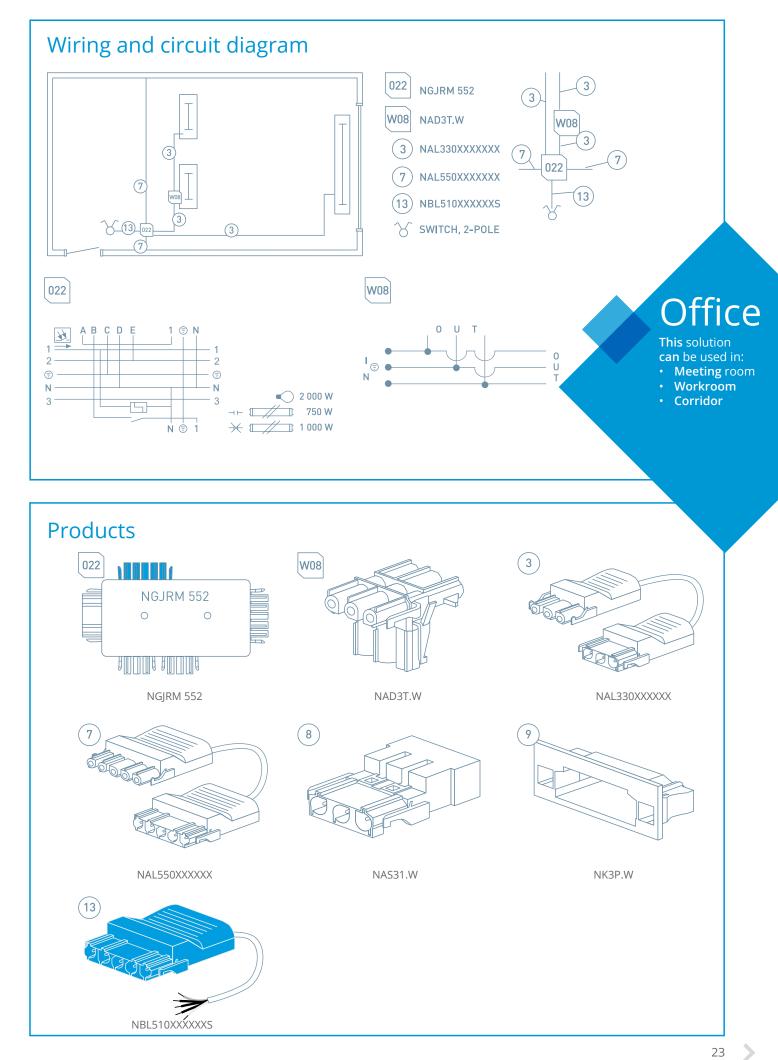
Office - workroom

Energy-saving Solution for Lighting with Switch Box and Twilight Switch

In this energy-saving solution the daylight is used for adjusting the lighting where light fittings near windows are being controlled centralized. The lights close to windows can also be switched off using switches. A double switch controls two light fittings. Installation with three phase continuous supply.





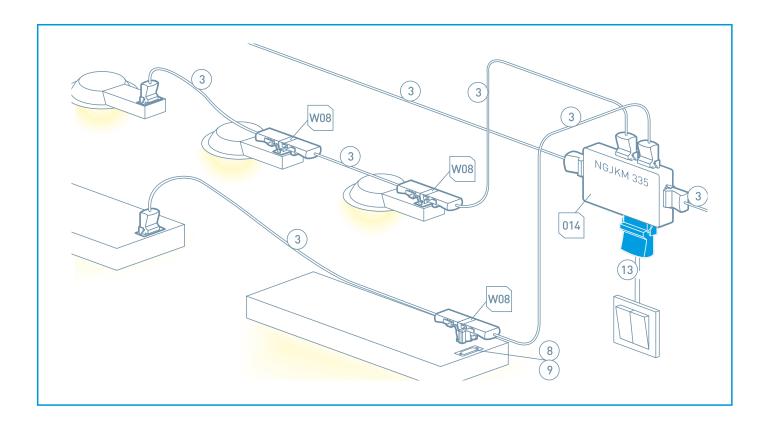


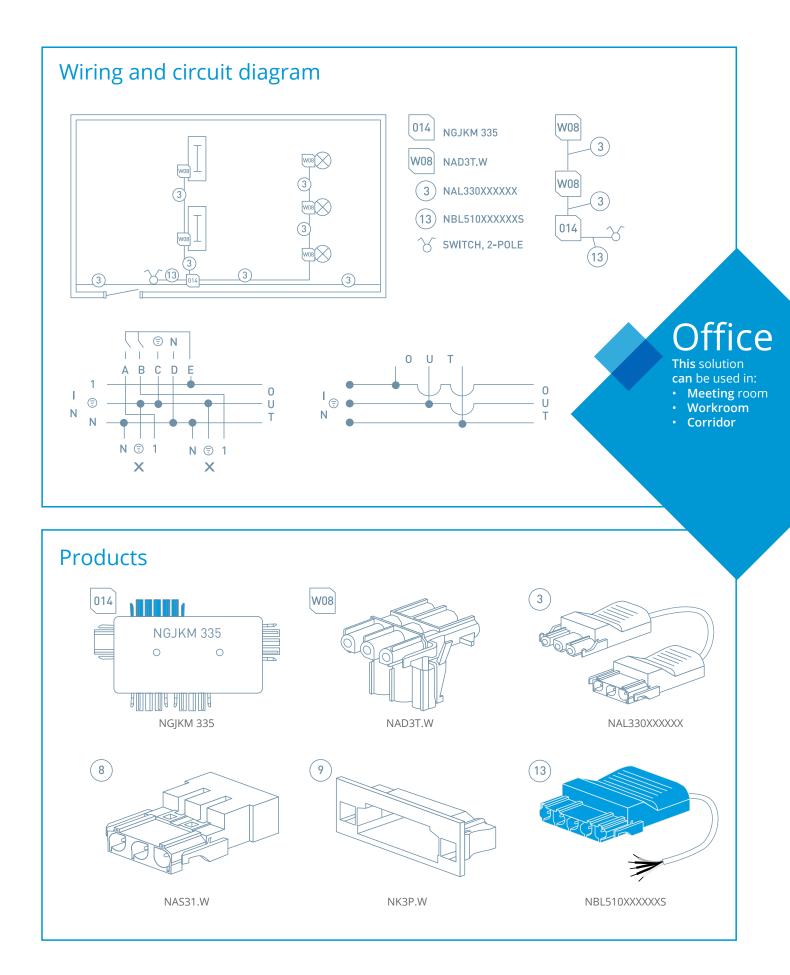
Office - workroom

Lighting Installation with T-distribution Block and Power Control Box

Installation with one phase continuous supply and on/off-switching of two separate light fitting chains. Chain installed with one phase T-distribution blocks.

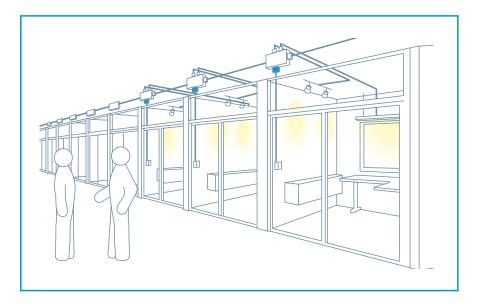


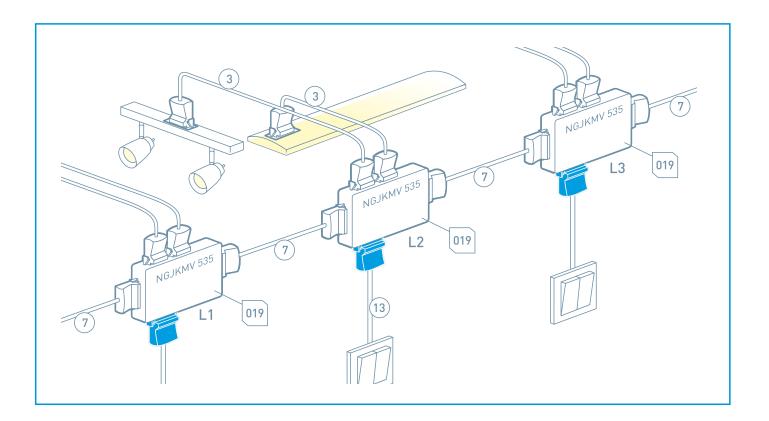


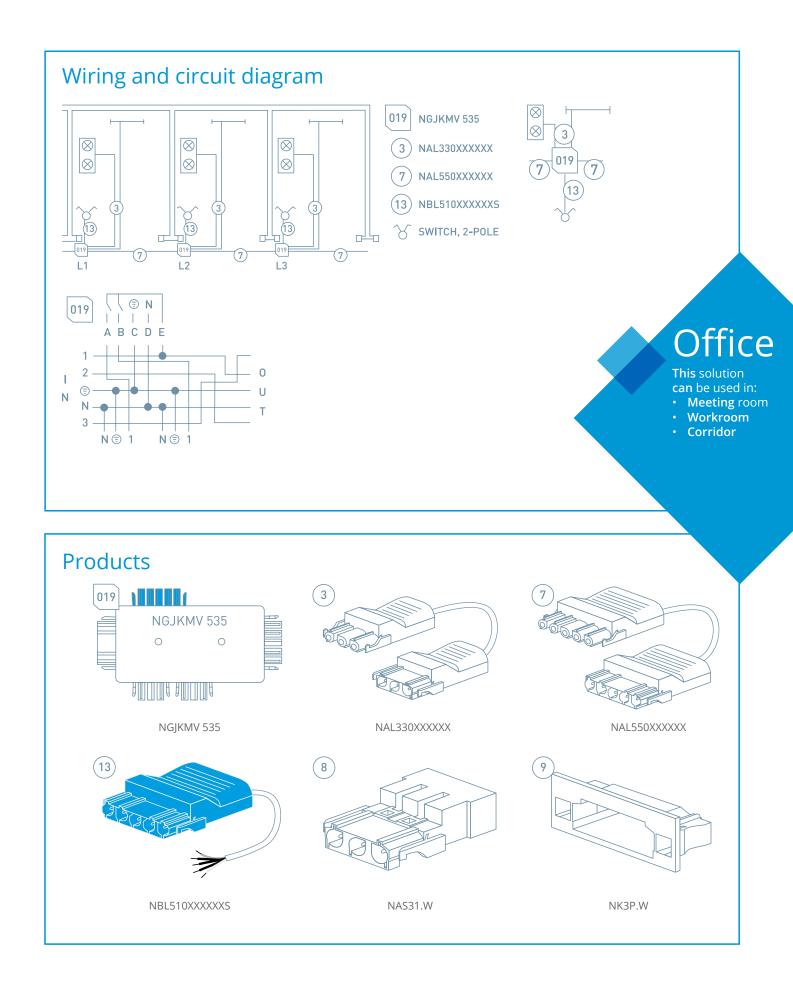


Office - workroom Lighting Installation with Power Control Box

Installation with three phase continuous supply with phase rotation and branching via a double switch to two one phase outgoings to light fittings.



