

Industrial Automation Guide 2016



Industrial Products & Systems

industrial.omron.eu

Targeted Technologies

Creating maximum output with minimum input

By identifying the many ways of innovation in specific industries we developed the 'targeted technologies' concept. It's a way of thinking about technology in a prioritized format. Prioritized according to our customers' most pressing needs. The result? A set of solutions that make immediate impact on the core of our customers' businesses. A set of solutions that hit the target every time. Take a look at the examples on our website.

industrial.omron.eu/technologies



PROplus Line

If you have a complex application or one where you need to address special needs, then the PROplus Line is the answer. That's because PROplus products are designed to be customisable.

The possibility to modify a PROplus product means that your application is unique. However, this does not mean that the PROplus Line is not a ready-made solution. On the contrary, it is a challenge.

For example, the PROplus 4000 series is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the PROplus 4000 series a challenge.

EE-NH temperature controller

The new EE-NH series is the most powerful and precise temperature controller. It features a 16-bit ADC and a 16-bit DAC. It has a 16-bit resolution and a 16-bit range. It is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the EE-NH series a challenge.

The 361° Approach



OMRON

Industrial Automation Europe

Omron IAB partner

Search

Products > Technologies

Technologies

Creating maximum output with minimum input

Whatever type of automated machinery you are specialized in, you know that there are many ways to innovate. You are already aware that there are many possible areas for improvement. But where do you start? Where do you focus your efforts? Where can you make the biggest difference with the least amount of effort?

At Omron, we asked ourselves these questions too. And by identifying the answers in specific industries we developed the 'targeted technologies' concept. It's a way of thinking about technology in a prioritized format. Prioritized according to our customers' most pressing needs. The result? A set of solutions that make immediate impact on the core of our customers' businesses. A set of solutions that hit the target every time. Take a look at the examples below.

Technologies

Sysmac: the all-in-one platform

We know that machine builders prefer different product solutions for different challenges. But this can cause hierarchy headaches and communications issues. That's why we developed Sysmac: a single unified platform that is open, scalable, flexible, and totally focused on maximising the speed and flexibility of machines. A platform that integrates robotic, motion and sequential logic control into a single multitasking system.

[Learn more](#)



361°: the perfect match

When it comes to sensors and components, we know that our customers all have different needs. That's why our product development in this area is driven by the 361° Approach. It produces product families that offer a total all-round choice. From quality products suited to standard environments to specialist devices that can handle extremes. A full circle of choice, all with an extra degree of quality and proven reliability.

[Learn more](#)



The 361° portfolio

PROplus
PROplus products are designed for specific applications or customer demands.

[Learn more](#)



LITE

LITE sensors are the effective solution for many applications in quality control.

[Learn more](#)



PRO

PRO sensors offer the best performance in your sensors and components. The Omron PRO Line is your perfect choice.

[Learn more](#)



Product groups

Sysmac controller

The Sysmac controller is the most powerful and precise temperature controller. It features a 16-bit ADC and a 16-bit DAC. It has a 16-bit resolution and a 16-bit range. It is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the Sysmac controller a challenge.

Sensors

Sensors are the most powerful and precise temperature controller. It features a 16-bit ADC and a 16-bit DAC. It has a 16-bit resolution and a 16-bit range. It is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the Sensors a challenge.

Relays

Relays are the most powerful and precise temperature controller. It features a 16-bit ADC and a 16-bit DAC. It has a 16-bit resolution and a 16-bit range. It is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the Relays a challenge.

Switches

Switches are the most powerful and precise temperature controller. It features a 16-bit ADC and a 16-bit DAC. It has a 16-bit resolution and a 16-bit range. It is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the Switches a challenge.

Connectors

Connectors are the most powerful and precise temperature controller. It features a 16-bit ADC and a 16-bit DAC. It has a 16-bit resolution and a 16-bit range. It is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the Connectors a challenge.

Related product news



With new G2B sensors, you only pay for what you need. Optimizing relative placement sensors in the new G2B range have been specifically designed to offer a cost-effective sensing solution in standard industrial conditions, making it unnecessary to buy more sensors than you actually need.

[Learn more](#)

Related product news



ES16 - Omron's new photo sensors combine simplicity with performance. Drawing on our experience of manufacturing over a million photoelectric sensors a year, we have developed a new generation of photoelectric products that combine simple selection, installation with reliability, versatility, rugged construction and value for money.

[Learn more](#)

Related product news



AS Safety Control: New step towards the full integration of Automation. The AS Safety Control is a new step towards the full integration of Automation. It is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the AS Safety Control a challenge.



ES16 (IO) for Machine Control. The ES16 (IO) for Machine Control is a new step towards the full integration of Automation. It is designed to be modified to meet your needs. It can be modified to meet your needs in terms of I/O, communication, and more. This makes the ES16 (IO) for Machine Control a challenge.

Welcome to our world

Our best-in-class devices for your automation system

Welcome to Omron's world of advanced industrial automation. The INDUSTRIAL AUTOMATION GUIDE is your essential tool to select best-in-class devices for your automation system. It highlights our core competences in sensing, control, visualisation, motion and panel components.

Of course, Omron offers a much larger range of products than you can find on the attached DVD. For more information on services and company competence visit our website.

Here you will find:

- Latest product news
- Technical product specifications
- 2D / 3D CAD Library
- Customer references
- Technology concepts
- Supporting product documentation
- Knowledge Base - "myOmron"
- Events Calendar
- Contact information

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Industrial Automation Guide 2016

	Omron at a glance	3
	The 361° Approach	4
	Sysmac: A fully integrated platform	6
	Product selection table	8
Automation systems	Machine automation controller	12
	Programmable logic controllers (PLC)	26
	Remote I/O	54
	Human machine interfaces (HMI)	68
	I/O cables and terminal blocks	82
	Ethernet cables and accessories	91
Motion & Drives	Motion controllers	96
	Servo systems	112
	Robots	170
	Frequency inverters	202
Sensing	Photoelectric sensors	236
	Mark and Color sensors	278
	Lightcurtains and area sensors	284
	Fiber optic sensors and amplifiers	292
	Inductive sensors	324
	Mechanical sensors/Limit switches	344
	Rotary encoders	358
	Cable connectors	366
Quality control & Inspection	Inspection & Ident systems	370
	Measurement sensors	426
Safety	Emergency stop and control devices	462
	Safety limit switches	472
	Safety door switches	480
	Safety sensors	506
	Safety logic control systems	544
	Safety outputs	566
Control components	Temperature controllers	574
	Power supplies	596
	Uninterruptible power supplies (UPS)	614
	Timers	622
	Counters	632
	Programmable relays	642
	Digital panel indicators	650
	Energy monitoring devices	660
	Photovoltaic	674
Switching components	Electromechanical relays	682
	Solid state relays	696
	Low voltage switchgear	706
	Monitoring products	722
	Pushbutton switches	750
Software	Software	766
	Outline of Major Standards	772
	Index	775

“To the machine the work of the machine,
to man the thrill of further creation.”

Kazuma Tateisi, founder of Omron

Omron at a glance

200.000 products ranging
input, logic and output

Sensing, Control Systems, Visualization, Drives, Robots, Safety,
Quality Control & Inspection, Control and Switching Components

7%

Investment in Research & Development

Innovation track
record of 80 years

Top 150 global patent assignee

1.200 employees dedicated to R&D

11.000 + issued and pending patents

37.000

Employees worldwide

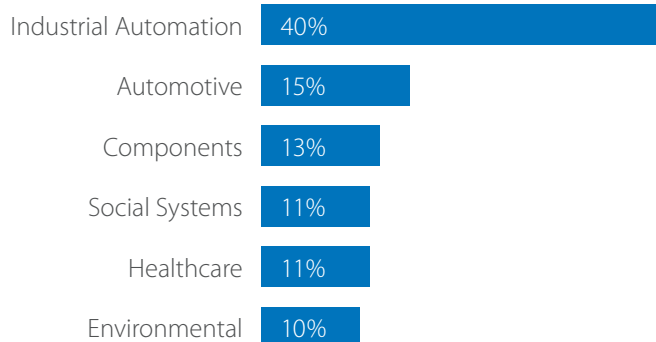
210

Locations worldwide

22

Countries in EMEA

Working for the
benefit of society



Close to your needs

Technical training & seminars, technical support, Automation Technology Centers, online community (MyOmron), online catalogues and technical documentation, customer service & sales support, inter-operability labs (Tsunagi), safety services, repairs.

