Cam switches

Cam switches

«Cam switches flexibility, the reliable solution to new design challenges»

Engineering software toolkits have dramatically transformed project designs for simple or complex electrical panels and machines. Innovative concepts have been dismissed by electrical components constructional limitations.

Versatility has become an urgent requirement on control components that need to adapt to specific designer requests.

Cam operated switches are the reliable technology solution that offers safe on load switching with maximum configuration flexibility.

Cam switch flexibility and their new innovative options are the right answer to your new design challenges.

Innovation
New illumination and signalling options using latest technologies

Product overview

Standard switches

Comprehensive range of switches and mountings for industrial use.

A5 switches
From 12 to 250A

Safety switches
From 12 to 250A

Special switches
(under request)

Accessories

Combilight switches

Electrical and indication functions, all in one.

Position controlled switches

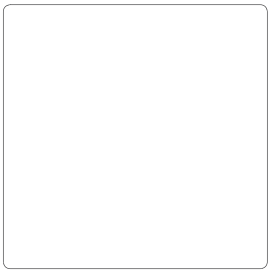
Signal controlled switches

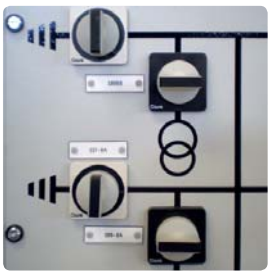
Discrepancy switches

Handle and pushbutton controls.

Monocolor discrepancy switches

Bicolor and tricolor discrepancy switches





provide intuitive operation and benefits from considerable savings in cost and time.

Safety
User operation is ensured by all-time reliable position and status indication.

Highly demanding IEC standard conditions guarantee circuit isolation under all circumstances.

Installation
A wide range of mounting and cabling options enable an easy integration on new designs.

General characteristics

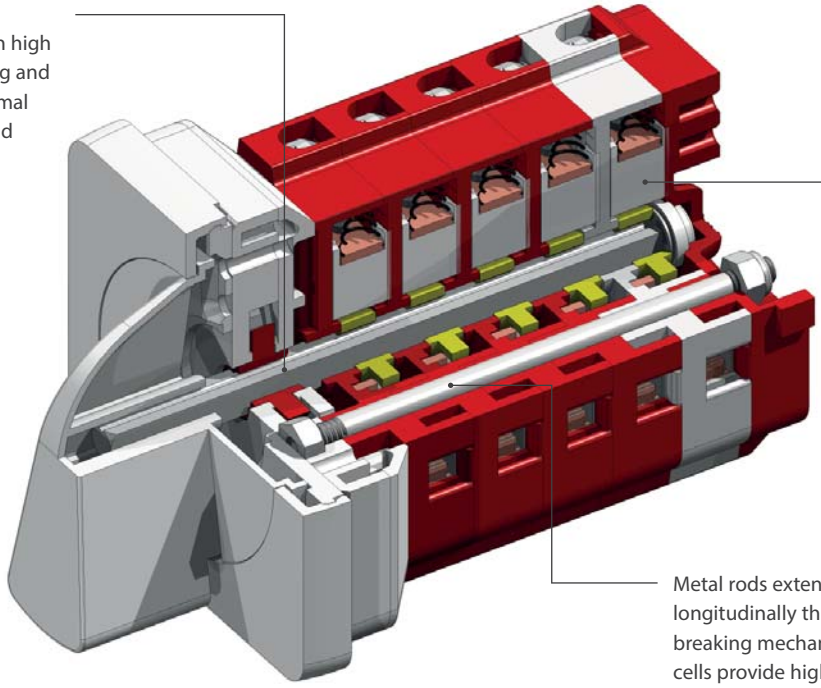
Designed specially for industrial requirements

The particular needs of OEMs are typically conditioned by the installation environment and often involve the use of a large number of contacts.

It is also common to require specific versions with dedicated fixing parts, wiring connections or special devices.

Product design on A5/L5 series includes a number of intrinsic features that ensure maximum product reliability in industrial applications.

The shaft made of galvanized steel with high resistance to bending and torsion ensures optimal contacts opening and closing.

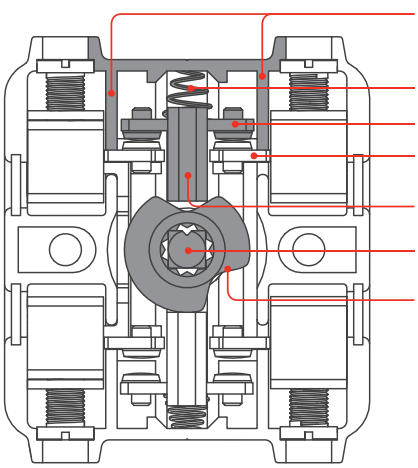


Contact cells with deep inlet locking system that provides great strength to the assembly.

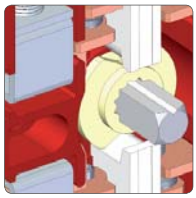
Metal rods extending longitudinally through the breaking mechanism and contact cells provide high robustness to the complete set.

Positively driven operation

Welded contacts or a broken spring can be the cause of a serious failure in an industrial facility. Positive opening contacts ensures that NC/NO contacts are not simultaneously connected.



The movement of the positive opening cams ❶ causes the moving support ❷ to move upwards, forcing disconnection of contacts bridge ❸ from the fixed contacts ❹.

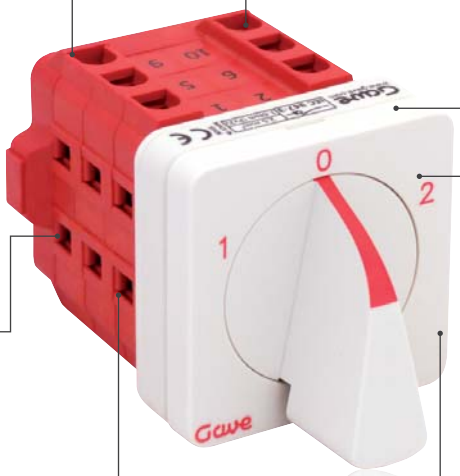


Advanced electromechanics

High electrical endurance (3 times above standard requirements).

Clamp-yoke connection

Contact surfaces grooved for optimal grip and conductivity.



Internal and external links

Factory assembled links. Insulated external links protect against direct contact on live parts.

Protection degree IP20

Terminals protected against solid objects up to 12,5mm according to IEC 60529.

Marking

Product marked with permanent ink indicating reference and electrical characteristics.

Insert bolts

Bolts inserted on the breaking mechanism making simple switch mounting, saving time and avoiding loose components.

Simple "click" front plate fixing

Front plate designed for easy fixing by simple push-in on the mounting plate.

IEC 60947-3

Switch-disconnector

«A mechanical connection device capable of making, carrying and breaking currents under normal circuit conditions, possibly including specified operating overload conditions, and for a specified duration carrying currents in abnormal circuit conditions such as short-circuit conditions (a switch may be able to make short-circuit currents, but it cannot break them). In its breaking position meets the specific insulation conditions required for a circuit disconnector.»

Cam technology
The best electrical and mechanical endurance

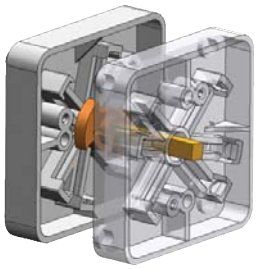
Low rating industrial applications are characterised by continuous switching operations that entail constant on load current making and breaking. Cam technology is well known for its remarkable electromechanical endurance that offers outstanding characteristics reaching up to 20 times the standard value requirements which makes it the best solution for such industrial applications.

Dedicated components and designs

Connection system

Clamping yoke connection known as the best on the market.

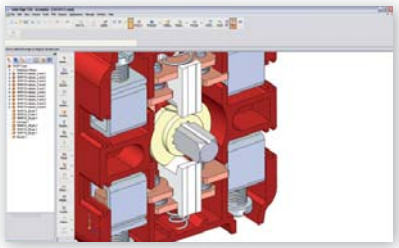
- Secure connection stable on temperature changes and vibrations.
- Captive screw.
- Surface treatment for minimum contact resistance.



Double breaking mechanisms

A high number of contacts or an improvement on electrical characteristics can be achieved by increasing the force on the breaking mechanism. The solution is a system with several breaking mechanisms (double or triple).

The double mechanism system can also be used to design released switches so that the speed and force are independent of operator action as defined in IEC 947-3 2.14.

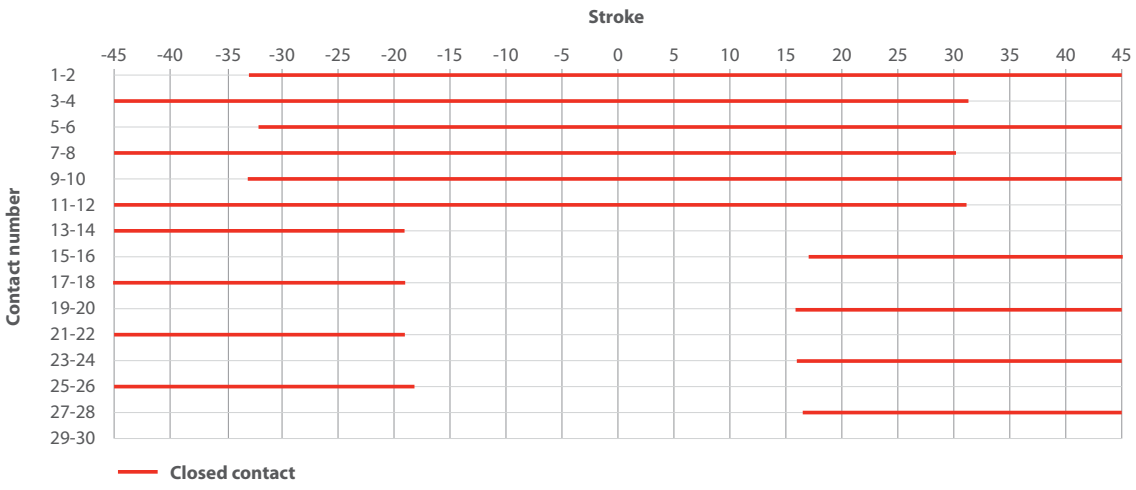


Precision mechanics

Computer aided engineering is used to analyse different mechanical options. Kinematic characteristics are examined and virtual tests are performed prior to prototyping stage. Variables to combine are:

- Springs force on breaking mechanism and contact cells.
- Design on the breaking mechanism star.
- Contact cams design.

Individual control of contacts behaviour is used to guarantee electrical simultaneity during make/break operations.



Contact elements

Contacts on the standard product range are based on silver alloys that are characterised by high arc and welding resistance while maintaining stability at high temperatures and providing remarkable erosion endurance.

Plastic materials

The switch body is made of polyester reinforced with fibreglass featuring high electrical characteristics. The material is UL certified and provides excellent insulating properties (CTI index) and arc resistance (HAI index). Safety in case of emergency is guaranteed by its self-extinguishing properties.

Fixing elements, actuators and special connections

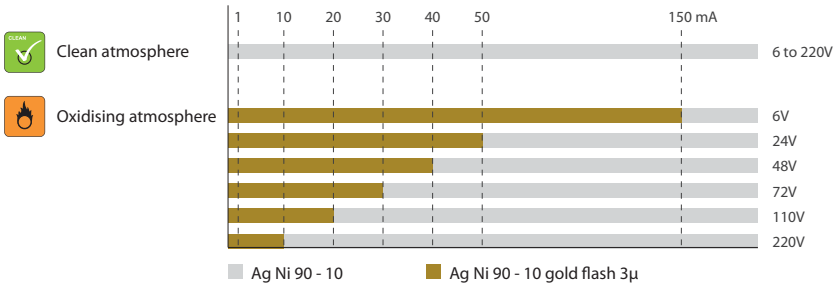
Industrial equipment manufacturers are typically constrained by a large number of limitations when developing their designs, consequently high switch adaptability in fixing and connection is essential to fit on industrial designs.
Special shafts, fixing plates, screw specific materials and heads, individual output terminals, ...

Suitable for harsh environments

Gave is able to provide product solutions for applications in harsh environments such as highly corrosive atmospheres, fire resistance, electromagnetic pollution, ...
The requirements of these applications involve the use of adapted components including the use of special materials.

Contact elements

Control and signalling in harsh environment sometimes requires some specific contact elements, specially under low current and/or low voltage application. Gold flashed contacts are available. The below selection table is used to establish when gold plated contact is required based on its voltage and current operation.



Advanced materials

Critical parts on standard products and complete assemblies on F-Protec series use high performance polymers mixed with additives able to endure erosion while providing an outstanding dimensional stability under normal or high temperature conditions (controlled CTE).

Metallic parts

Highly corrosive atmospheres such as those on chemical industries, heavy industries and offshore installations may require the use of stainless steel parts. We can make special stainless steel parts such as rods, shafts, springs, screws and nuts.
Applications on environments highly sensitive to electromagnetic pollution may require the use of brass metal parts, we can make special production series on terminals, bolts and shafts.

Technical data

c UL us

¡ATTENTION!
Retighten **all connection screws** after wiring the equipment.

			12A	16A	25A	25A	32A	40A	63A	100A	125A	160A	200A	250A
Fixing			0	0	0	1	1	1	1	1	1	1	1	1
Size			D0	D0	D0	D1	D1	D1	D2	D2	D2	D3	D3	D3
Thermal rating		Ith A	16	20	25	25	40	40	70	100	125	160	200	250
Max. fuse protection (gG-aM)		In A	20	25	25	25	40	40	80	125	125	160	200	250
Impulse voltage		Uimp kV	4	4	4	4	4	4	4	4	4	4	4	4
Conditional shortcircuit current		Icc kA	6	6	6	6	6	6	8	8	8	-	-	-
Operating voltage		Ue V~	690	690	690	690	690	690	690	690	690	690	690	690
Insulating voltage		V~	690	690	690	690	690	690	690	690	690	690	690	690
Insulating voltage		V…	400	400	400	400	600	600	600	600	600	600	600	600
Operational rating		Ie A	12	16	25	25	32	40	63	100	125	160	200	250
Wire section	Flexible	mm^2	2,5 - 6	2,5 - 6	2,5 - 6	6 - 16	6 - 16	6 - 16	16 - 50	16 - 50	16 - 50	70	95	120
		AWG	10	10	10	10	6	6	6 - 1	6 - 1	6 - 1	-	-	-
Torque		Nm	1,6	1,6	1,6	2	2	2	3,5	3,5	3,5	-	-	-
Connection screws			M4	M4	M4	M5	M5	M5	M8	M8	M8	M8	M8	M8
Terminal														
AC 21	kW	3 x 230V	3	5,5	7,5	7,5	11	15	22	37	37	45	55	75
	Dummy kW	3 x 400V	7,5	11	15	15	18,5	22	37	55	75	90	110	132
	cosØ >0,95 kW	3 x 500V	11	15	18,5	18,5	22	30	45	75	90	110	132	160
AC 22	kW	3 x 230V	2,2	4	7,5	7,5	7,5	11	22	30	30	37	45	55
	Mixed load kW	3 x 400V	5,5	7,5	11	11	15	22	30	45	55	75	90	110
	0,65 <cosØ <0,95 kW	3 x 500V	7,5	11	15	15	18,5	22	37	55	75	90	110	132
AC 23	kW	3 x 230V	2,2	3	4	4	5,5	7,5	15	18,5	18,5	30	38	-
	Motor load VA kW	3 x 400V	4	5,5	7,5	7,5	11	18,5	22	30	37	52	65	-
	0,45 <cosØ <0,65 kW	3 x 500V	5,5	7,5	11	11	15	22	30	37	45	65	80	-
AC 11	VA	3 x 110V	600	1000	1400	1400	2000	-	-	-	-	-	-	-
	Circuit loads VA	3 x 230V	1200	2000	2800	2800	4000	-	-	-	-	-	-	-
	Magnetic VA	3 x 430V	2000	3500	4800	4800	7000	-	-	-	-	-	-	-
UL 508 Manual motor controller	1-phase 110-120V	hp	1	1,5	2	2	2	2	5	10	10	-	-	-
	1-phase 220-240V	hp	1,5	2	3	3	3	5	10	15	15	-	-	-
	3-phase 220-240V	hp	1	2	2	2	7,5	7,5	15	25	25	-	-	-
	3-phase 380-415V	hp	2	2	3	3	10	10	25	30	30	-	-	-
	3-phase 440-480V	hp	3	3	5	5	10	15	30	40	40	-	-	-
	3-phase 550-600V	hp	3	5	7	7	15	20	32	50	50	-	-	-

A5 Series
Standard cam operated switches

An introduction to the market leader cam switches product offer characterised by its robustness and reliability.

A complete range that allows any type of electrical scheme with multiple contacts and positions without compromising its high electrical characteristics.

The range also is well known for its adaptability to industrial applications.

«A compact and efficient range»

Size D0
Up to 25A

Size D1
Up to 40A

Size D2
Up to 125A

Size D3
Up to 250A

Reference system

Cam switches technology is typically defined by its large production flexibility permitting special solutions to multiple specific requirements that we find in the industrial world.

These requirements are characterised by a variety of electrical schemes, large number of mounting possibilities and an assortment of accessories. Referencing tailor made solutions is determined by production units and will generate a constructive file permitting livelong tracking and future duplicates. Most common products can be ordered by standardised references as detailed on the following reference system description.

A-552 2 1 0 0

Series
- A Standard (A5)
- L Lateral (L5)

Rating
0	12 A	3	32 A	7	100 A	A	160 A
1	16 A	4	40 A	9	125 A	B	200 A
2	25 A	6	63 A			C	250 A

Handle


- \- Standard
- A Reverse colour to standard (switches only)
- B Padlock locking (red / yellow)
- C Padlock locking (grey / black)
- I Front plate and screw handle in black
- N Black colour in front plate and handle
- H Lockout handle (red / yellow)
- J Lockout handle (grey / black)

Electrical scheme
See page 56

Mounting type
- 0 Panel mounting
- 2 Key lockable handle
- 3 Key interlock
- 6 With undervoltage release
- 7 IP65 plastic enclosed switch
- 8 Aluminium enclosed switch
- 9 Inox enclosed switch

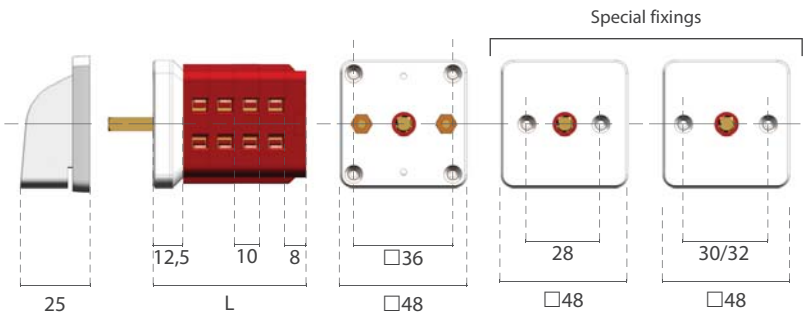
Front plate type
- 0 Standard
- \- Without plate and handle

Fixing
0	Fixing	36 x 36
1	Fixing	48 x 48

Dimensions for standard connection

A5 standard series are defined by its outstanding compact size. The fixing system enables to rotate the switch 90 degrees in either direction in order to adjust the input/output cables to the installation requirements. This possibility also exists for rear mounting and DIN rail mounting.

Size D0

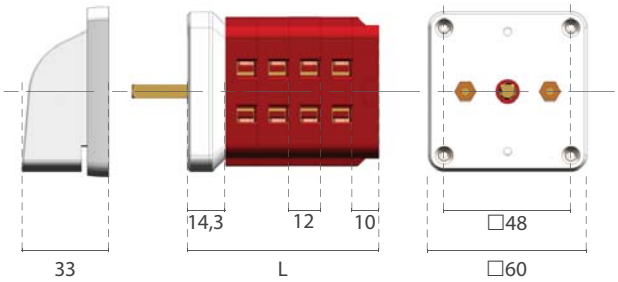


1,6 Nm
PZ2

Cells	1	2	3	4	5	6	7	8	9	10	11	12
Length (L)	30,5	40,5	50,5	60,5	70,5	80,5	90,5	100,5	110,5	120,5	130,5	140,5

values in mm

Size D1

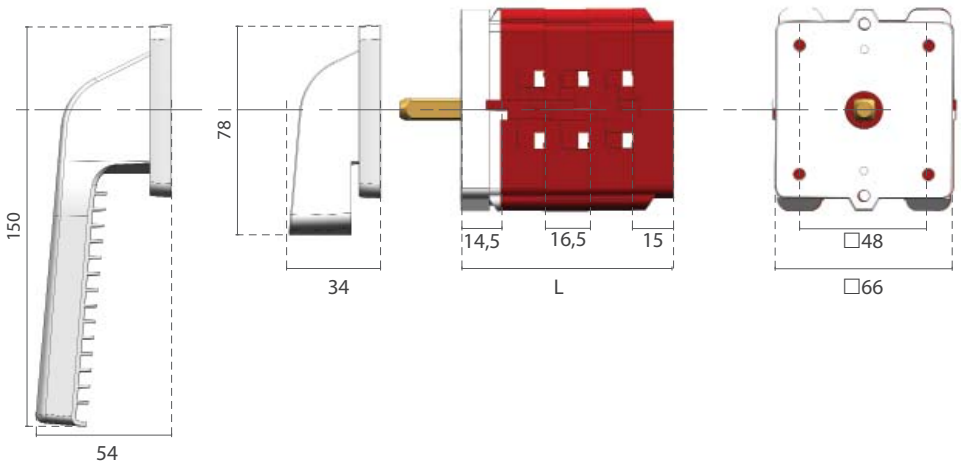


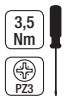
2,0 Nm
PZ2

Cells	1	2	3	4	5	6	7	8	9	10	11	12
Length (L)	36,3	48,3	60,3	72,3	84,3	96,3	108,3	120,3	132,3	144,3	156,3	168,3

values in mm

Size D2



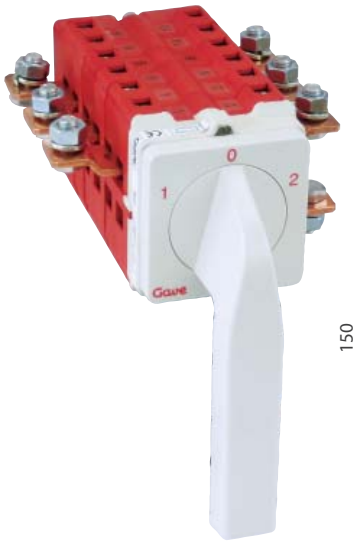


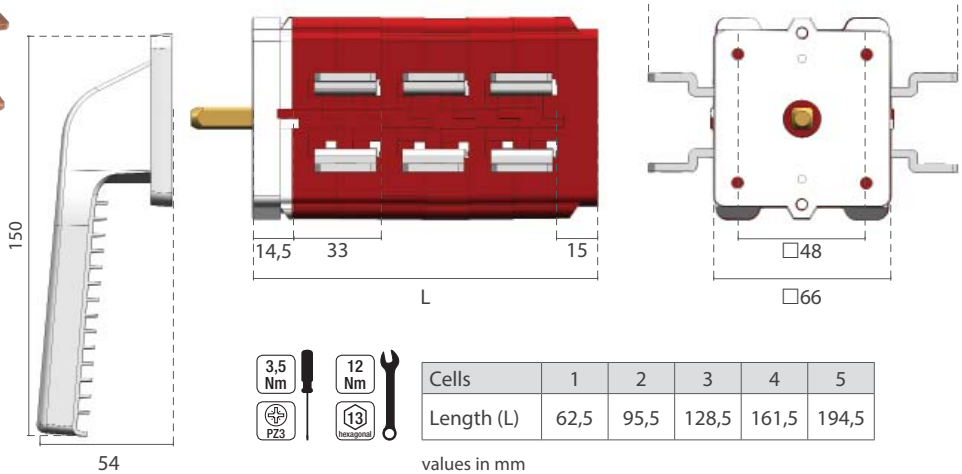
Cells	1	2	3	4	5	6	7	8	9	10
Length (L)	46,0	62,5	79,0	95,5	112,0	128,5	145,0	161,5	178,0	194,5

Lever handle from 100A switches

values in mm

Size D3





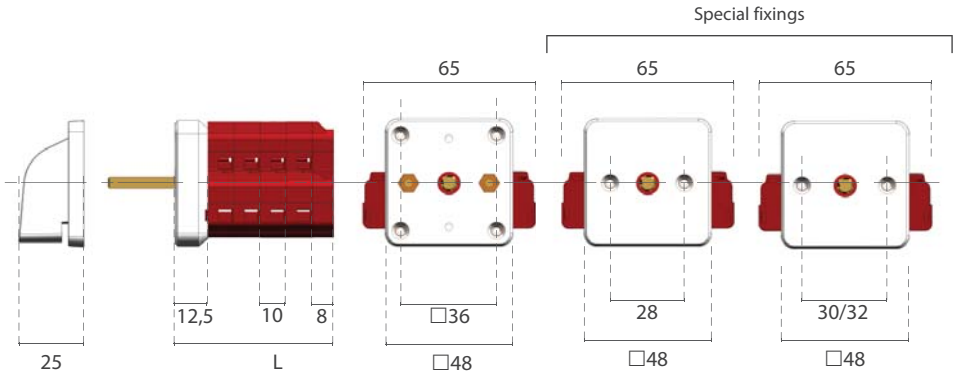
Cells	1	2	3	4	5
Length (L)	62,5	95,5	128,5	161,5	194,5

values in mm

Dimensions for lateral connection

Cabinets with confined spaces pose a challenge especially when the device should be installed near the cabinet walls, using the L series and its special shape we find a solution to this problem. L series shape offers a blind face and all screwing operations are made from the same side. It is also very useful on devices with a large number of contacts as it facilitates control and maintenance operations.