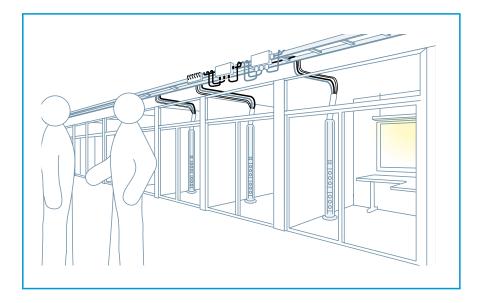


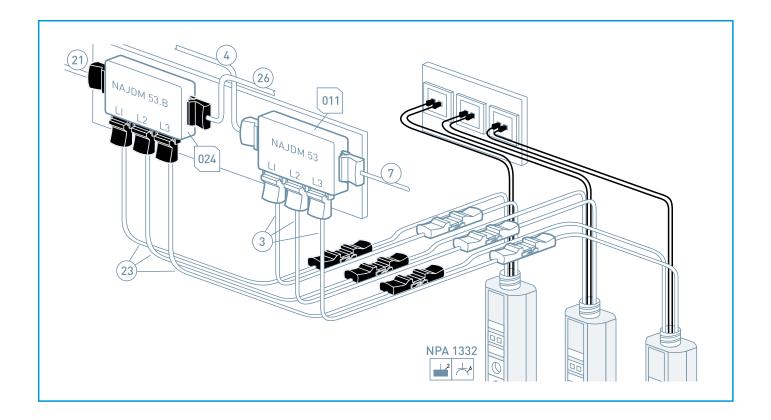


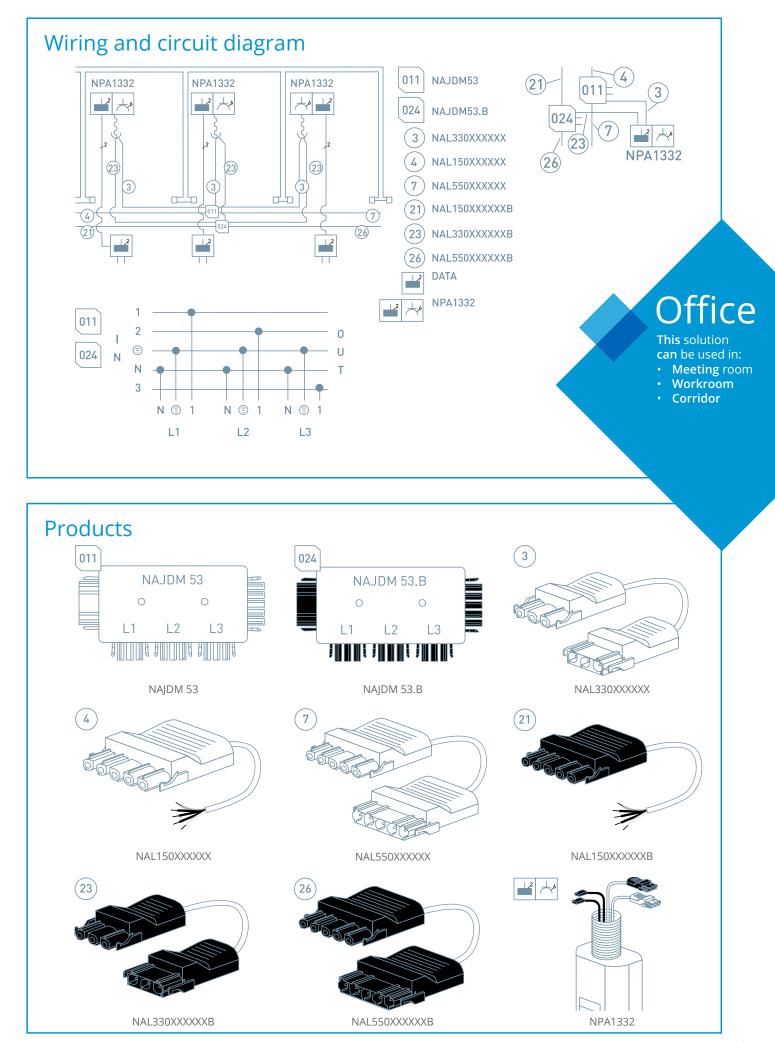
Office - workroom

Socket Outlet Installation with Service Pole

Installation with three phase continuous supply and three one phase branching to service poles.





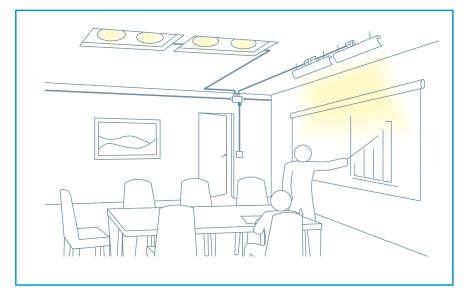


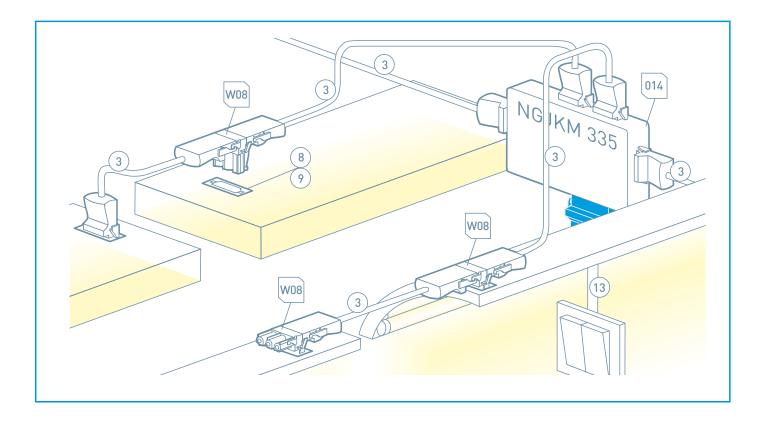
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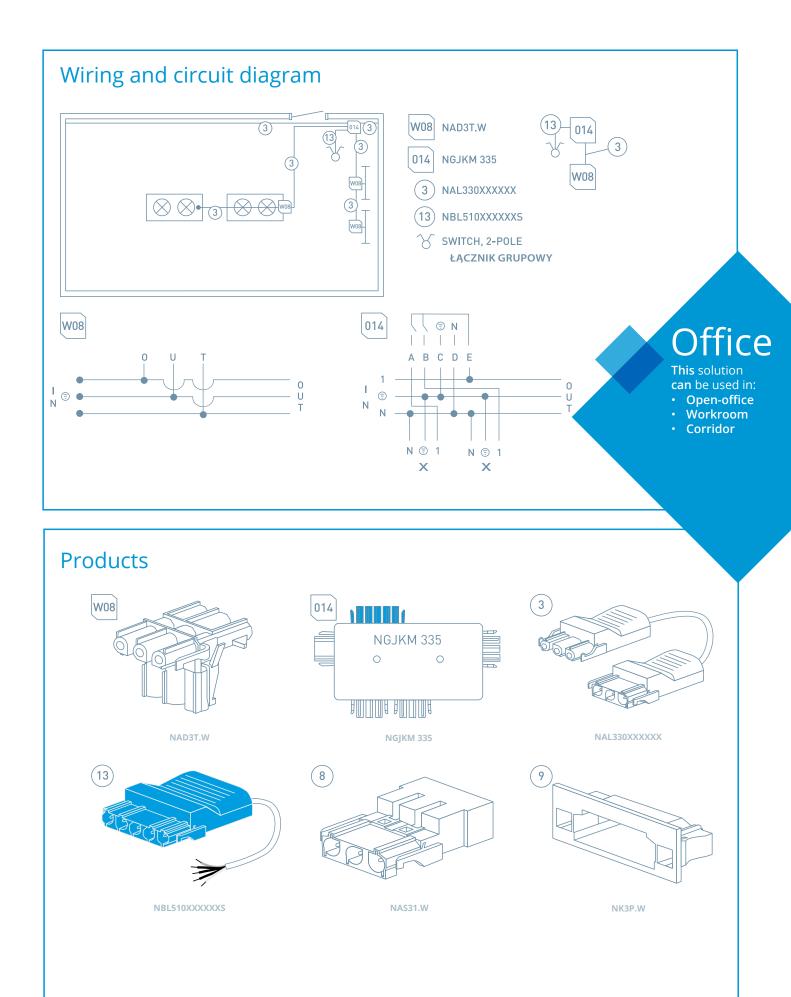
Office - meeting room

Lighting Installation with T-distribution Block and Power Control Box

Installation with one phase continuous supply and on/ off-switching of two separate light fitting chains. Chain installed with one phase T-distribution blocks.





