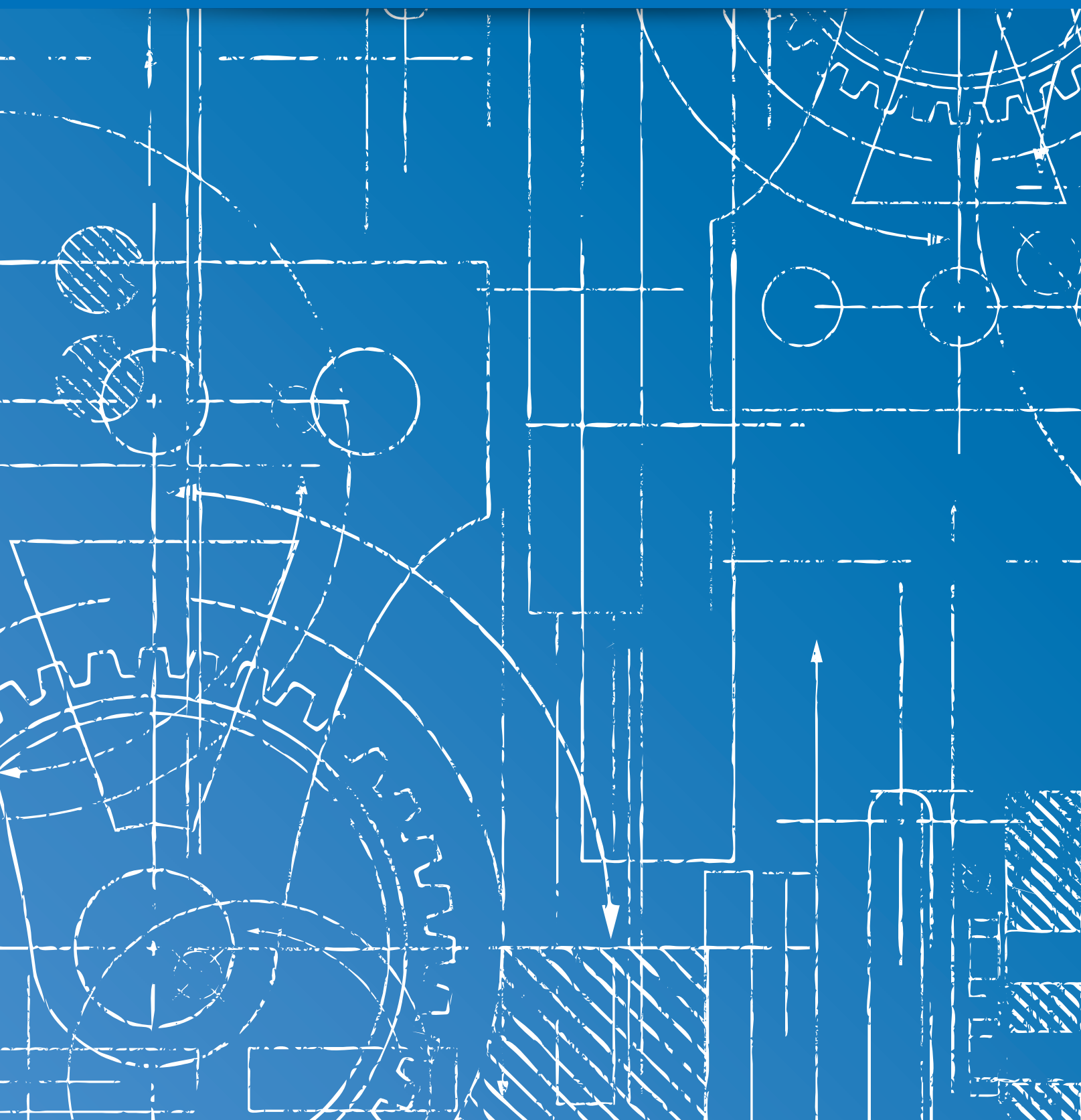
OMRON

Industrial Automation Portfolio 2015

Input, Logic, Output & Safety



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's. 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

Find information fast!

Quick Links shortens your search. Quick Links are unique codes assigned to Omron products listed in this guide. Enter Quick Link codes in the search box on industrial.omron.eu to access detailed information on products in this guide.

industrial.omron.eu

Industrial Automation Portfolio 2015

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

Kazuma Tateisi, founder of Omron

Omron at a glance

Listed in Top 2000 largest companies of the globe
Omron Corporation NASDAQ: OMRNY
Top ranking in Dow Jones Sustainability Index
Thomson Reuters Top 100 Global Innovators

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

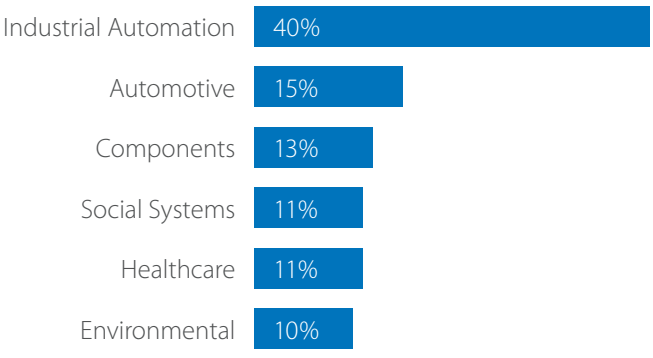
Top 150 global patent assignee
1.200 employees dedicated to R&D
11.000 + issued and pending patents

36.500
Employees worldwide

210
Locations worldwide

22
Countries in EMEA

Working for the benefit of society



Sysmac Automation Platform

- One control for the entire machine or production cell
- Harmony between machine and people
- Open communication and open programming standards

SYSMAC
always in control

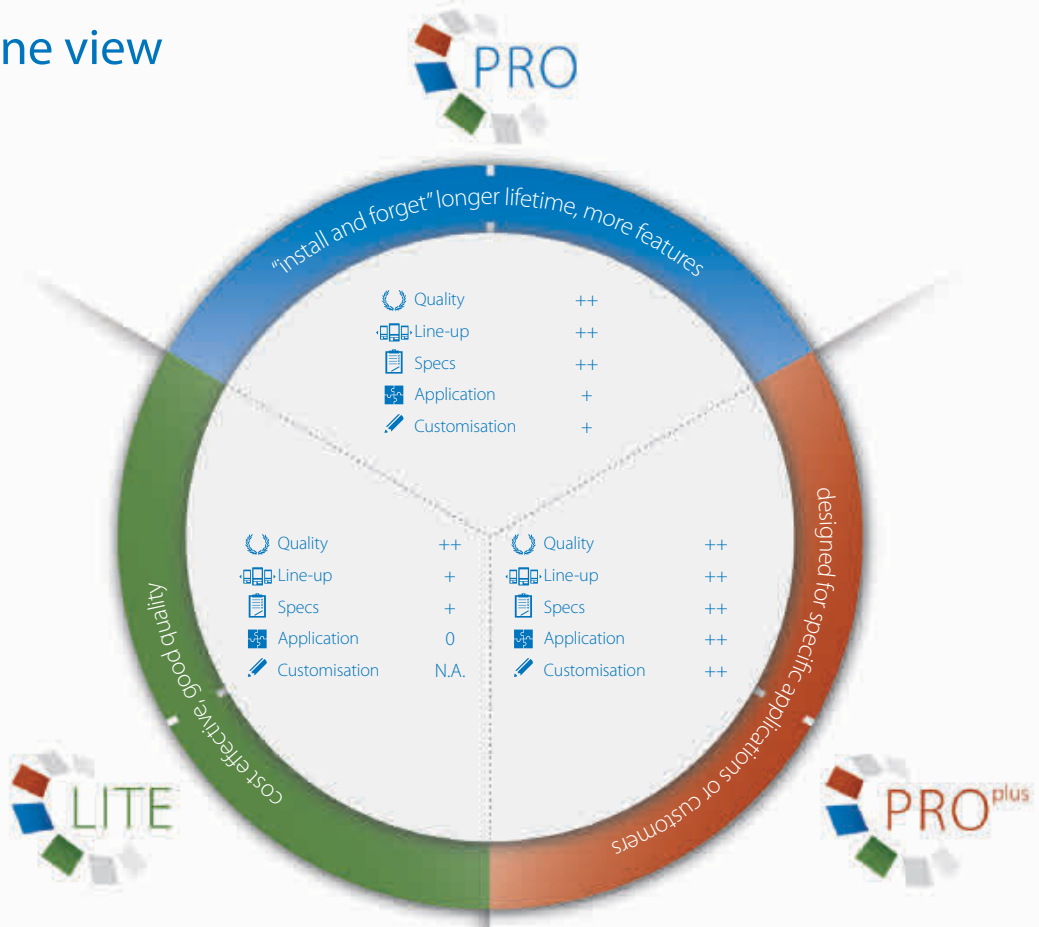
Your needs, our focus

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



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 PRO^{plus} products are designed for specific applications or customer demands.

The extra degree of advantage

Three distinct lines of sensors and components

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".

'Quality' refers to the standard of manufacturing and the materials used – this translates into reliability.

'Line-up' refers to the number of model types.

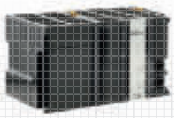
'Specs' refers to the choice of performance levels.

'Application' indicates the complexity of the automation.

'Customization' is the possibility to modify the product.