Size D0-L

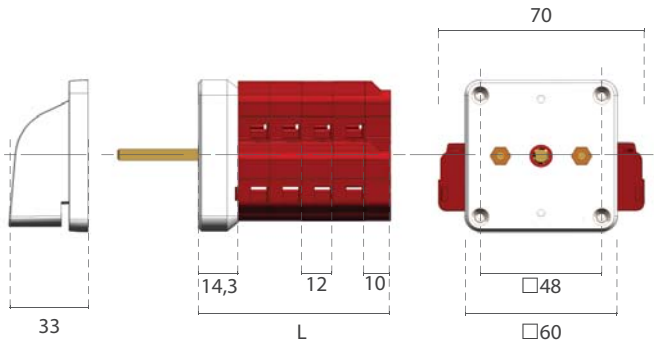


1,6 Nm
PZ2

Cells	1	2	3	4	5	6	7	8	9	10	11	12
Length (L)	30,5	40,5	50,5	60,5	70,5	80,5	90,5	100,5	110,5	120,5	130,5	140,5

values in mm

Size D1-L

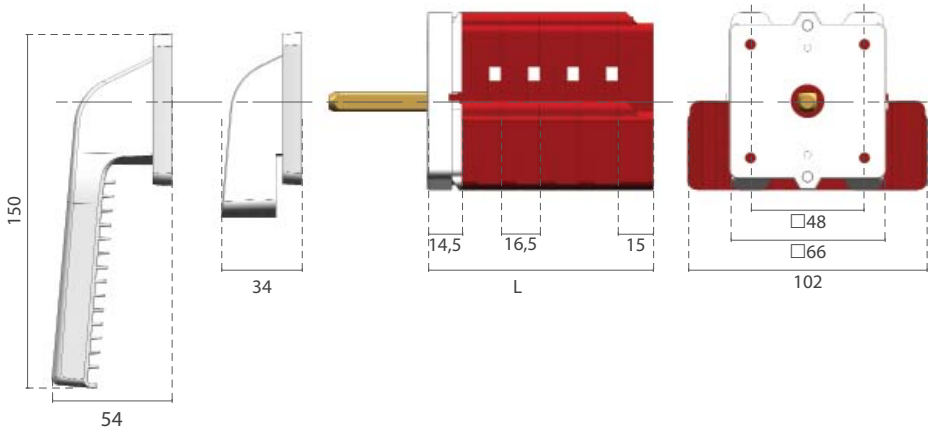


2,0 Nm
PZ2

Cells	1	2	3	4	5	6	7	8	9	10	11	12
Length (L)	36,3	48,3	60,3	72,3	84,3	96,3	108,3	120,3	132,3	144,3	156,3	168,3

values in mm

Size D2-L

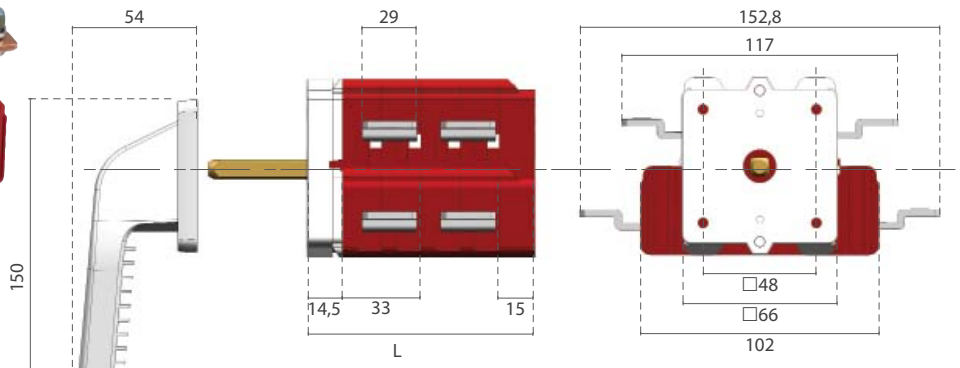


3,5 Nm
PZ3

Cells	1	2	3	4	5	6	7	8	9	10
Length (L)	46,0	62,5	79,0	95,5	112,0	128,5	145,0	161,5	178,0	194,5

values in mm

Size D3-L



3,5 Nm
PZ3
12 Nm
13 hexagonal

Cells	1	2	3	4	5
Length (L)	62,5	95,5	128,5	161,5	194,5

values in mm

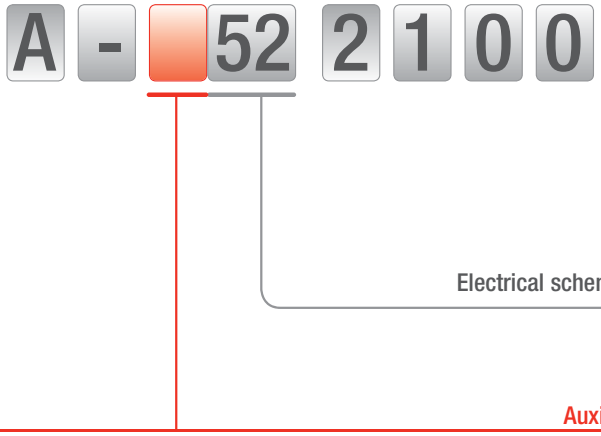
Auxiliary contacts

General characteristics

- On 55x, 56x and 57x electrical references.
- Auxiliary contact 12A.
- Mounted on independent cells.

Reference system

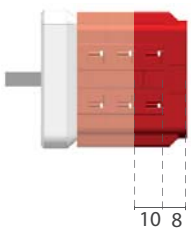
The first digit on the electrical scheme is exchanged by a letter indicating the auxiliary contact type.



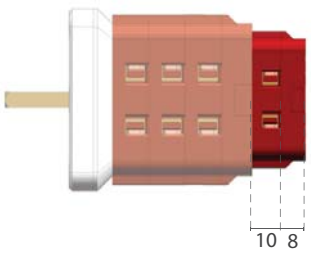
- **A** 1 simultaneous auxiliary contact (close at the same time with main contacts)
- **B** 1 early make / late break auxiliary contact (close before main contacts)
- **C** 1 early break / late make auxiliary contact (open before main contacts)
- **D** 2 simultaneous auxiliary contacts (close at the same time with main contacts)
- **E** 2 early make / late break auxiliary contact (close before main contacts)
- **F** 2 early break / late make auxiliary contact (open before main contacts)
- **G** 2 simultaneous auxiliary contacts 1NO+1NC (only on-off switches)
- **H** 4 simultaneous auxiliary contacts (close at the same time with main contacts)

Dimensions

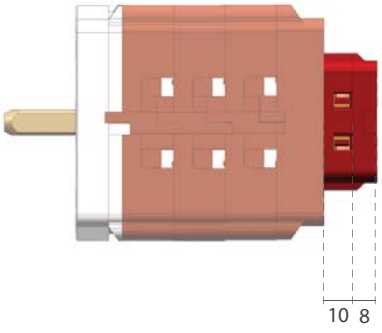
Size D0



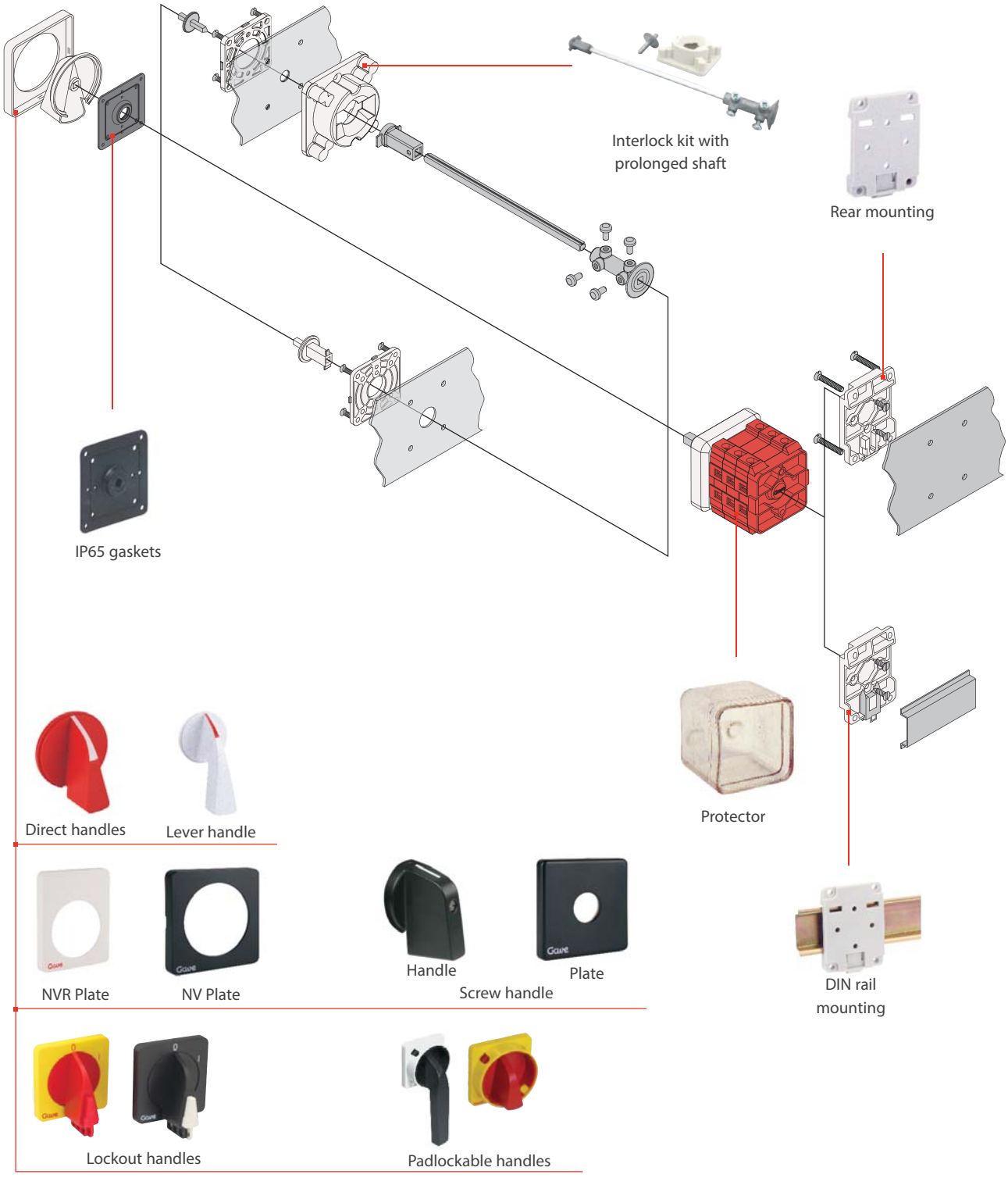
Size D1



Size D2 and D3



Mounting possibilities

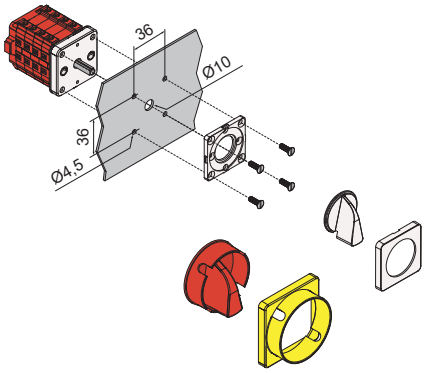


More accessories on page 48.

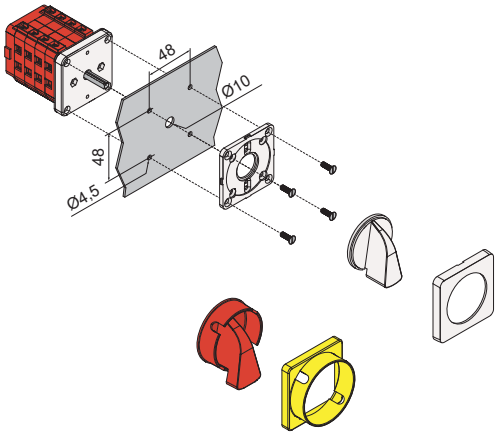
Mounting schemes

Front mounting

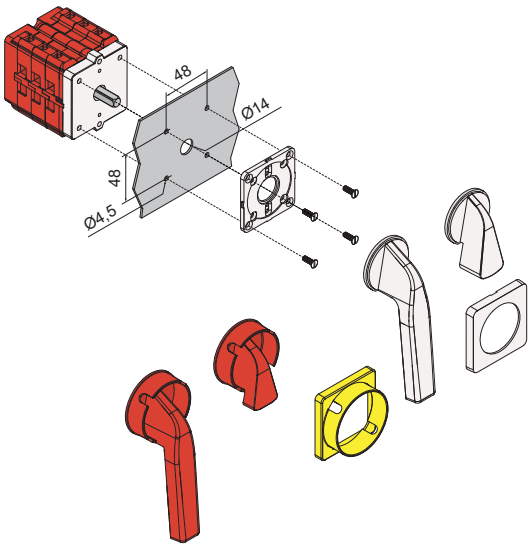
Size D0



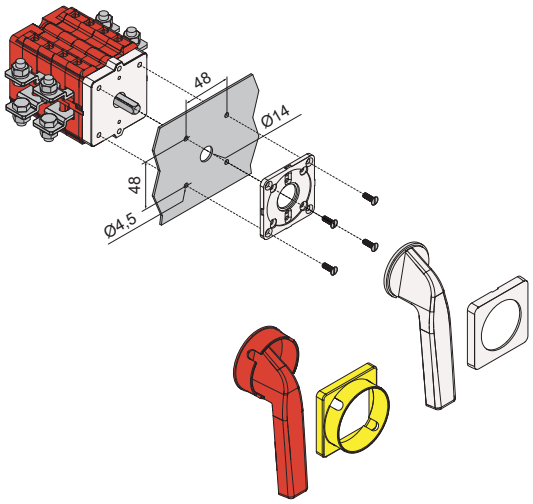
Size D1



Size D2

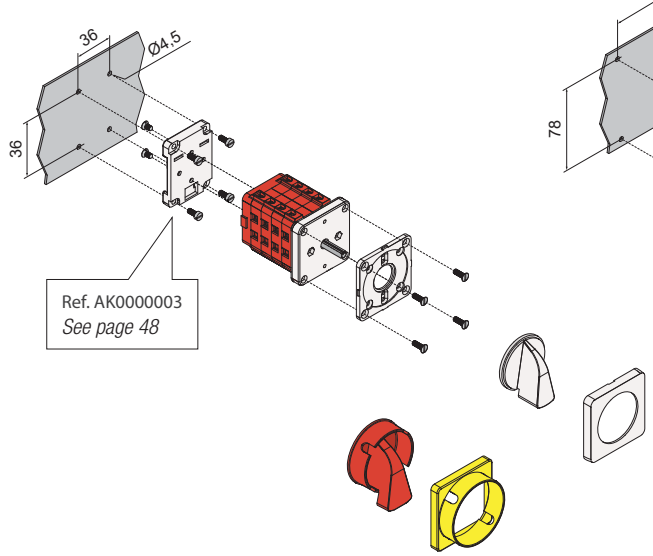


Size D3

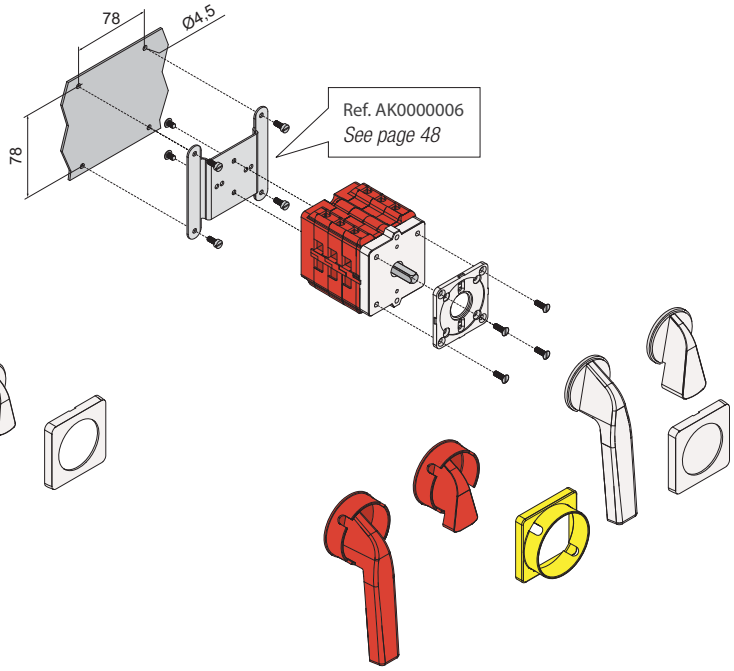


Rear Mounting

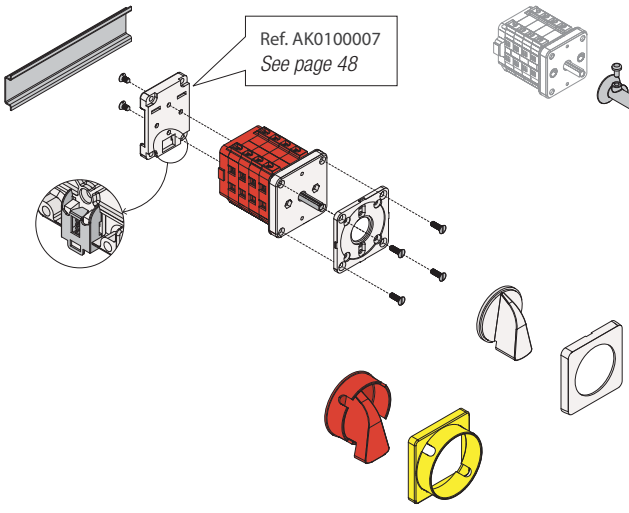
Size D0/D1



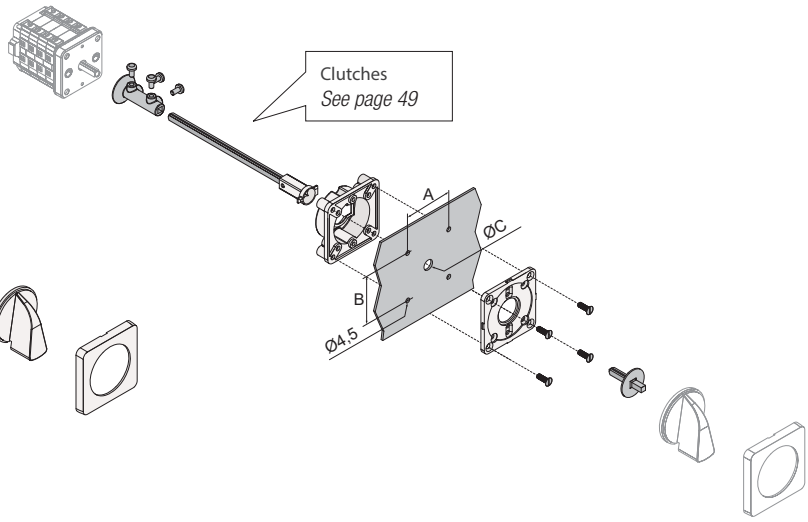
Size D2/D3



DIN Mounting



Prolonged shaft and interlock

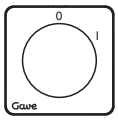


values in mm

Size	In (A)	A	B	C
D0	12-16-25	36	36	10
D1	25-32-40	48	48	10
D2-D3	63-100-125-160-200-250	48	48	14

Standard references

Switches

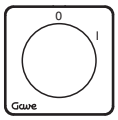


Size D0

Poles	Cells	Scheme	12A	16A	25A
1	1	550	A-5500000	A-5501000	A-5502000
2	1	551	A-5510000	A-5511000	A-5512000
3	2	552	A-5520000	A-5521000	A-5522000
4	2	553	A-5530000	A-5531000	A-5532000
5	3	555	A-5550000	A-5551000	A-5552000
6	3	556	A-5560000	A-5561000	A-5562000
7	4	557	A-5570000	A-5571000	A-5572000