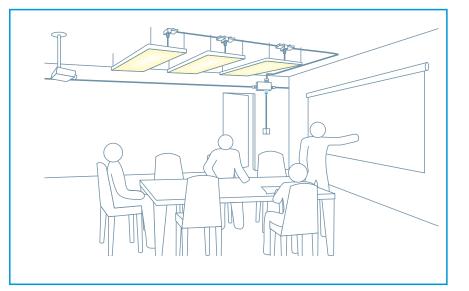


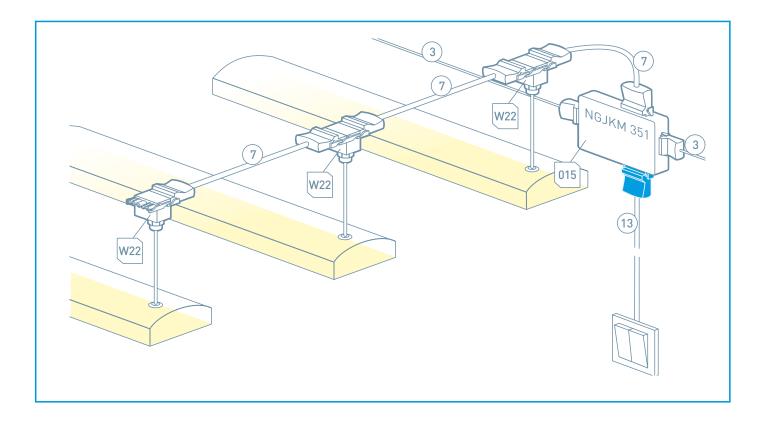
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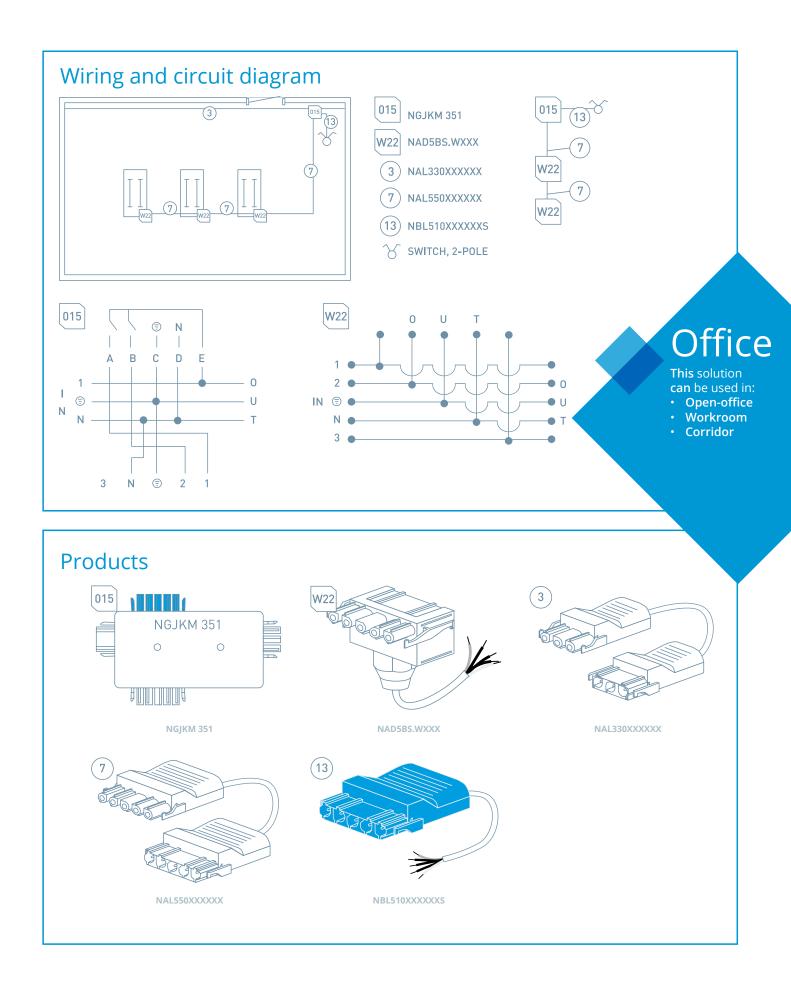
Office - meeting room

Lighting Installation with T-distribution Block with Cable and Power Control Box

Installation with one phase continuous supply and on/off-switching of two light fitting chains branched with one outgoing connector. Light fitting chain installed with separate T-distribution block. With this connection two light sources in the same light fitting can be controlled separately.





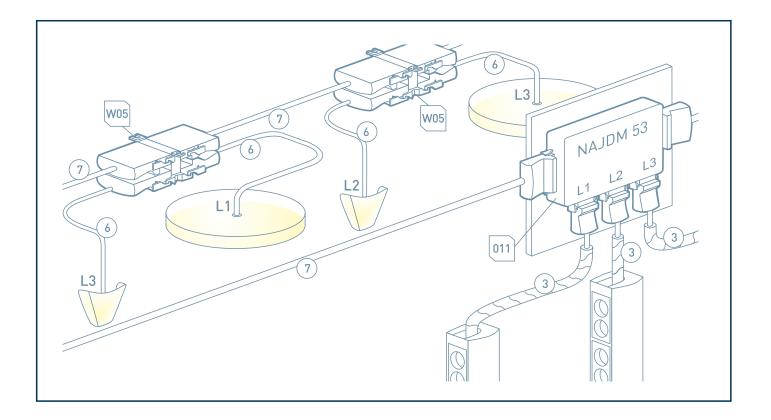


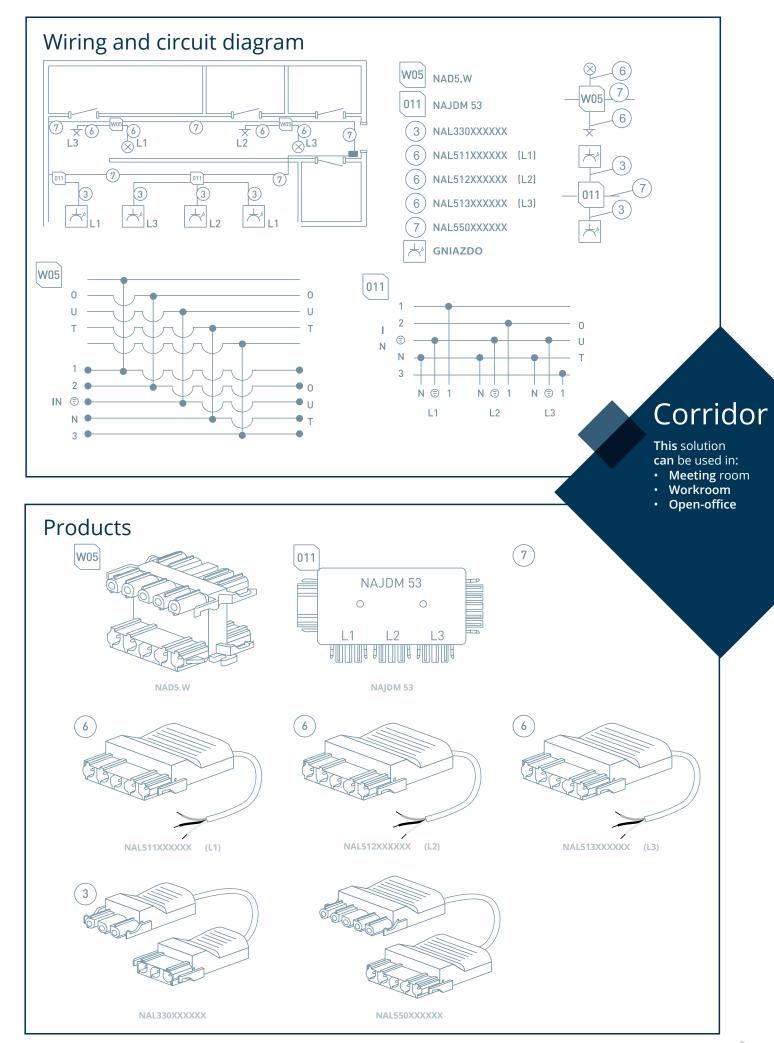
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Corridor Installation Solution

Installation with three phase continuous supply and branching to two one phase outgoings to light fittings.