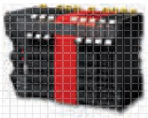
Product selection table

Automation systems



8 Machine automation controller

12 Programmable logic controllers (PLC)



16 Remote I/O

20 Human machine interfaces (HMI)

Motion & Drives

24 Motion controllers

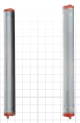
28 Servo systems

32 Frequency inverters

Sensing

36 Photoelectric sensors

40 Mark and color sensors

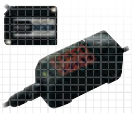


44 Lightcurtains and area sensors

48 Fiber optic sensors and amplifiers

Quality control & Inspection

64 Inspection & Ident systems

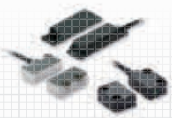


68 Measurement sensors

Safety

72 Control- and Signalling devices

76 Safety limit switches



80 Safety door switches

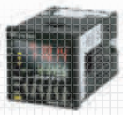
84 Safety sensors

Control components

92 Temperature controllers

96 Power supplies

100 Timers



104 Counters

Switching components

116 Electromechanical relays

120 Solid state relays

124 Low voltage switchgear

130 Monitoring products

Software

142 Software

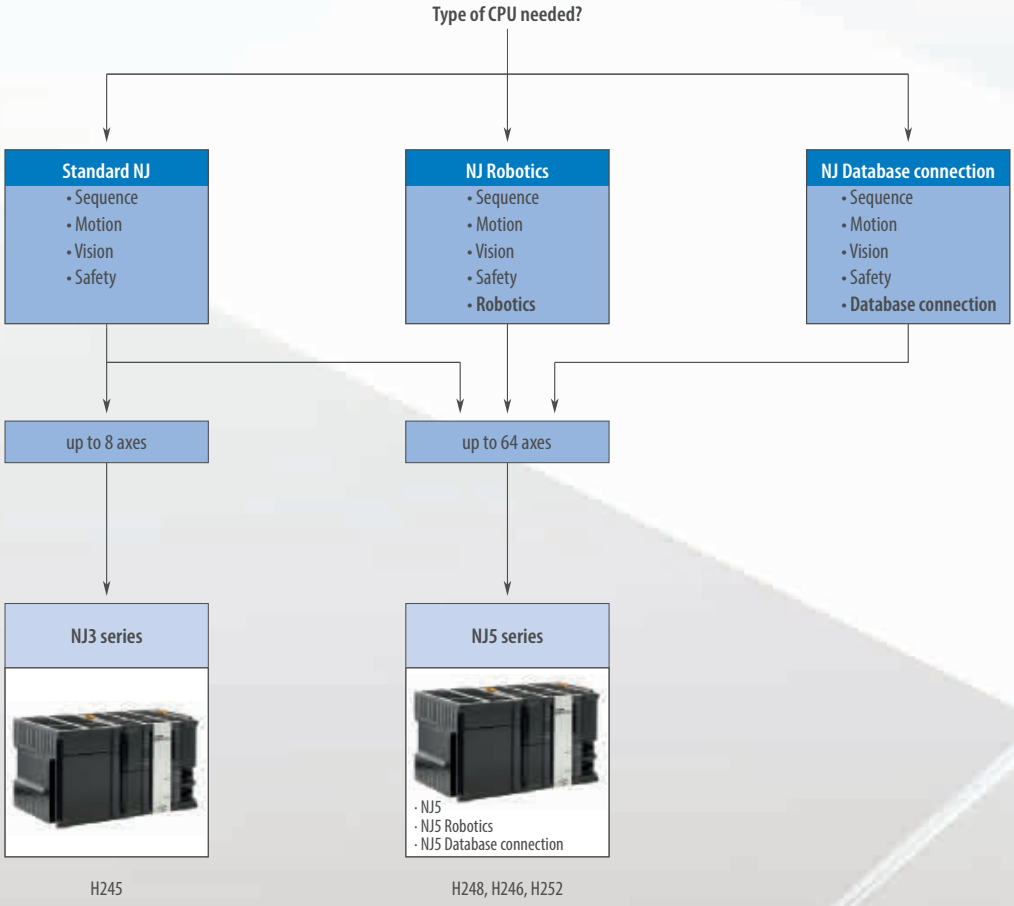
NJ-SERIES MACHINE AUTOMATION CONTROLLER

Complete and robust machine automation

The NJ-Series Machine A utomation Controller is at the heart of the new Sysmac platform. One in tegrated machine controller that o ffers speed, f lexibility and s calability of software centric architecture without compromising on the traditional reliability and robustness that you have come to expect from Omron PLCs. The NJ-Series is de signed to meet extreme machine control requirements in terms of motion control speed and ac curacy, communication, security and robust system. You just create…

- Integration of logic and motion in one Intel CPU
- Scalable control: CPUs for 4, 8, 16, 32 and 64 axes
- EtherCAT and EtherNet/IP ports embedded
- Fully conforms to IEC 61131-3 standards
- Certified PLCopen function blocks for motion control
- Linear, circular and spiral (helical) interpolation
- CPU units with SQL client and robotic functionality

SYSMAC
always in control



	Machine automation controller			
				
Model	**NJ5**	**NJ5 Robotics**	**NJ5 with Database connection**	**NJ3**
Description	NJ5 series Machine Controller with Sequence and Motion functionality	NJ5 series Machine Controller with Sequence, Motion and Robotics functionality	NJ5 series Machine Controller with Sequence, Motion and Database connection functionality	NJ3 series Machine Controller with Sequence and Motion functionality
Task	Multi-tasking program			
Software	Sysmac Studio			
Programming	• Ladder • Structured Text • In-Line ST			
Standard programming	• IEC 61131-3 • PLCopen Function Blocks for Motion Control			
Program capacity	20 MB			5 MB
SD Memory Card	SD and SDHC Memory card			
Built-in port	• EtherNet/IP • EtherCAT • USB 2.0			
EtherCAT slaves	192			
Number of axes	64, 32, 16			8, 4
Servo Drive	Accurax G5/EtherCAT			
Motion Control	• Axes groups interpolation and single axis moves • Electronic cams and gearboxes • Direct position control for axis and group	• Axes groups interpolation and single axis moves • Electronic cams and gearboxes • Direct position control for axis and group • Up to 8 Delta Robot control	• Axes groups interpolation and single axis moves • Electronic cams and gearboxes • Direct position control for axis and group	

Local I/O (Compatible CJ series units)	**Digital I/O units**		**Analog I/O units**	**Special I/O units**	**Communication units**	**ID sensor units**
	CJ1W-IA201	CJ1W-OD213	CJ1W-AD04U	CJ1W-CT021	CJ1W-SCU22	CJ1W-V680C11
	CJ1W-IA111	CJ1W-OD231	CJ1W-AD04U(SL)	CJ1W-CTL41-E	CJ1W-SCU32	CJ1W-V680C12
	CJ1W-ID201	CJ1W-OD233	CJ1W-AD041-V1		CJ1W-SCU42	
	CJ1W-ID211	CJ1W-OD234	CJ1W-AD041-V1(SL)		CJ1W-EIP21	
	CJ1W-ID211(SL)	CJ1W-OD261	CJ1W-AD042		CJ1W-DRM21	
	CJ1W-ID212	CJ1W-OD263	CJ1W-AD081-V1		CJ1W-CRM21	
	CJ1W-INT01	CJ1W-OD202	CJ1W-AD081-V1(SL)		CJ1W-PRM21	
	CJ1W-IDP01	CJ1W-OD204	CJ1W-DA021		CJ1W-PRT21	
	CJ1W-ID231	CJ1W-OD212	CJ1W-DA021(SL)		CJ1W-PNT21	
	CJ1W-ID232	CJ1W-OD212(SL)	CJ1W-DA041		CJ1W-CIF11	
	CJ1W-ID233	CJ1W-OD232	CJ1W-DA041(SL)			
	CJ1W-ID261	CJ1W-OD262	CJ1W-DA042V			
	CJ1W-ID262	CJ1W-MD232	CJ1W-DA08V			
	CJ1W-OA201	CJ1W-MD231	CJ1W-DA08V(SL)			
	CJ1W-OC201	CJ1W-MD233	CJ1W-DA08C			
	CJ1W-OC201(SL)	CJ1W-MD261	CJ1W-DA08C(SL)			
	CJ1W-OC211	CJ1W-MD263	CJ1W-MAD42			
	CJ1W-OC211(SL)	CJ1W-MD563	CJ1W-MAD42(SL)			
	CJ1W-OD201		CJ1W-PH41U			
	CJ1W-OD203		CJ1W-PDC15			
	CJ1W-OD211		CJ1W-TS561			
	CJ1W-OD211(SL)		CJ1W-TS561(SL)			
			CJ1W-TS562			
			CJ1W-TS562(SL)			
			CJ1W-TC003			
			CJ1W-TC004			
			CJ1W-TC103			
			CJ1W-TC104			