Your needs, our focus

Solutions perfectly matching your needs

We asked ourselves: 'What do you need in sensors and components?' Well, first you need reliability. Then a variety and choice of performance levels. You may also want advanced functionality, with special features defined by you – or you may want standardized solutions, with highly competitive prices.

Whatever it is, it can all add up to a wish list that is difficult to fulfil. Until now. That's because our new 361° Approach not only provides a complete all-round offer without gaps, it also puts you at the very centre of the product selection process. It's an approach that leads to a Perfect Match – one with the extra degree of confidence that comes from choosing Omron.

361° in one view



Quality



Line-up



Application



Customization



Global availability



Specs

	Quality	Line-up	Application	Customization	Global availability	Specs
PRO^{plus}	Premium	Tailored	Special	Yes	Yes	Application oriented
PRO	Premium	Complete	Advanced	Yes	Yes	Above Standard
LITE	Premium	Standard	Basic	No	No	Basic
	'Quality' refers to the standard of manufacturing and the materials used – this translates into reliability	'Line-up' refers to the number of model types	'Application' indicates the complexity of the automation	'Customization' is the possibility to modify the product		'Specs' refers to the choice of performance levels

The extra degree of advantage

Three distinct lines of sensors and components

Three distinct lines

361° Approach offers three distinct lines within each sensor or component product category. LITE products are cost-effective without any compromise in quality. PRO products represent the “install & forget” option, offering longer lifetime, higher protection, and more features. While PROplus products are designed for specific applications or customer demands.

Optimized reliability

All three lines are backed by the Omron commitment to quality, so even when you need a price-competitive advantage, you can be confident that they will never let you down.

Solutions that perfectly match your needs

The 361° Approach ensures that you can quickly and easily identify the perfect match solution to your needs – nothing more, nothing less.

Optimized costs

Your sensor and component costs are also minimized – because it eliminates over-specification.

Why an extra 1°?

The extra degree is what you get when you do business with Omron, and that means different things to different customers – all depending on their needs. For example, if you need specification advice, the extra degree is ‘service’. But ultimately, to everyone it means “an extra degree of confidence in the perfect match”.



Sysmac: A fully integrated platform

Integration and Functionality

Sysmac is an integrated automation platform dedicated to providing complete control and management of your automation plant. At the core of this platform, the Machine Controller series offers synchronous control of all machine devices and advanced functionality such as motion, robotics and database connectivity. This multidisciplinary concept allows you to simplify solution architecture, reduce programming and optimize productivity.



Machine Automation Controller

FACTORY
AUTOMATION

MACHINE
CONTROL

Motion



Filling line

- Motion Control: Integrated within the IDE, and operating in real-time
- Standard PLCopen Function Blocks plus Omron generated motion FB's
- Direct Synchronous control for Position, Speed and Torque

Safety



Assembly

- All safety related data is synchronized with the whole network
- Safety functions such as muting, guard locking, EDM and valve monitoring are simple to manage

- ✓ **One Integrated Development Environment software** for Configuration, Programming, Simulation and Monitoring



Information



Pills blister packing

- Sysmac communicates in real-time with Databases such as SQL
- Secure Data: In the event of a server going down or losing communications, data is automatically stored in internal memory
- Sysmac operates with Databases at high speed [1000 table element/ 100 ms] ensuring realistic Big Data Processing to improve productivity and aid predictive maintenance etc.

✓ Integrated Automation Control:

The Sysmac platform is scalable and provides the performance and functionality for a wide range of solutions from simple machines through to manufacturing cells

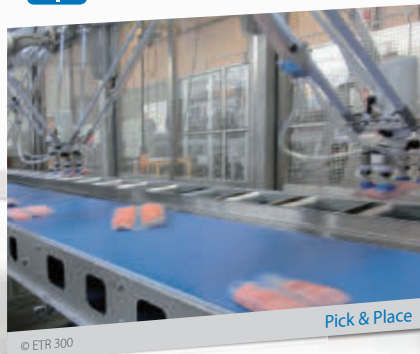
Vision



Quality inspection

- Higher resolution images available without increasing the vision processing time
- Shape search technology: Provides more stable and accurate object detection for Pick & Place projects

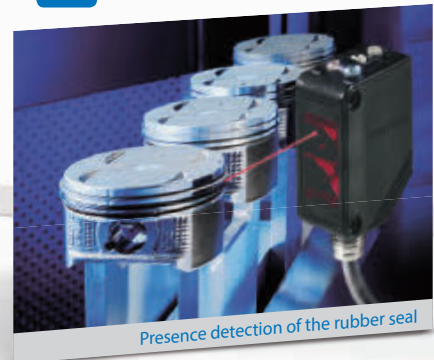
Robotics



Pick & Place

- Up to 8 Delta robots with one controller
- Time-based Robotic Function Blocks make programming easier

Sensing



Presence detection of the rubber seal

- Full control of the process parameter setting and predictive maintenance functions
- High precision detection and positioning data synchronized on the network

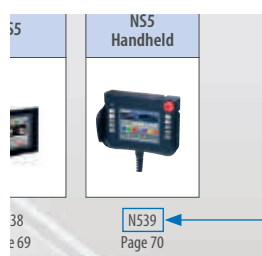
Product selection table

Automation systems				
	12 Machine automation controller	26 Programmable logic controllers (PLC)	54 Remote I/O	68 Human machine interfaces (HMI)
				
	96 Motion controllers	112 Servo systems	170 Robots	202 Frequency inverters
Sensing				
	236 Photoelectric sensors	278 Mark and Color sensors	284 Lightcurtains and area sensors	292 Fiber optic sensors and amplifiers
				
	370 Inspection & Ident systems	426 Measurement sensors		
Safety				
	462 Emergency stop and control devices	472 Safety limit switches	480 Safety door switches	506 Safety sensors
				
	574 Temperature controllers	596 Power supplies	614 Uninterruptible power supplies (UPS)	622 Timers
Switching components				
	682 Electromechanical relays	696 Solid state relays	706 Low voltage switchgear	722 Monitoring products
				
	766 Software			
Software				

Switching components

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Quick Link

Switching components

Electromechanical relays	682	Monitoring products	722
Selection table	684	Selection table	726
Industrial plug-in relays		1-phase control	
G2RV	687	K8AK-AS	729
G2R-_-S	689	K8AK-AW	730
MY	691	K8AK-VS	731
LY	693	K8AK-VW	732
MKS	694	3-phase control	
MKS(X)	683	K8AK-PH	733
Industrial high power relays		K8DS-PH	734
G7J	695	K8AK-PM	735
G7L	683	K8DS-PM	736
G7Z	683	K8AK-PA	737
Solid state relays	696	K8DS-PA	738
Selection table	698	K8DS-PZ	739
Panel mounted		K8DS-PU	740
G3RV	700	K8AK-PW	741
G3R-I/-O	701	Level Control	
G3NA	702	61F-GP-N8	742
G3PA	704	61F-GPN-BT/-BC	744
G3PE	705	K8AK-LS	745
G3PH	696	K7L	747
G3PF	696	Temperature monitor	
G3PW	697	K8AK-TS/-PT	748
G3ZA	697	K8AK-TH	749
Low voltage switchgear	706	Pushbutton switches	750
Selection table	708	Selection table	752
Mini contactor relays		Pushbutton switches	
J7KNA-AR	713	A16	753
Mini motor contactors		A22N	755
J7KNA	714	Key-type selector switches	
Motor contactors		A22NK	757
J7KN	715	Knob-type selector switches	
Thermal overload relays		A22NS/NW	759
J7TKN	717	Indicators	
Motor protection circuit breakers		M16	762
J7MN	719	M22N	763