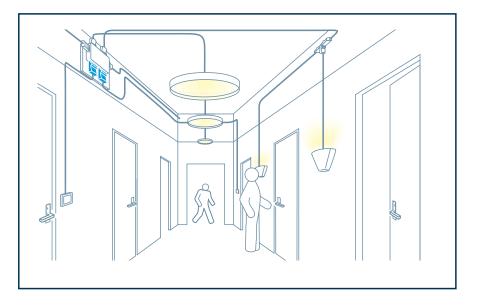


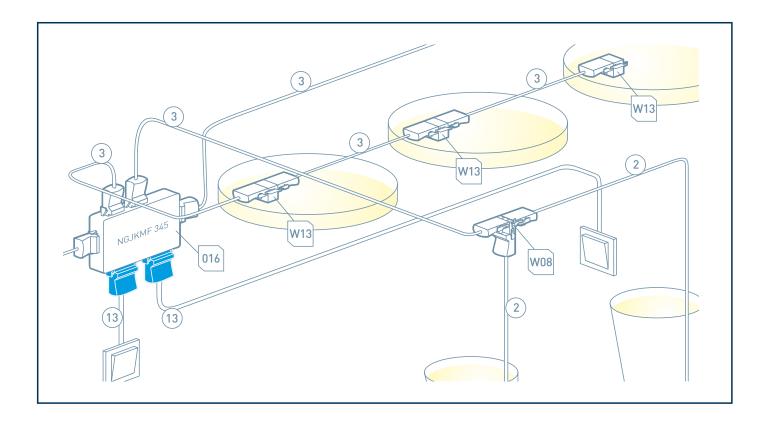


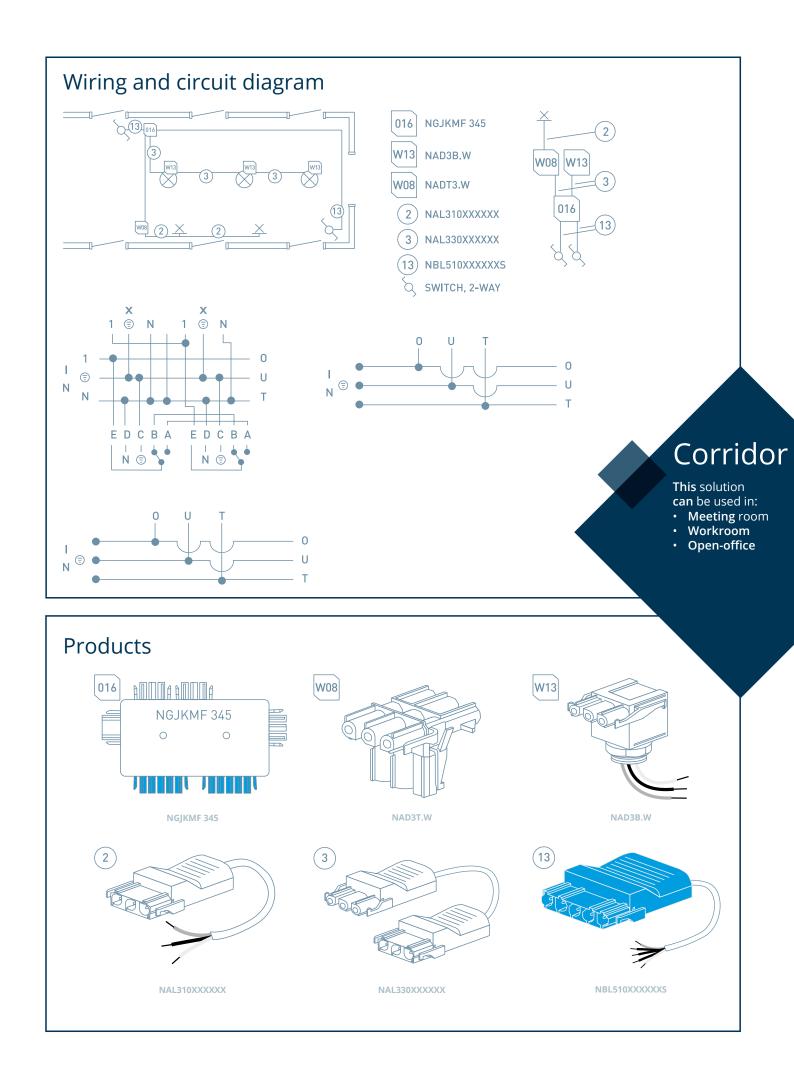
Corridor

Lighting Installation with T-distribution Block and Power Control Box for Two Switches

Installation with one phase continuous supply and branching via two change over switches. Outgoings for two separate supplies to light fittings.



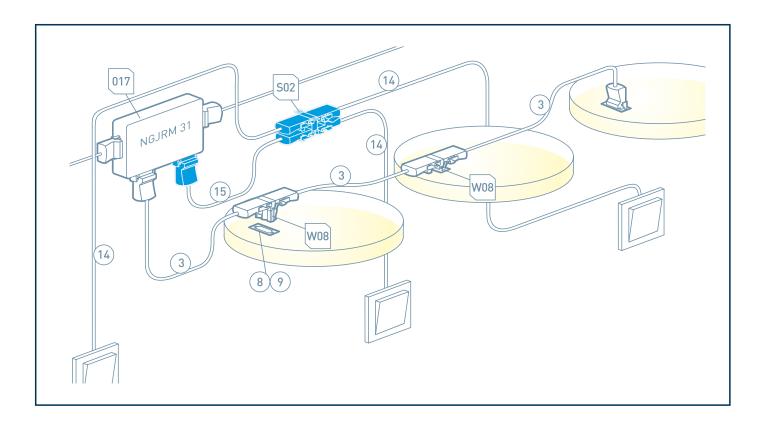


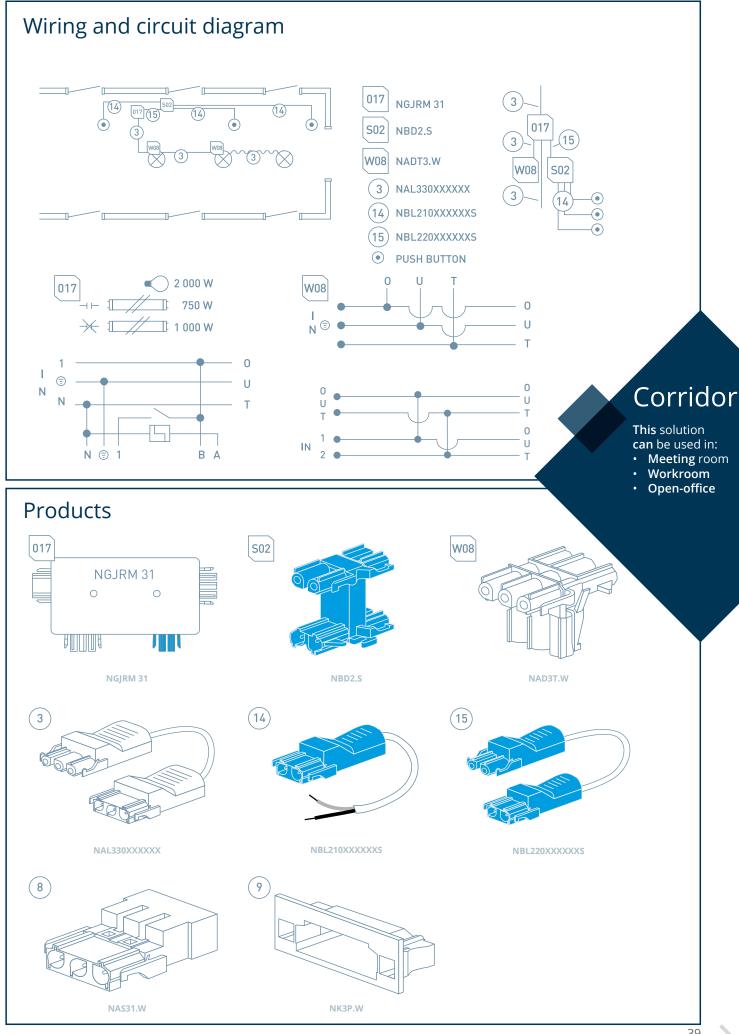


Corridor Lighting Installation with T-distribution Block and Relay Box

Installation with one phase continuous supply. Parallel connected push switches controls relay which is branching to one one phase outgoing for light fittings.





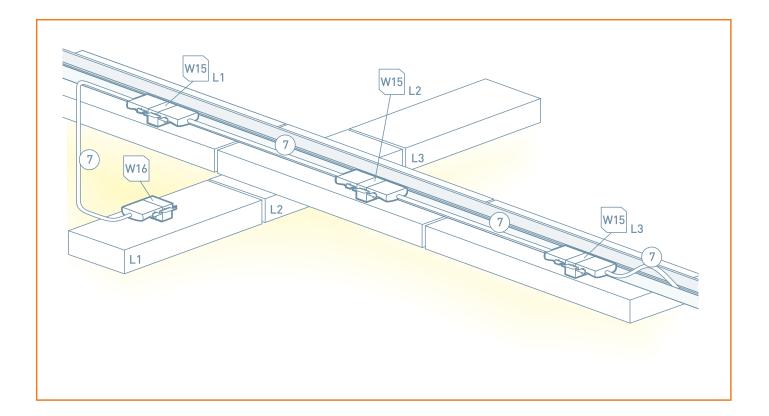


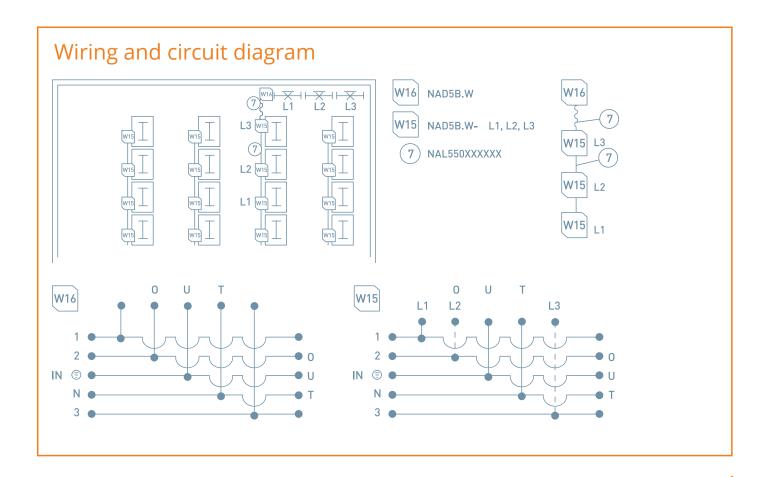
Supermarket

Lighting Installation with Integrated T-distribution Block

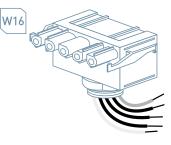
Installation with three phase supply continuous and integrated T-distribution blocks with alternatively one or three phase outgoings.