Size D1

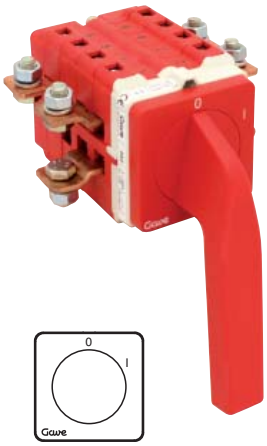
Poles	Cells	Scheme	25A	32A	40A
1	1	550	A-5502100	A-5503100	A-5504100
2	1	551	A-5512100	A-5513100	A-5514100
3	2	552	A-5522100	A-5523100	A-5524100
4	2	553	A-5532100	A-5533100	A-5534100
5	3	555	A-5552100	A-5553100	A-5554100
6	3	556	A-5562100	A-5563100	A-5564100
7	4	557	A-5572100	A-5573100	A-5574100



Size D2

Poles	Cells	Scheme	63A	100A	125A
1	1	550	A-5506100	A-5507100	A-5509100
2	1	551	A-5516100	A-5517100	A-5519100
3	2	552	A-5526100	A-5527100	A-5529100
4	2	553	A-5536100	A-5537100	A-5539100
5	3	555	A-5556100	A-5557100	
6	3	556	A-5566100	A-5567100	
7	4	557	A-5576100	A-5577100	

Switches



Size D3

Poles	Cells	Scheme	160A	200A	250A
1	1	550	A-550A100	A-550B100	A-550C100
2	1	551	A-551A100	A-551B100	A-551C100
3	2	552	A-552A100	A-552B100	A-552C100
4	2	553	A-553A100	A-553B100	A-553C100

Switches with spring return to 0

Size D0

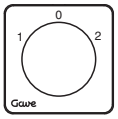
Poles	Cells	Scheme	12A	16A	25A
1	1	820	A-8200000	A-8201000	A-8202000

Size D1

Poles	Cells	Scheme	25A
1	1	820	A-8202100

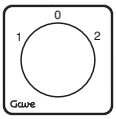
Standard references

Changeover switches 1-0-2



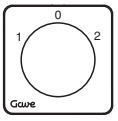
Size D0

Poles	Cells	Scheme	12A	16A	25A
1	1	560	A-5600000	A-5601000	A-5602000
2	2	561	A-5610000	A-5611000	A-5612000
3	3	562	A-5620000	A-5621000	A-5622000
4	4	563	A-5630000	A-5631000	A-5632000
5	5	565	A-5650000	A-5651000	A-5652000
6	6	566	A-5660000	A-5661000	A-5662000



Size D1

Poles	Cells	Scheme	25A	32A	40A
1	1	560	A-5602100	A-5603100	A-5604100
2	2	561	A-5612100	A-5613100	A-5614100
3	3	562	A-5622100	A-5623100	A-5624100
4	4	563	A-5632100	A-5633100	A-5634100
5	5	565	A-5652100	A-5653100	A-5654100
6	6	566	A-5662100	A-5663100	A-5664100



Size D2

Poles	Cells	Scheme	63A	100A	125A
1	1	560	A-5606100	A-5607100	A-5609100
2	2	561	A-5616100	A-5617100	A-5619100
3	3	562	A-5626100	A-5627100	A-5629100
4	4	563	A-5636100	A-5637100	A-5639100
5	5	565	A-5656100	A-5657100	
6	6	566	A-5666100	A-5667100	

Changeover switches 1-0-2

Size D3

Poles	Cells	Scheme	160A	200A	250A
1	1	560	A-560A100	A-560B100	A-560C100
2	2	561	A-561A100	A-561B100	A-561C100
3	3	562	A-562A100	A-562B100	A-562C100
4	4	563	A-563A100	A-563B100	A-563C100

Changeover switches 1-0-2 with spring return to 0

Size D0

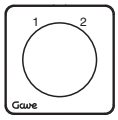
Poles	Cells	Scheme	12A	16A	25A
1	1	830	A-8300000	A-8301000	A-8302000

Size D1

Poles	Cells	Scheme	25A
1	1	830	A-8302100

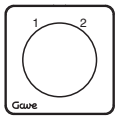
Standard references

Changeover switches 1-2



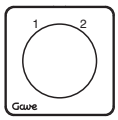
Size D0

Poles	Cells	Scheme	12A	16A	25A
1	1	570	A-5700000	A-5701000	A-5702000
2	2	571	A-5710000	A-5711000	A-5712000
3	3	572	A-5720000	A-5721000	A-5722000
4	4	573	A-5730000	A-5731000	A-5732000
5	5	575	A-5750000	A-5751000	A-5752000
6	6	576	A-5760000	A-5761000	A-5762000



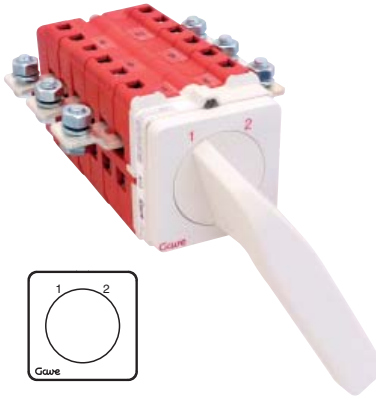
Size D1

Poles	Cells	Scheme	25A	32A	40A
1	1	570	A-5702100	A-5703100	A-5704100
2	2	571	A-5712100	A-5713100	A-5714100
3	3	572	A-5722100	A-5723100	A-5724100
4	4	573	A-5732100	A-5733100	A-5734100
5	5	575	A-5752100	A-5753100	A-5754100
6	6	576	A-5762100	A-5763100	A-5764100



Size D2

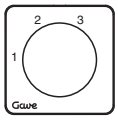
Poles	Cells	Scheme	63A	100A	125A
1	1	570	A-5706100	A-5707100	A-5709100
2	2	571	A-5716100	A-5717100	A-5719100
3	3	572	A-5726100	A-5727100	A-5729100
4	4	573	A-5736100	A-5737100	A-5739100
5	5	575	A-5756100	A-5757100	
6	6	576	A-5766100	A-5767100	



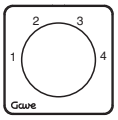
Size D3

Poles	Cells	Scheme	160A	200A	250A
1	1	570	A-570A100	A-570B100	A-570C100
2	2	571	A-571A100	A-571B100	A-571C100
3	3	572	A-572A100	A-572B100	A-572C100
4	4	573	A-573A100	A-573B100	A-573C100

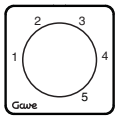
Step switches without 0 position



580



581



582

SINGLE POLE
Size D0

Positions	Cells	Scheme	12A	16A	25A
3	2	580	A-5800000	A-5801000	A-5802000
4	2	581	A-5810000	A-5811000	A-5812000
5	3	582	A-5820000	A-5821000	A-5822000

Size D1

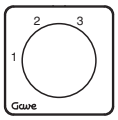
Positions	Cells	Scheme	25A	32A	40A
3	2	580	A-5802100	A-5803100	A-5804100
4	2	581	A-5812100	A-5813100	A-5814100
5	3	582	A-5822100	A-5823100	A-5824100

Size D2

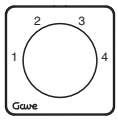
Positions	Cells	Scheme	63A	100A
3	2	580	A-5806100	A-5807100
4	2	581	A-5816100	A-5817100
5	3	582	A-5826100	A-5827100

Standard references

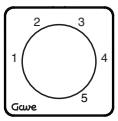
Step switches without 0 position



590



591



592

DOUBLE POLE

Size D0

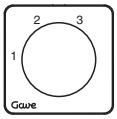
Positions	Cells	Scheme	12A	16A	25A
3	3	590	A-5900000	A-5901000	A-5902000
4	4	591	A-5910000	A-5911000	A-5912000
5	5	592	A-5920000	A-5921000	A-5922000

Size D1

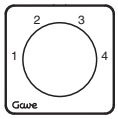
Positions	Cells	Scheme	25A	32A	40A
3	3	590	A-5902100	A-5903100	A-5904100
4	4	591	A-5912100	A-5913100	A-5914100
5	5	592	A-5922100	A-5923100	A-5924100

Size D2

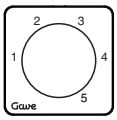
Positions	Cells	Scheme	63A	100A
3	3	590	A-5906100	A-5907100
4	4	591	A-5916100	A-5917100
5	5	592	A-5926100	A-5927100



600



601



602

TRIPLE POLE

Size D0

Positions	Cells	Scheme	12A	16A	25A
3	5	600	A-6000000	A-6001000	A-6002000
4	6	601	A-6010000	A-6011000	A-6012000
5	8	602	A-6020000	A-6021000	A-6022000

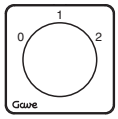
Size D1

Positions	Cells	Scheme	25A	32A	40A
3	5	600	A-6002100	A-6003100	A-6004100
4	6	601	A-6012100	A-6013100	A-6014100
5	8	602	A-6022100	A-6023100	A-6024100

Size D2

Positions	Cells	Scheme	63A	100A
3	5	600	A-6006100	A-6007100
4	6	601	A-6016100	A-6017100
5	8	602	A-6026100	A-6027100

Step switches with 0 position



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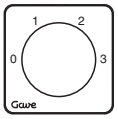

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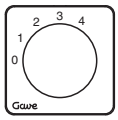
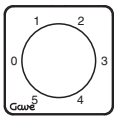
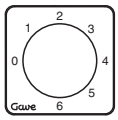


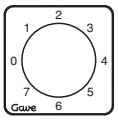
612



613



614



615

SINGLE POLE

Size D0

Positions	Cells	Scheme	12A	16A	25A
2	1	610	A-6100000	A-6101000	A-6102000
3	2	611	A-6110000	A-6111000	A-6112000
4	2	612	A-6120000	A-6121000	A-6122000
5	3	613	A-6130000	A-6131000	A-6132000
6	3	614	A-6140000	A-6141000	A-6142000
7	4	615	A-6150000	A-6151000	A-6152000

Size D1

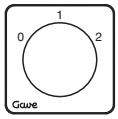
Positions	Cells	Scheme	25A	32A	40A
2	1	610	A-6102100	A-6103100	A-6104100
3	2	611	A-6112100	A-6113100	A-6114100
4	2	612	A-6122100	A-6123100	A-6124100
5	3	613	A-6132100	A-6133100	A-6134100
6	3	614	A-6142100	A-6143100	A-6144100
7	4	615	A-6152100	A-6153100	A-6154100

Size D2

Positions	Cells	Scheme	63A	100A
2	1	610	A-6106100	A-6107100
3	2	611	A-6116100	A-6117100
4	2	612	A-6126100	A-6127100
5	3	613	A-6136100	A-6137100
6	3	614	A-6146100	A-6147100
7	4	615	A-6156100	A-6157100

Standard references

Step switches with 0 position



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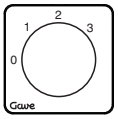
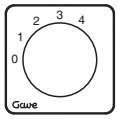


621



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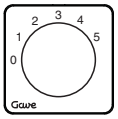

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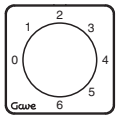

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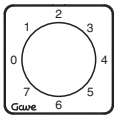


625

DOUBLE POLE
Size D0

Positions	Cells	Scheme	12A	16A	25A
2	2	620	A-6200000	A-6201000	A-6202000
3	3	621	A-6210000	A-6211000	A-6212000
4	4	622	A-6220000	A-6221000	A-6222000
5	5	623	A-6230000	A-6231000	A-6232000
6	7	624	A-6240000	A-6241000	A-6242000
7	8	625	A-6250000	A-6251000	A-6252000

Size D1

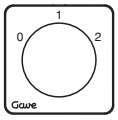
Positions	Cells	Scheme	25A	32A	40A
2	2	620	A-6202100	A-6203100	A-6204100
3	3	621	A-6212100	A-6213100	A-6214100
4	4	622	A-6222100	A-6223100	A-6224100
5	5	623	A-6232100	A-6233100	A-6234100
6	7	624	A-6242100	A-6243100	A-6244100
7	8	625	A-6252100	A-6253100	A-6254100

Size D2

Positions	Cells	Scheme	63A	100A
2	2	620	A-6206100	A-6207100
3	3	621	A-6216100	A-6217100
4	4	622	A-6226100	A-6227100
5	5	623	A-6236100	A-6237100
6	7	624	A-6246100	A-6247100
7	8	625	A-6256100	A-6257100

TRIPLE POLE
Size D0

Positions	Cells	Scheme	12A	16A	25A
2	3	630	A-6300000	A-6301000	A-6302000
3	5	631	A-6310000	A-6311000	A-6312000
4	6	632	A-6320000	A-6321000	A-6322000



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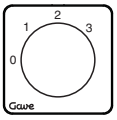

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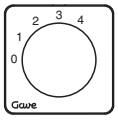


632

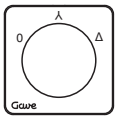
Size D1

Positions	Cells	Scheme	25A	32A	40A
2	3	630	A-6302100	A-6303100	A-6304100
3	5	631	A-6312100	A-6313100	A-6314100
4	6	632	A-6322100	A-6323100	A-6324100

Size D2

Positions	Cells	Scheme	63A	100A
2	3	630	A-6306100	A-6307100
3	5	631	A-6316100	A-6317100
4	6	632	A-6326100	A-6327100

Star-delta changeover switches



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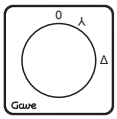

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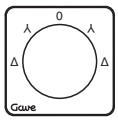

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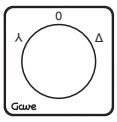


647

Size D0

Positions	Cells	Scheme	12A	16A	25A
3	4	640	A-6400000	A-6401000	A-6402000
3*	4	641	A-6410000	A-6411000	A-6412000
5	5	643	A-6430000	A-6431000	A-6432000
3	4	647	A-6470000	A-6471000	A-6472000

Size D1

Positions	Cells	Scheme	25A	32A	40A
3	4	640	A-6402100	A-6403100	A-6404100
3*	4	641	A-6412100	A-6413100	A-6414100
5	5	643	A-6432100	A-6433100	A-6434100
3	4	647	A-6472100	A-6473100	A-6474100

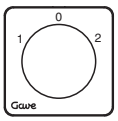
Size D2

Positions	Cells	Scheme	63A	100A
3	4	640	A-6406100	A-6407100
3*	4	641	A-6416100	A-6417100
5	5	643	A-6436100	A-6437100
3	4	647	A-6476100	A-6477100

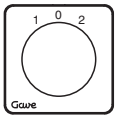
* With spring return to off

Standard references

Reversing switches



670 / 671



871

Size D0

Positions	Cells	Scheme	12A	16A	25A
2	2	670	A-6700000	A-6701000	A-6702000
3	3	671	A-6710000	A-6711000	A-6712000
3*	3	871	A-8710000	A-8711000	A-8712000

Size D1

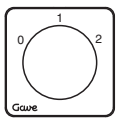
Positions	Cells	Scheme	25A	32A	40A
2	2	670	A-6702100	A-6703100	A-6704100
3	3	671	A-6712100	A-6713100	A-6714100
3*	3	871	A-8712100		

Size D2

Positions	Cells	Scheme	63A	100A
2	2	670	A-6706100	A-6707100
3	3	671	A-6716100	A-6717100
3*	3	871		

* With spring return to off

Pole changing switches for 2 speeds



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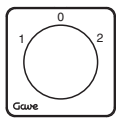

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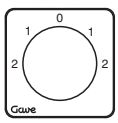


682

Size D0

Positions	Cells	Scheme	12A	16A	25A
3	4	680	A-6800000	A-6801000	A-6802000
3	4	681	A-6810000	A-6811000	A-6812000
3	7	682	A-6820000	A-6821000	A-6822000

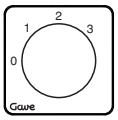
Size D1

Positions	Cells	Scheme	25A	32A	40A
3	4	680	A-6802100	A-6803100	A-6804100
3	4	681	A-6812100	A-6813100	A-6814100
3	7	682	A-6822100	A-6823100	A-6824100

Size D2

Positions	Cells	Scheme	63A	100A
3	4	680	A-6806100	A-6807100
3	4	681	A-6816100	A-6817100
3	7	682	A-6826100	A-6827100

Pole changing switches for 3 speeds



Size D0

Positions	Cells	Scheme	12A	16A	25A
4	6	700	A-7000000	A-7001000	A-7002000

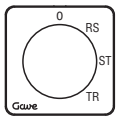
Size D1

Positions	Cells	Scheme	25A	32A	40A
4	6	700	A-7002100	A-7003100	A-7004100

Size D2

Positions	Cells	Scheme	63A	100A
4	6	700	A-7006100	A-7007100

Voltmeter changeover switches



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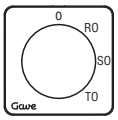
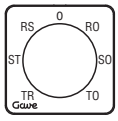


744



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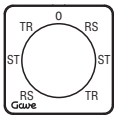


747

Size D0

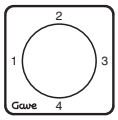
Phases	Cells	Scheme	12A	16A	25A
3	2	743	A-7430000	A-7431000	A-7432000
3+N	2	744	A-7440000	A-7441000	A-7442000
3+N	3	746	A-7460000	A-7461000	A-7462000
3	4	747	A-7470000	A-7471000	A-7472000

Size D1

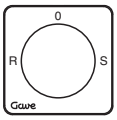
Phases	Cells	Scheme	25A
3	2	743	A-7432100
3+N	2	744	A-7442100
3+N	3	746	A-7462100
3	4	747	A-7472100

Standard references

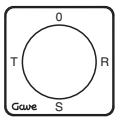
Ammeter changeover switches



760



761



762 / 763 / 767

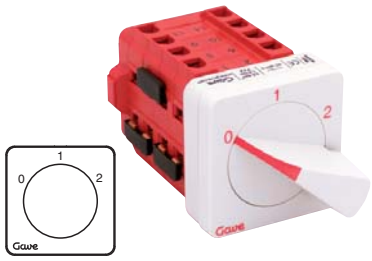
Size D0

Phases	Cells	Scheme	12A	16A	25A
4	4	760	A-7600000	A-7601000	A-7602000
2	3	761	A-7610000	A-7611000	A-7612000
3	5	762	A-7620000	A-7621000	A-7622000
3+N	6	763	A-7630000	A-7631000	A-7632000
3	3	767	A-7670000	A-7671000	A-7672000

Size D1

Phases	Cells	Scheme	25A	32A	40A
4	4	760	A-7602100	A-7603100	A-7604100
2	3	761	A-7612100	A-7613100	A-7614100
3	5	762	A-7622100	A-7623100	A-7624100
3+N	6	763	A-7632100	A-7633100	A-7634100
3	3	767	A-7672100	A-7673100	A-7674100

Group changeover switches



Size D0

Sectors	Cells	Scheme	12A	16A	25A
2	1	800	A-8000000	A-8001000	A-8002000

Size D1

Sectors	Cells	Scheme	25A	32A	40A
2	1	800	A-8002100	A-8003100	A-8004100

Circuit breaker for motor starting

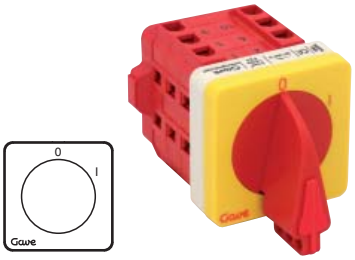
Size D0

Poles	Cells	Scheme	12A	16A	25A
2	2	840	A-8400000	A-8401000	A-8402000

Size D1

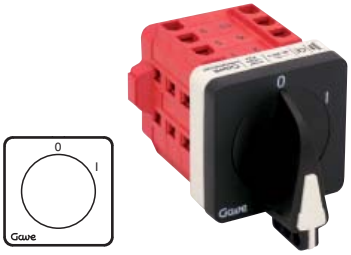
Poles	Cells	Scheme	25A	32A	40A
2	2	840	A-8402100	A-8403100	A-8404100

Switches with lockout handle



Handle and plate red/yellow
Size D0

Poles	Cells	Scheme	12A	16A	25A
2	1	AH551	AH5510000	AH5511000	AH5512000
3	2	AH552	AH5520000	AH5521000	AH5522000
4	2	AH553	AH5530000	AH5531000	AH5532000



Handle and plate black/grey
Size D0

Poles	Cells	Scheme	12A	16A	25A
2	1	AJ551	AJ5510000	AJ5511000	AJ5512000
3	2	AJ552	AJ5520000	AJ5521000	AJ5522000
4	2	AJ553	AJ5530000	AJ5531000	AJ5532000

Standard references

Safety switches with padlockable handle

Handle and plate red/yellow
Size D0

Poles	Cells	Scheme	12A	16A	25A
2	1	AB551	AB5510000	AB5511000	AB5512000
3	2	AB552	AB5520000	AB5521000	AB5522000
4	2	AB553	AB5530000	AB5531000	AB5532000

Size D1

Poles	Cells	Scheme	25A	32A	40A
2	1	AB551	AB5512100	AB5513100	AB5514100
3	2	AB552	AB5522100	AB5523100	AB5524100
4	2	AB553	AB5532100	AB5533100	AB5534100

Size D2

Poles	Cells	Scheme	63A	100A	125A
2	1	AB551	AB5516100	AB5517100	AB5519100
3	2	AB552	AB5526100	AB5527100	AB5529100
4	2	AB553	AB5536100	AB5537100	AB5539100

Size D3

Poles	Cells	Scheme	160A	200A	250A
2	1	AB551	AB551A100	AB551B100	AB551C100
3	2	AB552	AB552A100	AB552B100	AB552C100
4	2	AB553	AB553A100	AB553B100	AB553C100

Handle and plate black/grey

Size D0

Poles	Cells	Scheme	12A	16A	25A
2	1	AC551	AC5510000	AC5511000	AC5512000
3	2	AC552	AC5520000	AC5521000	AC5522000
4	2	AC553	AC5530000	AC5531000	AC5532000

Size D1

Poles	Cells	Scheme	25A	32A	40A
2	1	AC551	AC5512100	AC5513100	AC5514100
3	2	AC552	AC5522100	AC5523100	AC5524100
4	2	AC553	AC5532100	AC5533100	AC5534100

Size D2

Poles	Cells	Scheme	63A	100A	125A
2	1	AC551	AC5516100	AC5517100	AC5519100
3	2	AC552	AC5526100	AC5527100	AC5529100
4	2	AC553	AC5536100	AC5537100	AC5539100

Size D3

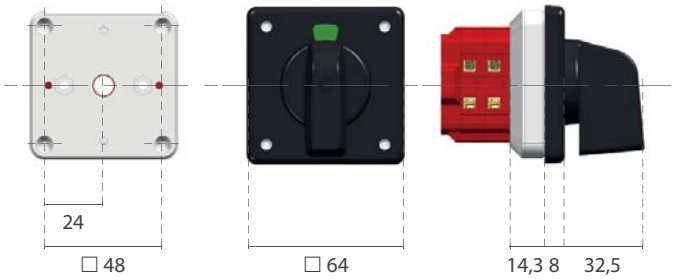
Poles	Cells	Scheme	160A	200A	250A
2	1	AC551	AC551A100	AC551B100	AC551C100
3	2	AC552	AC552A100	AC552B100	AC552C100
4	2	AC553	AC553A100	AC553B100	AC553C100

Special mountings

Mechanical red/green flag indicator

Central red/green flag indicates last executed operation. Indicates the position of the contacts even though the operating handle is in central position.