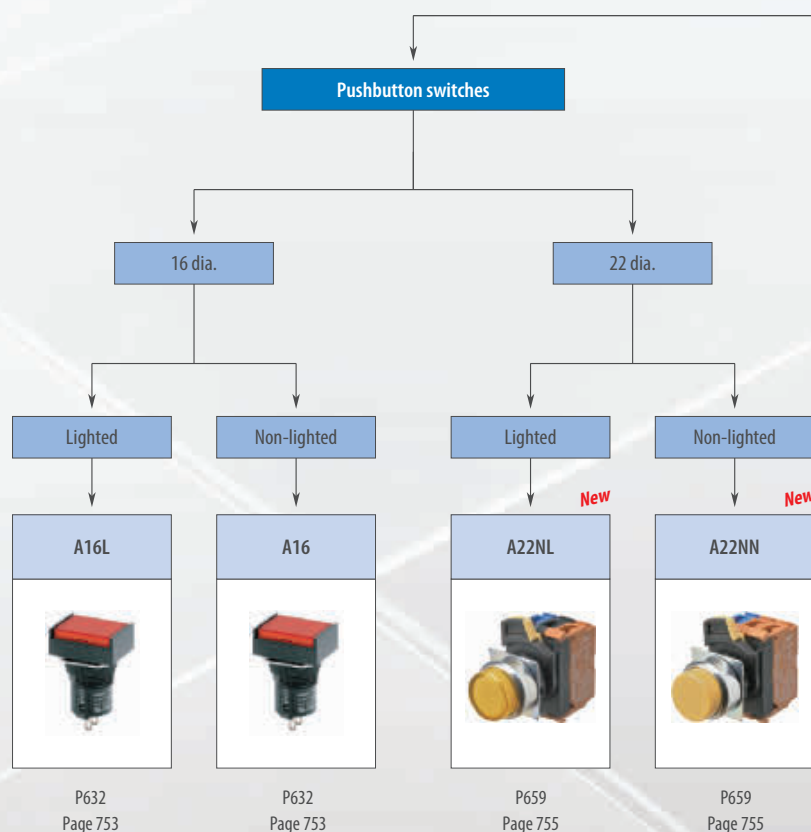
Pushbutton switches

FULL RANGE OF 16 AND 22 MM ASSEMBLED AND SUB-ASSEMBLED PUSHBUTTON SWITCHES AND INDICATORS

A22N pushbuttons with round plastic, brushed metal or metal bezels

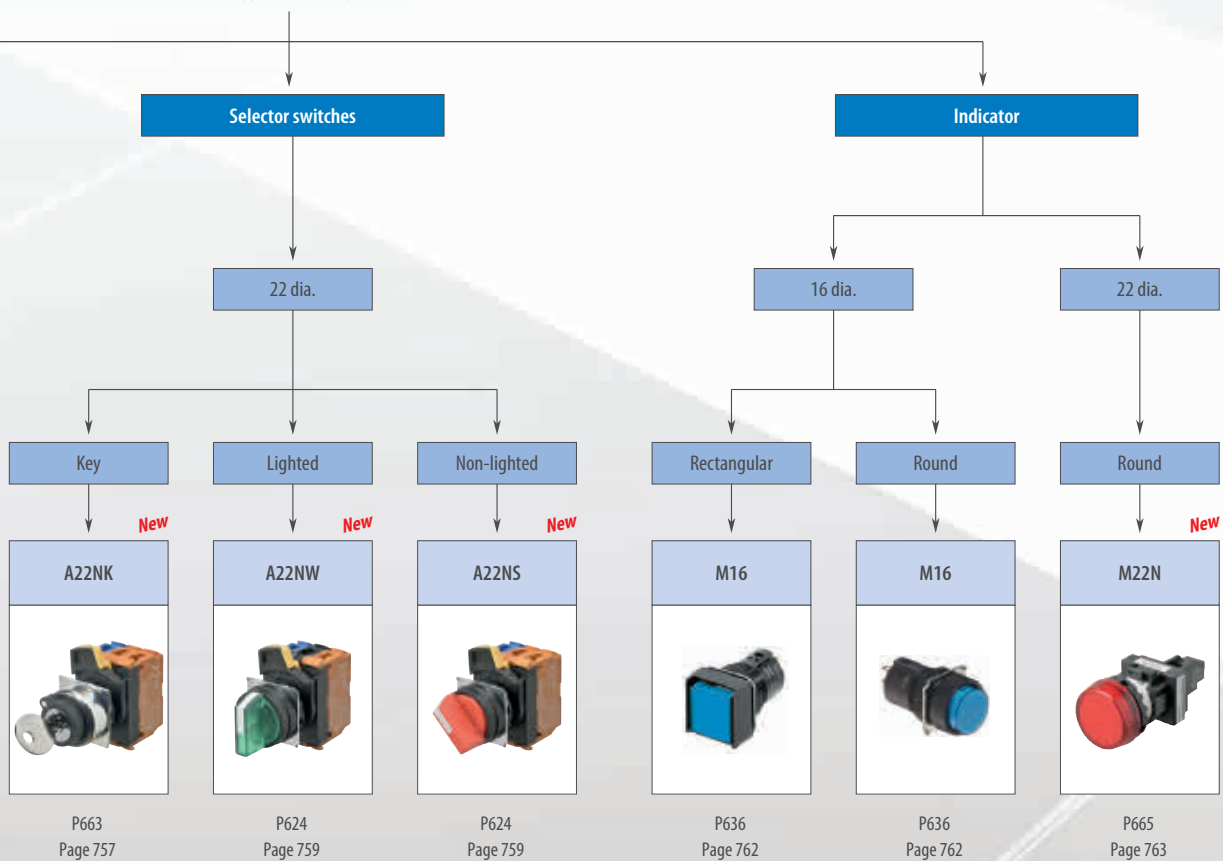
Complete line of 22 mm pushbuttons, selectors, keyed selectors and indicator lights. These reliable switches are offered in a wide range of shapes and colors

- Aesthetic design
- Reduced mounting depth
- Quick, easy and tool-free assembly





Which application is required?



Category		Pushbutton switch		Indicator	
					
Model		A16	A22N	M16	M22N
Selection criteria	Mounting	Nut-mounting			
	Size	16 mm	22 mm	16 mm	22 mm
	Shape				
Pushbutton color	Incandescent lamp-lighted	Red	■	—	—
		Yellow	■	—	—
		Green	■	—	—
		White	■	—	—
		Blue	■	—	—
	LED-lighted	Red	■	■	■
		Yellow	■	■	■
		Green	■	■	■
		White	■	■	■
		Blue	■	■	■
	Non-lighted	Red	■	—	—
		Yellow	■	—	—
		Green	■	—	—
		White	■	—	—
		Blue	■	—	—
		Black	■	—	—
Features	Momentary operation	■	■	—	—
	Self-holding	■	■	—	—
	Number of contacts	2	6	—	—
	IP rating	IP40, IP65	IP66	IP40, IP65	IP66
	Legend plate	■	■	■	■
Switch ratings [A]	125 VAC	5	10	—	—
	250 VAC	3	6	—	—
	30 VDC	3	10	—	—
	Rated resistive load	5 A at 125 VAC, 3 A at 250 VAC, 3 A at 30 VDC	10 A at 120 VAC 6 A at 240 VAC	—	—
Terminals	Solder	■	—	■	—
	PCB	—	—	■	—
	Screw-less Clamp	—	—	■	—
Operating voltage	5 VDC	■	■	■	■
	12 VDC	■	■	■	■
	24 VDC	■	■	■	■
	120/240 VAC	—	■	—	■
Form	SPDT	■	—	—	—
	DPDT	■	—	—	—
	SPST-NO	—	■	—	—
	SPST-NC	—	■	—	—
	SPST-NO + SPST-NC	—	■	—	—
	DPST-NO	—	■	—	—
	DPST-NC	—	■	—	—
Page/Quick Link		753/P632	755/P659	762/P636	763/P665

■ Standard

□ Available

— No/not available



16 mm pushbutton switch

These sub-assembled pushbutton switches have a modular construction: pushbutton + case + lamp (if applicable) + switch. A16 is a nut-mounted pushbutton switch with a short mounting depth of less than 28.5 mm below panel.