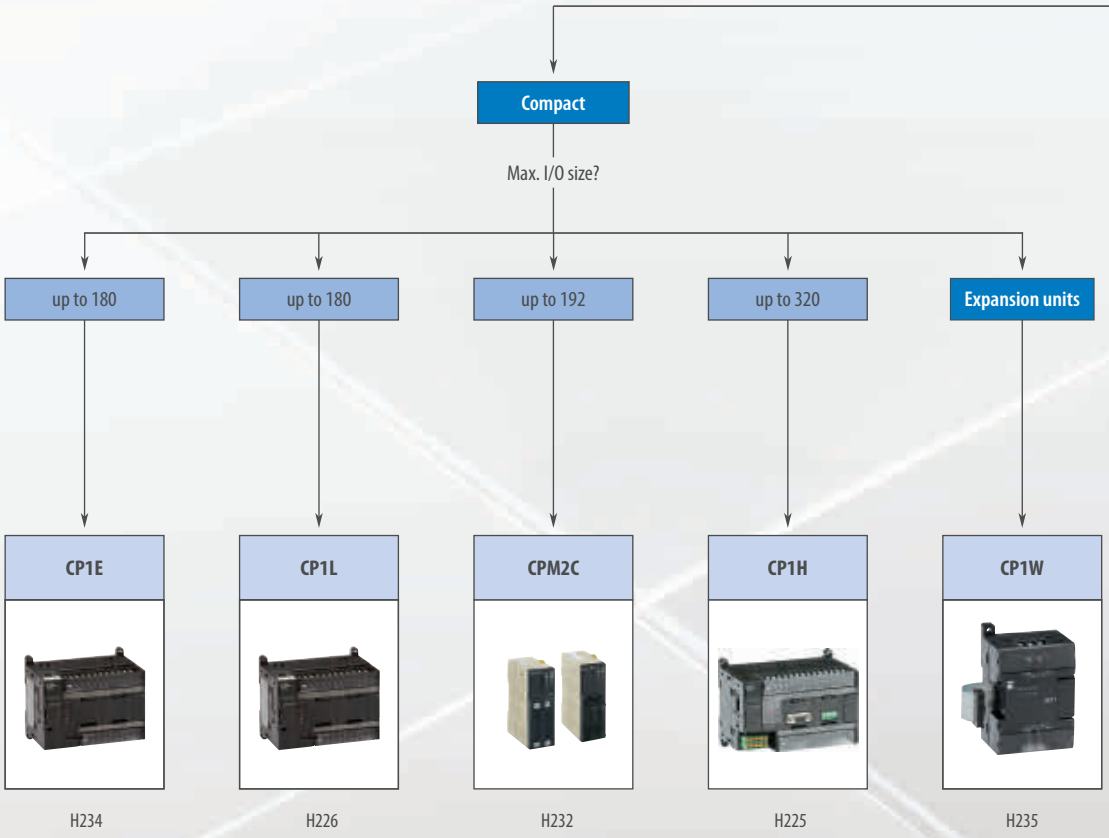
Remote I/O	NX I/O units/EtherCAT			
Mounting	DIN rail			
Global standards	CE, cULus, NK, LR			
Quick Link	H248	H246	H252	H245

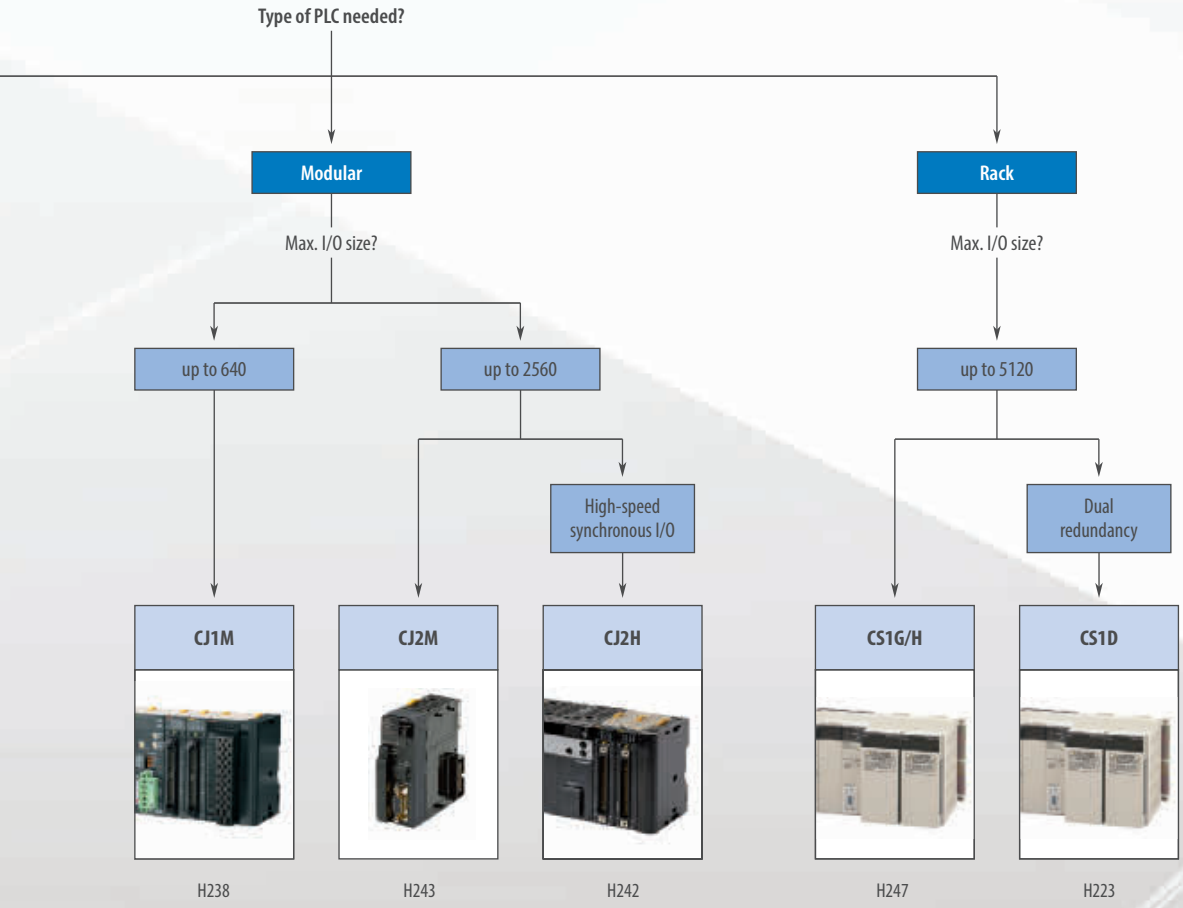
KNOW ONE ... KNOW THEM ALL!

Whether your automation requires a simple and economical solution, or your target is advanced, high-speed control, you can find what you need in Omron's line-up of Programmable Controllers.

And if your systems grow, or change due to market demand, you will find that only Omron offers a full range of Compact PLCs and Modular PLCs that share the same architecture. Therefore your programs are fully upward compatible, both in memory allocation and instruction set.

- One scalable PLC family to always match exactly with your application
- Transparent communication routing through different networks
- The best size/performance ratio in the industry




Type of PLC needed?
Modular
Rack
Max. I/O size?
Max. I/O size?
up to 640
up to 2560
up to 5120
High-speed synchronous I/O
Dual redundancy
CJ1M
CJ2M
CJ2H
CS1G/H
CS1D
H238
H243
H242
H247
H223

Selection table

		Compact PLC series			
					
Model		**CPM2C**	**CP1E**	**CP1L**	**CP1H**
Max digital I/O points[*1]		192	180	180	320[*2]
Built-in	**Digital I/O**	10 to 32	10 to 60	10 to 60	20 or 40
	Interrupt inputs	2 or 4	4 or 6	2, 4, or 6	6 or 8
	Counter inputs	2 or 4	5 or 6	4	2 or 4
	Pulse outputs[*1]	2	2	2	2 or 4
CPU features[*1]		Compact size Expansion units Quick-response inputs High-speed counter Pulse output with PWM RS-232C port Real time clock	USB port Expansion I/O units Quick-response inputs High-speed counter Pulse output with PWM RS-232C port RS-485 port Real time clock 2 Analog adjusters See Analog I/O section	USB or Ethernet port Expansion I/O units Quick-response inputs High-speed counter Pulse output with PWM Up to 2 serial option boards Real time clock 1 Analog adjuster See Analog I/O section	USB port Expansion I/O units CJ-series Special I/O Units CJ-series CPU Bus Units Quick-response inputs High-speed counter Pulse output with PWM RS-232C port Option board slots Real time clock 1 Analog adjuster LED display, 2 digit See Analog I/O section
Instruction Execution time (bit instruction)		0.64 µs	1.19 µs	0.55 µs	0.10 µs
Program memory		4K words	2 or 8K steps	5 or 10K (+10K Function block) steps	20K steps
Data memory		2K words	2 or 8K words	10 or 32K words	32K words
External memory		Expansion memory unit	–	Memory cassette	Memory cassette
Analog I/O		Analog I/O unit Temperature sensor unit	Built-in for E-NA model (2 in + 1 out) Analog I/O Expansion Units Temperature Input Expansion Units	Built-in for EL/EM model (2 inputs) Analog I/O Expansion Units Temperature Input Expansion Units	Built-in for XA model (4 in + 2 out) Analog I/O Expansion Units Temperature Input Expansion Units CJ Analog I/O Units CJ Temperature Units
Special function units		–			CJ-series Special I/O Units CJ-series CPU Bus Units
Fieldbus master		–	ModBus	Ethernet ModBus	Ethernet EtherNet/IP Controller Link DeviceNet PROFIBUS-DP PROFINET ModBus CompoNet CompoBus/S CAN (freely configurable)
Fieldbus I/O		CompoBus/S DeviceNet	PROFIBUS-DP CompoBus/S DeviceNet	PROFIBUS-DP CompoBus/S DeviceNet	PROFIBUS-DP CompoBus/S DeviceNet
Quick Link		H232	H234	H226	H225

[*1] Some features listed are not available for all CPU types within each series. Please review specifications for more information on CPU features and performance.
[*2] Represents local I/O capacity. If a fieldbus master is used more I/O is possible.