Characteristics	Availability			
	D0	D1	D2	D3
Central red/green flag indicates latest executed operation.		●		



Voltage selector lock

Front plate and handle with screw insert lock (220 or 380). Aimed at mobile equipment that might change its operating voltage depending on the installation they work.

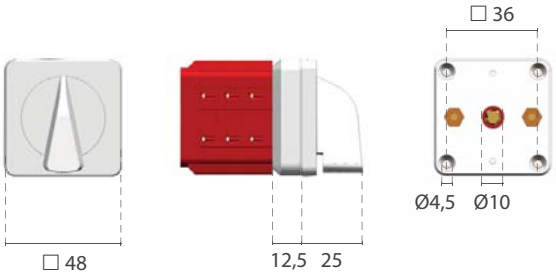
Characteristics	Availability			
	D0	D1	D2	D3
Front plate and handle with screw insert lock that allows operation from position 0 to 220 or 380.	●*	●	●	

* Cells size D0 with fixing mechanism size D1

Unidirectional

It allows the switch actuation in one single direction of rotation. Suitable for applications where we need to ensure a process sequence.

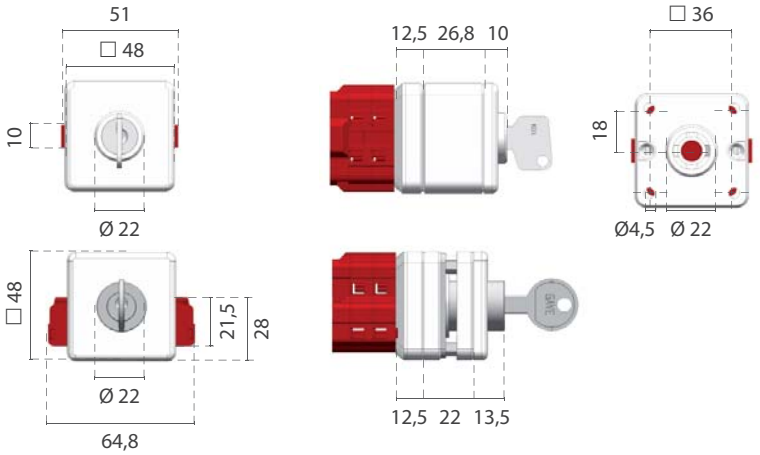
Characteristics	Availability			
	D0	D1	D2	D3
Allows to operate in a single direction.	●	●		



Key operating padlock

Suitable for installations where under any circumstances access control is required for switch operation.
Standard key removable from one single up to four positions. Maximum number of cells up to 5 contact on size D0 or 4 size D1.

Characteristics	Availability			
	D0	D1	D2	D3
Standard key removable and lockable up to four different positions.	●	●		
Security KABA key removable and lockable only in on position.	●	●		

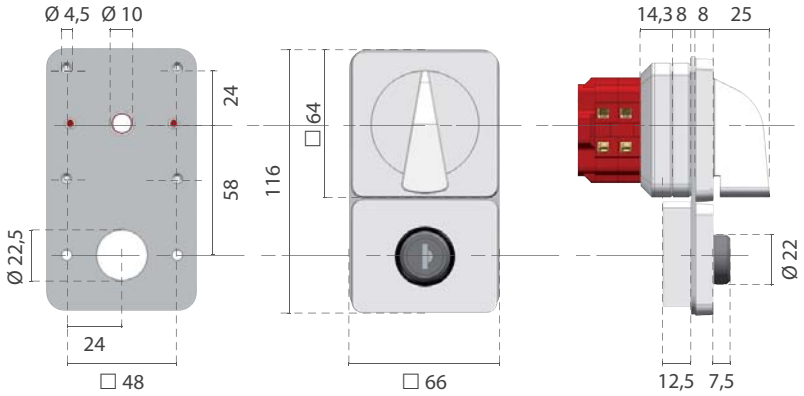


Special mountings

Key interlock

Intended to those installations where we wish to temporarily restrict access to the switch actuator. Removable and lockable in any position.

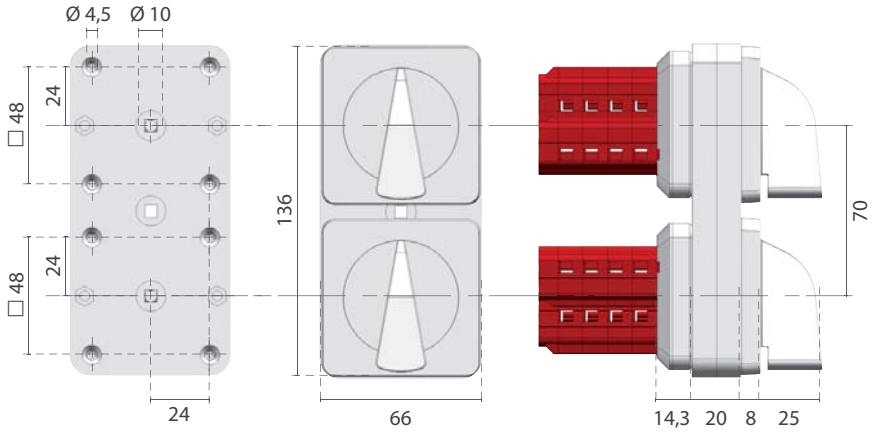
Characteristics	Availability			
	D0	D1	D2	D3
Key removable and lockable in all positions	●*	●	●	



Switch lock mounting

One switch can lock the other switch in a preset position. The use of L contact cells enables to wire the switches mounted on the panel. Screws retightening on maintenance operations is also possible.

Characteristics	Availability			
	D0	D1	D2	D3
One position in main switch locks operation on secondary switch.	●*	●		

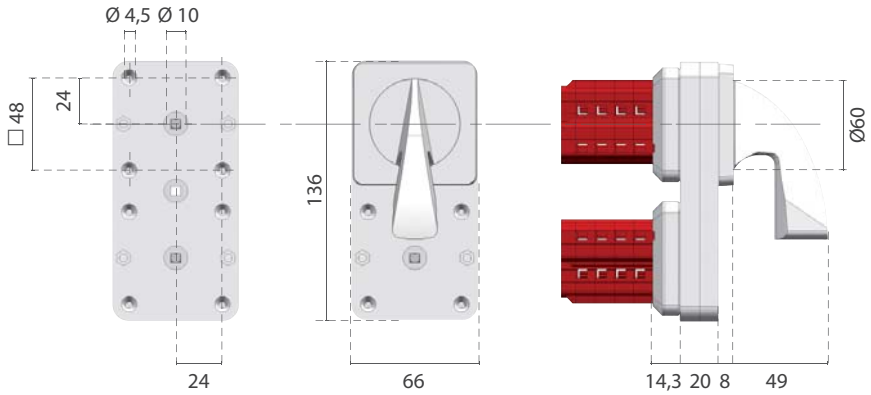


* Cells size D0 with fixing mechanism size D1

Tandem operation

Intended for devices with more than 24 contacts. The use of L contact cells allows to wire the switch when mounted on the panel. Screws retightening on maintenance operations is also possible.

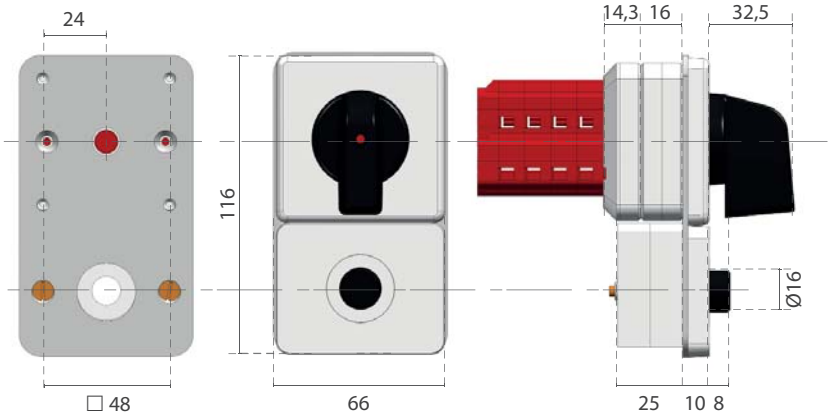
Characteristics	Availability			
	D0	D1	D2	D3
Switches above 24 contacts.	●*	●		



Push button interlock

Safety device intended for installations where we want to avoid an inadequate switch operation. In order to actuate the switch the pushbutton must be kept pressed.

Characteristics	Availability			
	D0	D1	D2	D3
Push button releases cam switch handle.	●*	●		



* Cells size D0 with fixing mechanism size D1

Shafts and fixing plates

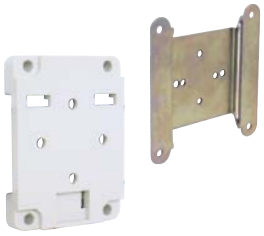
Length L non standard

Special shafts

Characteristics	Availability			
	D0	D1	D2	D3
Custom made shaft length. Specific material construction.	●	●	●	●

Crossing shaft

Characteristics	Availability			
	D0	D1	D2	D3
Crossing shaft which runs through the switch body enabling front or rear actuation. Customised shaft lengths.	●	●	●	●



Base mounting plates

References	Includes	Availability			
		D0	D1	D2	D3
AK0000003	2 x PZ2	●	●		
AK0000006	2 x PZ2			●	●

DIN rail mounting plates

References	Includes	Availability			
		D0	D1	D2	D3
AK0100007	2 x PZ2	●	●		

Prolonged shaft

References	Length	☐ mm	Availability			
			D0	D1	D2	D3
AK0800003	200 mm	5	●	●		
AK0800006	200 mm	8			●	●

Clutches

Devices that permit back plate or DIN rail switch mounting while keeping with external handle operation. The handle unit detaches from the rotary shaft when opening the panel door (compatible with direct handle and padlockable handle).
The assembly kits are supplied with rear mounting plate or DIN rail mounting plate (by model).
The kit without interlock permits panel door opening in all positions, and the version with interlock allows door opening uniquely on 0 disconnect position. This increases the safety and it is specially adequate on main switch or safety switch functions.

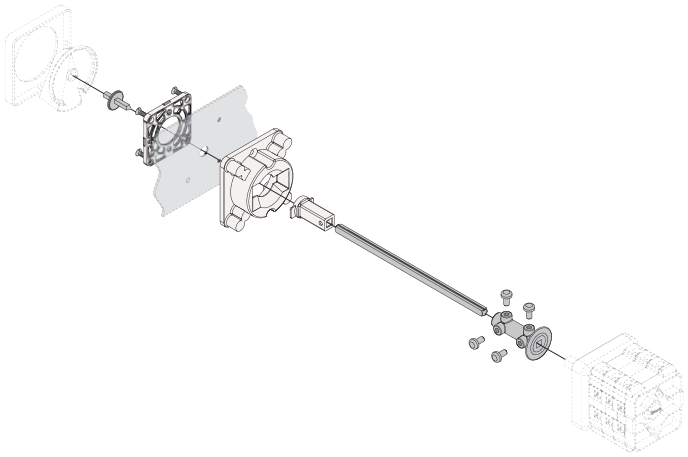
Kit with prolonged shaft (A)

References						
Sizes D0 and D1	Sizes D2 and D3	Clutch	DIN mounting plate	Base mounting plate	Interlock	Prolonged shaft (200mm)
AK1630003	AK1630006	●		●		●
AK1730003	AK1730006	●		●	●	●
AK1640003	AK1640006*	●	●			●
AK1740003	AK1740006*	●	●		●	●

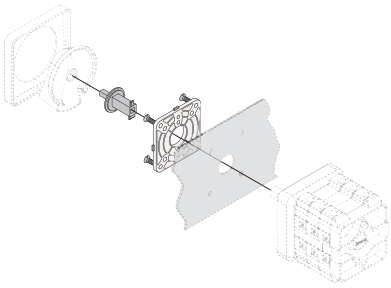
Kit without prolonged shaft (B)

References						
Sizes D0 and D1	Sizes D2 and D3	Clutch	DIN mounting plate	Base mounting plate	Interlock	Prolonged shaft (200mm)
AK0230003	AK0230006	●		●		
AK0240003	AK0240006*	●	●			

A



B



Mechanical coding

The shaft and the clutch are mechanically coded to ensure the right installation and operation.

* Only up to 4 cells 63-125A

Handles and plates

Standard handles

References	Colour	Shaft □ (mm)	Availability			
			D0	D1	D2	D3
AK1000010	Grey	5	●			
AK1000020	Red	5	●			
AK1000040	Black	5	●			
AK1000011	Grey	5		●		
AK1000021	Red	5		●		
AK1000041	Black	5		●		
AK1000016	Grey	8			●	
AK1000026	Red	8			●	
AK1000046	Black	8			●	

Standard lever handles

References	Colour	Shaft □ (mm)	Availability			
			D0	D1	D2	D3
AK1100011	Grey	5		●		
AK1100021	Red	5		●		
AK1100041	Black	5		●		
AK1100016	Grey	8			●	●
AK1100026	Red	8			●	●
AK1100046	Black	8			●	●

Screw handles

References	Colour	Shaft □ (mm)	Availability			
			D0	D1	D2	D3
AK1010040	Black	5	●			
AK1010041	Black	5		●		
AK1010046	Black	8			●	

NV plates (without inscriptions)

NV plates are standard size (48x48 D0 and 64x64 D1-3), are supplied without any printing and are suitable for different types of labelling. They can support plotter marking and engraving marking. The surface treatment offer high adherence making it suitable for attaching labels.

References	Colour	Availability			
		D0	D1	D2	D3
AK1800100	Grey	●			
AK1800200	Red	●			
AK1800400	Black	●			
AK1830400	Black and screw fixing	●			
AK1800104	Grey		●		
AK1800204	Red		●		
AK1800404	Black		●		
AK1830404	Black and screw fixing		●		

NVR plates (without inscriptions)

NVR plates offer an extended area at the top (48x60 and 64x76) where it can be displayed the name of the switch function within the same plate where positions are indicated, thereby operator interfacing with the panel becomes easier.

References	Colour	Availability			
		D0	D1	D2	D3
AK1900100	Grey	●			
AK1900200	Red	●			
AK1900104	Grey		●	●	●
AK1900204	Red		●	●	●

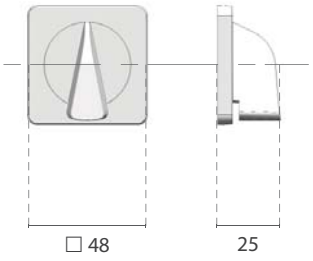
Handle and plate sets

Standard

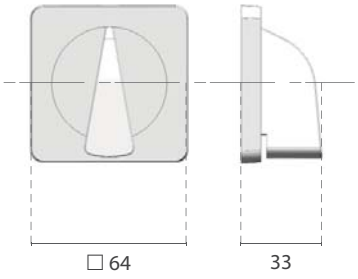
References	Colour	Shaft □ (mm)	Availability			
			D0	D1	D2	D3
AK2000010	Grey	5	●			
AK2000020	Red	5	●			
AK2000040	Black	5	●			
AK2000011	Grey	5		●		
AK2000021	Red	5		●		
AK2000041	Black	5		●		
AK2000016	Grey	8			●	
AK2000026	Red	8			●	
AK2000046	Black	8			●	
AK2000018	Grey	8			●	●
AK2000028	Red	8			●	●
AK2000048	Black	8			●	●

Plates without inscription. For plate models with inscription, consult.

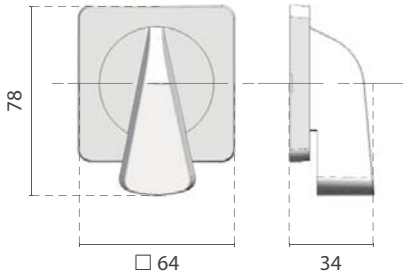
Size D0



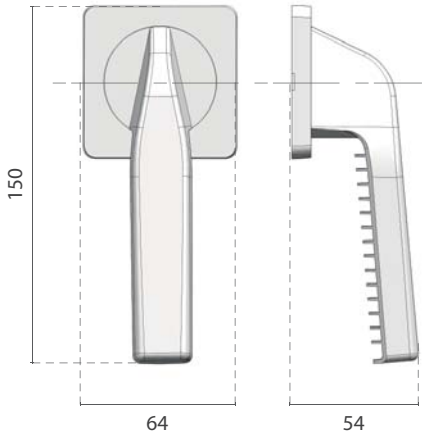
Size D1



Size D2



Size D2 and D3



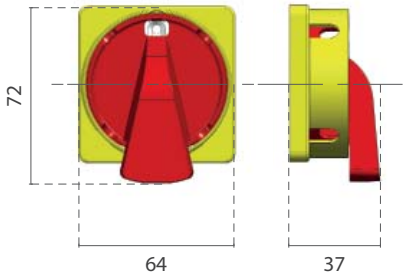
Padlockable

Padlockable handles can use up to 4 padlocks of maximum 8mm diameter. Locking positions are each 90º. On standard switches the device only locks in the off position which is located at 0º.
The size of the frontal plate is 64x64 and provides good panel visibility of the switch.

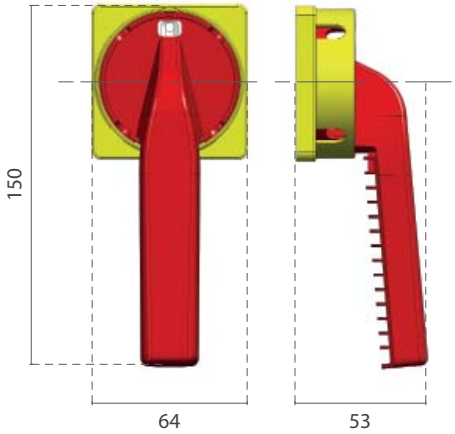
References	Colour	Shaft □ (mm)	Availability			
			D0	D1	D2	D3
AK1200523	Red/yellow	5	●	●		
AK1200526	Red/yellow	8			●	
AK1200528	Red/yellow	8			●	●
AK1200143	Black/grey	5	●	●		
AK1200146	Black/grey	8			●	
AK1200148	Black/grey	8			●	●

Size D0

Size D1



Size D2 and D3

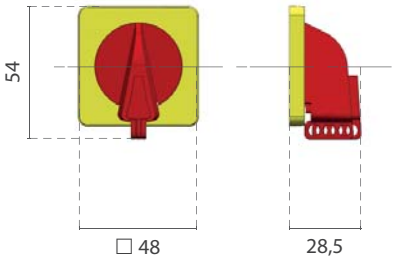


Handle and plate sets

Lockout

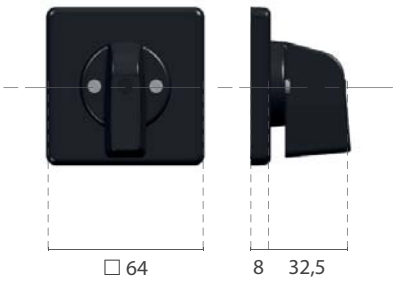
Lockout handles use a cover plate 48x48 and are specially suitable for those applications with limited space.
Pushing the projecting piece of the knob we can insert up to 3 padlocks of maximum 4mm diammeter to lock the knob on 0 position.

References	Colour	Availability			
		D0	D1	D2	D3
AK1300523	Red/yellow	●			
AK1300143	Black/grey	●			



Voltage selector lock

References	Positions	Availability			
		D0	D1	D2	D3
AK2700010	220-0-380		●		
AK2700046	220-0-380			●	
AK2700017	380-0-220		●		



Protection accessories

Protectors

References	Cells	Availability			
		D0	D1	D2	D3
AK0601000	1 and 2 cells	●			
AK0602000	3 to 5 cells	●			
AK0603000	6 to 8 cells	●			
AK0601001	1 and 2 cells		●		
AK0602001	3 to 5 cells		●		
AK0603001	6 to 8 cells		●		

IP65 gaskets

References	Availability			
	D0	D1	D2	D3
AK2240003	●	●		
AK2240006			●	●

Terminal shrouds

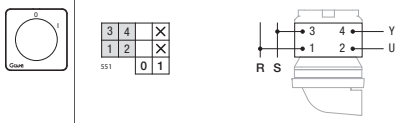
References	Cells	Availability			
		D0	D1	D2	D3
AK0702009	2 cells				●
AK0703009	3 cells				●
AK0704009	4 cells				●

Standard electrical schemes

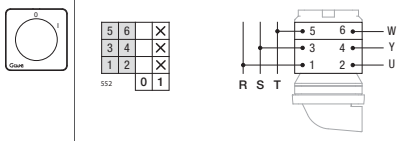
Switches

550 — 1 pole — 1 cell

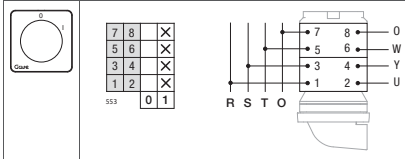
551 — 2 poles — 1 cell



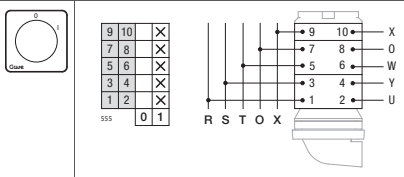
552 — 3 poles — 2 cells



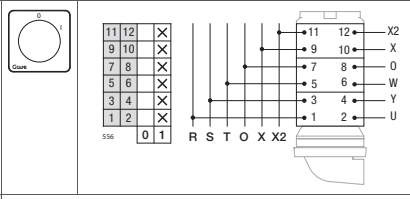
553 — 4 poles — 2 cells



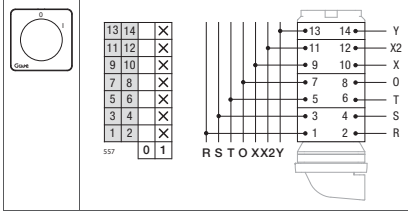
555 — 5 poles — 3 cells



556 — 6 poles — 3 cells



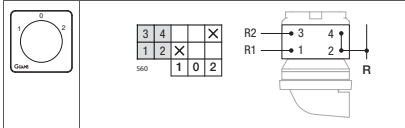
557 — 7 poles — 4 cells



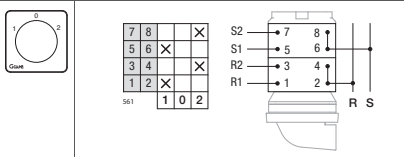
820 — 1 pole with spring return to 0 — 1 cell