- Wide variety of control and signal devices: lighted, non-lighted and buzzer
- Quick and easy assembly, snap-in switch
- Wide range of switching capacity from standard load to micro load
- High reliability, IP65
- UL, cUL, CSA and VDE approved, conforms to EN60947-5-1 and IEC947-5-1

Ordering information

Type	Color	Order code		
		Degree of protection: Oil-resistant IP65		
		Rectangular	Square	Round
Non-lighted LED Incandescent lamp	Red	A165L-JR	A165L-AR	A165L-TR
	Yellow	A165L-JY	A165L-AY	A165L-TY
	Pure yellow	A165L-JPY	A165L-APY	A165L-TPY
	White	A165L-JW	A165L-AW	A165L-TW
	Blue	A165L-JA	A165L-AA	A165L-TA
Non-lighted	Black	A165L-JB	A165L-AB	A165L-TB
LED	Green	A165L-JGY	A165L-AGY	A165L-TGY
Non-lighted/incandescent lamp	Green	A165L-JG	A165L-AG	A165L-TG

Cases

Appearance	Classification	Order code	
		Oil-resistant IP65	
	Momentary operation	Rectangular (2-way guard)	A165-CJM
		Square	A165-CAM
		Round	A165-CTM
	Alternate operation	Rectangular (2-way guard)	A165-CJA
		Square	A165-CAA
		Round	A165-CTA

Switches

Appearance	Classification				Order code
	Lighted/ non-lighted (common use)	Standard load/ microload (com- mon use)	SPDT	Solder terminal	A16-1
			DPDT		A16-2
			SPDT	PCB terminal	A16-1P
			DPDT		A16-2P
			DPDT	Screw- less clamp	A16-2S

Switches with reduced voltage lighting




Appearance	Classification				Order code
	100 V	Standard load/ microload (common use)	SPDT	Solder terminal	A16-T1-1
			DPDT		A16-T1-2
	100 V		DPDT	Screw-less clamp	A16-T1-2S
	200 V				A16-T2-2S

Lamps

Type	Color	Order code		
		5 VDC	12 VDC	24 VDC
LED	Red	A16-5DSR	A16-12DSR	A16-24DSR
	Yellow	A16-5DSY	A16-12DSY	A16-24DSY
	Green	A16-5DSG	A16-12DSG	A16-24DSG
	White ^{*1}	A16-5DSW	A16-12DSW	A16-24DSW
	Blue	A16-5DA	A16-12DA	A16-24DA
Type		5 VAC/VDC	12 VAC/VDC	24 VAC/VDC
Incandescent lamp		A16-5	A16-12	A16-24

^{*1} Use the white LED together with white or pure yellow pushbuttons.

Accessories

Name	Appearance	Classification	Remarks	Order code
Switch guards		For rectangular models	Cannot be used with the dust cover	A16ZJ-5050
		For square and round models		A16ZA-5050
Dust covers		For rectangular models	Cannot be used with the switch guard	A16ZJ-5060
		For square models		A16ZA-5060
		For round models		A16ZT-5060
Panel plugs		For rectangular models	Used for covering the panel cutouts for future panel expansion	A16ZJ-3003
		For square models		A16ZA-3003
		For round models		A16ZT-3003

Specifications

Allowable operating frequency	Mechanical	Momentary operation: 120 operations/minute max. Alternate operation: 60 operations/minute max.
	Electrical	20 operations/minute max.
Durability	Mechanical	Momentary operation: 2,000,000 operations min. Alternate operation: 200,000 operations min.
	Electrical	100,000 operations min.
Ambient temperature		Operating: -10 to 55°C (with no icing or condensation) Storage: -25 to 65°C (with no icing or condensation)
Weight		Approx. 10 g (in the case of a lighted DPDT switch with solder terminals)
Size in mm (H×W×D)		Round/square: 18×18×28.5 rectangular: 18×24×28.5

Operating characteristics	Pushbutton switch	
	Oil-resistant IP65	
	SPDT	DPDT
Operating force (OF) max.	2.94 N	4.91 N
Releasing force (RF) min.	0.29 N	
Total travel (TT)	Approx. 3 mm	
Pretravel (PT) max.	2.5 mm	
Lock stroke (LTA) min.	0.5 mm	

Item		Screw-less clamp			
Recommended wire size		0.5 mm ² twisted wire or 0.8 mm dia. solid wire			
Usable wires and tensile strength	Twisted wire	0.3 mm ²	0.5 mm ²	0.75 mm ²	1.25 mm ²
	Solid wire	0.5 mm dia.	0.8 mm dia.	1.0 mm dia.	
	Tensile strength	10 N	20 N	30 N	40 N
Length of exposed wire		10 ± 1 mm			



22-mm Pushbutton switches with universal design

- Round pushbutton switches available with a choice of plastic, brushed metal and metal bezels for both lighted and non-lighted options. Emphasis on color coding, workability and design.
- Variety of bezel and color options with aesthetic design
 - Mounting depth less than 46.8 mm below panel
 - Up to 6 contact blocks (3 contact blocks across and 2 rows deep)
 - Symmetrical contact block
 - Snap-in switch unit for quick and easy mounting
 - RoHS compliant

Ordering information

Lighted/ Non-Lighted	Bezel material	Top shape	Contacts group 102*1	LED	Color	Order code	
						Operational mode	
						Momentary	Alternate
Lighted	Plastic	Full guard	1NO 1NC	24V	Green	A22NL-BGM-TGA-G102-GC	A22NL-BGA-TGA-G102-GC
		Flat	1NO 1NC	200-240 VAC	Red	A22NL-BNM-TRA-G102-RE	A22NL-BNA-TRA-G102-RE
	Metal	Flat	1NO 1NC	24V	Green	A22NL-RNM-TGA-G102-GC	A22NL-RNA-TGA-G102-GC
		Projected	1NO 1NC	200-240 VAC	Red	A22NL-RPM-TRA-G102-RE	A22NL-RPA-TRA-G102-RE
	Brushed metal	Full guard	1NO 1NC	24V	Green	A22NL-MGM-TGA-G102-GC	A22NL-MGA-TGA-G102-GC
		Projected	1NO 1NC	200-240 VAC	Red	A22NL-MPM-TRA-G102-RE	A22NL-MPA-TRA-G102-RE
Non-lighted	Plastic	Flat	1NO 1NC	–	Red	A22NN-BNM-NRA-G102-NN	A22NN-BNA-NRA-G102-NN
		Projected	1NO 1NC	–	Black	A22NN-BPM-NBA-G102-NN	A22NN-BPA-NBA-G102-NN
	Metal	Flat	1NO 1NC	–	Green	A22NN-RNM-NGA-G102-NN	A22NN-RNA-NGA-G102-NN
		Projected	1NO 1NC	–	Red	A22NN-RPM-NRA-G102-NN	A22NN-RPA-NRA-G102-NN
	Brushed metal	Flat	1NO 1NC	–	White	A22NN-MNM-NWA-G102-NN	A22NN-MNA-NWA-G102-NN
		Projected	1NO 1NC	–	Yellow	A22NN-MPM-NYA-G102-NN	A22NN-MPN-NYA-G102-NN