		Modular PLC series			Rack PLC series	
						
Model		**CJ1M/G**	**CJ2M**	**CJ2H**	**CS1G/H**	**CS1D**
Max. digital I/O points[*1]		1280	2560	2560	5120	5120
Built-in[*1]	**Digital I/O**	16	–			
	Interrupt inputs	4	–			
	Counter inputs	2	–			
	Pulse outputs	2	–			
CPU features[*1]		Compact size No backplane required Large program capacity Easy backups Built-in pulse I/O Loop control CPU type Real time clock	USB port Ethernet/IP port High-speed I/O units Option board plug-in Structures and arrays Tag data links Compact size No backplane required Large program capacity Function Block memory Easy backups Real time clock	USB port Ethernet/IP port High-speed I/O units Structures and arrays Tag data links Synchronous I/O Compact size No backplane required Extra Large program capacity Easy backups Real time clock	High I/O capacity Inner board support Large program capacity Backwards compatible Easy backups Real time clock	Redundant CPU Redundant power supply Hot swapping High I/O capacity Inner board support Large program capacity Backwards compatible Easy backups Real time clock
Instruction Execution time (bit instruction)		0.10/0.04 µs	0.04 µs	0.016 µs	0.04/0.02 µs	0.04/0.02 µs
Program memory		5 to 60K steps	5 to 60K steps	50 to 400K steps	10 to 250K steps	10 to 250K steps
Data memory		32 to 128K words	64 to 160K words	160 to 832K words	64 to 448K words	64 to 448K words
CompactFlash memory		Up to 512 MB				
Analog I/O		Analog I/O unit Temperature sensor unit Temperature control unit				
Special function units		Temperature control High-speed counters (500 kHz) SSI encoder input Position control Protocol macro RFID sensor unit Weighing unit Data collection & storage unit		Temperature control High-speed counters (500 kHz) SSI encoder input Position control Protocol macro RFID sensor unit High-speed I/O Synchronised Position Data collection & storage unit	Temperature control SSI encoder input High-speed counters (500 kHz) Position control Motion control Process control Protocol macro RFID sensor unit Data collection & storage unit	
Fieldbus master		Ethernet EtherNet/IP Controller Link DeviceNet PROFIBUS-DP PROFINET ModBus CompoNet CompoBus/S CAN (freely configurable)				
Fieldbus I/O		DeviceNet PROFIBUS-DP CAN (freely configurable)				
Quick Link		H238, H224	H243	H242	H247	H223

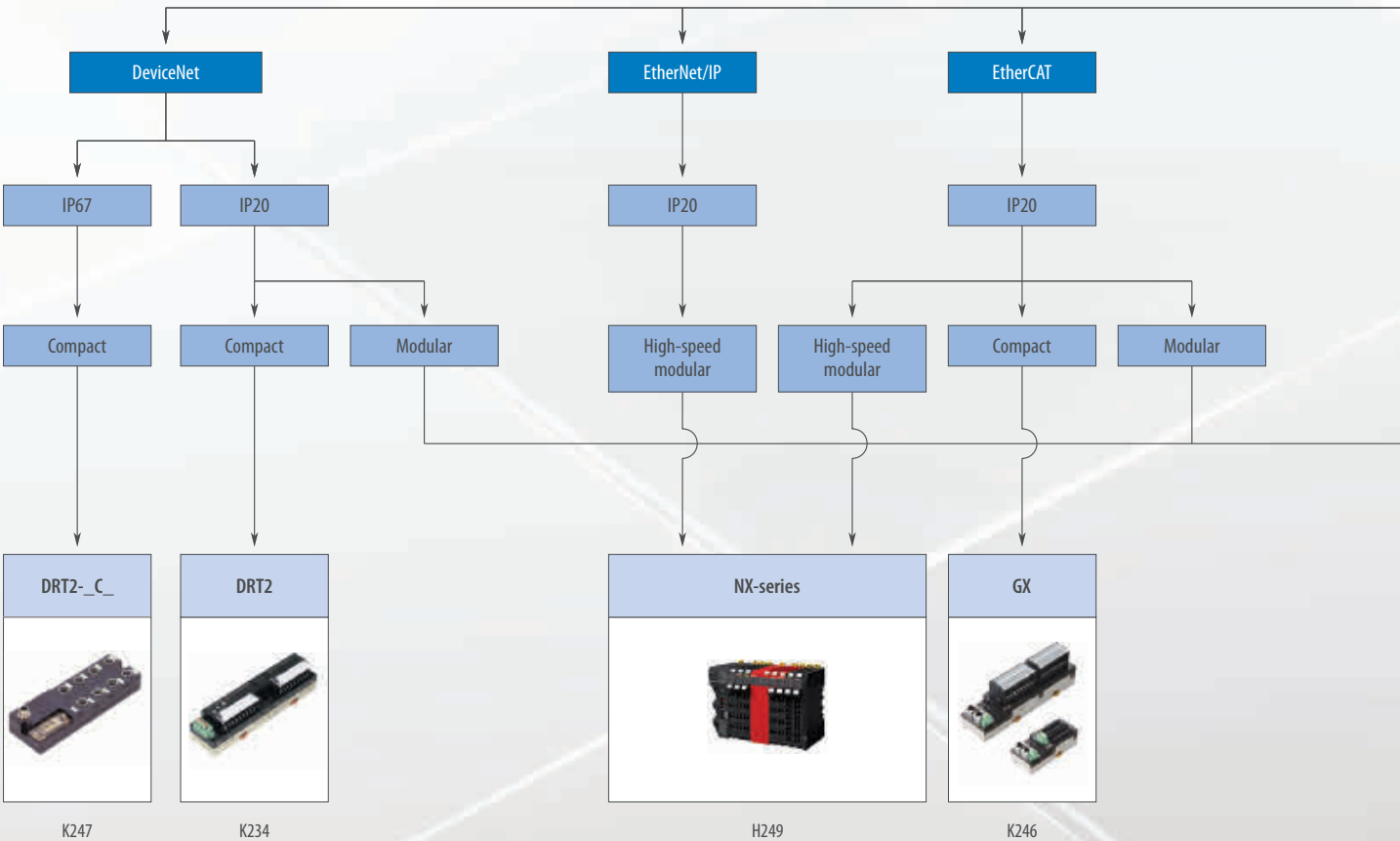
[*1] Some features listed are not available for all CPU types within each series. Please review specifications for more information on CPU features and performance.

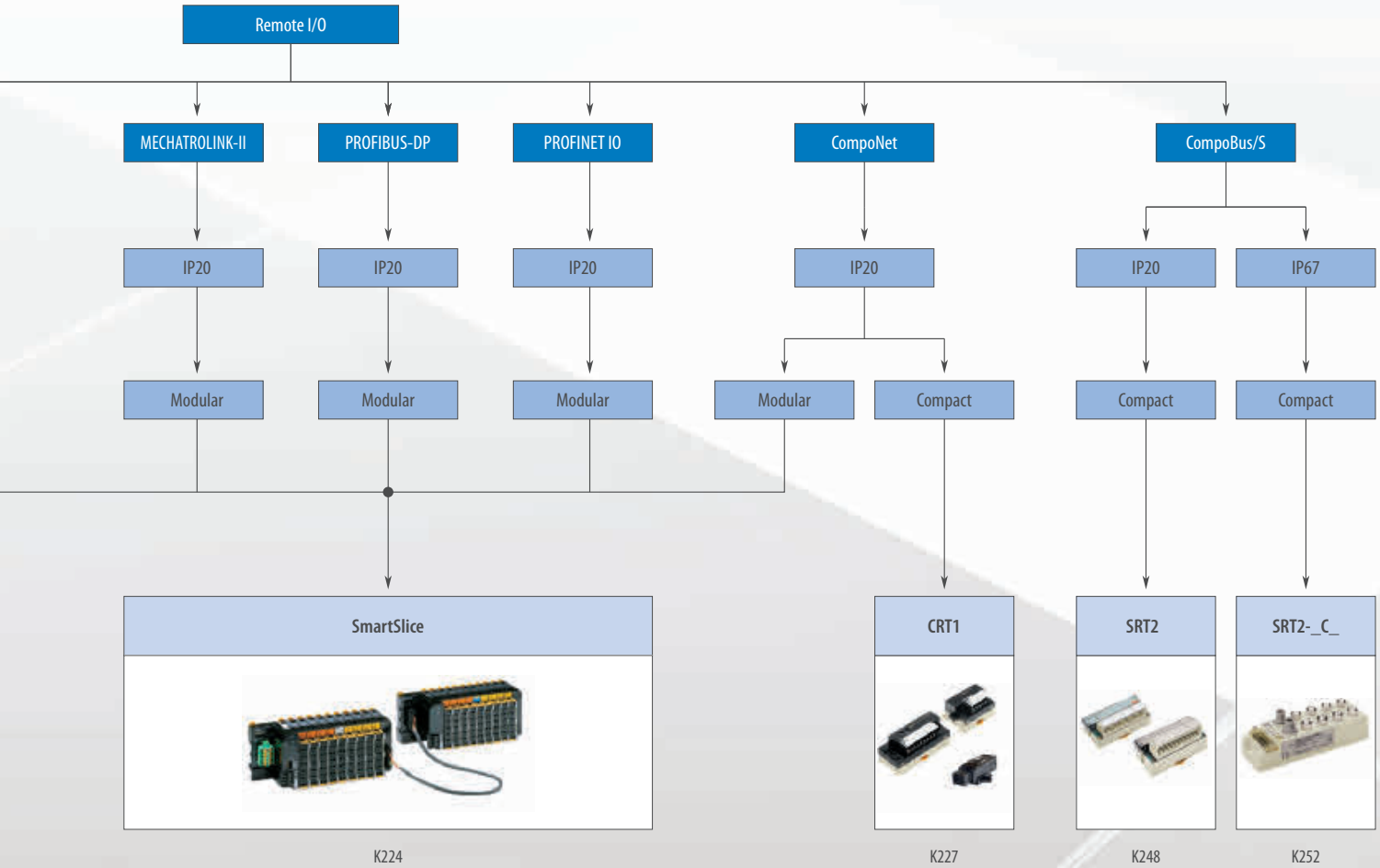
I/O SYSTEMS TO MEET EVERY NEED

Choose by network, style and flexibility

Compact remote I/O units combine a fixed number of I/O points in a space-saving housing. Built-in smart monitoring functions for voltage level, broken wire, actuator and cycle time will assist in planning preventive maintenance for machines and eliminating costly downtime. Compact smart slaves are available for the open EtherCAT, DeviceNet and CompoNet networks, and Omron's CompoBus/S offers a more simple and cost-efficient solution.