Changeover switches 1-0-2

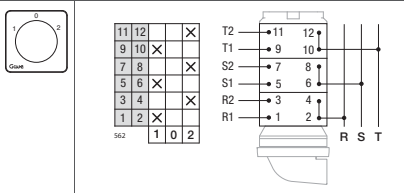
560 — 1 pole — 1 cell



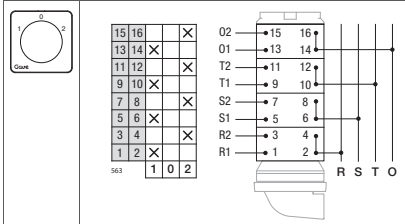
561 — 2 poles — 2 cells



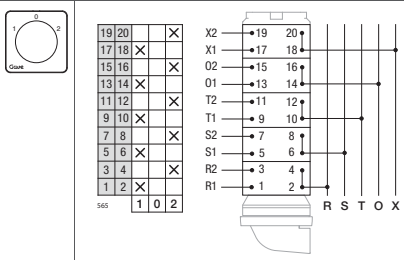
562 — 3 poles — 3 cells



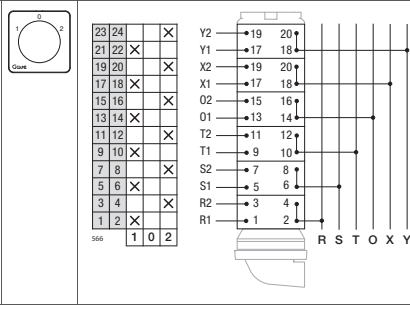
563 — 4 poles — 4 cells



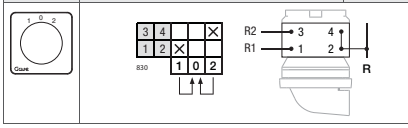
565 — 5 poles — 5 cells



566 — 6 poles — 6 cells



830 — 1 pole with spring return to 0 — 1 cell



More schemes in our dedicated catalogue, see it here →

Changeover switches 1-2

570	1 pole	1 cell	**571**	2 poles	2 cells	**572**	3 poles	3 cells
573	4 pole	4 cells	**575**	5 poles	5 cells	**576**	6 poles	6 cells

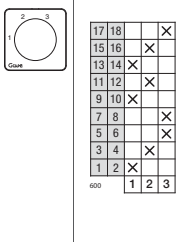
Step changeover switches without 0 position

580	3 positions	2 cells	**581**	4 positions	2 cells	**582**	5 positions	3 cells
590	3 positions	3 cells	**591**	4 positions	4 cells	**592**	5 positions	5 cells

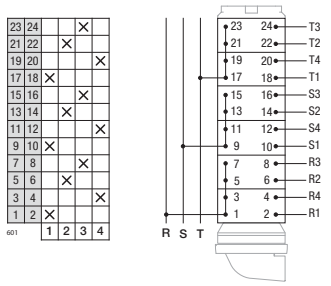
Standard electrical schemes

Step changeover switches without 0 position

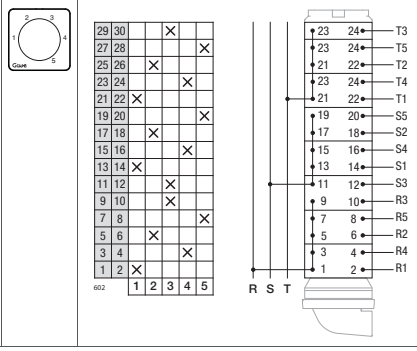
600	3 positions	5 cells



601	4 positions	6 cells

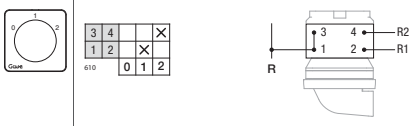


602	5 positions	8 cells

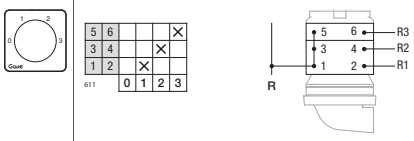


Step changeover switches with 0 position

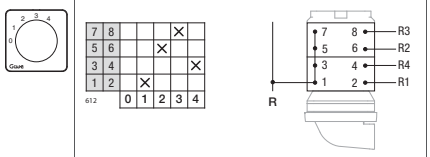
610	2 positions	1 cell



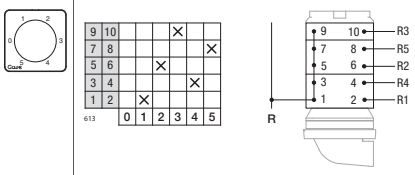
611	3 positions	2 cells



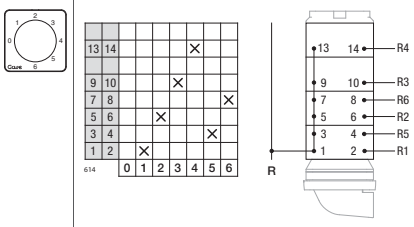
612	4 positions	2 cells



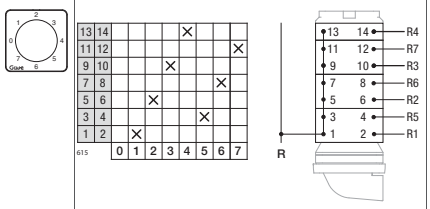
613	5 positions	3 cells



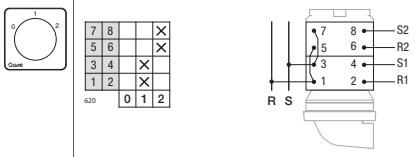
614	6 positions	4 cells



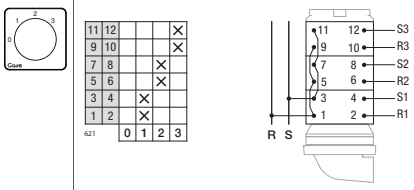
615	7 positions	4 cells



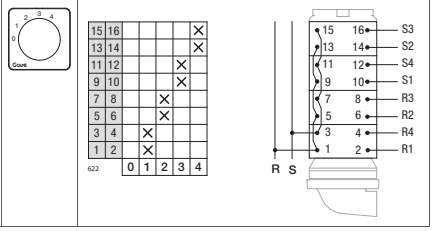
620	2 positions	2 cells



621	3 positions	3 cells

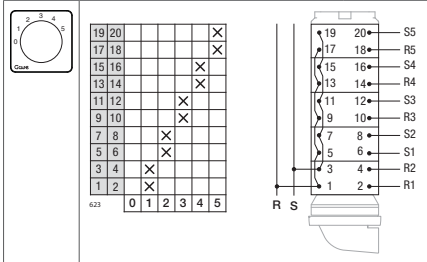


622	4 positions	4 cells

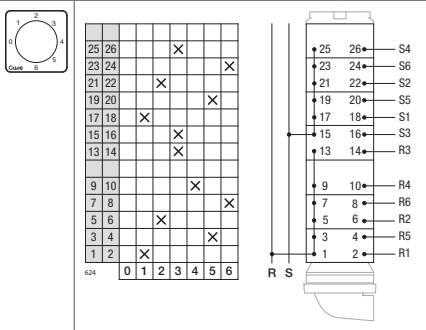


More schemes in our dedicated catalogue, see it here →

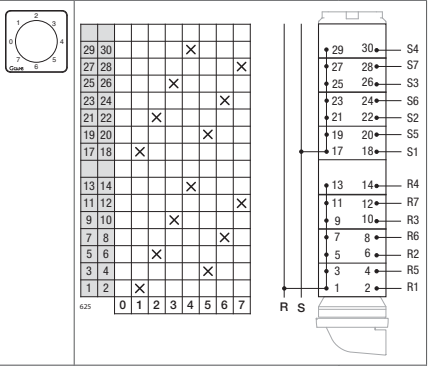
623 — 5 positions — 5 cells



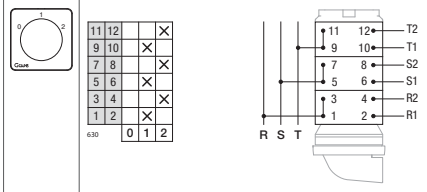
624 — 6 positions — 7 cells



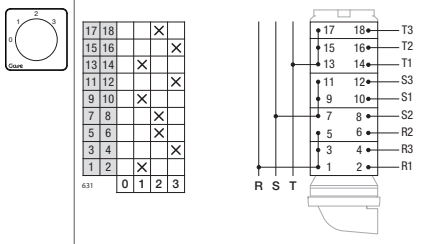
625 — 7 positions — 8 cells



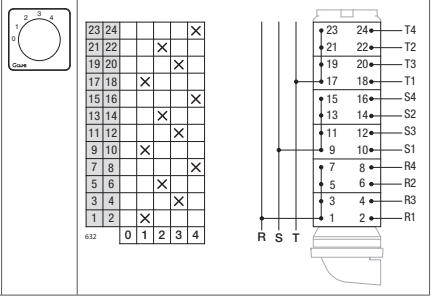
630 — 2 positions — 3 cells



631 — 3 positions — 5 cells

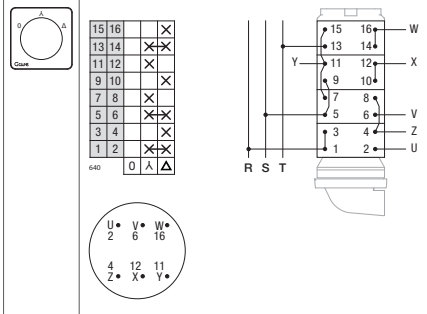


632 — 4 positions — 6 cells

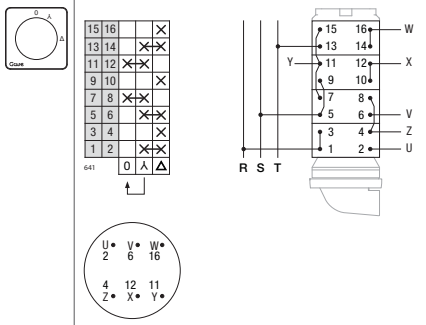


Star-delta changeover switches

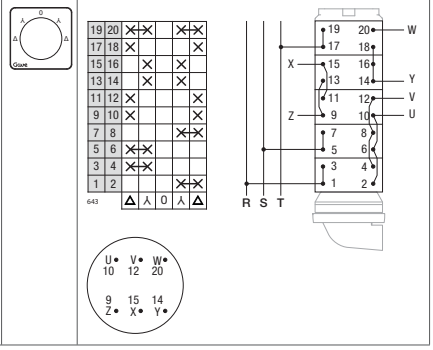
640 — Standard — 4 cells



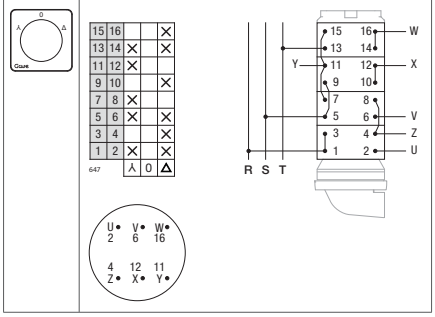
641 — Return from λ a 0 — 4 cells



643 — Reversing — 5 cells



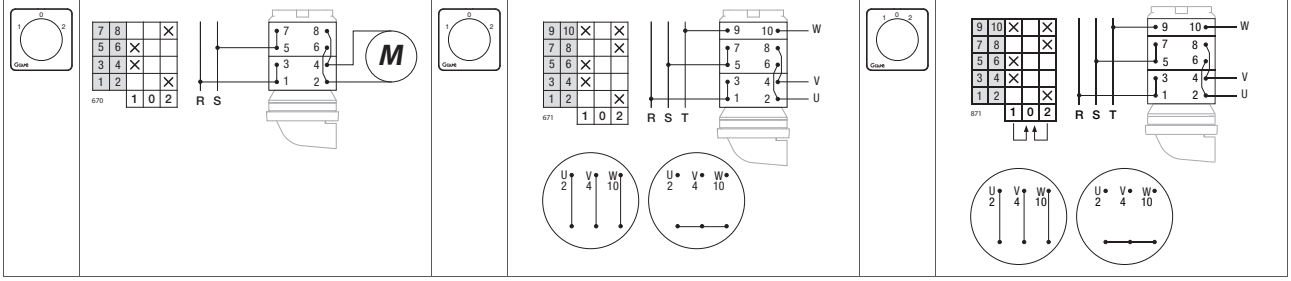
647 — Star or delta selector — 4 cells



Standard electrical schemes

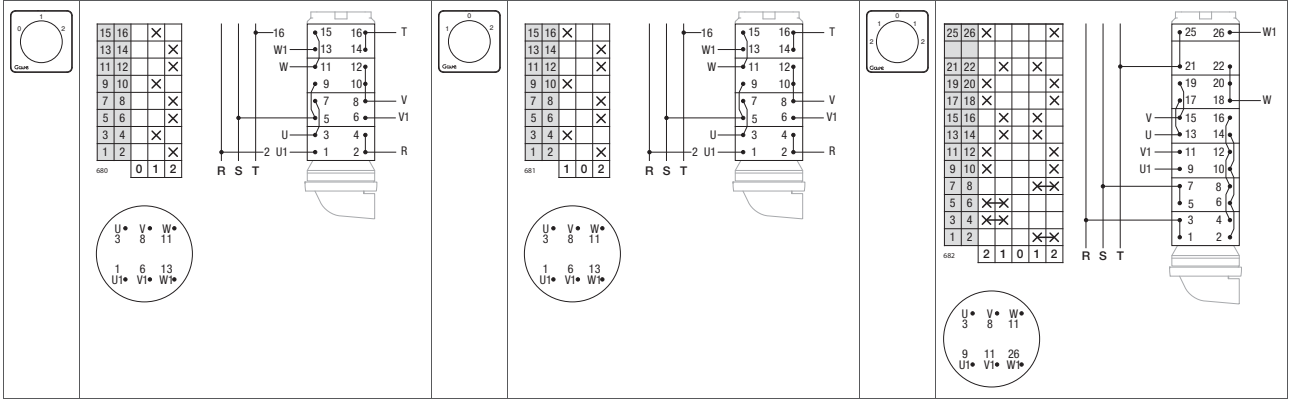
Inverters

670	2 poles	2 cells	671	3 poles	3 cells	871	3 poles with return to 0	3 cells



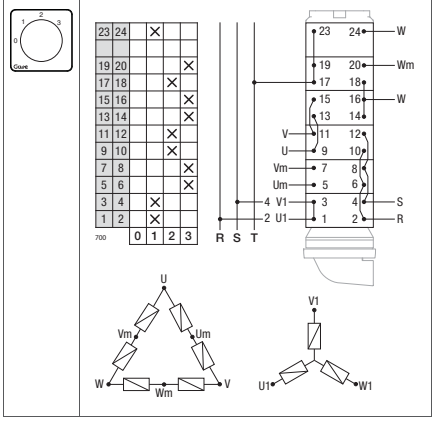
Pole changing switches for 2 speeds

680	Dahlander single winding 0 - Δ - 人	4 cells	681	Dahlander single winding Δ - 0 - 人	4 cells	682	Dahlander inverter 人 - Δ - 0 - Δ - 人	7 cells



Pole changing switches for 3 speeds

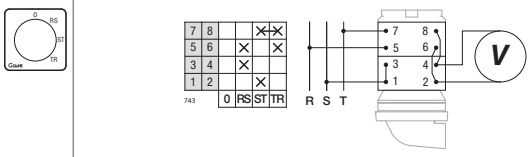
700	2 windings 0 - 人 - Δ - 人	6 cells



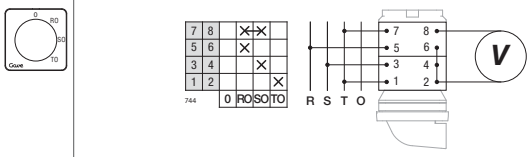
More schemes in our dedicated catalogue, see it here →

Voltmeter changeover switches

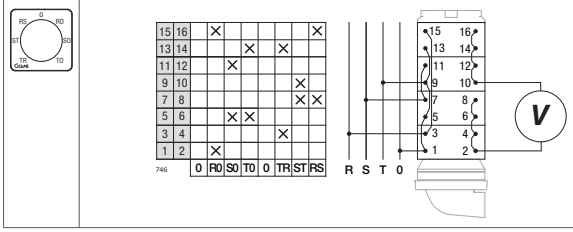
743 — 3 Phases — 2 cells



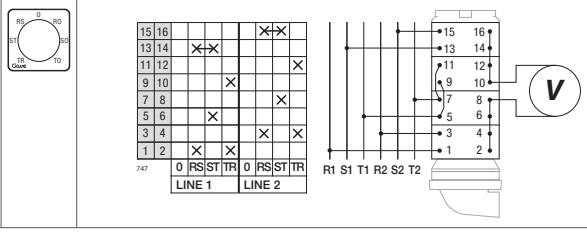
744 — 3 Phases + N — 2 cells



746 — 3 Phases / 3 Phases + N — 4 cells

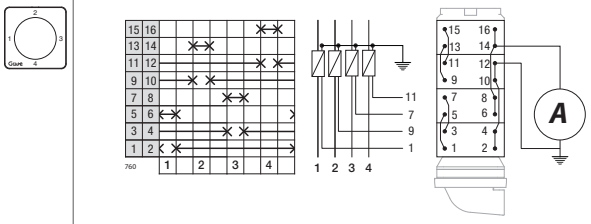


747 — Between phases (2 independent tree phase lines) — 4 cells

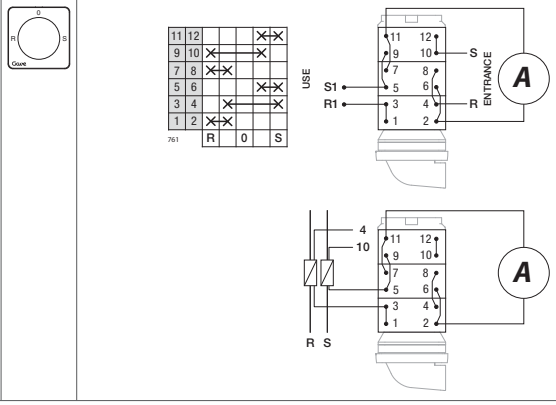


Ammeter changeover switches

760 — 4 circuits (with transformers) — 4 cells



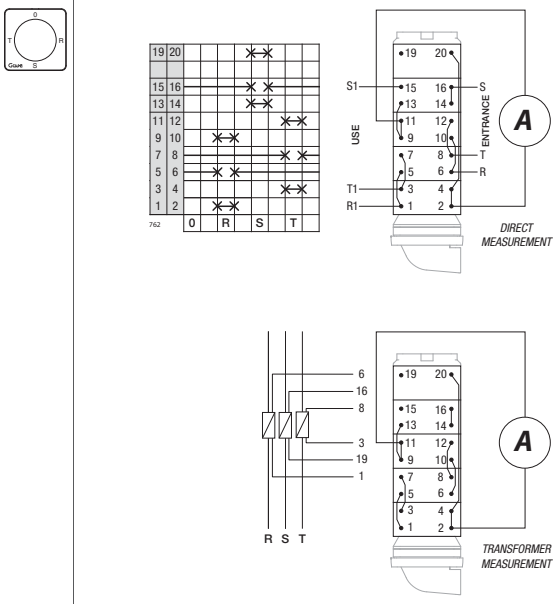
761 — 2 circuits (direct or with transformers) — 3 cells



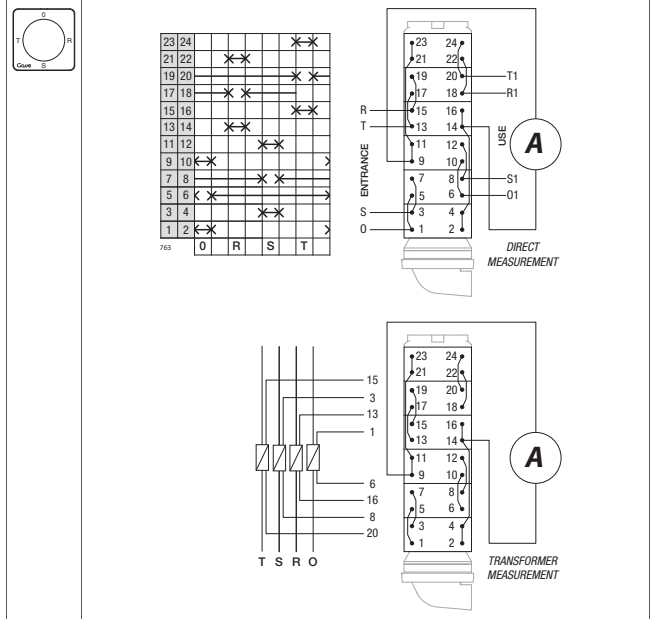
Standard electrical schemes

Ammeter changeover switches

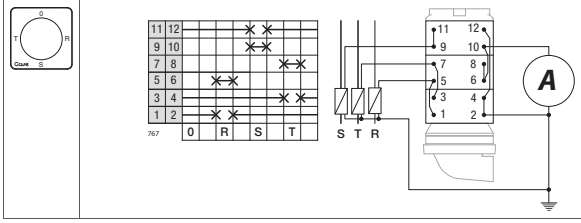
762 — 3 circuits (direct or with transformer) — 5 cells



763 — 4 circuits (direct or with transformer) — 6 cells

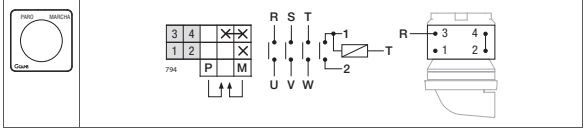


767 — Tree circuits (with transformers) — 3 cells



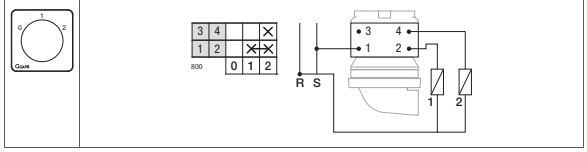
Manipulator changeover switches

794 — Star-stop — 1 cell



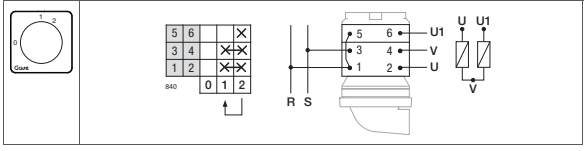
Group changeover switches

800 — Two single-pole selectors — 1 cell



Circuit breaker for motor starting

840 — Bipolar with start circuit and return to 1 — 2 cells



Special diagrams

Photocopy and complete the following form to request special diagrams.