*1 Contacts

Code	Contact blocks		Unit position					
			Non-lighted			Lighted		
	NO	NC	(1)	(2)	(3)	(1)	(2)	(3)
100	1	0	NO	–	–	NO	Lighting Unit	–
002	0	1	–	–	NC	–	Lighting Unit	NC
101	2	0	NO	–	NO	NO	Lighting Unit	NO
102	1	1	NO	–	NC	NO	Lighting Unit	NC
202	0	2	NC	–	NC	NC	Lighting Unit	NC

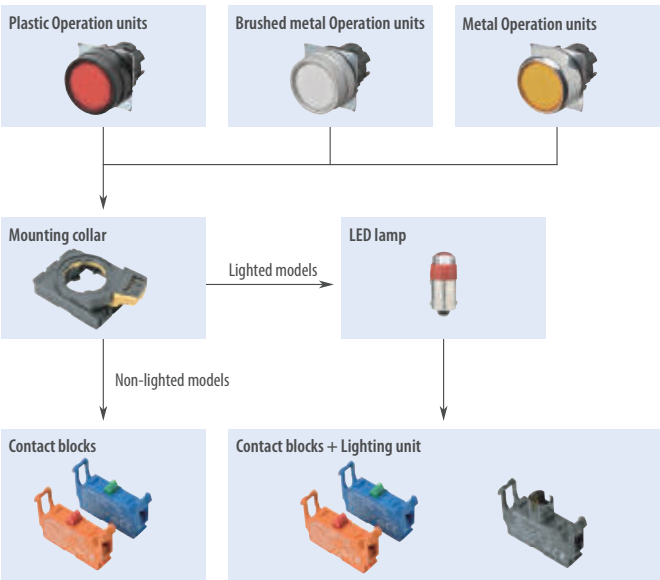
List of models

	Plastic bezels	Brushed Metal bezels	Metal bezels
Flat			
Projected			
Full guard			

Subassemblies

Switch structure

You can order Operation units, LED lamp, Mounting collars, and Contact blocks individually. Use them in combination for models that are not available as assembled switches. They can also be used as inventory for maintenance parts.



Reference for:	A22NL-BGM-TGA-G102-G Momentary	A22NL-BGA-TGA-G102-GC Alternate
Operational unit	A22NZ-BNM-TRA	A22NZ-BNA-TRA
Mounting collar	A22NZ-H-01	
Contact block SPST-NO	A22NZ-S-G1A	
Contact block SPST-NC	A22NZ-S-G1B	
Lighting unit 24 VAC/VDC	A22NZ-T-C	
LED lamp 24 VAC/DC	A22NZ-L-RC	







Operational units

Lighted/ Non-Lighted	Bezel material	Shape	Color	Order code	
				Momentary	Alternate
Lighted	Plastic	Full guard	Green	A22NZ-BGM-TGA	A22NZ-BGA-TGA
		Flat	Red	A22NZ-BNM-TRA	A22NZ-BNA-TRA
	Metal	Flat	Green	A22NZ-RNM-TGA	A22NZ-RNA-TGA
		Projected	Red	A22NZ-RPM-TRA	A22NZ-RPA-TRA
	Brushed metal	Projected	Yellow	A22NZ-MPM-TYA	A22NZ-MPA-TYA
		Full guard	Blue	A22NZ-MGM-TAA	A22NZ-MGA-TAA
Non-lighted	Plastic	Flat	Red	A22NZ-BNM-NRA	A22NZ-BNA-NRA
		Projected	Black	A22NZ-BPM-NBA	A22NZ-BPA-NBA
	Metal	Flat	Green	A22NZ-RNM-NGA	A22NZ-RNA-NGA
		Projected	Red	A22NZ-RPM-NRA	A22NZ-RPA-NRA
	Brushed metal	Flat	White	A22NZ-MNM-NWA	A22NZ-MNA-NWA
		Projected	Yellow	A22NZ-MPM-NYA	A22NZ-MPA-NYA


Mounting collar

Appearance	Order code
	A22NZ-H-01


Accessories (Order separately)

Item	Appearance	Description	Order code
Reinforce- ment plate		Used to insure robustness or when the second of third level of contact blocks are attached.	A22NZ-A-C01
Tightening wrench		Used to tighten mounting nuts from the back of the panel.	A22NZ-A-301
LED lamp ex- tractor		Made of rubber and used to easily remove and attach LED lamps.	A22NZ-A-302
Control Box		Used to install of one pushbutton.	A22NZ-A-B01Y


Contact blocks


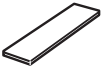
Appearance	Contacts	Order code
	SPST-NO (blue)	A22NZ-S-G1A
	SPST-NC (orange)	A22NZ-S-G1B

Lighting units

Appearance	Applied voltage	Order code
	24 VAC/DC	A22NZ-T-C
	100/110/120 VAC	A22NZ-T-D
	200/220/230/240 VAC	A22NZ-T-E

LED lamp

Appearance	Color	Order code		
		24 VAC/DC	100/110/120 VAC	200/220/230/ 240 VAC
	Red	A22NZ-L-RC	A22NZ-L-RD	A22NZ-L-RE
	Green	A22NZ-L-GC	A22NZ-L-GD	A22NZ-L-GE
	Yellow	A22NZ-L-YC	A22NZ-L-YD	A22NZ-L-YE
	White	A22NZ-L-WC	A22NZ-L-WD	A22NZ-L-WE
	Blue	A22NZ-L-AC	A22NZ-L-AD	A22NZ-L-AE
	Orange	A22NZ-L-OC	A22NZ-L-OD	A22NZ-L-OE

Item	Appearance	Description	Order code
Legend plate frame		Legend Plate with no text on black background included. For 22.3-mm panel hole diameter	A22NZ-A-50103
Legend plates		Without text	White A22Z-3443W Black A22Z-3443B Transparent A22Z-3443C
		White text on red background	"STOP" A22Z-3443R-4
		White text on black background	"START" A22Z-3443B-3

Specifications

Contacts (Standard load)

Rated insulation voltage		600 V				
Rated carry current		10 A				
Applied voltage		24 V	120 V	240 V	380 V	440 V
AC at 50/60 Hz	Resistive load (AC-12)	10 A	10 A	6 A	2 A	2 A
	Inductive load (AC-15)	10 A	6 A	3 A	1.9 A	1.6 A
DC	Resistive load (DC-12)	8 A	2.2 A	1.1 A	—	—
	Inductive load (DC-13)	4 A	1.1 A	0.55 A	—	—

Note 1. The above ratings were obtained by conducting tests under the following conditions.

- (1) Ambient temperature: $20 \pm 2^\circ\text{C}$
 - (2) Ambient humidity: $65\% \pm 5\% \text{ RH}$
 - (3) Operating frequency: 30 operations/minute
2. Minimum applicable load: 10 mA at 5 VDC.



22 mm dia., round plastic, brushed metal, and metal bezels for keyed selector switches

These reliable keyed switches are offered in a full range of 2 or 3 released positions with either manual or auto reset operations.