Modular remote I/O systems offer the possibility to install just the right number and type of I/O's where you need them. I/O modules range from basic and economical digital I/O's to high-performance modules with intelligent functions. With a choice of communication couplers for various open networks, you can adapt to existing installations and end-user demands, or make the right trade-off between performance and ease-of-use. Besides EtherCAT as main machine automation network, Omron offers connectivity to EtherNet/IP, DeviceNet, CompoNet, PROFINET IO, PROFIBUS DP, and MECHATROLINK-II.




Remote I/O
MECHATROLINK-II
PROFIBUS-DP
PROFINET IO
CompoNet
CompoBus/S
IP20
IP20
IP20
IP20
IP20
IP67
Modular
Modular
Modular
Modular
Compact
Compact
Compact
SmartSlice
CRT1
SRT2
SRT2-_C_
K224
K227
K248
K252

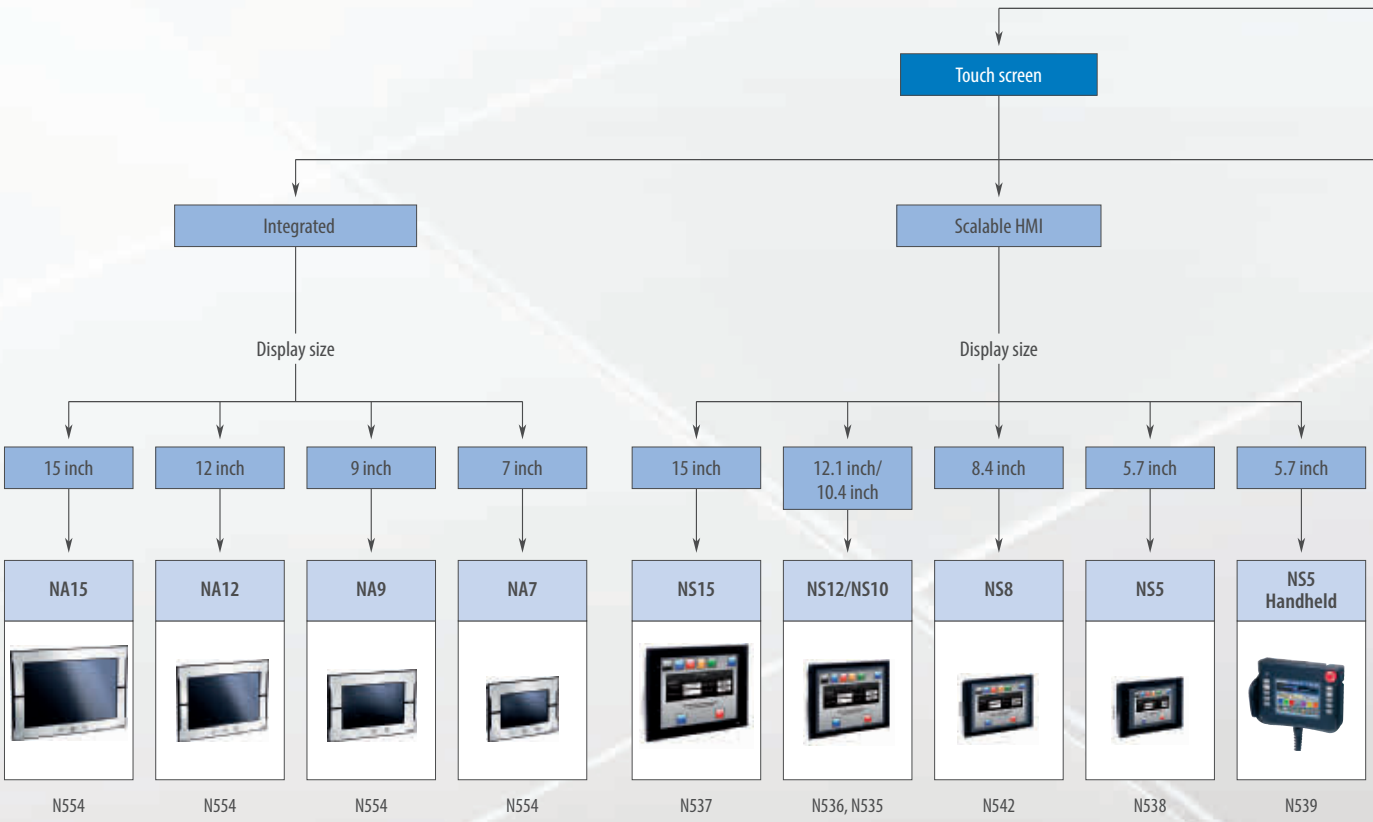
	Modular I/O		Compact I/O		
					
Model	**NX-series**	**SmartSlice**	**GX**	**DRT2**	**CRT1**
Network connection	EtherCAT in- and outgoing connections by RJ45 ethernet ports, EtherNet/IP with built-in Ethernet switch and 2 RJ45 ports	DeviceNet, CompoNet, PROFIBUS DP, PROFINET I/O, EtherCAT, MECHATROLINK-II	EtherCAT in- and outgoing connections by RJ45 ethernet plug	DeviceNet with open-style push-in terminal block	CompoNet, unshielded 4-wire flat cable and IDC connectors, or general-purpose 2-wire cable by screw terminals
I/0 types	Digital standard and high-speed synchronous, analog standard and high-speed, temperature, encoders, pulse output, safety I/O	Digital I/O, analog I/O, temperature inputs, high-speed counter with control outputs	8 DI + 8 DO 16 DI+extension 16 DO+extension 16 relay out 4 AI (V/I) 2 AO (V/I) Incremental encoder (24 V/line driver)	8/16 DI+extension, 8/16 DO+extenstion, 8 DI + 8 DO 16 relay out, 4 AI (V/I, TC, Pt100), 2 AO (V/I),	8/16 DI+extension, 8/16 DO+extenstion, 8 DI + 8 DO 4 AI, 2 AO, 2 DI, 2 DO
I/0 Connection technology	Push-in wiring on removable terminal block, MIL connectors	Push-in wiring on removable terminal block	M3 screw terminals (1- or 3-wire DI)	M3 screw terminals (1- or 3-wire DI)	M3 screw terminals
Smart features	Synchronous I/O and time-stamping on EtherCAT, safety I/O	I/O and power supply diagnostics, operation timers and counters per I/O point	Automatic or fixed address allocation	I/O and power supply diagnostics, operation timers and counters per I/O point, analog value calculations and alarms	I/O and power supply diagnostics, operation timers and counters for each I/O point, analog value calculations and alarms
Ingress Protection class	IP20 (DIN rail mounting in cabinets)	IP20 (DIN rail mounting in cabinets)	IP20 (DIN rail mounting in cabinets)	IP20 (DIN rail mounting in cabinets)	IP20 (DIN rail mounting in cabinets)
Quick Link	H249	K224	K246	K234	K227