Reference

Number of units

Customer

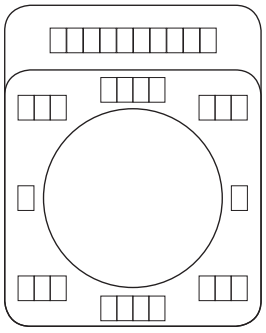
Plate inscription	Outside connections: 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 / 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 — Inside connections

Legend

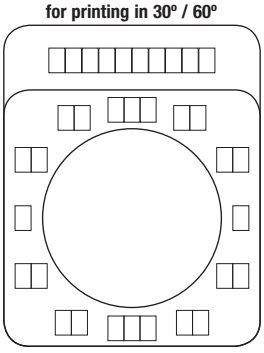
Inside connections
- × close contact
- close contact in different positions with no interruption
- return form the last position to the previous on

Outside connections
- bridge

maximum number of characters for printing in 45º / 90º



maximum number of characters for printing in 30º / 60º



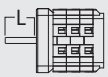
Operation rating Ie (A)

Size D0	☐ 12	*Size D2*	☐ 63
	☐ 16		☐ 100
	☐ 25		☐ 125
Size D1	☐ 25	*Size D3*	☐ 160
	☐ 32		☐ 200
	☐ 40		☐ 250

Prolonged shaft

☐ Special long shaft

Length (L): _____ mm



Comments

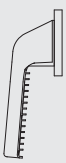
Handle type

short

☐ Black
☐ Red
☐ Grey

Lever

☐ Black
☐ Red
☐ Grey



NOTE: Contacts order and switching angle might change due to constructional reasons.

Combilight switches

Technology LED

The new generation of illuminated switches revolutionizes design of electrical panels by providing design and installation **simplicity**, electrical and electronic **robustness**, modern ergonomics and high signalling **brightness**.

«The innovation that transforms electrical panel designs»

Electrical robustness

Safety and reliability in any circumstance

- According to IEC60947-3
- Electrical endurance (3 times above standard requirements)
- On load switching and circuit isolation

High brightness

Unmatched unit visibility in outdoor or bright environments

- Long life LEDs 100.000 hours
- Visibility throughout 180°
- High intensity LEDs
- True colors complete range
- Black background for enhanced contrast

Electronic robustness

Reliability against disturbances

- Protection against electromagnetic interference
- High resistance to vibration and shock
- High dielectric strength

Ergonomics

Designed for easy of use

- Handle developed for type 2 motion movements
- Surface treatment for a touch of comfort
- Modern look

Simplicity

Guaranteed time saving

- Built-in fixing nuts
- Plug-in power supply terminal
- Clip-together handle system

Connection

Clamping yoke terminal technically recognised as the best connection

- Reliability against temperature changes and vibrations
- Captive screw
- Surface treatment minimizes contact resistance

Intuitive indications

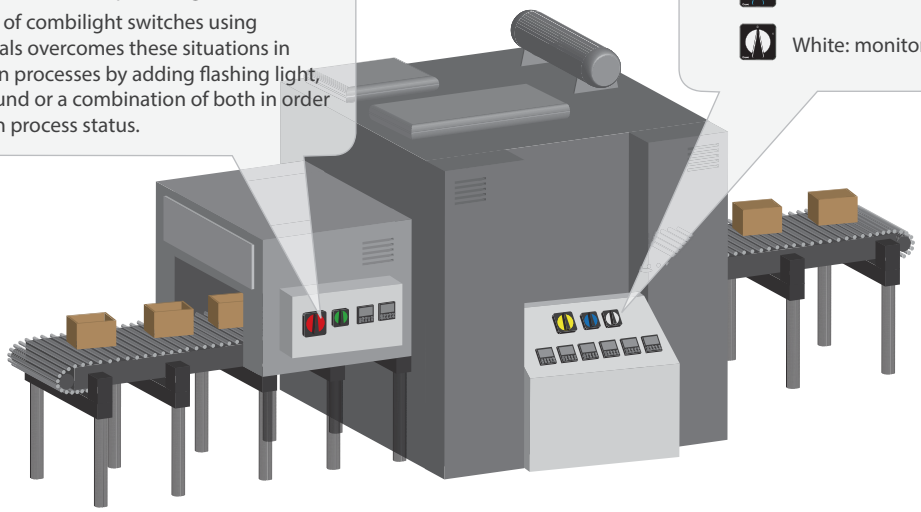
Human-machine interface requires a clear understanding of the situation by the operator, colour coding provides a quick understanding.

- Red: emergency
- Green: normal status
- Yellow: anomaly (check or action required)
- Blue: action required
- White: monitoring

Additional signalling

A common signalling need occurs when discrepancies rise between control command and the actual process status. This may indicate, for example, the end of the process cycle where an operator action is required (e.g. load material).

The range of combilight switches using input signals overcomes these situations in production processes by adding flashing light, buzzer sound or a combination of both in order to warn on process status.



Programmable modules

Combilight switches technology distinguishes itself by offering maximum flexibility to OEM designers in the conception of new products and developments. Signalling modules are based on a programmable chip that uses four input signals and combinations thereof.

They can be programmed colour lights, colour sequences, blinking frequencies, buzzer frequencies, ... Each case associated with different machine status and operating conditions.

Environment

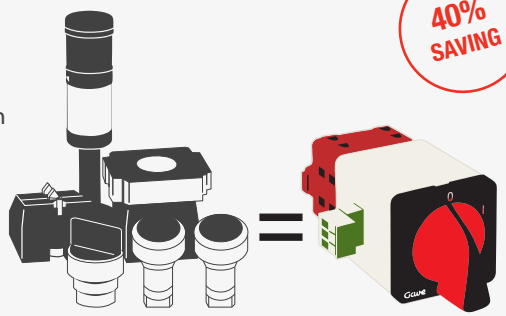
Designed to minimize the impact on the environment

- Materials of low ecological footprint and easy recycling
- Low power consumption electronics

Nothing but benefits...

- ✓ Fewer components
- ✓ Less need for space
- ✓ Economic saving
- ✓ Reduced installation time

40% SAVING



Types and reference system

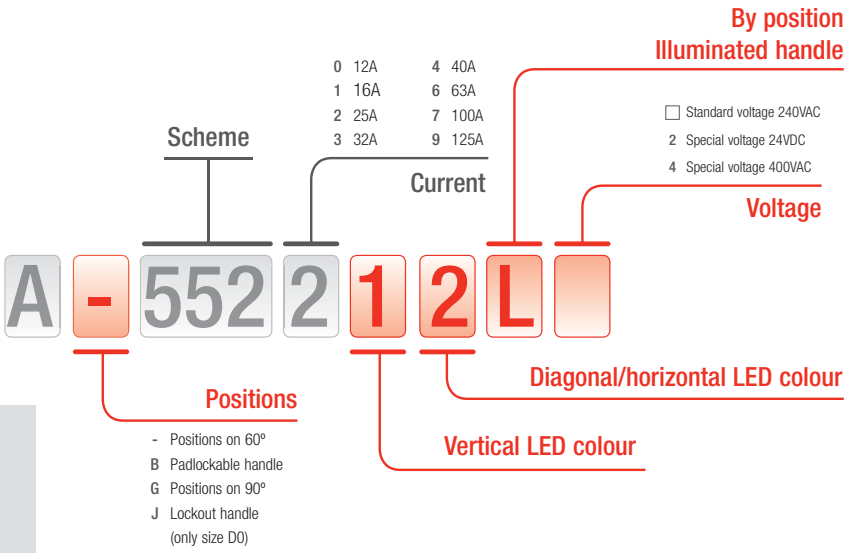
Combilight switches position controlled

Illuminated cam switches controlled by position define the light color according to the handle position.

Based on the reference system we must generate a reference code that indicates the handle color based on its position. We must also indicate the light module supply voltage, the standard version being 240VAC.

Colour codes

Standard		Special		
1	Red	3	Yellow	0 White
2	Green	4	Blue	



Combilight switches signal controlled

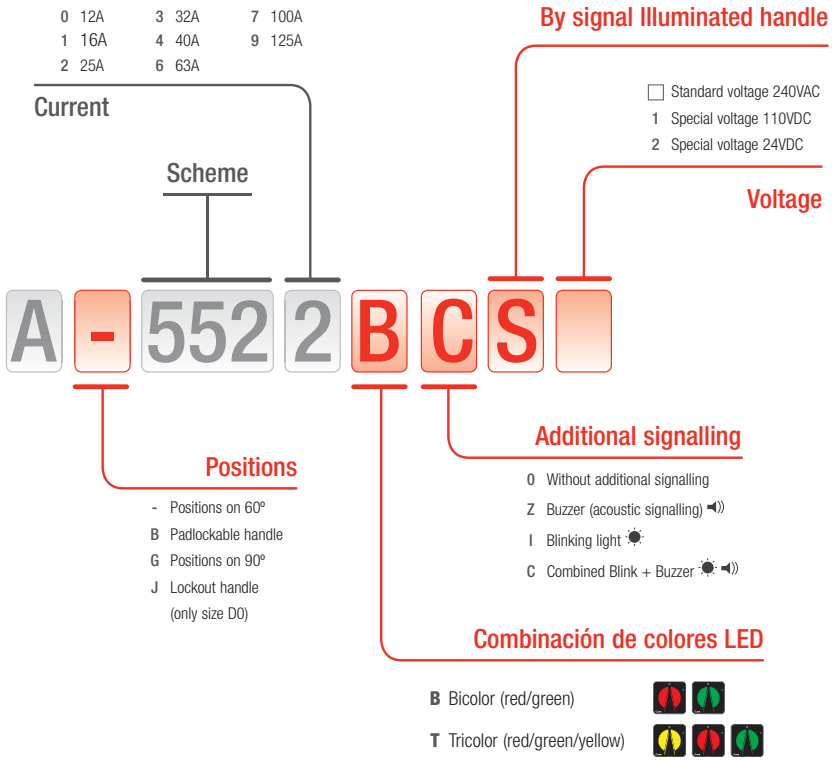
Illuminated cam switches controlled by signal type require the presence of an external input signal to activate light/sound module signalling. The input signal must be steady and in its absence the module remains off.

The module has four voltage free input signals to figure out the handle colour or other signalling.

There are three additional signalling modes:

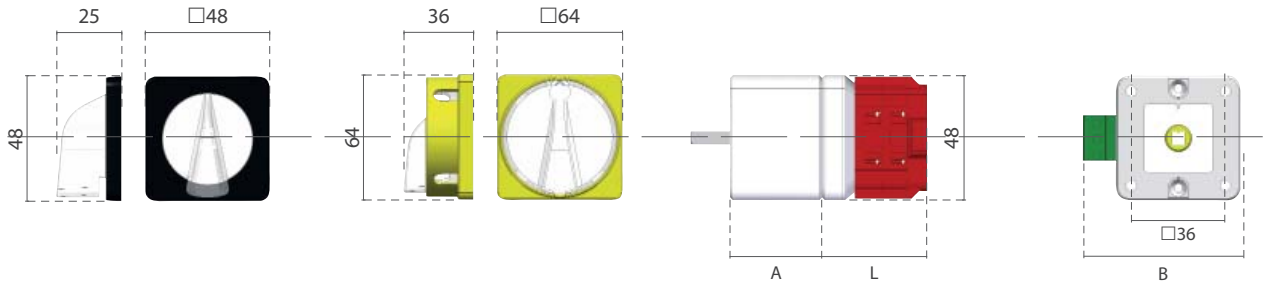
- Audible warning buzzer
- Blinking light
- Buzzer and blinking combined

Based on the reference system we indicate the unit supply voltage, being 240VAC the standard module supply.



Dimensions

Size D0

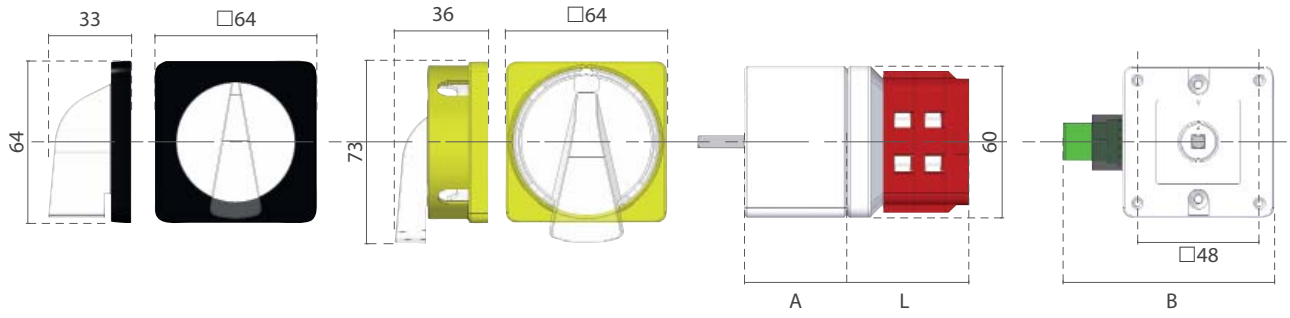


1,6 Nm
PZ2

Cells	1	2	3	4	5	6	7	8	9	10	11	12
Length (L)	30,5	40,5	50,5	60,5	70,5	80,5	90,5	100,5	110,5	120,5	130,5	140,5

type	A	B
By position	35,5	64
By signal	43	59

Size D1

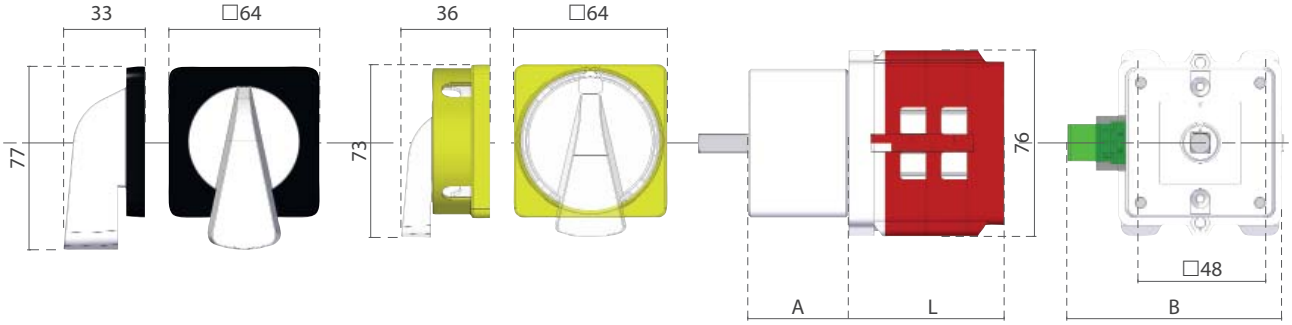


2,0 Nm
PZ2

Cells	1	2	3	4	5	6	7	8	9	10	11	12
Length (L)	36,3	48,3	60,3	72,3	84,3	96,3	108,3	120,3	132,3	144,3	156,3	168,3

type	A	B
By position	40,5	76
By signal	40,5	85

Size D2



3,5 Nm
PZ3

Cells	1	2	3	4	5	6	7	8	9	10
Length (L)	46,0	62,5	79,0	95,5	112,0	128,5	145,0	161,5	178,0	194,5

type	A	B
By position	40,5	82
By signal	40,5	86,5

Position controlled references

Switches

Size D0

Poles	Cells	Scheme	Voltage	12A	16A	25A
1 pole	1	550	240Vac	A-550012L	A-550112L	A-550212L
			400Vac	A-550012L4	A-550112L4	A-550212L4
			24Vdc	A-550012L2	A-550112L2	A-550212L2
2 poles	1	551	240Vac	A-551012L	A-551112L	A-551212L
			400Vac	A-551012L4	A-551112L4	A-551212L4
			24Vdc	A-551012L2	A-551112L2	A-551212L2
3 poles	2	552	240Vac	A-552012L	A-552112L	A-552212L
			400Vac	A-552012L4	A-552112L4	A-552212L4
			24Vdc	A-552012L2	A-552112L2	A-552212L2
4 poles	2	553	240Vac	A-553012L	A-553112L	A-553212L
			400Vac	A-553012L4	A-553112L4	A-553212L4
			24Vdc	A-553012L2	A-553112L2	A-553212L2

Size D1

Poles	Cells	Scheme	Voltage	32A	40A
1 pole	1	550	240Vac	A-550312L	A-550412L
			400Vac	A-550312L4	A-550412L4
			24Vdc	A-550312L2	A-550412L2
2 poles	1	551	240Vac	A-551312L	A-551412L
			400Vac	A-551312L4	A-551412L4
			24Vdc	A-551312L2	A-551412L2
3 poles	2	552	240Vac	A-552312L	A-552412L
			400Vac	A-552312L4	A-552412L4
			24Vdc	A-552312L2	A-552412L2
4 poles	2	553	240Vac	A-553312L	A-553412L
			400Vac	A-553312L4	A-553412L4
			24Vdc	A-553312L2	A-553412L2

Size D2

Poles	Cells	Scheme	Voltage	63A	100A	125A
1 pole	1	550	240Vac	A-550612L	A-550712L	A-550912L
			400Vac	A-550612L4	A-550712L4	A-550912L4
			24Vdc	A-550612L2	A-550712L2	A-550912L2
2 poles	1	551	240Vac	A-551612L	A-551712L	A-551912L
			400Vac	A-551612L4	A-551712L4	A-551912L4
			24Vdc	A-551612L2	A-551712L2	A-551912L2
3 poles	2	552	240Vac	A-552612L	A-552712L	A-552912L
			400Vac	A-552612L4	A-552712L4	A-552912L4
			24Vdc	A-552612L2	A-552712L2	A-552912L2
4 poles	2	553	240Vac	A-553612L	A-553712L	A-553912L
			400Vac	A-553612L4	A-553712L4	A-553912L4
			24Vdc	A-553612L2	A-553712L2	A-553912L2

Switches with padlockable handle

Size D0

Poles	Cells	Scheme	Voltage	12A	16A	25A
1 pole	1	550	240Vac	AB550012L	AB550112L	AB550212L
			400Vac	AB550012L4	AB550112L4	AB550212L4
			24Vdc	AB550012L2	AB550112L2	AB550212L2
2 poles	1	551	240Vac	AB551012L	AB551112L	AB551212L
			400Vac	AB551012L4	AB551112L4	AB551212L4
			24Vdc	AB551012L2	AB551112L2	AB551212L2
3 poles	2	552	240Vac	AB552012L	AB552112L	AB552212L
			400Vac	AB552012L4	AB552112L4	AB552212L4
			24Vdc	AB552012L2	AB552112L2	AB552212L2
4 poles	2	553	240Vac	AB553012L	AB553112L	AB553212L
			400Vac	AB553012L4	AB553112L4	AB553212L4
			24Vdc	AB553012L2	AB553112L2	AB553212L2

Size D1

Poles	Cells	Scheme	Voltage	32A	40A
1 pole	1	550	240Vac	AB550312L	AB550412L
			400Vac	AB550312L4	AB550412L4
			24Vdc	AB550312L2	AB550412L2
2 poles	1	551	240Vac	AB551312L	AB551412L
			400Vac	AB551312L4	AB551412L4
			24Vdc	AB551312L2	AB551412L2
3 poles	2	552	240Vac	AB552312L	AB552412L
			400Vac	AB552312L4	AB552412L4
			24Vdc	AB552312L2	AB552412L2
4 poles	2	553	240Vac	AB553312L	AB553412L
			400Vac	AB553312L4	AB553412L4
			24Vdc	AB553312L2	AB553412L2

Size D2

Poles	Cells	Scheme	Voltage	63A	100A	125A
1 pole	1	550	240Vac	AB550612L	AB550712L	AB550912L
			400Vac	AB550612L4	AB550712L4	AB550912L4
			24Vdc	AB550612L2	AB550712L2	AB550912L2
2 poles	1	551	240Vac	AB551612L	AB551712L	AB551912L
			400Vac	AB551612L4	AB551712L4	AB551912L4
			24Vdc	AB551612L2	AB551712L2	AB551912L2
3 poles	2	552	240Vac	AB552612L	AB552712L	AB552912L
			400Vac	AB552612L4	AB552712L4	AB552912L4
			24Vdc	AB552612L2	AB552712L2	AB552912L2
4 poles	2	553	240Vac	AB553612L	AB553712L	AB553912L
			400Vac	AB553612L4	AB553712L4	AB553912L4
			24Vdc	AB553612L2	AB553712L2	AB553912L2

Position controlled references

Changeover switches 1-0-2

Size D0

Poles	Cells	Scheme	Voltage	12A	16A	25A
1 pole	1	560	240Vac	A-560012L	A-560112L	A-560212L
			400Vac	A-560012L4	A-560112L4	A-560212L4
			24Vdc	A-560012L2	A-560112L2	A-560212L2
2 poles	2	561	240Vac	A-561012L	A-561112L	A-561212L
			400Vac	A-561012L4	A-561112L4	A-561212L4
			24Vdc	A-561012L2	A-561112L2	A-561212L2
3 poles	3	562	240Vac	A-562012L	A-562112L	A-562212L
			400Vac	A-562012L4	A-562112L4	A-562212L4
			24Vdc	A-562012L2	A-562112L2	A-562212L2
4 poles	4	563	240Vac	A-563012L	A-563112L	A-563212L
			400Vac	A-563012L4	A-563112L4	A-563212L4
			24Vdc	A-563012L2	A-563112L2	A-563212L2

Size D1

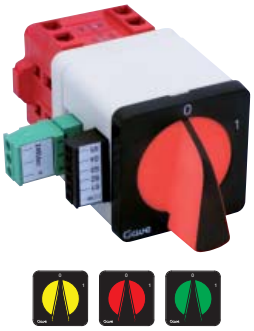
Poles	Cells	Scheme	Voltage	32A	40A
2 poles	2	561	240Vac	A-561312L	A-561412L
			400Vac	A-561312L4	A-561412L4
			24Vdc	A-561312L2	A-561412L2
3 poles	3	562	240Vac	A-562312L	A-562412L
			400Vac	A-562312L4	A-562412L4
			24Vdc	A-562312L2	A-562412L2
4 poles	4	563	240Vac	A-563312L	A-563412L
			400Vac	A-563312L4	A-563412L4
			24Vdc	A-563312L2	A-563412L2

Size D2

Poles	Cells	Scheme	Voltage	63A	100A	125A
2 poles	2	561	240Vac	A-561612L	A-561712L	A-561912L
			400Vac	A-561612L4	A-561712L4	A-561912L4
			24Vdc	A-561612L2	A-561712L2	A-561912L2
3 poles	3	562	240Vac	A-562612L	A-562712L	A-562912L
			400Vac	A-562612L4	A-562712L4	A-562912L4
			24Vdc	A-562612L2	A-562712L2	A-562912L2
4 poles	4	563	240Vac	A-563612L	A-563712L	A-563912L
			400Vac	A-563612L4	A-563712L4	A-563912L4
			24Vdc	A-563612L2	A-563712L2	A-563912L2

Signal controlled references

Tricolor switches



Standard signalling

Size D1

Poles	Cells	Scheme	Voltage	32A	40A
3 poles	2	552	240Vac	A-5523T0S	A-5524T0S
			400Vac	A-5523T0S4	A-5524T0S4
			24Vdc	A-5523T0S2	A-5524T0S2
4 poles	2	553	240Vac	A-5533T0S	A-5534T0S
			400Vac	A-5533T0S4	A-5534T0S4
			24Vdc	A-5533T0S2	A-5534T0S2

Size D2

Poles	Cells	Scheme	Voltage	63A	100A	125A
3 poles	2	552	240Vac	A-5526T0S	A-5527T0S	A-5529T0S
			400Vac	A-5526T0S4	A-5527T0S4	A-5529T0S4
			24Vdc	A-5526T0S2	A-5527T0S2	A-5529T0S2
4 poles	2	553	240Vac	A-5536T0S	A-5537T0S	A-5539T0S
			400Vac	A-5536T0S4	A-5537T0S4	A-5539T0S4
			24Vdc	A-5536T0S2	A-5537T0S2	A-5539T0S2