- Extra security available with keyed selector switches, only authorized key-holders can change settings
- 2- and 3-position switches with manual or automatic reset
- Mounting depth less than 46.8 mm behind panel
- Up to 6 contact blocks (3 contact blocks across and 2 rows deep)
- Symmetrical contact block
- Snap-in switch unit for quick and easy mounting
- RoHS compliant

Ordering information

Bezel material	Reset	Release position	Contacts group 102 ^{*1}	Order code	
				Operational mode (Positions)	
				2 positions	3 positions
Plastic	Manual	All	1NO 1NC	A22NK-2BM-01AA-G102	A22NK-3BM-01AA-G102
	Auto reset on left	Left	1NO 1NC	A22NK-2BL-01BA-G102	A22NK-3BL-01BA-G102
Metal	Manual	All	1NO 1NC	A22NK-2RM-01AA-G102	A22NK-3RM-01AA-G102
	Auto reset on left	Left	1NO 1NC	A22NK-2RL-01BA-G102	A22NK-3RL-01BA-G102
Brushed metal	Manual	All	1NO 1NC	A22NK-2MM-01AA-G102	A22NK-3MM-01AA-G102
	Auto reset on left	Left	1NO 1NC	A22NK-2ML-01BA-G102	A22NK-3ML-01BA-G102

^{*1} Contacts

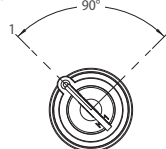
Code	Contact blocks		Unit position			Two positions	Three positions
	NO	NC	1	2	3		
100	1	0	NO	–	–	Yes	–
002	0	1	–	–	NC	Yes	–
101	2	0	NO	–	NO	Yes	Yes
102	1	1	NO	–	NC	Yes	Yes
201	1	1	NC	–	NO	–	Yes
202	0	2	NC	–	NC	Yes	Yes
110	2	0	NO	NO	–	–	Yes
111	3	0	NO	NO	NO	Yes	Yes
112	2	1	NO	NO	NC	Yes	Yes
210	1	1	NC	NO	–	–	Yes
211	2	1	NC	NO	NO	–	Yes

List of models

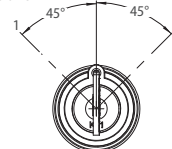
	Plastic bezels	Brushed metal bezels	Metal bezels
2 positions			
3 positions			

Operation angle

Two Positions



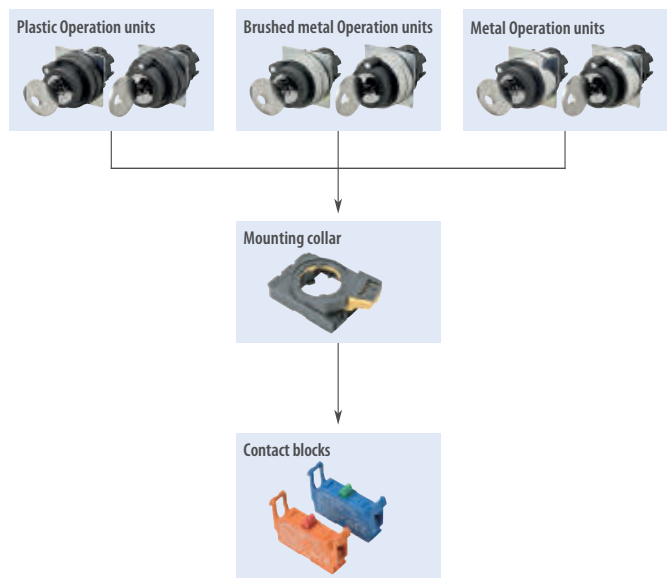
Three Positions



Subassemblies

Switch structure

You can order Operation Units, Mounting Collars, and Contact Blocks individually. Use them in combination for models that are not available as assembled Switches. They can also be used as inventory for maintenance parts



Reference for:	A22NK-2BM-01AA-G122 2 positions Manual	A22NK-2ML-01BA-G122 2 positions Auto reset on Left	A22NK-3RB-01DA-G122 3 positions Auto reset on L/R
Release position	All	Brushed metal	Metal
Operational unit	A22NZ-2BM-01AA	A22NZ-2ML-01BA	A22NZ-3RB-01DA
Mounting Collar	A22NZ-H-01		
Contact block SPST-NO	A22NZ-S-G1A		
Contact block SPST-NC × 2	A22NZ-S-G1B		




Operational units

Bezel material	Reset	Release position	Order code	
			Operational mode (Positions)	
			2 positions	3 positions
Plastic	Manual	All	A22NZ-2BM-01AA	A22NZ-3BM-01AA
	Auto reset on left	Left	A22NZ-2BL-01BA	A22NZ-3BL-01BA
Metal	Manual	All	A22NZ-2RM-01AA	A22NZ-3RM-01AA
	Auto reset on left	Left	A22NZ-2RL-01BA	A22NZ-3RL-01BA
Brushed metal	Manual	All	A22NZ-2MM-01AA	A22NZ-3MM-01AA
	Auto reset on left	Left	A22NZ-2ML-01BA	A22NZ-3ML-01BA





Mounting collar



Appearance	Order code
	A22NZ-H-01

Contact blocks

Appearance	Contacts	Order code
	SPST-NO (blue)	A22NZ-S-G1A
	SPST-NC (orange)	A22NZ-S-G1B

Accessories (Order separately)

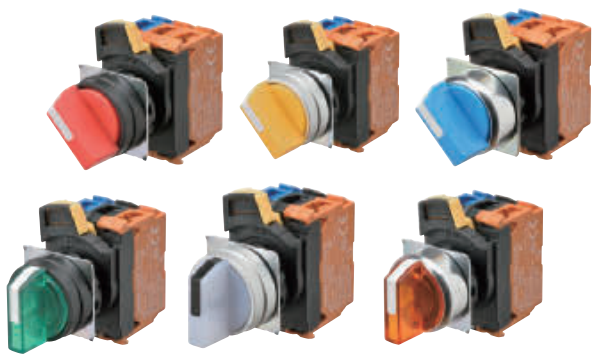
Item	Appearance	Description	Order code
Reinforce-ment plate		Used to insure robustness or when the second of third level of contact blocks are attached.	A22NZ-A-C01
Tightening wrench		Used to tighten mounting nuts from the back of the panel.	A22NZ-A-301
Key		Up to 6 different keys	A22NZ-K-01
Control Box		Used to install of one pushbutton.	A22NZ-A-B01Y

Item	Appearance	Description	Order code
Legend plate frame		Legend Plate with no text on black background included. For 22.3-mm panel hole diameter	A22NZ-A-50103
Legend plates		Without text	White A22Z-3443W
			Black A22Z-3443B
			Transparent A22Z-3443C
		White text on red background	"STOP" A22Z-3443R-4
		White text on black background	"START" A22Z-3443B-3

Specifications

Key-type selector switches

Item		Switches with 2 positions	Switches with 3 positions
Allowable operating frequency	Mechanical	30 operations/min max.	
	Electrical	30 operations/min max.	
Insulated resistance		100 MΩ min. (at 500 VDC)	
Insulated resistance		100 mΩ min. (initial value)	
Dielectric strength	Between terminals of same polarity	2,500 VAC at 50/60 Hz for 1 min	
	Between each terminal and ground	2,500 VAC at 50/60 Hz for 1 min	
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude (malfunction within 1 ms)	
Shock resistance	Malfunction	1,000 m/s ² max. (malfunction within 1 ms)	
Durability	Mechanical	500,000 operations min.	300,000 operations min.
	Electrical	500,000 operations min.	300,000 operations min.



Selector switches with universal design, with emphasis on color coding, workability and safety

Complete line of 22 mm selectors. These reliable switches are offered in a wide range of colors and bezel material.