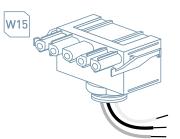




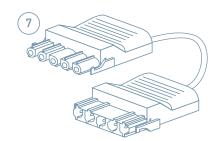




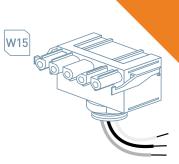
NAD5B.W



NAD5B.W L2



NAL550XXXXXX



NAD5B.W L3

Shop

This solution

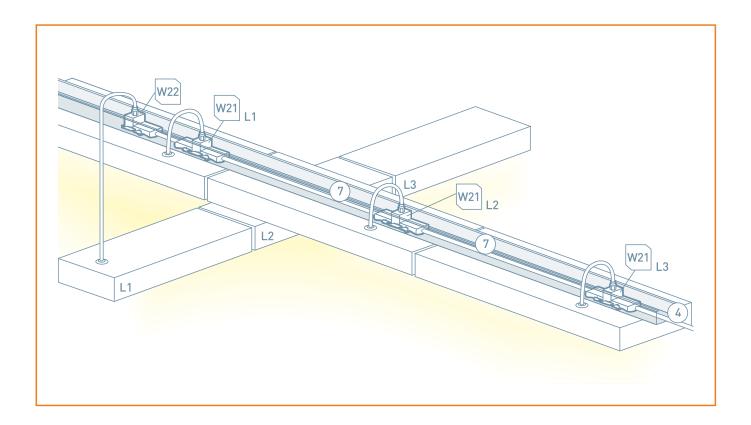
Shopping centre Meeting room Workroom Corridor

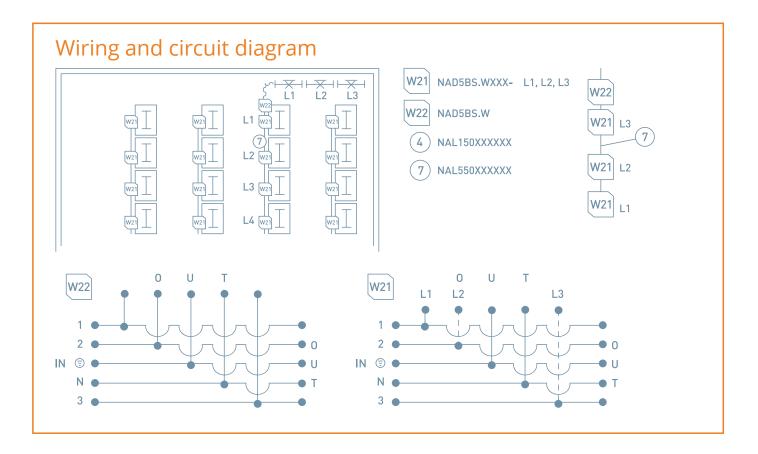
Supermarket

Lighting Installation with Flexible T-distribution Block

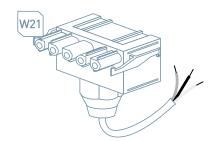
Installation with three phase supply continuous and flexible T-distribution blocks with alternatively one or three phase outgoings.



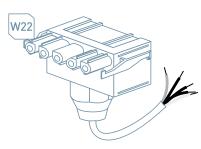




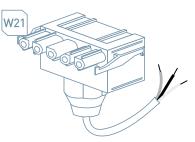
Products



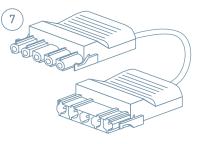
NAD5BS.WXXX- L1



NAD5BS.WXXX



NAD5BS.WXXX- L2



NAL550XXXXXX

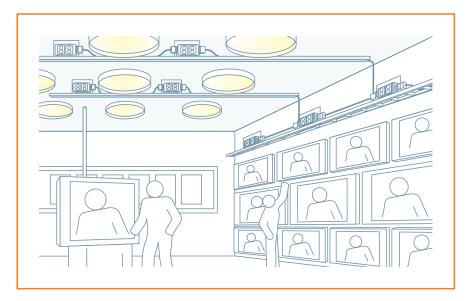
Shop

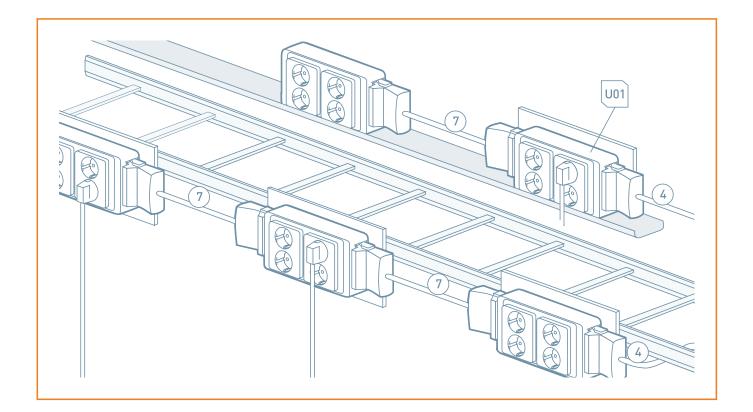
- Shopping centre
 Meeting room
 Workroom

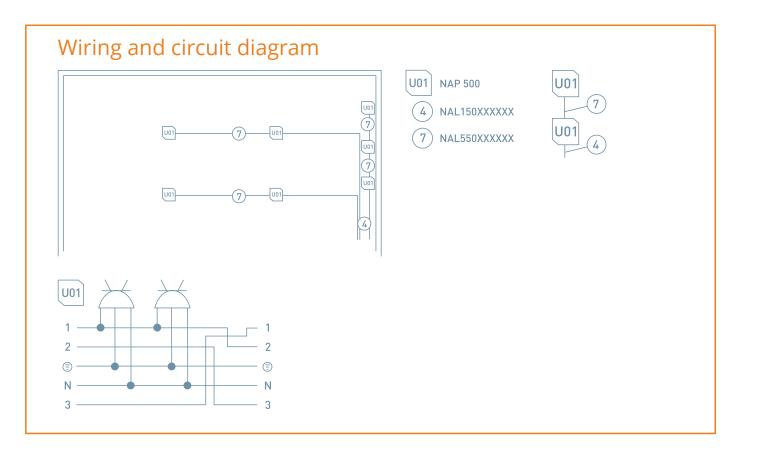
Supermarket

Socket Outlet Installation

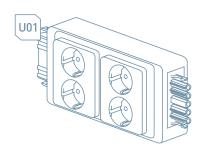
Prefabricated socket boxes with integrated EnstoNet connectors for continuous supply of power.



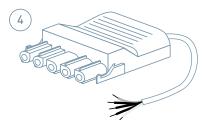




Products



NAP 500



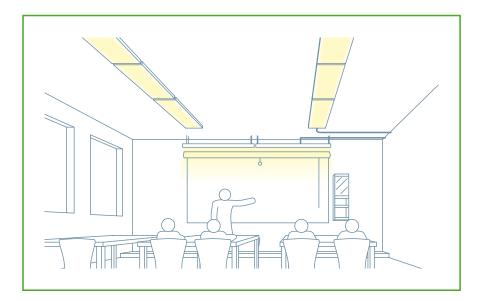
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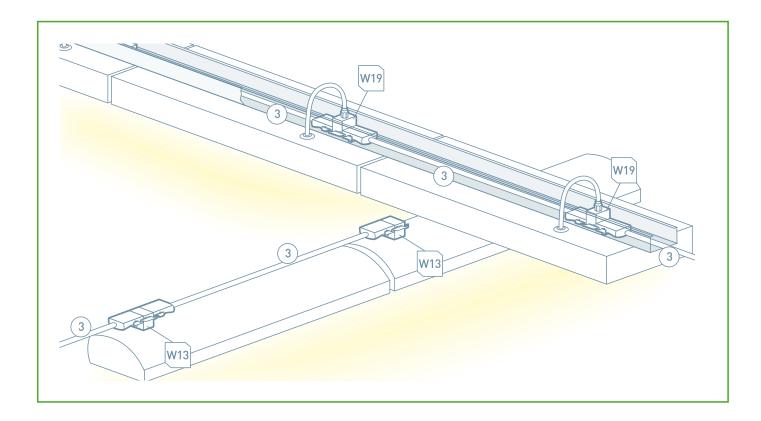
Shop

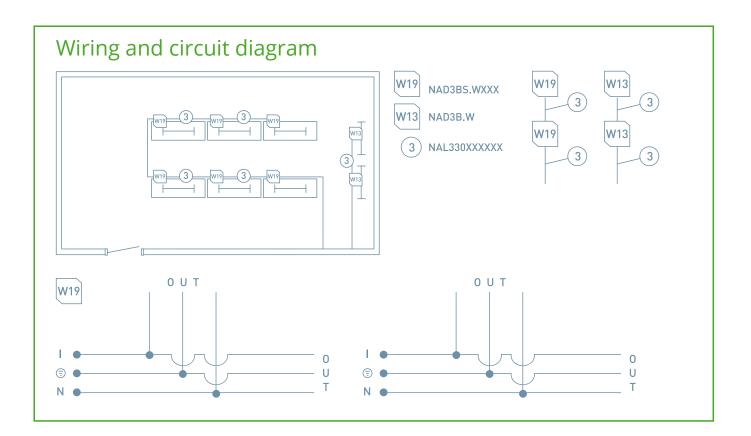
- Shopping centre
 Meeting room
 Workroom

School Lighting Installations with Flexible and Fixed T-distribution Block

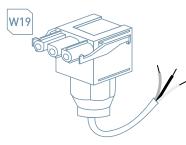
Installation with one phase continuous and integrated or flexible T-distribution block.



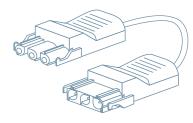




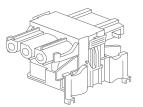
Products



NAD3BS.WXXX



NAL330XXXXXX



NOD3LA.W

School

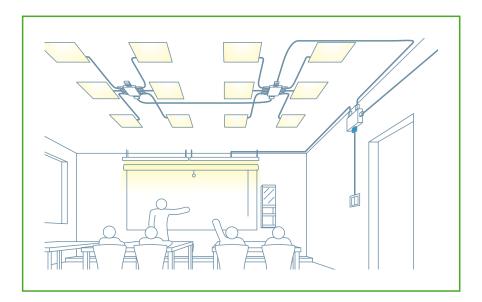
This solution can be used in: • Shop • Open-plan office