Signal controlled references

Tricolor switches

Blinking light signalling ☀

Size D0

Poles	Cells	Scheme	Voltage	12A	16A	25A
1 pole	1	550	240Vac	A-5500TIS	A-5501TIS	A-5502TIS
			400Vac	A-5500TIS4	A-5501TIS4	A-5502TIS4
			24Vdc	A-5500TIS2	A-5501TIS2	A-5502TIS2
2 poles	1	551	240Vac	A-5510TIS	A-5511TIS	A-5512TIS
			400Vac	A-5510TIS4	A-5511TIS4	A-5512TIS4
			24Vdc	A-5510TIS2	A-5511TIS2	A-5512TIS2
3 poles	2	552	240Vac	A-5520TIS	A-5521TIS	A-5522TIS
			400Vac	A-5520TIS4	A-5521TIS4	A-5522TIS4
			24Vdc	A-5520TIS2	A-5521TIS2	A-5522TIS2
4 poles	2	553	240Vac	A-5530TIS	A-5531TIS	A-5532TIS
			400Vac	A-5530TIS4	A-5531TIS4	A-5532TIS4
			24Vdc	A-5530TIS2	A-5531TIS2	A-5532TIS2

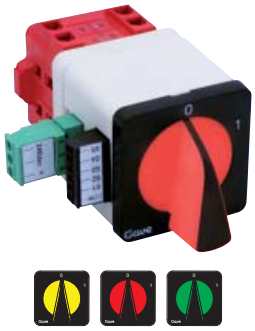
Size D1

Poles	Cells	Scheme	Voltage	32A	40A
3 poles	2	552	240Vac	A-5523TIS	A-5524TIS
			400Vac	A-5523TIS4	A-5524TIS4
			24Vdc	A-5523TIS2	A-5524TIS2
4 poles	2	553	240Vac	A-5533TIS	A-5534TIS
			400Vac	A-5533TIS4	A-5534TIS4
			24Vdc	A-5533TIS2	A-5534TIS2

Size D2

Poles	Cells	Scheme	Voltage	63A	100A	125A
3 poles	2	552	240Vac	A-5526TIS	A-5527TIS	A-5529TIS
			400Vac	A-5526TIS4	A-5527TIS4	A-5529TIS4
			24Vdc	A-5526TIS2	A-5527TIS2	A-5529TIS2
4 poles	2	553	240Vac	A-5536TIS	A-5537TIS	A-5539TIS
			400Vac	A-5536TIS4	A-5537TIS4	A-5539TIS4
			24Vdc	A-5536TIS2	A-5537TIS2	A-5539TIS2

Tricolor switches



Acoustic signalling

Size D0

Poles	Cells	Scheme	Voltage	12A	16A	25A
1 pole	1	550	240Vac	A-5500TZS	A-5501TZS	A-5502TZS
			400Vac	A-5500TZS4	A-5501TZS4	A-5502TZS4
			24Vdc	A-5500TZS2	A-5501TZS2	A-5502TZS2
2 poles	1	551	240Vac	A-5510TZS	A-5511TZS	A-5512TZS
			400Vac	A-5510TZS4	A-5511TZS4	A-5512TZS4
			24Vdc	A-5510TZS2	A-5511TZS2	A-5512TZS2
3 poles	2	552	240Vac	A-5520TZS	A-5521TZS	A-5522TZS
			400Vac	A-5520TZS4	A-5521TZS4	A-5522TZS4
			24Vdc	A-5520TZS2	A-5521TZS2	A-5522TZS2
4 poles	2	553	240Vac	A-5530TZS	A-5531TZS	A-5532TZS
			400Vac	A-5530TZS4	A-5531TZS4	A-5532TZS4
			24Vdc	A-5530TZS2	A-5531TZS2	A-5532TZS2

Size D1

Poles	Cells	Scheme	Voltage	32A	40A
3 poles	2	552	240Vac	A-5523TZS	A-5524TZS
			400Vac	A-5523TZS4	A-5524TZS4
			24Vdc	A-5523TZS2	A-5524TZS2
4 poles	2	553	240Vac	A-5533TZS	A-5534TZS
			400Vac	A-5533TZS4	A-5534TZS4
			24Vdc	A-5533TZS2	A-5534TZS2

Size D2

Poles	Cells	Scheme	Voltage	63A	100A	125A
3 poles	2	552	240Vac	A-5526TZS	A-5527TZS	A-5529TZS
			400Vac	A-5526TZS4	A-5527TZS4	A-5529TZS4
			24Vdc	A-5526TZS2	A-5527TZS2	A-5529TZS2
4 poles	2	553	240Vac	A-5536TZS	A-5537TZS	A-5539TZS
			400Vac	A-5536TZS4	A-5537TZS4	A-5539TZS4
			24Vdc	A-5536TZS2	A-5537TZS2	A-5539TZS2

Signal controlled references

Tricolor switches

Combined Blink + Buzzer

Size D0

Poles	Cells	Scheme	Voltage	12A	16A	25A
1 pole	1	550	240Vac	A-5500TCS	A-5501TCS	A-5502TCS
			400Vac	A-5500TCS4	A-5501TCS4	A-5502TCS4
			24Vdc	A-5500TCS2	A-5501TCS2	A-5502TCS2
2 poles	1	551	240Vac	A-5510TCS	A-5511TCS	A-5512TCS
			400Vac	A-5510TCS4	A-5511TCS4	A-5512TCS4
			24Vdc	A-5510TCS2	A-5511TCS2	A-5512TCS2
3 poles	2	552	240Vac	A-5520TCS	A-5521TCS	A-5522TCS
			400Vac	A-5520TCS4	A-5521TCS4	A-5522TCS4
			24Vdc	A-5520TCS2	A-5521TCS2	A-5522TCS2
4 poles	2	553	240Vac	A-5530TCS	A-5531TCS	A-5532TCS
			400Vac	A-5530TCS4	A-5531TCS4	A-5532TCS4
			24Vdc	A-5530TCS2	A-5531TCS2	A-5532TCS2

Size D1

Poles	Cells	Scheme	Voltage	32A	40A
3 poles	2	552	240Vac	A-5523TCS	A-5524TCS
			400Vac	A-5523TCS4	A-5524TCS4
			24Vdc	A-5523TCS2	A-5524TCS2
4 poles	2	553	240Vac	A-5533TCS	A-5534TCS
			400Vac	A-5533TCS4	A-5534TCS4
			24Vdc	A-5533TCS2	A-5534TCS2

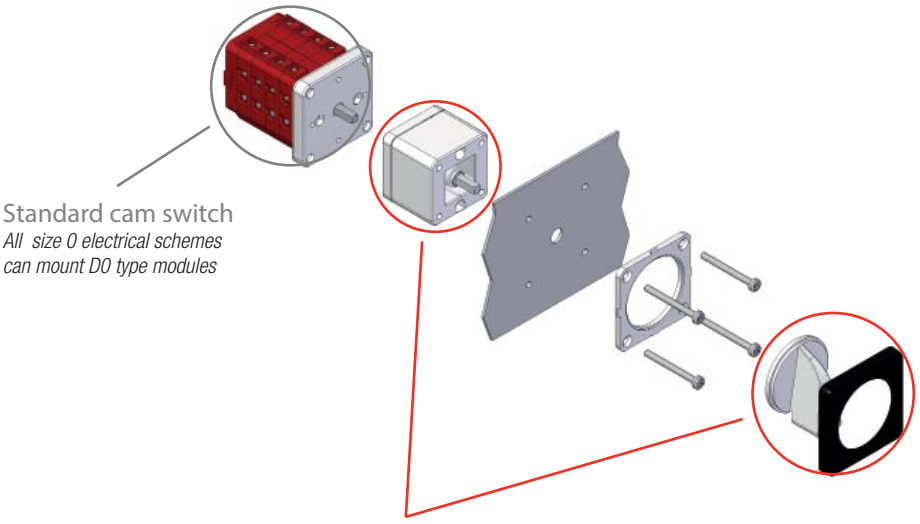
Size D2

Poles	Cells	Scheme	Voltage	63A	100A	125A
3 poles	2	552	240Vac	A-5526TCS	A-5527TCS	A-5529TCS
			400Vac	A-5526TCS4	A-5527TCS4	A-5529TCS4
			24Vdc	A-5526TCS2	A-5527TCS2	A-5529TCS2
4 poles	2	553	240Vac	A-5536TCS	A-5537TCS	A-5539TCS
			400Vac	A-5536TCS4	A-5537TCS4	A-5539TCS4
			24Vdc	A-5536TCS2	A-5537TCS2	A-5539TCS2

D type light module sets

Signal controlled D type module sets are offered as individual units that can be fixed to any standard switch size 0 from the A5 or the L5 series.

The sets consist of a tricolor light module plus a combilight fixing plate and transparent handle. The lightning module has an embedded clutch system where the shaft from the standard switch will be fitted. Accurate tolerances guarantee the right mechanical transmission and endurance.



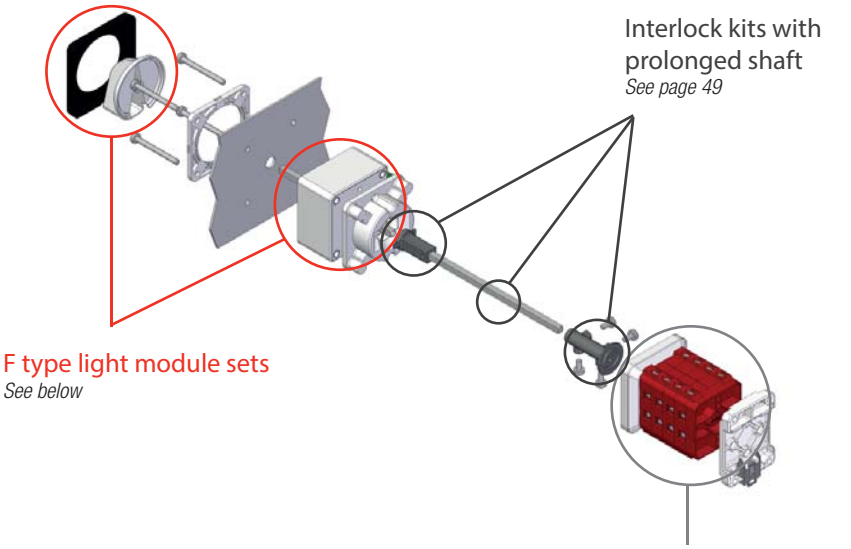
Standard signalling

Colour		Voltage	Size D0
	Yellow/red/green	240Vac	AK2503120D
		400Vac	AK2543120D
		24Vdc	AK2523120D

F type light module sets

Rear mounting and DIN rail mounting switches are compatible with combilight technology.

We can transform a standard switch into a rear/DIN rail mounting combilight switch by adding F type light module sets plus interlock kits.



Position controlled light module sets

Switches

Colour		Voltage	Size D0 and D1	Size D2
	Red/white	240Vac	AK2400103F	AK2400106F
		400Vac	AK2440103F	AK2440106F
		24Vdc	AK2420103F	AK2420106F
	Red/green	240Vac	AK2400123F	AK2400126F
		400Vac	AK2440123F	AK2440126F
		24Vdc	AK2420123F	AK2420126F

Changeover switches

Colour		Voltage	Size D0 and D1	Size D2
	Green/red/green	240Vac	AK2402123F	AK2402126F
		400Vac	AK2442123F	AK2442126F
		24Vdc	AK2422123F	AK2422126F
	Yellow/red/green	240Vac	AK2403123F	AK2403126F
		400Vac	AK2443123F	AK2443126F
		24Vdc	AK2423123F	AK2423126F

Signal controlled light module sets

Standard signalling

Colour		Voltage	Size D0 and D1	Size D2
	Red/green	240Vac	AK250-123F	AK250-126F
		400Vac	AK254-123F	AK254-126F
		24Vdc	AK252-123F	AK252-126F
	Yellow/red/green	240Vac	AK2503123F	AK2503126F
		400Vac	AK2543123F	AK2543126F
		24Vdc	AK2523123F	AK2523126F

Blinking light signalling

Colour		Voltage	Size D0 and D1	Size D2
	Red/green	240Vac	AK250-123FI	AK250-126FI
		400Vac	AK254-123FI	AK254-126FI
		24Vdc	AK252-123FI	AK252-126FI
	Yellow/red/green	240Vac	AK2503123FI	AK2503126FI
		400Vac	AK2543123FI	AK2543126FI
		24Vdc	AK2523123FI	AK2523126FI

Acoustic signalling

Colour		Voltage	Size D0 and D1	Size D2
	Red/green	240Vac	AK250-123FZ	AK250-126FZ
		400Vac	AK254-123FZ	AK254-126FZ
		24Vdc	AK252-123FZ	AK252-126FZ
	Yellow/red/green	240Vac	AK2503123FZ	AK2503126FZ
		400Vac	AK2543123FZ	AK2543126FZ
		24Vdc	AK2523123FZ	AK2523126FZ

Combined signalling

Colour		Voltage	Size D0 and D1	Size D2
	Red/green	240Vac	AK250-123FC	AK250-126FC
		400Vac	AK254-123FC	AK254-126FC
		24Vdc	AK252-123FC	AK252-126FC
	Yellow/red/green	240Vac	AK2503123FC	AK2503126FC
		400Vac	AK2543123FC	AK2543126FC
		24Vdc	AK2523123FC	AK2523126FC

Accessories

Lockout transparent handle set

We can add safety features to combilight switches by using lockout handles manufactured with transparent plastic that maintain led light indications. Pushing the projecting piece of the knob we can insert up to 3 padlocks of max. 4mm diameter to lock the knob on 0 position during maintenance operations.

References	Type	Availability		
		Size D0	Size D1	Size D2
AK1330400	Switch 1-0	●		
AK1331400	Changeover switch 1-0-2	●		

Padlockable transparent handle set

We can use padlockable sets with transparent handle that can use up to 4 padlocks of max. 8mm diameter. Locking positions are each 90º. On standard switches the device only locks in the off position which is located at 0º.

References	Type	Availability		
		Size D0	Size D1	Size D2
AK1230503	Switch 1-0	●	●	
AK1230506	Switch 1-0			●

IP65 transparent gasket

Using transparent protection gaskets we can reach a high level of protection without compromising light visibility.

References	Availability		
	Size D0	Size D1	Size D2
AK2260003	●	●	
AK2260006			●

Combilight special diagrams

Photocopy and complete the following form to request special diagrams.

Gave

Reference _____ **Number of units** _____

Customer _____

	Outside connections																							
	○ 1	○ 3	○ 5	○ 7	○ 9	○ 11	○ 13	○ 15	○ 17	○ 19	○ 21	○ 23	○ 25	○ 27	○ 29	○ 31	○ 33	○ 35	○ 37	○ 39	○ 41	○ 43	○ 45	○ 47
	2 ○	4 ○	6 ○	8 ○	10 ○	12 ○	14 ○	16 ○	18 ○	20 ○	22 ○	24 ○	26 ○	28 ○	30 ○	32 ○	34 ○	36 ○	38 ○	40 ○	42 ○	44 ○	46 ○	48 ○
Plate inscription	Inside connections																							

Legend

Inside connections
× close contact
close contact in different positions with no interruption
return form the last position to the previous on

Outside connections
○ ○ bridge

Signalling

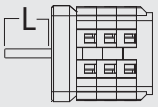
Note: Only one option is possible for each input signal

Contact	*Color code*	*Blink*	*Buzzer freq.*
S1		☐	☐ ___
S2		☐	☐ ___
S3		☐	☐ ___
S4		☐	☐ ___
S5		☐	☐ ___

Color codes		Buzzer frequency	
1	Red	1	On-Off Cycle 1s
2	Green	2	On-Off Cycle 2s
3	Yellow	3	On-Off Cycle 3s
4	Blue		
5	Black		
0	White		

Prolonged shaft

☐ Special long shaft



Length (L):
_____ mm

Module supply voltage

☐ 240VAC
☐ 110VDC
☐ 24VDC

Comments

NOTE: Contacts order and switching angle might change due to constructional reasons.

Discrepancy switches

«An advanced solution introducing new technological advantages on discrepancy applications»

Discrepancy switches are used to control, monitor position and signal any discrepancy on the operation of MV disconnectors and circuit breakers.

They are also used to send short impulses to remote controlled solenoids, meters,..

Gave discrepancy switches use state of the art Led technology which has the advantages of increasing reliability and being maintenance free.

Specific electronics permit multivoltage connection limiting the number of references required and simplifying panel designs and product logistics.

According to standards

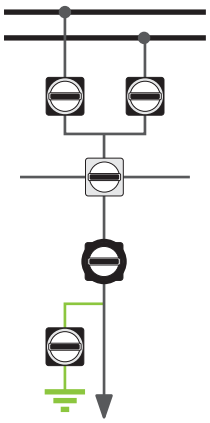
- IEC 60947-3
- EN 60947-3
- IEC 61000

Applications

- Rail transport industry
- Medium voltage energy distribution

Mimic diagram

The association between discrepancy switch and disconnector/circuit breaker is directly identified on the mimic diagram by the front plate shape.

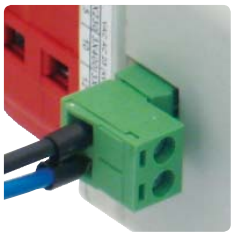


Control discrepancy mimic diagram example

Special diagrams

Control discrepancy switches are mainly used to control and signal discrepancies on circuit breakers and disconnectors. Often it is also requested on applications where the switch will control auxiliary circuits giving signal to external relays, acoustic circuits,..
This product constructional flexibility offers optimal adaptation to specific needs of circuit breaker/ disconnector circuits and other applications such as starter synchronising, on load controller, contactor control,..





Product overview

Monocolor types

Conventional PCM panel designs use white color light to indicate switchgear status on the mimic panels.

MS
Control & signalling

ES
Push & turn with spring return

EV
Turn to push

EP
Pushbutton control

EL
Light pushbutton control

Bicolor types

Using two color switches provides quick readout on the PCM panel.

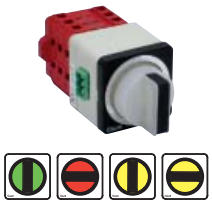
MB
Control & signalling bicolor

EB
Push & turn with spring return bicolor

GB
Turn to push bicolor

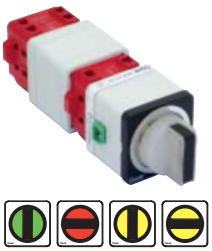
Tricolor types

Quick mimic readout and immediate fault detection are the key advantages of 3 color switches.



MT
Control & signalling tricolor

ET
Push & turn with spring return tricolor

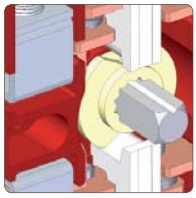


GT
Turn to push tricolor

General characteristics

Combining electronic and electromechanic technology on this product has achieved a solution that is distinguished by its well accomplished integration and simplicity on installation and operation.

- High luminosity low consumption multiled technology (100.000 hours life expectancy)
- Encapsulated electronics. Maximum protection and safety.
- Simple mounting. Insert bolts on frontal breaking mechanism
- Easy "push & click" front plate mounting.
- Vibration proof



Precision mechanics

Electrical endurance (3 times above standard requirements)

Clamp-yoke connection

Contact surfaces grooved for optimal grip and conductivity

Electronic robustness

Circuit protected against vibration, shocks and electromagnetic interference

Protection degree IP20

Terminals protected against solid objects up to 12,5mm according to IEC 60529

Insert bolts

Bolts inserted on the breaking mechanism making simple switch mounting, saving time and avoiding loose components

Simple "click" front plate fixing

Front plate designed for easy fixing by simple push-in on the mounting plate

Brightness

Long life and high luminosity Leds

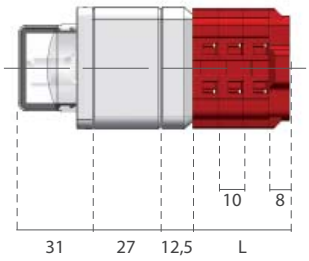
Control panels retrofitting

When maintaining and updating control panels we often face product supply problems to localise and purchase original goods that frequently are yet out of production manufacturing. In Gave we can provide the product cross-reference that you need and benefit from an expert technical service manufacturing product countertypes from your original unit