- Knob style selector switches provide users with a reliable way to start or choose between machine operations
- 2- and 3-position switches with manual or automatic reset
- Mounting depth less than 46.8 mm behind panel
- Up to 6 contact blocks (3 contact blocks across and 2 rows deep)
- Symmetrical contact block
- Snap-in switch unit for quick and easy mounting
- RoHS compliant

Ordering information

Lighted/ Non-Lighted	Bezel material	Reset	Contacts group 102 ^{*1}	LED	Color	Order code	
						Operational mode (Positions)	
						2 positions	3 positions
Lighted	Plastic	Manual	1NO 1NC	24 VDC	Green	A22NW-2BM-TGA-G102-GC	A22NW-3BM-TGA-G102-GC
		Auto reset on Left	1NO 1NC	200 to 240 VAC	Red	A22NW-2BL-TRA-G102-RE	A22NW-3BL-TRA-G102-RE
	Metal	Manual	1NO 1NC	24 VDC	Green	A22NW-2RM-TGA-G102-GC	A22NW-3RM-TGA-G102-GC
		Auto reset on Left	1NO 1NC	200 to 240 VAC	Red	A22NW-2RL-TRA-G102-RE	A22NW-3RL-TRA-G102-RE
	Brushed metal	Manual	1NO 1NC	24 VDC	Green	A22NW-2MM-TGA-G102-GC	A22NW-3MM-TGA-G102-GC
		Auto reset on Left	1NO 1NC	200 to 240 VAC	Red	A22NW-2ML-TRA-G102-RC	A22NW-3ML-TRA-G102-RC
Non-lighted	Plastic	Manual	1NO 1NC	–	Green	A22NS-2BM-NGA-G102-NN	A22NS-3BM-NGA-G102-NN
		Auto reset on Left	1NO 1NC	–	Red	A22NS-2BL-NRA-G102-NN	A22NS-3BL-NRA-G102-NN
	Metal	Manual	1NO 1NC	–	Yellow	A22NS-3BL-NRA-G102-NN	A22NS-3RM-NYA-G102-NN
		Auto reset on L/R	1NO 1NC	–	Black	–	A22NS-3RB-NBA-G102-NN
	Brushed metal	Manual	1NO 1NC	–	Green	A22NS-2MM-NGA-G102-NN	A22NS-3MM-NGA-G102-NN
		Auto reset on L/R	1NO 1NC	–	Red	–	A22NS-3MB-NRA-G102-NN

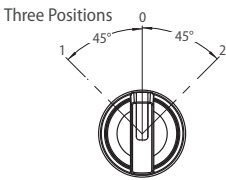
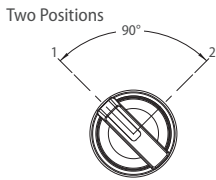
^{*1} Contacts

Code	Contact blocks		Non-lighted						Lighted					
			Unit position			No. of positions			Unit position			No. of positions		
	NO	NC	(1)	(2)	(3)	Two positions	Three positions		(1)	(2)	(3)	Two positions	Three positions	
100	1	0	NO	–	–	Yes	–	NO	Lighting unit	–	–	Yes	–	
002	0	1	–	–	NC	Yes	–	–	Lighting unit	NC	Yes	–	–	
101	2	0	NO	–	NO	Yes	Yes	NO	Lighting unit	NO	Yes	Yes	–	
102	1	1	NO	–	NC	Yes	Yes	NO	Lighting unit	NC	Yes	Yes	–	
201	1	1	NC	–	NO	–	Yes	NC	Lighting unit	NO	–	–	Yes	
202	0	2	NC	–	NC	Yes	Yes	NC	Lighting unit	NC	Yes	Yes	–	

List of models

	Plastic bezels	Brushed metal bezels	Metal bezels
2 positions			
3 positions			

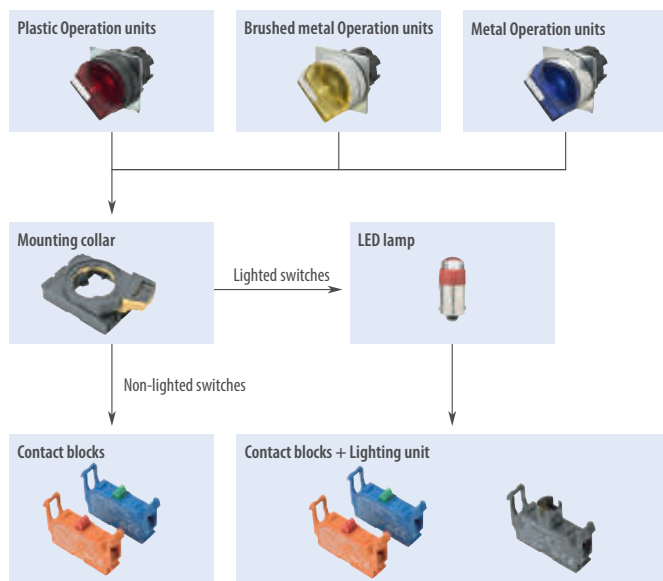
Operation angle



Subassemblies

Switch structure

You can order Operation units, LED lamp, Mounting collars, and Contact blocks individually. Use them in combination for models that are not available as assembled switches. They can also be used as inventory for maintenance parts.



Reference for:	A22NW-2BM-TGA-G102-GC 2 positions Manual	A22NW-3BB-TGA-G102-GC 3 positions Auto reset on L/R
Operational unit	A22NZ-2BM-TGA	A22NZ-3BB-TGA
Mounting collar	A22NZ-H-01	
Contact block SPST-NO	A22NZ-S-G1A	
Contact block SPST-NC	A22NZ-S-G1B	
Lighting unit 24 VAC/VDC	A22NZ-T-C	
LED lamp 24 VAC/DC	A22NZ-L-GC	



Operational units

Lighted/ Non-Lighted	Bezel material	Reset	Color	Order code	
				Operational mode (Positions)	
				2 positions	3 positions
Lighted	Plastic	Manual	Green	A22NZ-2BM-TGA	A22NZ-3BM-TGA
		Auto reset on Left	Red	A22NZ-2BL-TRA	A22NZ-3BL-TRA
	Metal	Manual	Green	A22NZ-2RM-TGA	A22NZ-3RM-TGA
		Auto reset on Left	Red	A22NZ-2RL-TRA	A22NZ-3RL-TRA
	Brushed metal	Manual	Green	A22NZ-2MM-TGA	A22NZ-3MM-TGA
		Auto reset on Left	Red	A22NZ-2ML-TRA	A22NZ-3ML-TRA
Non-lighted	Plastic	Manual	Green	A22NZ-2BM-NGA	A22NZ-3BM-NGA
		Auto reset on Left	Red	A22NZ-2BL-NRA	A22NZ-3BL-NRA
	Metal	Manual	Yellow	A22NZ-2RM-NYA	A22NZ-3RM-NYA
		Auto reset on L/R	Black	—	A22NZ-3RB-NBA
	Brushed metal	Manual	Green	A22NZ-2MM-NGA	A22NZ-3MM-NGA
		Auto reset on L/R	Red	—	A22NZ-3MB-NRA

Contact blocks

Appearance	Contacts	Order code
	SPST-NO (blue)	A22NZ-S-G1A
	SPST-NC (orange)	A22NZ-S-G1B

Lighting units

Appearance	Applied voltage	Order code
	24 VAC/DC	A22NZ-T-C
	100/110/120 VAC	A22NZ-T-D
	200/220/230/240 VAC	A22NZ-T-E

LED lamp

Appearance	Color	Order code		
		24 VAC/DC	100/110/120 VAC	200/220/230/240 VAC
	Red	A22NZ-L-RC	A22NZ-L-RD	A22NZ-L-RE
	Green	A22NZ-L-GC	A22NZ-L-GD	A22NZ-L-GE
	Yellow	A22NZ-L-YC	A22NZ-L-YD	A22NZ-L-YE
	White	A22NZ-L-WC	A22NZ-L-WD	A22NZ-L-WE
	Blue	A22NZ-L-AC	A22NZ-L-AD	A22NZ-L-AE
	Orange	A22NZ-L-OC	A22NZ-L-OD	A22NZ-L-OE

Mounting collar

Appearance	Order code
	A22NZ-H-01

Accessories (Order separately)

Item	Appearance	Description	Order code
Reinforce-ment plate		Used to insure robustness or when the second of third level of contact blocks are attached.	A22NZ-A-C01
Tightening wrench		Used to tighten mounting nuts from the back of the panel.	A22NZ-A-301
LED lamp ex-tractor		Made of rubber and used to easily re-move and attach LED lamps.	A22NZ-A-302
Control Box		Used to install of one pushbutton.	A22NZ-A-B01Y

Item	Appearance	Description	Order code
Legend plate frame		Legend Plate with no text on black background included. For 22.3-mm panel hole diameter	A22NZ-A-50103
Legend plates		Without text	White A22Z-3443W Black A22Z-3443B Transparent A22Z-3443C
		White text on red background	"STOP" A22Z-3443R-4
		White text on black background	"START" A22Z-3443B-3

Specifications

Selector switches			
Item		Non-lighted models	Lighted models
Allowable operating frequency	Mechanical	30 operations/min max.	
	Electrical	30 operations/min max.	
Insulated resistance		100 MΩ min. (at 500 VDC)	
Dielectric strength	Between terminals of same polarity	2,500 VAC at 50/60 Hz for 1 min	
	Between each terminal and ground	2,500 VAC at 50/60 Hz for 1 min	
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude (malfunction within 1 ms)	
Shock resistance	Malfunction	1,000 m/s ² max. (malfunction within 1 ms)	
Durability	Mechanical	500,000 operations min. (3 positions: 300,000 operations min.)	
	Electrical	500,000 operations min. (3 positions: 300,000 operations min.)	