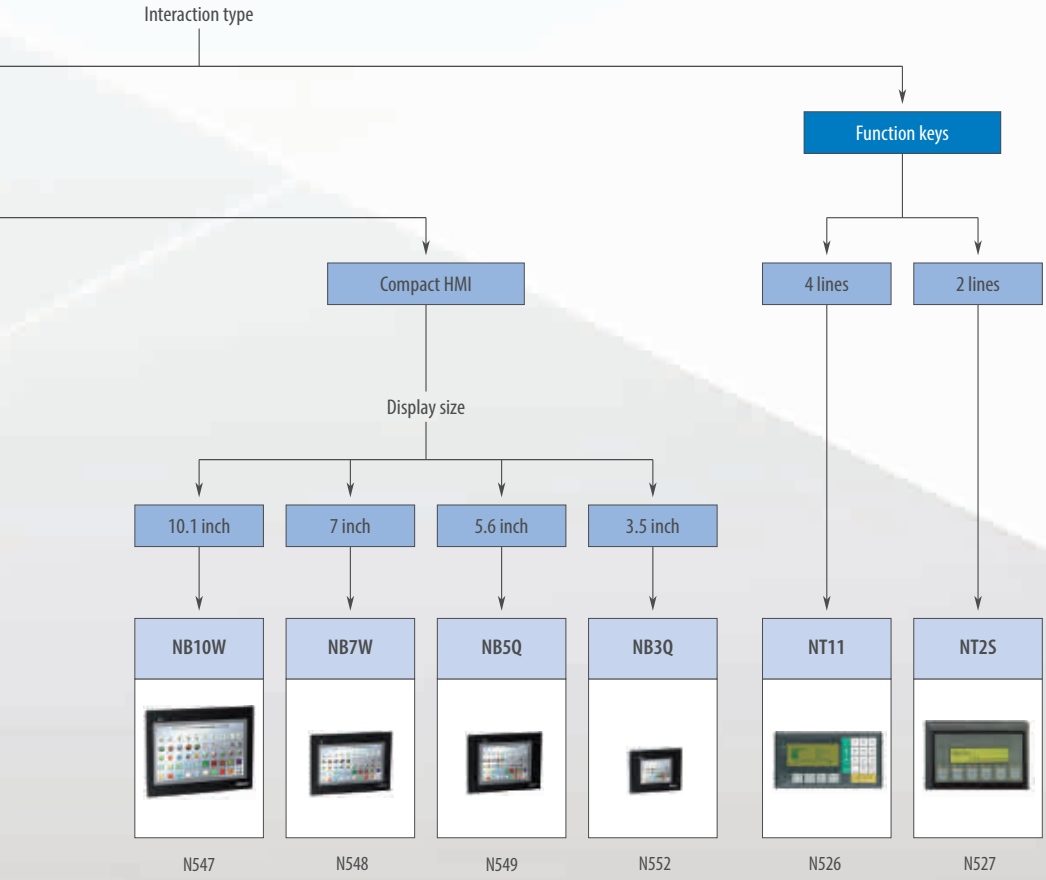
	Compact I/O	Field I/0	
			
Model	**SRT2**	**DRT2-_C_**	**SRT2-_C_**
Network connection	CompoBus/S, (2-wire + power) by M3 screw terminals	DeviceNet with M12 micro connector	CompoBus/S, by 4-wire M12 connector, unshielded
I/0 types	4/8/16 DI, 4/8/16 DO, 8/16 relay out, 4 AI (V/I) 2 AO (V/I)	8/16 DI, 8/16 DO, 8DI + 8 DO	4/8 DI, 4/8 DO
I/0 Connection technology	M3 screw terminals (1- or 3-wire DI)	M12, 1 or 2 I/O signals per connector, 7/8" I/O Power connector	M12 connectors, one I/O point per connector
Smart features	I/O isolation, status indication	I/O and power supply diagnostics, operation timers and counters per I/O point	I/O isolation, status indication
Ingress Protection class	IP20 (DIN rail mounting in cabinets)	IP67, flat mounting by two M5 screws	IP67, flat mounting by three M5 screws
Quick Link	K248	K247	K252

NA AND NB SERIES

If you are looking for a smart and dependable HMI for use with our compact and modular PLC's, look no further than the NB series. It offers you - among various other features – an LED backlighted TFT LCD, a portrait and landscape mode and USB memory stick support. It is available with screen sizes from 3.5 to 10 inches.

For faster, more efficient control and monitoring, the scalable NA series HMI offers a more natural, proactive machine/operator environment that will evolve to meet your ever-changing needs. Based on the Sysmac Platform, the NA series is fully aware of the total machine and brings together all areas of automation including: logic, motion, vision, safety and visualization. It gives you a clear view in one integrated project. The high resolution wide screens are available in 7" and 9" (800 × 480 pixel) as well as 12" and 15" (1280 × 800 pixel)




Interaction type
Function keys
Compact HMI
4 lines
2 lines
Display size
10.1 inch
7 inch
5.6 inch
3.5 inch
NB10W
NB7W
NB5Q
NB3Q
NT11
NT2S
N547
N548
N549
N552
N526
N527

Selection table

	Integrated			
				
Model	**NA15**	**NA12**	**NA9**	**NA7**
Display	15 inch widescreen TFT color	12 inch widescreen TFT color	9 inch widescreen TFT color	7 inch widescreen TFT color
Resolution	1280 × 800 pixels	1280 × 800 pixels	800 × 400 pixels	800 × 400 pixels
Colors	24 bit	24 bit	24 bit	24 bit
Communication	3 × USB 2 × Ethernet 1 × RS-232 SD Card 24 VDC	3 × USB 2 × Ethernet 1 × RS-232 SD Card 24 VDC	3 × USB 2 × Ethernet 1 × RS-232 SD Card 24 VDC	3 × USB 2 × Ethernet 1 × RS-232 SD Card 24 VDC
Dimensions in mm (H×W×D)	420×291 391×267 (cut-out)	340×244 309×220 (cut-out)	290×190 260×165 (cut-out)	236×165 196×140 (cut-out)
Quick Link	N554			

	Scalable HMI					
						
Model	**NS15**	**NS12**	**NS10**	**NS8**	**NS5**	**NS5 handheld**
Display	15 inch TFT color	12.1 inch TFT color	10.4 inch TFT color	8.4 inch TFT color	5.7 inch TFT color	5.7 inch STN color
Resolution	1024 × 768 pixels (XGA)	800 × 600 pixels (SVGA)	640 × 480 pixels (VGA)	640 × 480 pixels (VGA)	320 × 240 pixels (QVGA)	320 × 240 pixels (QVGA)
Number of colors	256 (32,768 for image data)	256 (32,768 for image data)	256 (32,768 for image data)	256 (32,768 for image data)	256 (32,768 for image data)	256 (4,096 for image data)
Memory Size	60 MB screen memory	60 MB screen memory, 32,768 words + 32,768 bits internal memory and 8192 words + 8192 bits retentative memory	60 MB screen memory, 32,768 words + 32,768 bits internal memory and 8192 words + 8192 bits retentative memory	60 MB screen memory, 32,768 words + 32,768 bits internal memory and 8192 words + 8192 bits retentative memory	60 MB screen memory, 32,768 words + 32,768 bits internal memory and 8192 words + 8192 bits retentative memory	60 MB screen memory, 32,768 words + 32,768 bits internal memory and 8192 words + 8192 bits retentative memory
Options	Controller Link, Video input board (NS-CA002)	Ethernet, Controller Link, Video input board (RGB/Composite)	Ethernet, Controller Link, Video input board (RGB/Composite)	Ethernet, Video input board (RGB/Composite)	Ethernet	RS-232 or RS-422 communication depending on cable
Dimensions in mm (H×W×D)	300×400×80	241×315×48.5	241×315×48.5	177×195×48.5	142×195×54	176×223×70.5 (excl. emergency button)
Quick Link	N537	N536	N535	N542	N538	N539

		Compact HMI			
					
Model		**NB10W**	**NB7W**	**NB5Q**	**NB3Q**
Display		10.1 inch Wide TFT LCD	7 inch Wide TFT LCD	5.6 inch TFT LCD	3.5 inch TFT LCD
Resolution		800 × 480 pixels	800 × 480 pixels	320 × 234 pixels	320 × 240 pixels
Number of colors		65,536	65,536	65,536	65,536
Memory		128 MB (including system area)	128 MB (including system area)	128 MB (including system area)	128 MB (including system area)
Communication ports	**Serial Communication**	1 × RS-232C & 1 × RS-232C/422A/485	1 × RS-232C & 1 × RS-232C/422A/485	1 × RS-232C & 1 × RS-232C/422A/485	1 × RS-232C/422A/485
	USB (USB Host only on TW01 model)	1 × USB Host & 1 × USB Slave	1 × USB Host & 1 × USB Slave	1 × USB Host & 1 × USB Slave	1 × USB Host & 1 × USB Slave
	Ethernet	1 × Ethernet	1 × Ethernet (TW01 model)	1 × Ethernet (TW01 model)	1 × Ethernet (TW01 model)
Dimensions in mm (H×W×D)		210.8×268.8×54.0	148×202×46	142×184×46	103.8×129.8×52.8
Quick Link		N547	N548	N549	N552

	Function-key HMI			
				
Model	**NT11**	**NT2S**		
Type of Display	LED backlight LCD	LED backlight LCD		
Number of F-keys	22	6 or 20 depending on model		
Number of characters	20 × 4 lines	16 × 2 lines		
Printer connection	Yes	Depending on model		
Number of screens	250	65,000 (limited by memory)		
Size in mm (H×W×D)	113×218×38.2	6 F-keys 60×109×43 20 F-keys 107×107×43		
Quick Link	N526	N527		

Motion controllers

NJ-Series Machine Controller

- Integration of logic and motion in one Intel CPU
- Scalable control: CPUs for 4, 8, 16, 32 and 64 axes
- EtherCAT and EtherNet/IP ports embedded
- Linear, circular and spiral (helical) interpolation

sysmac
always in control

Which motion architecture do you need?

Machine controller

Sequence, Motion, Vision, Safety, Robotics and Database connection functionality

NJ Series

Integration of logic and motion in one Intel CPU, advanced motion, up to 64 axes

H245, H248, H246, H252

Indexer functionality into the drive

Stand-alone controller

2 axes + 1 axis pulse train output

Trajexia 2.5 axes motion controller

Advanced motion, e-cam, 2 axes synchronisation

F422

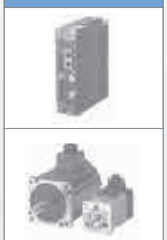
EtherCAT, MECHATROLINK-II, analog output and pulse train output

Trajexia motion controller

Advanced motion, e-cam, multi-axis synchronization

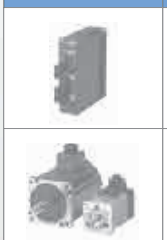
F422

Accurax G5 EtherCAT



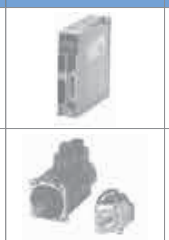
50 W to 15 kW

Accurax G5 A/P



50 W to 15 kW

G-Series A/P

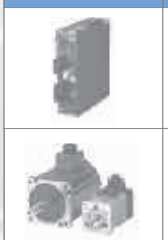


50 W to 1.5 kW

SmartStep2

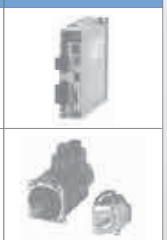
50 to 750 W

Accurax G5 ML2



50 W to 5 kW

G-Series ML2



50 W to 1.5 kW

Trajexia with EtherCAT

- Perfect control of 64 axes
- Scalability with EtherCAT masters for 4, 16 and 64 axes
- Supports servos, inverters, vision systems and distributed I/O modules

EtherCAT®

CJ-Series PLC with EtherCAT

- Position control unit CJ1W-NC with EtherCAT
- Support for up to 16 axes and 64 inverters, vision systems and distributed I/O modules

EtherCAT®

Based in OMRON PLC

Drive control method?