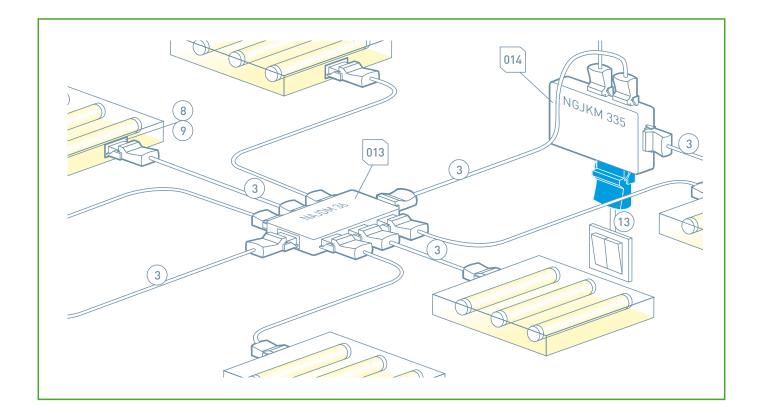
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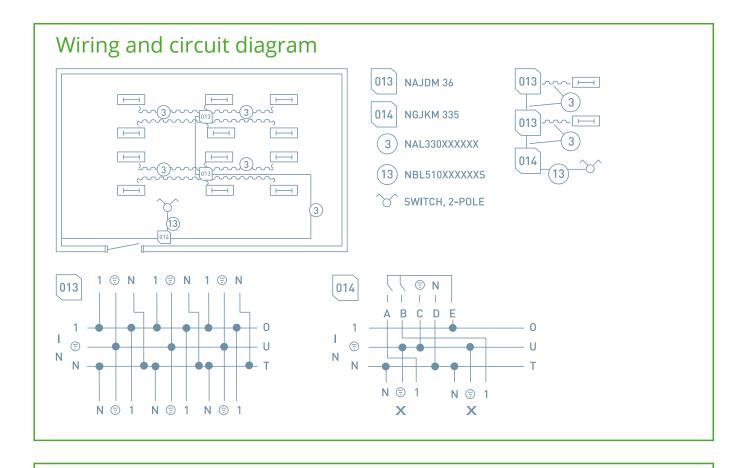
School and workroom

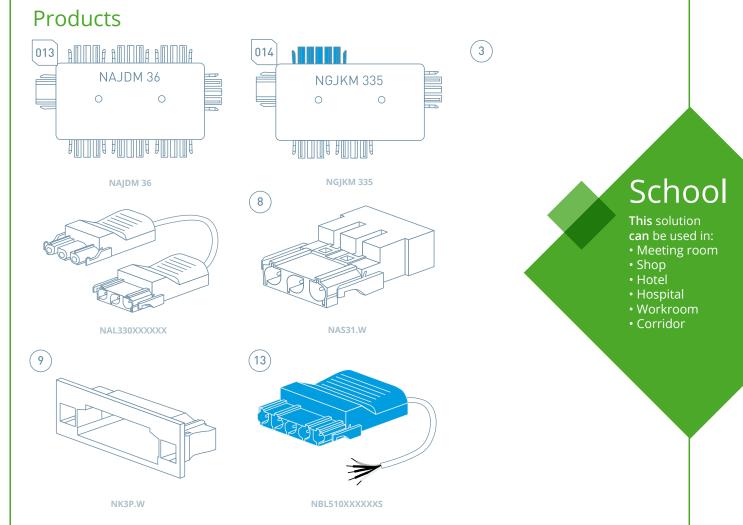
Lighting Installation with Distribution and Power Control Boxes

Installation with one phase continuous supply and on/off-switching of two separate branching combined with six outgoings to light fittings.





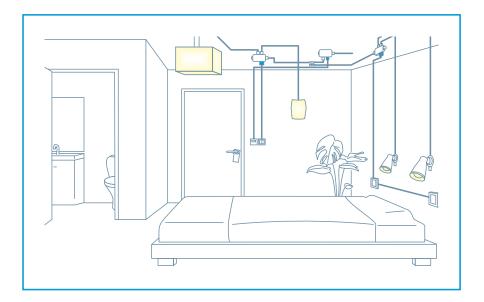


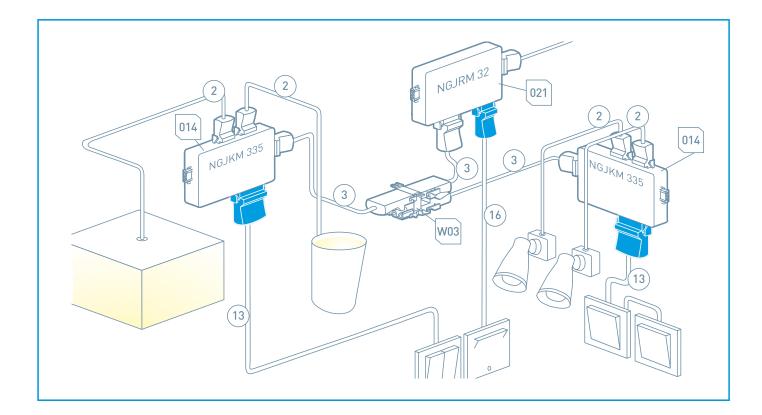


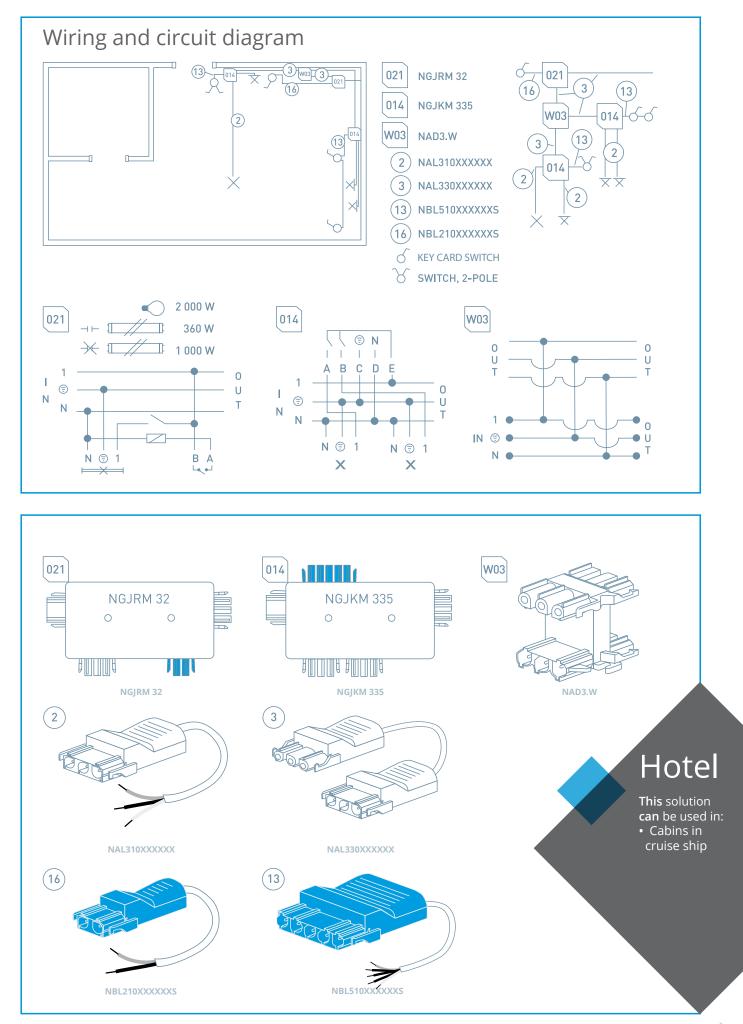
Hotel Room

Installation Solution with Relay Switch Box and Power Control Box

Installation with one phase switch box combined with a key card controlled relay switch box which is working as a main switch.





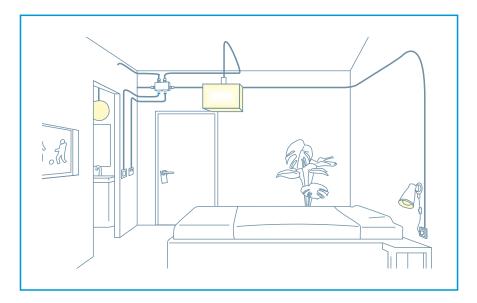


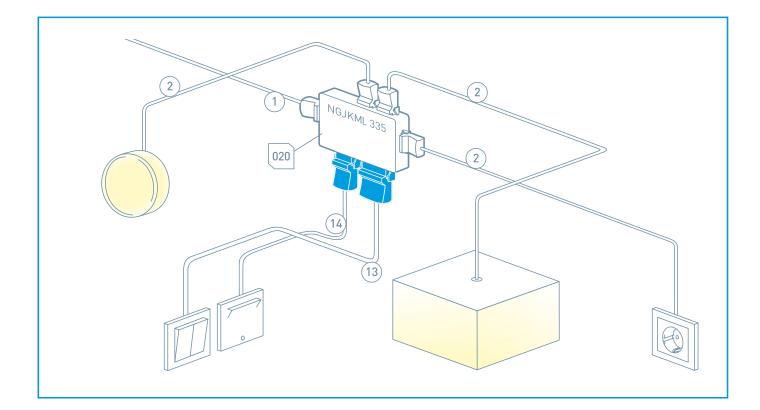
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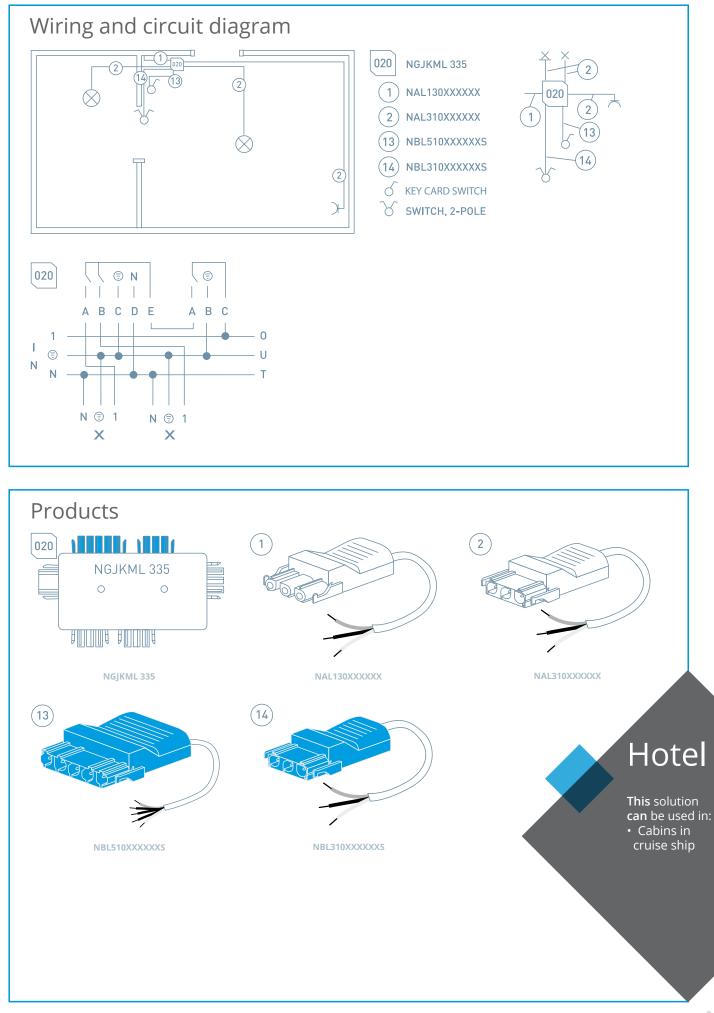
Hotel Room