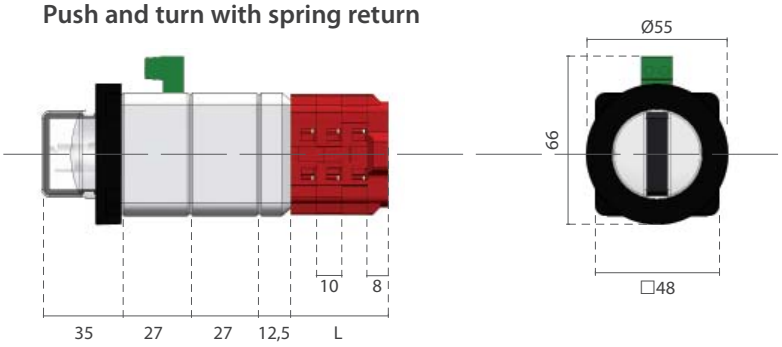
retrofit

Dimensions

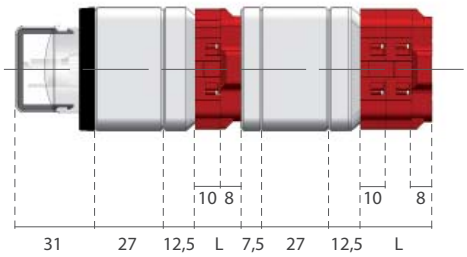
MS
Control and/or signalling



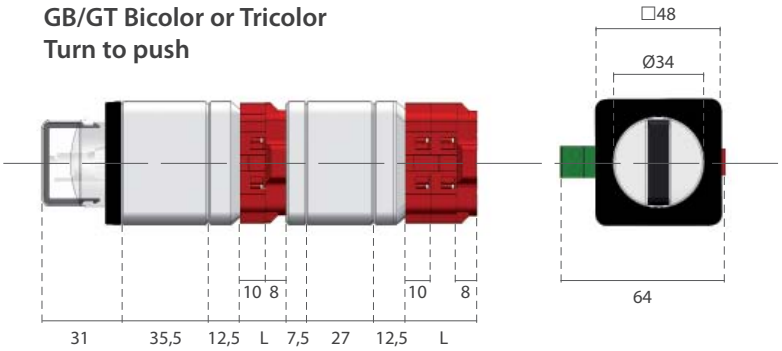
ES
Push and turn with spring return



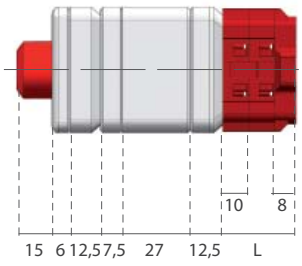
EV Turn to push



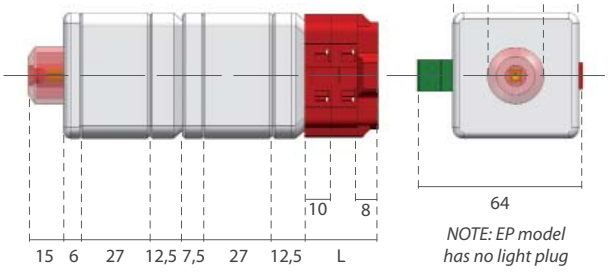
GB/GT Bicolor or Tricolor
Turn to push



EP Pushbutton control

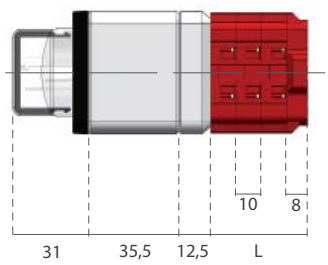


EL Light pushbutton control

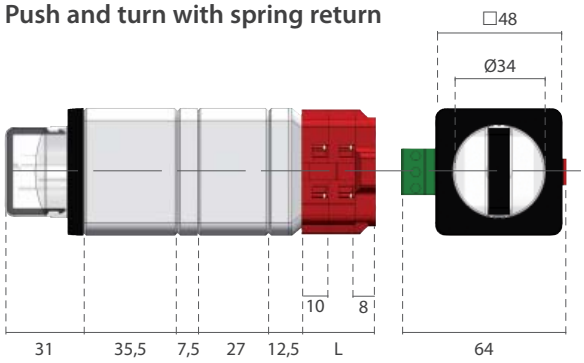


NOTE: EP model has no light plug

MB/MT Bicolor or tricolor
Control and/or signalling

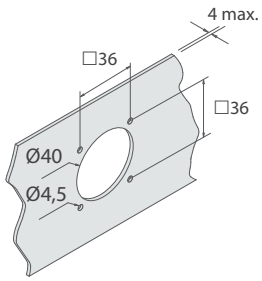


EB/ET Bicolor or tricolor
Push and turn with spring return

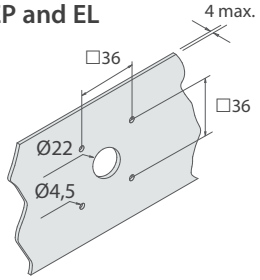


Fixing dimensions

MS, MB, MT, ES, EB, ET , EV, GB and GT



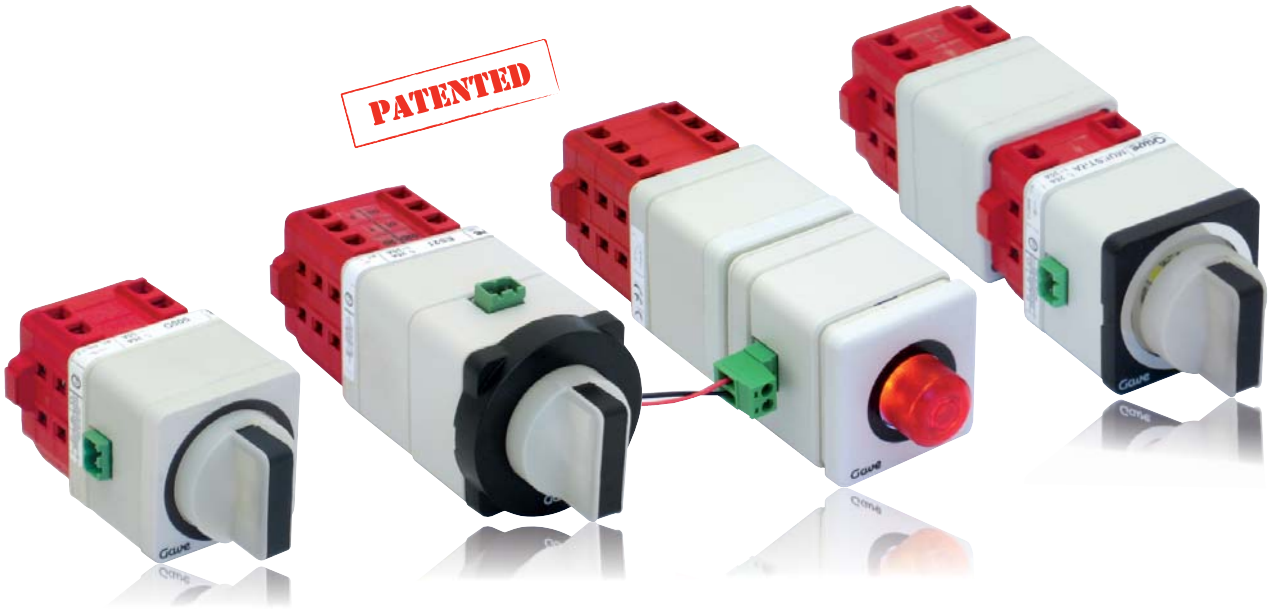
EP and EL



Cells	1	2	3	4
L	18	28	38	48

values in mm

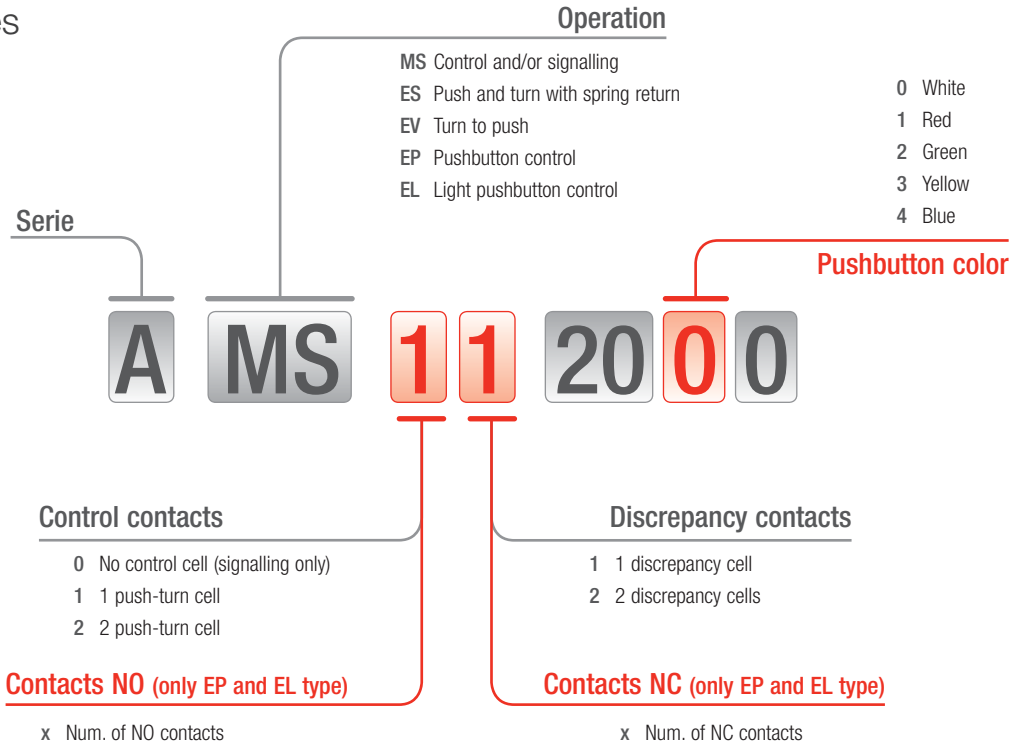
Monocolor discrepancy switches



«Multivoltage technology, luminosity stability and voltage flexibility in your panel designs»

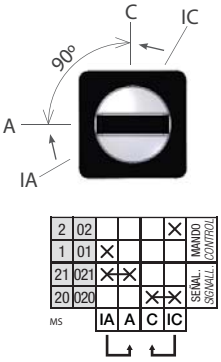
Auxiliary circuits on substation designs present a large variety of voltage supplies, product availability on particular voltages might become an unexpected problem for panel makers. The multivoltage technology developed on monocolor discrepancy switches overcomes the issue while avoiding the faults related to low voltage variation tolerance on conventional products (24-240 VAC / 24-150 VDC). Furthermore wiring connection is polarity free thus preventing potential misconnection damages. This technology also ensures that switch luminosity will remain stable throughout product life time regardless of supply quality.

References



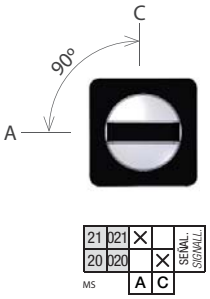
Operation

MS Control and signalling

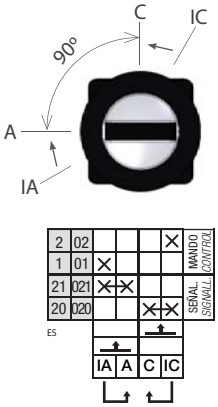


Discrepancy control switches have two fixed positions for pre-selection contacts at 90º and two additional impulse positions with 30º spring return.

MS Only signalling

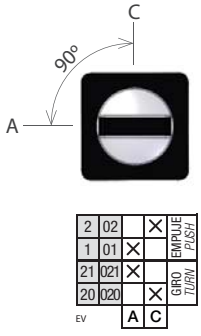


ES Push and turn with spring return



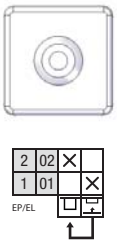
ES push-turn discrepancy control switches have two fixed positions for pre-selection contacts at 90º and two additional push-turn impulse positions with 30º spring return.

EV Turn to push



EV switches have two fixed positions at 90º with turn contacts and discrepancy contacts, and two vertical push positions for maintained contacts

EP Pushbutton control
EL Light pushbutton control



EP and EL pushbuttons have two control positions, a projected position and a push maintained position.

Monocolor standard types*

Control and/or signalling

References	Num. of cells			Voltage	Rating
	Control	Signal	Total		
AMS112000	1	1	2	24-240VAC / 24-150VDC	25 A
AMS122000	1	2	3	24-240VAC / 24-150VDC	25 A
AMS012000	0	1	1	24-240VAC / 24-150VDC	25 A
AMS022000	0	2	2	24-240VAC / 24-150VDC	25 A

See accessories to add front plate reference

Push and turn with spring return

References	Num. of cells			Voltage	Rating
	Control	Signal	Total		
AES112000	1	1	2	24-240VAC / 24-150VDC	25 A
AES122000	1	2	3	24-240VAC / 24-150VDC	25 A

See accessories to add front plate reference

Turn to push

References	Num. of cells			Voltage	Rating
	Control	Signal	Total		
AEV112000	1	1	2	24-240VAC / 24-150VDC	25 A
AEV212000	2	1	3	24-240VAC / 24-150VDC	25 A

See accessories to add front plate reference

Pushbutton control

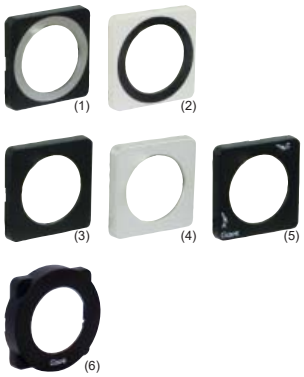
References	Contacts		Cells	Colour	Voltage	Rating
	N. O.	N. C.				
AEP112010	1	1	1	Red	--	25 A
AEP222010	2	2	2	Red	--	25 A

Light pushbutton control

References	Contacts		Cells	Colour	Voltage	Rating
	N. O.	N. C.				
AEL102010	1	1	1	Red	24-240VAC / 24-150VDC	25 A
AEL202010	2	2	2	Red	24-240VAC / 24-150VDC	25 A

*220VDC versions also available on request

Accessories



Front plates

References	Description
AP326904-	Black front plate with silver circle (picture 1)
AP327906-	Grey front plate with black circle (picture 2)
AP325904-	Square black front plate (picture 3)
AP325906-	Square front plate silver (picture 4)
AP3289040	Black front plate with inscription (picture 5)
AP341904-	Square round front plate (picture 6)

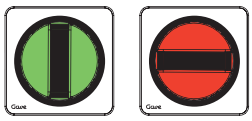
Handles

References	Description
AK1020050	White signalling handle size 0
AK1020020	Red signalling handle size 0
AK1030050	Transparent white pushbutton
AK1030020	Transparent red pushbutton
AK1030030	Transparent blue pushbutton
AK1030060	Transparent green pushbutton
AK1030070	Transparent yellow pushbutton
AK1040040	Dark black pushbutton

Bicolor discrepancy switches

Special color combination

Electronic circuits have been designed using RGB LED technology that provides maximum flexibility and offers a large spectrum of colours. Leds use water clear lens and the chip stands 6kV ESD. Using position sensors we can define different colors based on the knob location. Position can be established on 45º steps. Other customised options such as flashing leds are also available.



«Multicolor RGB LEDs open a new field on switch control and signalling applications»

RGB (red, green, blue) Leds are able to mix and therefore offer a complete spectrum of colours. A large scope of control and signalling applications can take advantage of this new product range that will be able to observe color coding as per IEC 60204-1 (Table 2) indications

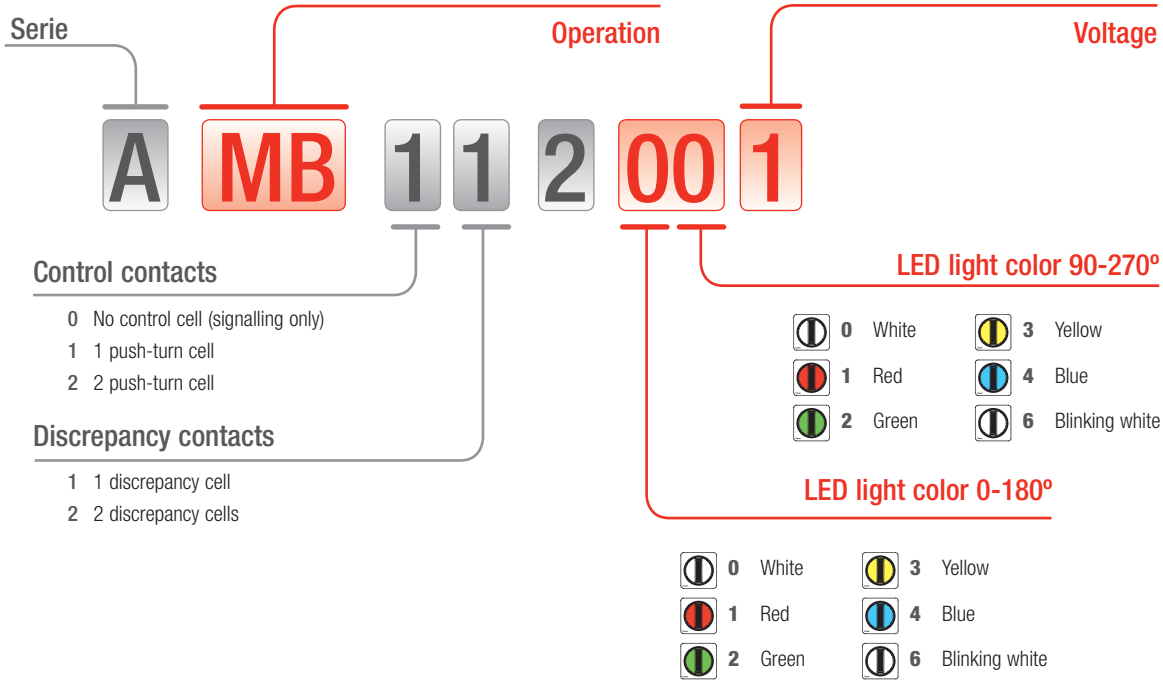
Standard range operates using a position logic. Embedded position sensors on the electronic boards are used to provide information about the knob location and light on Leds with the appropriate color corresponding to that position.

Special production series using signal logic are also available on demand. On these application led color does change based on the opening/closing of switch signalling contacts and alert when there is a discrepancy between the control and signalling contacts.

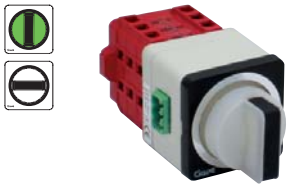
References

MB Control and/or signalling **bicolor**
EB Push and turn with spring return **bicolor**
GB Turn to push **bicolor**

1 110 VDC
2 220 VDC
3 24 VDC
4 48 VDC
5 125 VDC



Bicolor standard types



Bicolor control and/or signalling

References	Num. of cells			Colors	Voltage	Rating
	Control	Signal	Total			
AMB112201	1	1	2	Green/white	110VDC	25 A
AMB122201	1	2	3	Green/white	110VDC	25 A
AMB012201	0	1	1	Green/white	110VDC	25 A
AMB022201	0	2	2	Green/white	110VDC	25 A

See accessories (page 87) to add front plate reference

Bicolor push and turn with spring return

References	Num. of cells			Colors	Voltage	Rating
	Control	Signal	Total			
AEB112211	1	1	2	Green/red	110VDC	25 A
AEB122211	1	2	3	Green/red	110VDC	25 A

See accessories (page 87) to add front plate reference

Turn to push bicolor

References	Num. of cells			Colors	Voltage	Rating
	Control	Signal	Total			
AGB112211	1	1	2	Green/red	110VDC	25 A
AGB122211	1	2	3	Green/red	110VDC	25 A

See accessories (page 87) to add front plate reference

Tricolor discrepancy switches

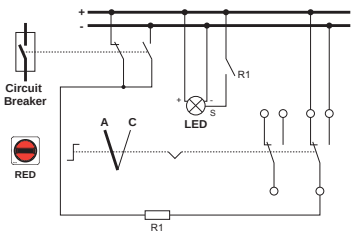
See how it works!

Control and signalling tricolor switches are characterised by using a combined position/signal logic. The PCB incorporates three connection terminals of which two are dedicated to power supply and one is the input signal that will operate in the event of discrepancy.

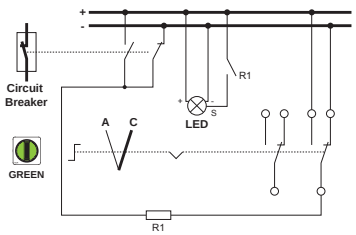
When discrepancy signal is present the switch will pass from the position color to a different distinctive color indicating discrepancy status. Tricolor switches power supply is single voltage and therefore we must indicate it in the ordering reference.

«The integration of three signal colors in a single unit transforms new projects designs by enlarging layout possibilities»

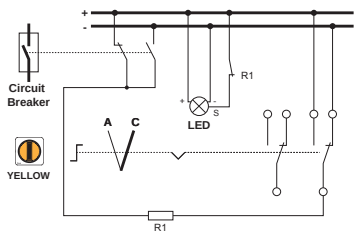
Discrepancy example diagram



Signal OK
Circuit breaker and control/signal contacts are open. The knob color is red.

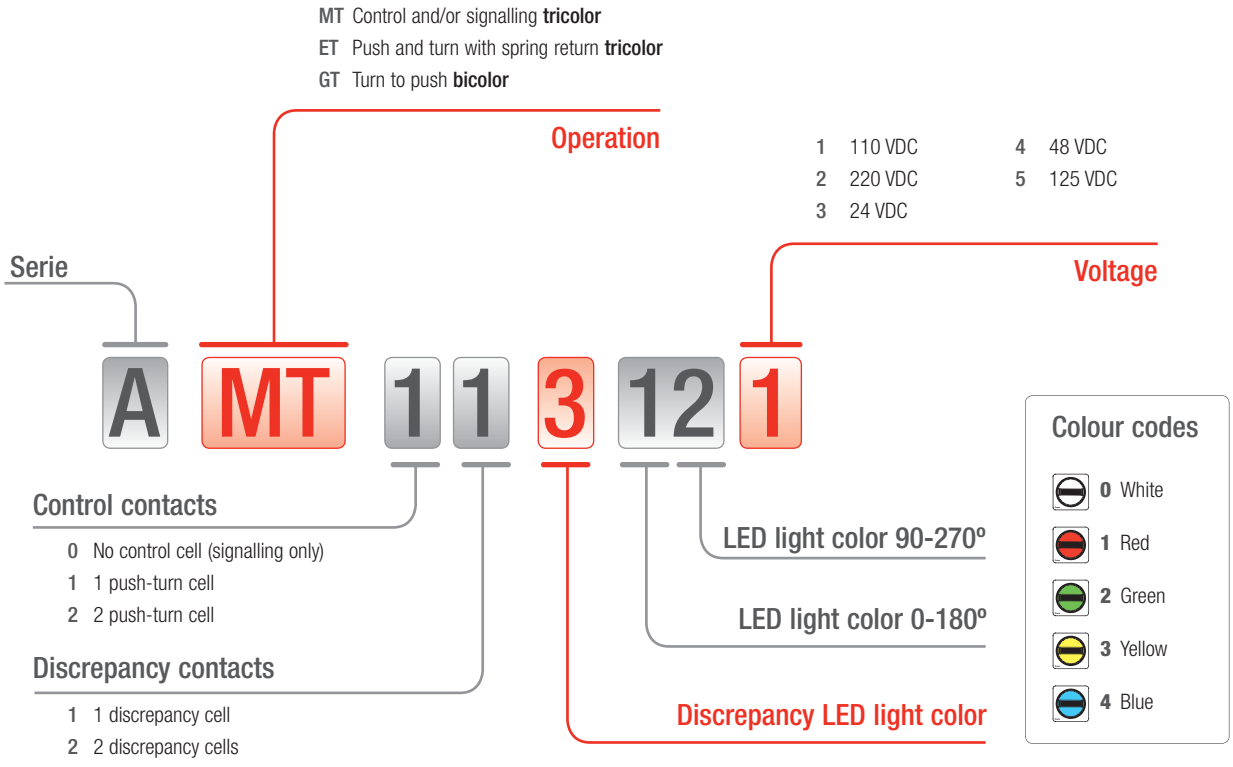


Signal OK
Circuit breaker and control/signal contacts are closed. The knob color is green.



Discrepancy signal
Circuit breaker is open and contact/signal contacts are closed. The knob color is yellow indicating discrepancy.

References



Tricolor standard types

Control and/or signalling tricolor

References	Num. of cells			Colors	Voltage	Rating
	Control	Signal	Total			
AMT113211	1	1	2	Yellow/green/red	110VDC	25 A
AMT123211	1	2	3	Yellow/green/red	110VDC	25 A

See accessories (page 87) to add front plate reference

Push and turn with spring return tricolor

References	Num. of cells			Colors	Voltage	Rating
	Control	Signal	Total			
AET113211	1	1	2	Yellow/green/red	110VDC	25 A
AET123211	1	2	3	Yellow/green/red	110VDC	25 A

See accessories (page 87) to add front plate reference

Turn to push tricolor

References	Num. of cells			Colors	Voltage	Rating
	Control	Signal	Total			
AGT113211	1	1	2	Yellow/green/red	110VDC	25 A
AGT123211	1	2	3	Yellow/green/red	110VDC	25 A

See accessories (page 87) to add front plate reference