EtherCAT

NC EtherCAT

Single to multi-axis PTP applications with linear and circular interpolation

F434

Accurax G5 EtherCAT

50 W to 15 kW

MECHATROLINK-II

Trajexia-PLC

Advanced motion, e-cam, multi-axis synchronization

F425

Accurax G5 ML2

50 W to 5 kW

G-Series ML2

50 W to 1.5 kW

NC MECHATROLINK-II

Single to multi-axis PTP applications

F426

Pulse train output

NCs

Up to 4-axis PTP applications

F429, F432

Accurax G5 A/P

50 W to 15 kW

G-Series A/P

50 W to 1.5 kW

SmartStep2

50 to 750 W

Motion controllers				
				
Model	**NJ Series machine controller**	**Trajexia stand-alone**		**NC EtherCAT**
	Sequence, Motion, Robotics and Database connection functionality	The advanced stand-alone motion controller	Trajexia 2.5 axes motion controller	16-axis point-to-point positioning controller
Axes control method	EtherCAT	EtherCAT, MECHATROLINK-II, analog output and pulse-train output	2 axes for position, speed and torque control and 1 axis for pulse train output in open loop	EtherCAT
Number of axes	4, 8, 16, 32, 64	4, 16, 64	2	2, 4, 8, 16
Applicable servo drive	Accurax G5	Accurax G5 and G-Series	Accurax-G5	Accurax G5
Application	Advance motion including robotics	Advanced motion, e-cam, ELS, Phase shift, Registration	Advanced motion, e-cam, ELS, Phase shift, Registration	From simple PTP to multi axis PTP with linear and circular interpolation
Servo control mode	Position, speed and torque	Position, speed and torque	Position, speed and torque	Position, speed and torque
PLC series	NJ Series machine controller	Stand-alone motion controller: Serial and Ethernet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen communication options	Stand-alone motion controller: Serial and EtherNet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen communication options	CJ
Quick Link	H245, H248, H246, H252	F422		F434

Motion controllers				
				
Model	**Trajexia-PLC**	**NC MECHATROLINK-II**	**CJ1W-NC__3**	**CJ1W-NC__4**
	Advanced multi-axes motion controller in a PLC	16-axis point-to-point positioning controller	4-axis point-to-point positioning controller	4-axis point-to-point positioning controller with synchronization
Axes control method	MECHATROLINK-II	MECHATROLINK-II	Pulse train output	Pulse train output
Number of axes	4, 30	2, 4, 16	1, 2, 4	2, 4
Applicable servo drive	Accurax G5 and G-Series	Accurax G5 and G-Series	SmartStep 2 and Accurax G5	SmartStep 2 and Accurax G5
Application	Advanced motion, e-cam, ELS, Phase shift, Registration	From simple PTP to multi axis PTP coordinated systems	Point to point applications	Point-to-point with complex interpolations
Servo control mode	Position, speed and torque	Position, speed and torque	Open loop position with linear interpolation	Open loop position with linear and circular interpolation
PLC series	CJ	CJ and CS1	CJ an CS1	CJ
Quick Link	F425	F426	F429	F432

EXTREME MECHATRONICS MEETS X-STREAM AUTOMATION

At the heart of every great machine

Great machines are born from a perfect match between control and mechanics. Accurax G5 gives you the extra edge to build more accurate, faster, smaller and safer machines. You will benefit from an almost 25% reduction in motor weight, and gain 50% cabinet space. You will achieve sub micron precision and ms settling time. Some might call it perfection, we just call it tireless innovation to help you build great machines.

- EtherCAT, ML-II and analog/pulse models
- High response frequency of 2 kHz
- Safety built-in conforming ISO13849-1 PL-d
- High accuracy provided by 20 bit encoder

Which motion architecture do you need?

Machine controller

Sequence, Motion, Vision, Safety, Robotics and Database connection functionality

NJ Series

Integration of logic and motion in one Intel CPU, advanced motion, up to 64 axes

Accurax G5 EtherCAT

50 W to 15 kW

F354, F356

Indexer functionality into the drive

Accurax G5 A/P

50 W to 15 kW

F354, F356

G-Series A/P

50 W to 1.5 kW

F352, F355

SmartStep2

50 to 750 W

F353, F355

Stand-alone controller

2 axes + 1 axis pulse train output

Trajexia 2.5 axes motion controller

Advanced motion, e-cam, 2 axes synchronisation

EtherCAT, MECHATROLINK-II, analog output and pulse train output

Trajexia motion controller

Advanced motion, e-cam, multi-axis synchronization

Accurax G5 ML2

50 W to 5 kW

F354, F356

G-Series ML2

50 W to 1.5 kW

F352, F355

Based in OMRON PLC

Drive control method?

- EtherCAT
  - NC EtherCAT
    - 
    - Single to multi-axis PTP applications with linear and circular interpolation
    - Accurax G5 EtherCAT
      - 
      - 
      - 50 W to 15 kW
      - F354, F356
- MECHATROLINK-II
  - Trajexia-PLC
    - 
    - Advanced motion, e-cam, multi-axis synchronization
    - Accurax G5 ML2
      - 
      - 
      - 50 W to 5 kW
      - F354, F356
    - G-Series ML2
      - 
      - 
      - 50 W to 1.5 kW
      - F352, F355
  - NC MECHATROLINK-II
    - 
    - Single to multi-axis PTP applications
    - Accurax G5 ML2
      -
      -
      - 50 W to 5 kW
      - F354, F356
    - G-Series ML2
      -
      -
      - 50 W to 1.5 kW
      - F352, F355
- Pulse train output
  - NCs
    - 
    - Up to 4-axis PTP applications
    - Accurax G5 A/P
      - 
      - 
      - 50 W to 15 kW
      - F354, F356
    - G-Series A/P
      - 
      - 
      - 50 W to 1.5 kW
      - F352, F355
    - SmartStep2
      - 
      - 
      - 50 to 750 W
      - F353, F355

Selection table

	Servo drives		
			
	Accurax G5	**G-Series**	**SmartStep 2**
	EtherCAT network and safety built-in	Compact size and ML2 motion bus	Pulse train input with ultra-compact size
Ratings 230 V single-phase	100 W to 1.5 kW	100 W to 1.5 kW	100 W to 750 W
Ratings 400 V three-phase	600 W to 15 kW	N/A	N/A
Applicable servomotor	Accurax G5 and G-Series rotary motors	G-Series	G-Series
Position control	EtherCAT, MECHATROLINK-II or Pulse train input	MECHATROLINK-II or Pulse train input	Pulse train input
Speed control	EtherCAT, MECHATROLINK-II or Analog input ±10 V	MECHATROLINK-II or Analog input ±10 V	N/A
Torque control	EtherCAT, MECHATROLINK-II or Analog input ±10 V	MECHATROLINK-II or Analog input ±10 V	Torque limits only
	Embedded indexer functionality	N/A	N/A
Safety approvals	ISO13849-1:2008 (PL d), EN 954-1:1996 (Cat-3)	N/A	N/A
Full closed loop	Built-in	N/A	N/A
Quick Link	F354	F352	F353

	Accurax G5 servo motors			
				
	Standard models			
	3,000 r/min motor	**2,000 r/min motor**	**1,500 r/min motor**	**1,000 r/min motor**
Rated speed	3,000 rpm	2,000 rpm	1,500 rpm	1,000 rpm
Maximum speed	4,500 to 6,000 rpm	3,000 rpm	2,000 to 3,000 rpm	2,000 rpm
Rated torque	0.16 Nm to 15.9 Nm	1.91 Nm to 23.9 Nm	47.8 Nm to 95.5 Nm	8.59 Nm to 28.7 Nm
Sizes	50 W to 5 kW	400 W to 5 kW	7.5 kW to 15 kW	900 W to 6 kW
Applicable servo drive	Accurax G5 servo drive	Accurax G5 servo drive	Accurax G5 servo drive	Accurax G5 servo drive
Encoder resolution	20-bit incremental/ 17-bit absolute	20-bit incremental/ 17-bit absolute	17-bit absolute	20-bit incremental/ 17-bit absolute
IP rating	IP67	IP67	IP67	IP67
Quick Link	F356			