Installation Solution with Power Control Box

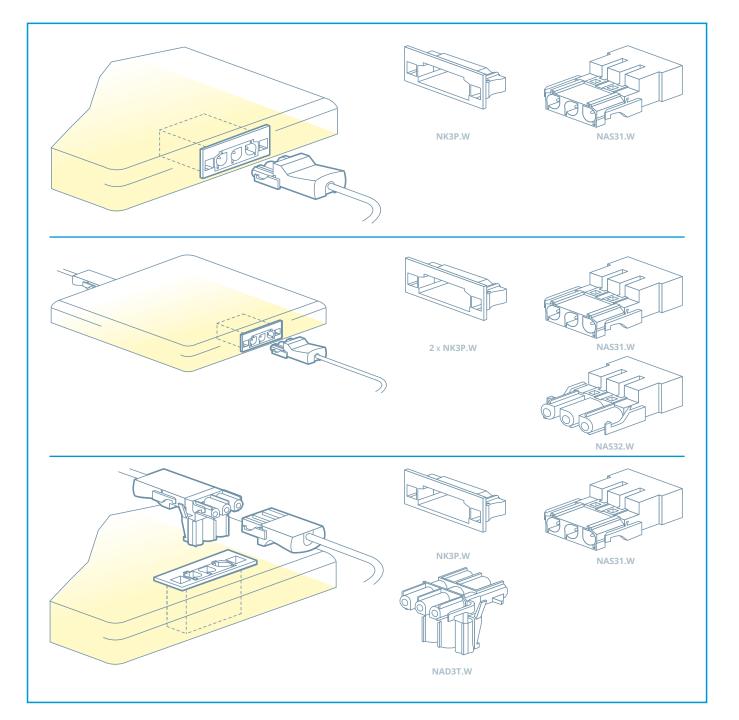
Installation with one phase continuous supply and on/off switching via a key card switch and a double switch. Branching to two separate light fittings.



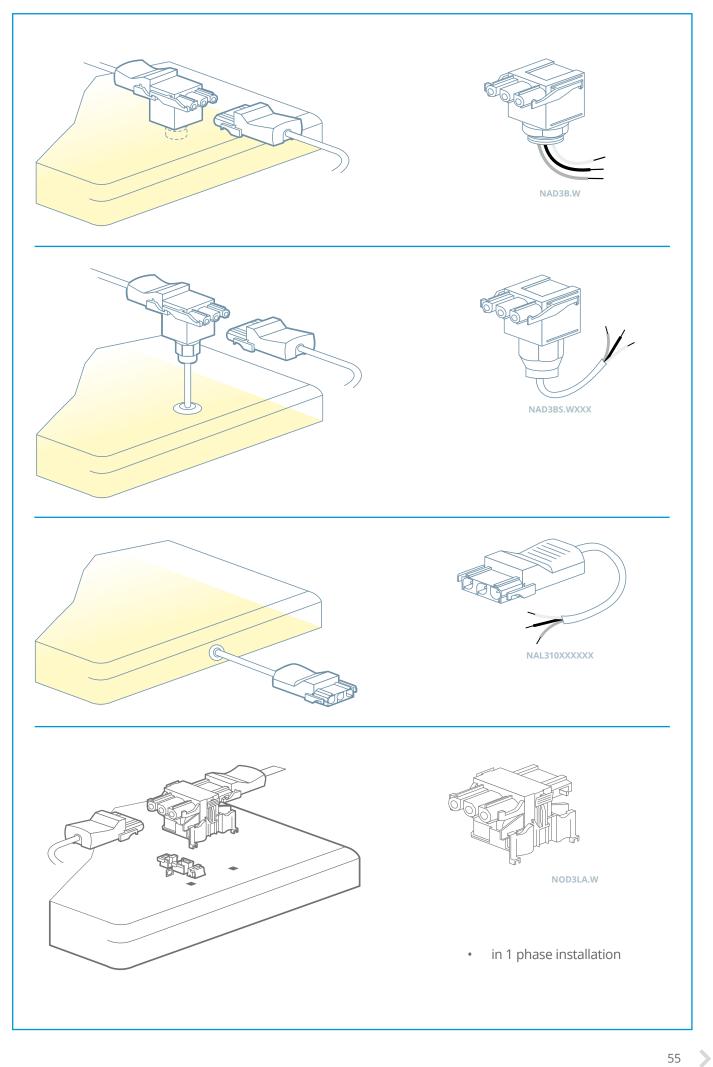




Light Fitting Connections with Ensto Net

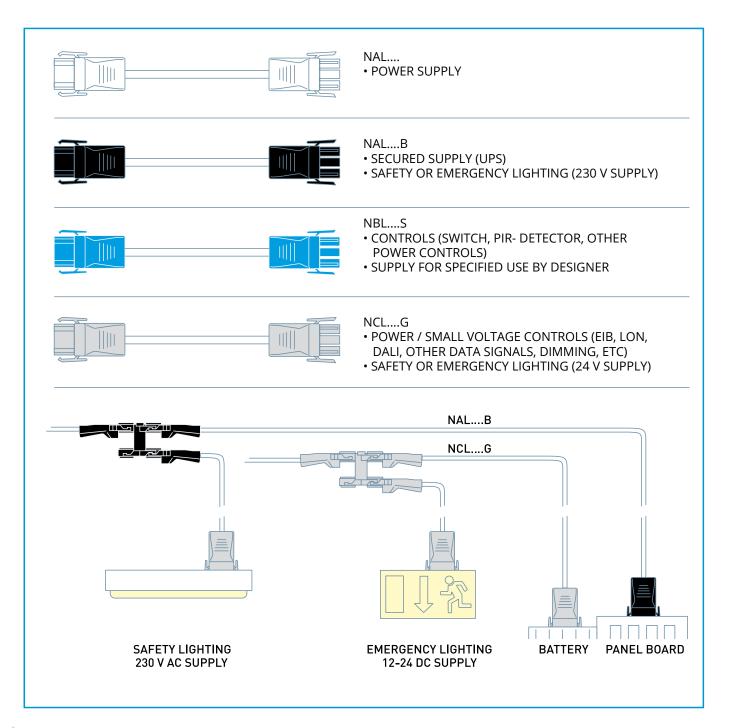


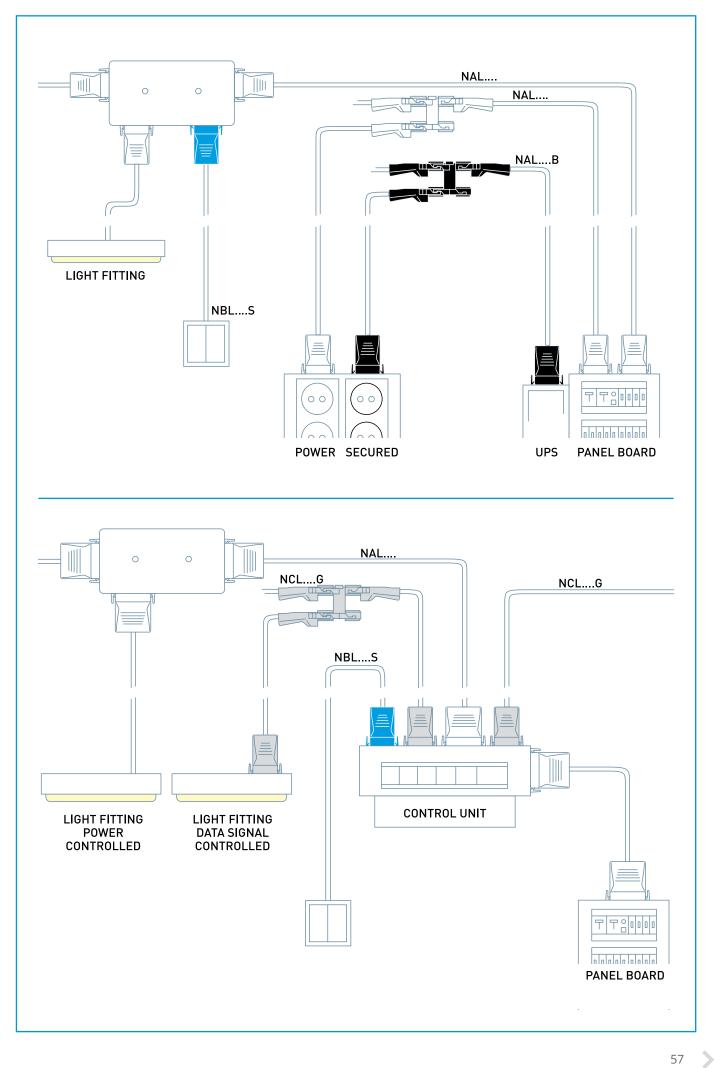
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Installation System - tips

Recommended usage or color codes





Product Code Key for Couplers and Accessories

Ν	А	С	2	1	S	Н.	W		
Ν								N = product group (Net)	
	A B C G							 A = standard coding B = second mechanical coding C = third mechanical coding A is the standard coding and it is marked white or black. These colours are compatible with each other. B coding is the second mechanical coding. It is marked with blue or beige. Products with the B coding are not compatible A- or C-coded products. C coding is the third mechanical coding. It is marked with grey or red. Products with the C coding are not compatible A- or B-coded products. G as the second character denotes a product, such as a junction box, that has both A- and B-coded couplers. Products that are independent of coding are not marked with a second character. 	
		C E S						C = connector, screw E = printed circuit board coupler S = screwless connector	
			2					2 = 2-pole coupler, etc	
				1 2				1 = plug 2 = socke	
	S					S = strain-relief Meaning of extra characters on boxes			
	Н					н		H = narrow coupler without locking latches	
					В	W = whiteB = blackS = blueG = grey			