Indicators with a mounting aperture of 16 mm

The M16 series of nut-mounted indicators comes in rectangular, square and round versions. Due to its modular construction, assembly is quick and easy. M16 comes in a wide variety of control and signal devices with a wide range of switching capacities, from general load to micro load.

- LED, incandescent and neon lamp
- Snap-in switch unit
- Short mounting depth, less than 28.5 mm below panel
- High reliability, IP65
- UL, CSA and VDE approved, conforms to EN60947-5-1

Ordering information

Pushbutton

Type	Display color	Order code		
		IP65 oil-resistant		
		Rectangular	Square	Round
LED Incandescent lamp	Red	A165L-JR	A165L-AR	A165L-TR
	Yellow	A165L-JY	A165L-AY	A165L-TY
	Pure yellow	A165L-JPY	A165L-APY	A165L-TPY
	White	A165L-JW	A165L-AW	A165L-TW
	Blue	A165L-JA	A165L-AA	A165L-TA
LED Incandescent lamp	Green	A165L-JGY	A165L-AGY	A165L-TGY
	Green	A165L-JG	A165L-AG	A165L-TG

Lamp

Type	Color	Order code		
		Operating voltage		
		5 VDC	12 VDC	24 VDC
LED	Red	A16-5DSR	A16-12DSR	A16-24DSR
	Yellow	A16-5DSY	A16-12DSY	A16-24DSY
	Green	A16-5DSG	A16-12DSG	A16-24DSG
	White	A16-5DSW	A16-12DSW	A16-24DSW
	Blue	A16-5DA	A16-12DA	A16-24DA
Type		5 VAC/VDC	12 VAC/VDC	24 VAC/VDC
Incandescent lamp		A16-5	A16-12	A16-24

Case

Classification		Order code
IP65 oil-resistant	Rectangular	A165-CJM
	Square	A165-CAM
	Round	A165-CTM

Socket

Classification			Order code
Solder terminals			M16-0
PCB terminals			M16-0P
Screw-less clamp			M16-S
Solder terminals	Voltage-reduction lighting	100 V	M16-T1
Screw-less clamp		100 V	M16-T1-S
		200 V	M16-T2-S

Specifications

Allowable operating frequency	Mechanical	Momentary operation: 120 operations/minute max., alternate operation: 60 operations/minute max.
	Electrical	20 operations/minute max.
Durability	Mechanical	Momentary operation: 2,000,000 operations min., alternate operation: 200,000 operations min.
	Electrical	100,000 operations min.
Degree of contamination	3 (IEC947-5-1)	
Ambient temperature	Operating: -10 to 55°C (with no icing or condensation) Storage: -25 to 65°C (with no icing or condensation)	
Weight	Approx. 10 g (in the case of a lighted DPDT switch with solder terminals)	
Size in mm	Round/square: 18Hx18Wx28.5D rectangular: 18Hx24Wx28.5D	

Agency	Standards	File number
UL, cUL	UL508	E41515

Ratings

Superbright LED			
Rated voltage	Rated current	Operating voltage	Built-in limiting resistance
5 VDC	30 mA (15 mA)	5 VDC ±5%	33 Ω (68 Ω)
12 VDC	15 mA	12 VDC ±5%	270 Ω (560 Ω)
24 VDC	10 mA	24 VDC ±5%	1,600 Ω (2,000 Ω)

Incandescent lamp		
Rated voltage	Rated current	Operating voltage
6 VAC/VDC	60 mA	5 VAC/VDC
14 VAC/VDC	40 mA	12 VAC/VDC
28 VAC/VDC	24 mA	24 VAC/VDC



22 mm IP66 indicator lights show status of machinery and processes on control panels.





Complete line of 22 mm pushbuttons, selectors, keyed selectors and indicators. These reliable switches are offered in a wide range of shapes and colors.

- The bright LED light source is easy to see under most lighting conditions
- Variety of model and color options
- Easy mounting and removal of socket unit
- Short mounting depth, less than 49.2 mm behind panel

Ordering information

Material	Appearance	Operating voltage	Order code			
			Red	Green	Yellow	Blue
Plastic	Flat	24 VAC/DC	M22N-BN-TRA-RC	M22N-BN-TGA-GC	M22N-BN-TYA-YC	M22N-BN-TAA-AC
		100, 110, 120 VAC	M22N-BN-TRA-RD	M22N-BN-TGA-GD	M22N-BN-TYA-YD	M22N-BN-TAA-AD
		200, 220, 230, 240 VAC	M22N-BN-TRA-RE	M22N-BN-TGA-GE	M22N-BN-TYA-YE	M22N-BN-TAA-AE
	Projected	24 VAC/DC	M22N-BP-TRA-RC	M22N-BP-TGA-GC	M22N-BP-TYA-YC	M22N-BP-TAA-AC
		100, 110, 120 VAC	M22N-BP-TRA-RD	M22N-BP-TGA-GD	M22N-BP-TYA-YD	M22N-BP-TAA-AD
		200, 220, 230, 240 VAC	M22N-BP-TRA-RE	M22N-BP-TGA-GE	M22N-BP-TYA-YE	M22N-BP-TAA-AE
	Semi-spherical	24 VAC/DC	M22N-BG-TRA-RC	M22N-BG-TGA-GC	M22N-BG-TYA-YC	M22N-BG-TAA-AC
		100, 110, 120 VAC	M22N-BG-TRA-RD	M22N-BG-TGA-GD	M22N-BG-TYA-YD	M22N-BG-TAA-AD
		200, 220, 230, 240 VAC	M22N-BG-TRA-RE	M22N-BG-TGA-GE	M22N-BG-TYA-YE	M22N-BG-TAA-AE
	Flat etched	24 VAC/DC	M22N-BC-TRA-RC	M22N-BC-TGA-GC	M22N-BC-TYA-YC	M22N-BC-TAA-AC
		100, 110, 120 VAC	M22N-BC-TRA-RD	M22N-BC-TGA-GD	M22N-BC-TYA-YD	M22N-BC-TAA-AD
		200, 220, 230, 240 VAC	M22N-BC-TRA-RE	M22N-BC-TGA-GE	M22N-BC-TYA-YE	M22N-BC-TAA-AE

List of models

Plastic flat	Plastic projected	Plastic semi-spherical	Plastic flat etched
M22N-BN 	M22N-BP 	M22N-BG 	M22N-BC 

Specifications

Characteristics

Item	Type	Indicator
Insulation resistance		100 M Ω min. (at 500 VDC)
Dielectric strength	Between terminals of same polarity	2,500 VAC at 50/60 Hz for 1 min
	Between each terminal and ground	2,500 VAC at 50/60 Hz for 1 min
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Malfunction	1,000 m/s ² max.
Ambient operating temperature ^{*1}		–25 to 55°C
Ambient operating humidity		35% to 85% RH
Ambient storage temperature ^{*1}		–40 to 80°C
Degree of protection ^{*2}		IP66, NEMA 4X, NEMA13
Electric shock protection class		Class II

^{*1} With no icing or condensation.

^{*2} Degree of protection from the front of the panel.