Product Code Key for EnstoNet Prefabricated Leads

Ν	А	L	3	3	0	М	1	5	0	1	0	В		
N													N = product group (Net)	
	A B C												A = standard coding B = second mechanical coding C = third mechanical coding	Mechanical coding
		L											L = lead	
			1 2 3 4 5										1 = stripped, no coupler 2 = 2-pole plug coupler 3 = 3-pole plug coupler 4 = 4-pole plug coupler 5 = 5-pole plug coupler	Lead's plug end
				1 2 3 4 5									1 = stripped, no coupler 2 = 2-pole socket coupler 3 = 3-pole socket coupler 4 = 4-pole socket coupler 5 = 5-pole socket coupler	Lead's socket end
	0 1 2 3			0 = all phases connected 1 = L1 connection 2 = L2 connection 3 = L3 connection	Connection									
						M T W							M = H05VV-F = PVC T = H05Z1Z1-F (halogen free)) W = H05Z1A7Z1-F (halogen free), shielded)	Cable type
							07 1 2	5 5					07 = 0.75 mm² 15 = 1.5 mm² 25 = 2.5 mm²	Cross-section
									0 0	1 1	0 5		010 = 1 metre 015 = 1.5 metres 120 = 12 metres	Length of the prefabricated lead
												В	B = black G = grey S = blue	Colour of the coupler

Color Codes and Markings for EnstoNet Connectors

20 A, 250/400 V

PRODUCT GROUP	CODING	COLOUR	POLE MARKINGS				
Number of poles			2	3	4	5	
Prefabricated leads	A	White		1, ↓ , N		1, 2, ↓ , N, 3	
		Black		1, ↓ , N		1, 2, ‡ , N, 3	
	В	Blue	A, B	A, B, C		A, B, C, D, E	05000
	C	Grey		a+, ±, b-		1, N, ≟, a+, b-	
	-	5					20 Car
Distribution blocks	A	White					- Con
		Black					
	В	Blue					
	С	Grey					
		, , , , , , , , , , , , , , , , , , ,			•		
-Connectors	A	White					
connectors	7.	Black	-				
	В	Blue	-				0.5 - 5 - 5
	C	Grey	_				
	C	Grey	-				
	•	Add to					
-Connectors with wires	A	White	_				
		Black	_				0552
	В	Blue	_				
	С	Grey					
-Connectors with cables	A	White					
		Black					
	В	Blue					
	С	Szary					
nstallation Couplers	A	White	1, N	1,	1, <u>∔,</u> N, 2	1, 2, ≟, N, 3	
ristaliation couplets	~	Black	1, N	<u>1, </u> , <u>1,</u> 1, <u>+</u> , N	1, <u>+</u> , N, 2	1, 2, ≟, N, 3	9-
	В	Blue	A, B	A, B, C	, <u> </u> , , <u> </u>	A, B, C, D, E	
	_			.,_,_		.,_,_,_,_	
	С	Grey	a+, b-	a+, A, b-		1, N, ≟, a+, b-	e e gas
	-	5			•		*
Screwless Installation Couplers	A	White	1, N	1, ↓ , N	1, ↓ , N, 2	1, 2, ↓ , N, 3	
		Black	1, N	1. ≟ . N	1,	1, 2, ≟, N, 3	
	В	Blue	A, B	A, B, C			
	С	Grey	a+, b-	a+, ± , b-			
CD Couplars (Cocket)	•	\A/bito	1 N	1 I N	1	12112	
PCB Couplers (Socket)	A B	White Blue	1, N A, B	1,	1, <u>∔,</u> N, 2	1, 2,	
	C	Grey	а+, b-	<u>А, В, С</u> а+, <u></u> , b-		A, D, C, D, E	65 29
PCB Couplers (Plug)	A	White	at, u-	a+, <u></u> , p 1, ≟, N		1, 2, ↓ , N, 3	400
CD Coupiers (Flug)	B	Blue		I, ≑, N		A, B, C, D, E	
	D	Diue				А, В, С, D, Е	RECE
		· ·					
Special products	upon request		Specified product ir	nformation www	ensto.com Ple	ase choose Produc	ts –> EnstoNet
Not available							

Technical specifications

Maximum Voltage	250 V~, 250/400 V~ Ignition impulse test 4.5 kV / 250 V and 6 kV/ 400 V AC
Maximum current	20 A , prefabricated leads 16 A
Connector cross-sections	Screw connectors: 0.75 – 4.0 mm², flexible, stranded and solid wires Screwless connectors: 0.5 – 2.5 mm², stranded and solid wires
Number of poles	2 – 5-pole and 6-pole combination couplers
Standards	IEC 61535 and IEC/EN 60998 Linect products additionally: EN 60598:1, EN 61984
Approvals	All product groups: SGS FIMKO In addition for some products: UL, Lloyd's, DNV, EAC Linect products: VDE
IP classification	IP 20C
Materials	Body of couplers and distribution blocks: Polyamide 6.6 Self-extinguishment according to UL94: V2 Tracking index CTIM: 600 V (KB) Halogen-free Cadmium-free Recyclable Terminals: Silver-plated brass Terminal screws: Zinc-coated steel screws, rounded end Strain-relief screws: Zinc-coated steel screws, screw head PZ1
Allowed pull-out force for safety latches	Min. 80 N
Cables	PVC = H05VV-F HF = H05Z1Z1-F (halogen-free) W = H05Z1A7Z1-F (halogen-free, shielded)
Minimum installation temperature	+5 °C
Minimum operating temperature	-30 °C (without mechanical stress)
Maximum operating temperature	+70 °C
Coding	Mechanically and/or colour coded couplers
General	In accordance with standard IEC/EN 61535, EnstoNet installation couplers are not compatible with any other installation coupler series. The EnstoNet installation couplers are not compatible with domestic socket-outlet and plug systems, also not compatible with couplers in accordance with standards IEC 60309, IEC 60320 and IEC 60906.
	When dimensioning a network make sure that the nominal values of the installation couplers are not exceeded in different network load situations. When installing, mating or unmating EnstoNet couplers make sure no load is applied.
	The correctness of every connected wire, cable and electrical device has to be checked electrically. Foreign objects must not be inserted into the contact parts of EnstoNet couplers.
	EnstoNet couplers are not intended for replacing domestic socket and plug connection.
	Make sure that a pulling force of over 80 N is not applied to couplers and cab- les at any time during installation or use. If excess strain is unavoidable, fix the cable.
	The use and testing of EnstoNet couplers must comply with the national installation regulations.

EnstoNet electrical symbols for CAD

	2B	NAD2.B		
	2W	NAD2.W		
	2S	NBD2.S		
	2G	NCD2.G		
	2P	NCD2.P		
	3B	NAD3.B		
	зw	NAD3.W		
	35	NBD3.S		
	3G	NCD3.G		
	3P	NCD3.P		
	5B	NAD5.B		
	5W	NAD5.W		
	5S	NBD5.S		
	5G	NCD5.G		
	5P	NCD5.P		
36B		NAD36.B		
3	6W	NAD36.W		
3	втв	NAD3T.B		
3	BTW	NAD3T.W		
ţ	56B	NAD56.B		
5	56W	NAD56.W		
ţ	БТВ	NAD5T.B		
5	5TW	NAD5T.W		
;	36S	NBD36.S		
;	BTS	NBD3T.S		
ţ	5TS	NBD5T.S		
3	36G	NCD36.G		
3	B6P	NCD36.P		
3	BTG	NCD3T.G		
3	BTP	NCD3T.P		
ţ	56P	NCD56.P		

5TG	Ν
5TP	٨
D33W]
D36W]
D33B]
 D36B]
D53W]
D56W]
D53B]
 D56B]
D56WB]
-+- K335]]
K346]]
• •]
K351	
K353	
KF345]
K571	
K572]
K573]
KV535]
KL335]
KF561]
● ● ● R552]
R 31]]
R32]]
F335 ●)))	
, <u>**</u>	1

NCD5T.G VCD5T.P NAJDM33 NAJDM36 NAJDM33.B NAJDM36.B NAJDM33 NAJDM36 NAJDM53.B NAJDM56.B NGJDM56.WB NGJKM335 NGJKM346 NGJKM351 NGJKM353 NGJKMF345 NGJKM571 NGJKM572 NGJKM573 NGJKMV535 NGJKML335 NGJKM561 NGJRM552 NGJRM31 NGJRM32 NGJFM335 floor fixed service po standalone service pole socket box

data socket boxes

	NGUF540.W	B)N-	NAD3B.B
			NAD3B.W
P300	NAP300		NBD3B.S
			NCD3B.G
P301	NAP301		NAD5B.W
			NBD5B.S
P304	NAP304		NCD5B.G
			NAD5BS.W-L1
P500	NAP500		NAD5BS.W-L2
			NAD5BS.W-L3
P504	NAP504		NAD3BS.WT004
			NAD3BS.WT010
P505	NAP505		NAD3BS.WT025
			NAD5BS.WT004
			NAD5BS.WT004-L1
N —	NAC31.W		NAD5BS.WT004-L2
	NAS31.W		NAD5BS.WT004-L3
	NAC51.W		NAD5BS.WT010
	NAS51.W		NAD5BS.WT010-L1
			NAD5BS.WT010-L2
) N	NAC32.W		NAD5BS.WT010-L3
	NAS32.W		NAD5BS.WT010
	NAC52.W		NAD5BS.WT025-L1
	NAS52.W		NAD5BS.WT025-L2
			NAD5BS.WT025-L3
		31010	NAL330M15010
			length
			1 = 1,5mm ²
			number of poles
		(M31040B)	NAL310M15040B
			colour of couplers length
			$1 = 1,5 \text{mm}^2$
ole			number of poles
ne			type of lead
		L	

(plug/ free end)







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ensto.com