	G-Series servo motors – Cylindrical type –			G-Series servo motors – Flat type –
				
	3,000 r/min motor	**2,000 r/min motor**	**1,000 r/min motor**	**3,000 r/min motor**
Rated speed	3,000 rpm	2,000 rpm	1,000 rpm	3,000 rpm
Maximum speed	4,500 to 5,000 rpm	3,000 rpm	2,000 rpm	5,000 rpm
Rated torque	0.16 Nm to 4.77 Nm	4.8 Nm to 7.15 Nm	8.62 Nm	0.32 Nm to 1.3 Nm
Sizes	50 to 1,500 W	1 to 1.5 kW	900 W	100 to 400 W
Applicable servo drive	SmartStep 2, G-Series and Accurax G5 servo drives	SmartStep 2, G-Series and Accurax G5 servo drives	SmartStep 2, G-Series and Accurax G5 servo drives	SmartStep 2, G-Series and Accurax G5 servo drives
Encoder resolution	10,000 pulses/revolution or 17-bit absolute/incremental	10,000 pulses/revolution or 17-bit absolute/incremental	10,000 pulses/revolution or 17-bit absolute/incremental	10,000 pulses/revolution or 17-bit absolute/incremental
IP rating	IP65	IP65	IP65	IP65
Quick Link	F355			

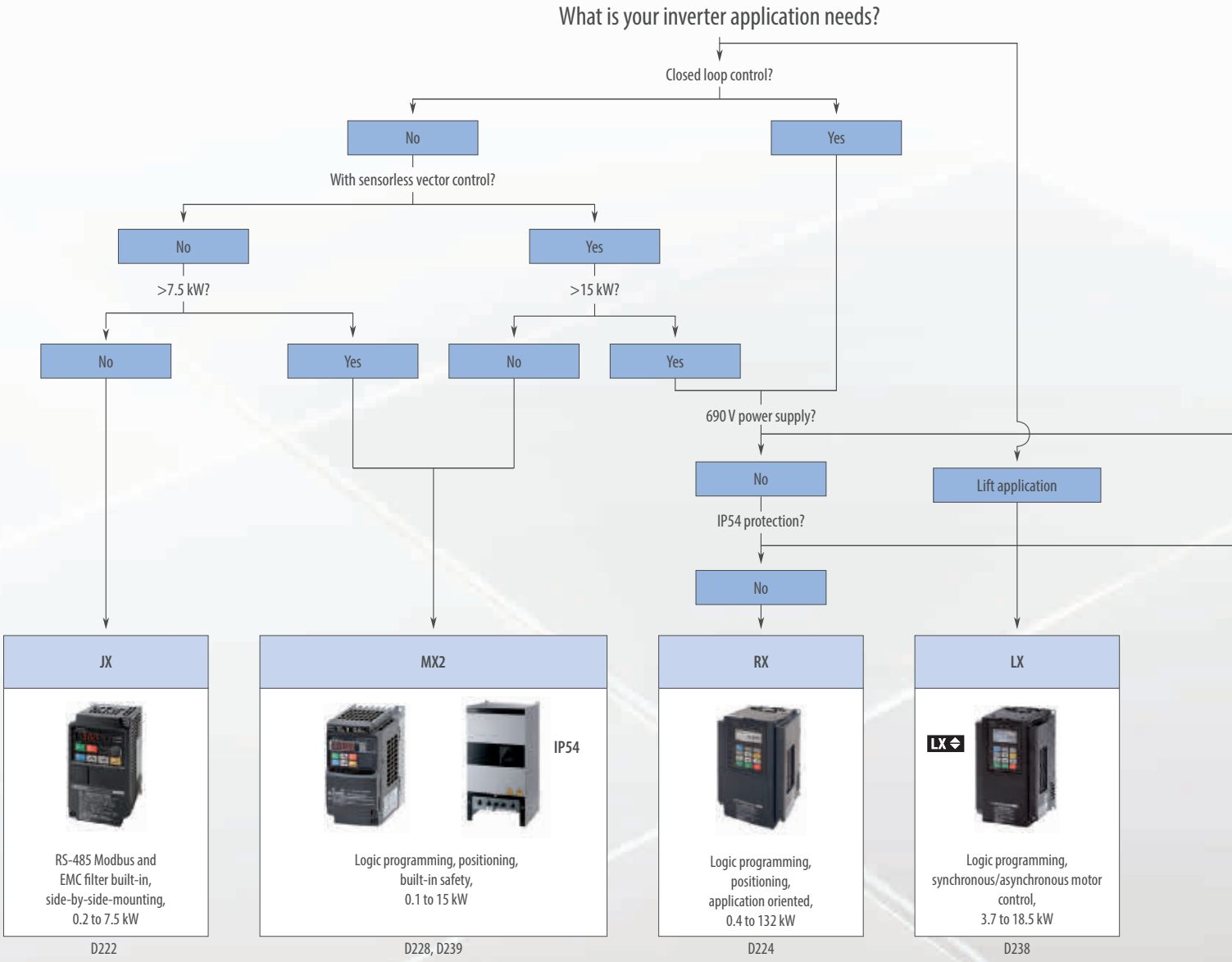
	Accurax G5 servo motors		
			
	High inertia models		
	3,000 r/min motor	2,000 r/min motor	1,500 r/min motor
Rated speed	3,000 rpm	2,000 rpm	1,500 rpm
Maximum speed	5,000 rpm	3,000 rpm	2,000 to 3,000 rpm
Rated torque	0.64 Nm to 2.4 Nm	4.77 Nm to 23.9 Nm	47.8 Nm
Sizes	200 W to 750 W	1 kW to 5 kW	7.5 kW
Applicable servo drive	Accurax G5 servo drive	Accurax G5 servo drive	Accurax G5 servo drive
Encoder resolution	20-bit incremental/ 17-bit absolute	20-bit incremental/ 17-bit absolute	17-bit absolute
IP rating	IP65	IP67	IP67
Quick Link	F356		

BORN TO DRIVE MACHINES

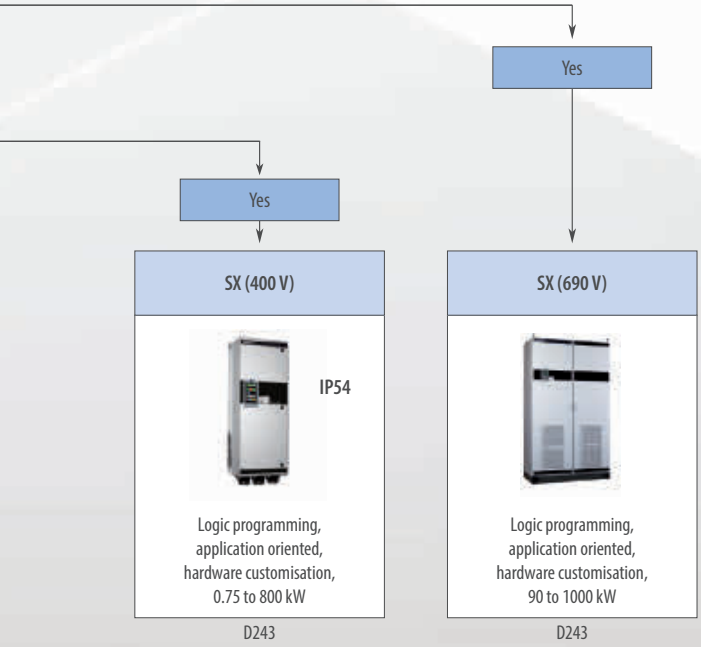
Harmonised motor and machine control

Specifically created for your application, the MX2 was developed to harmonise advanced motor and machine control. Thanks to its advanced design and algorithms the MX2 provides smooth control down to zero speed, plus precise operation for fast cyclic operations and torque control capability in open loop.

The MX2 also gives you comprehensive functionality for machine control such as positioning, speed synchronisation and logic programming. The MX2 is fully integrated within the Omron smart automation platform.
The MX2 is the child of a true leader in machine automation.




200V
3PHASE
0.4 kW
OMRON
MX2 INVERTER
RUN PWR
RUN
STOP
RESET
WARNING – Risk of electric shock.


Yes
Yes
SX (400 V)
IP54
Logic programming,
application oriented,
hardware customisation,
0.75 to 800 kW
D243
SX (690 V)
Logic programming,
application oriented,
hardware customisation,
90 to 1000 kW
D243

Model	RX	LX
		LX 
	Customised to your machine	**Lift applications**
400 V three-phase	0.4 kW to 132 kW	3.7 kW to 18.5 kW
200 V three-phase	0.4 kW to 55 kW	–
Application	High performance, built-in know-how functionality	Lift control with asynchronous and synchronous motors
Control method	Open and closed loop for vector and V/F control	Open and closed loop vector control and V/F control
Torque features	200% at 0.0 Hz (CLV) 150% at 0.3 Hz (OLV)	150% at 0.0 Hz (CLV) 200% at 0.3 Hz (OLV)
Connectivity	Modbus, DeviceNet, PROFIBUS, MECHATROLINK-II, EtherCAT, CompoNet	Modbus
Logic programming	Standard firmware	Standard firmware
Quick Link	D224	D238

Model	MX2	JX
	  IP54	
	Born to drive machines	**Compact and complete**
400 V three-phase	0.4 kW to 15 kW	0.4 kW to 7.5 kW
200 V three-phase	0.1 kW to 15 kW	0.2 kW to 7.5 kW
200 V single-phase	0.1 kW to 2.2 kW	0.2 kW to 2.2 kW
Application	Harmonized motor and machine control	General purpose built-in communications
Control method	Open loop speed and torque control for vector and speed for V/F control	V/F control
Torque features	200% at 0.5 Hz	150% at 3 Hz
Connectivity	Modbus, DeviceNet, PROFIBUS, MECHATROLINK-II, EtherCAT, CompoNet, EtherNet IP	Modbus
Logic programming	Standard firmware	N/A
Customisation options	IP54 enclosure	N/A
Quick Link	D228, D239	D222

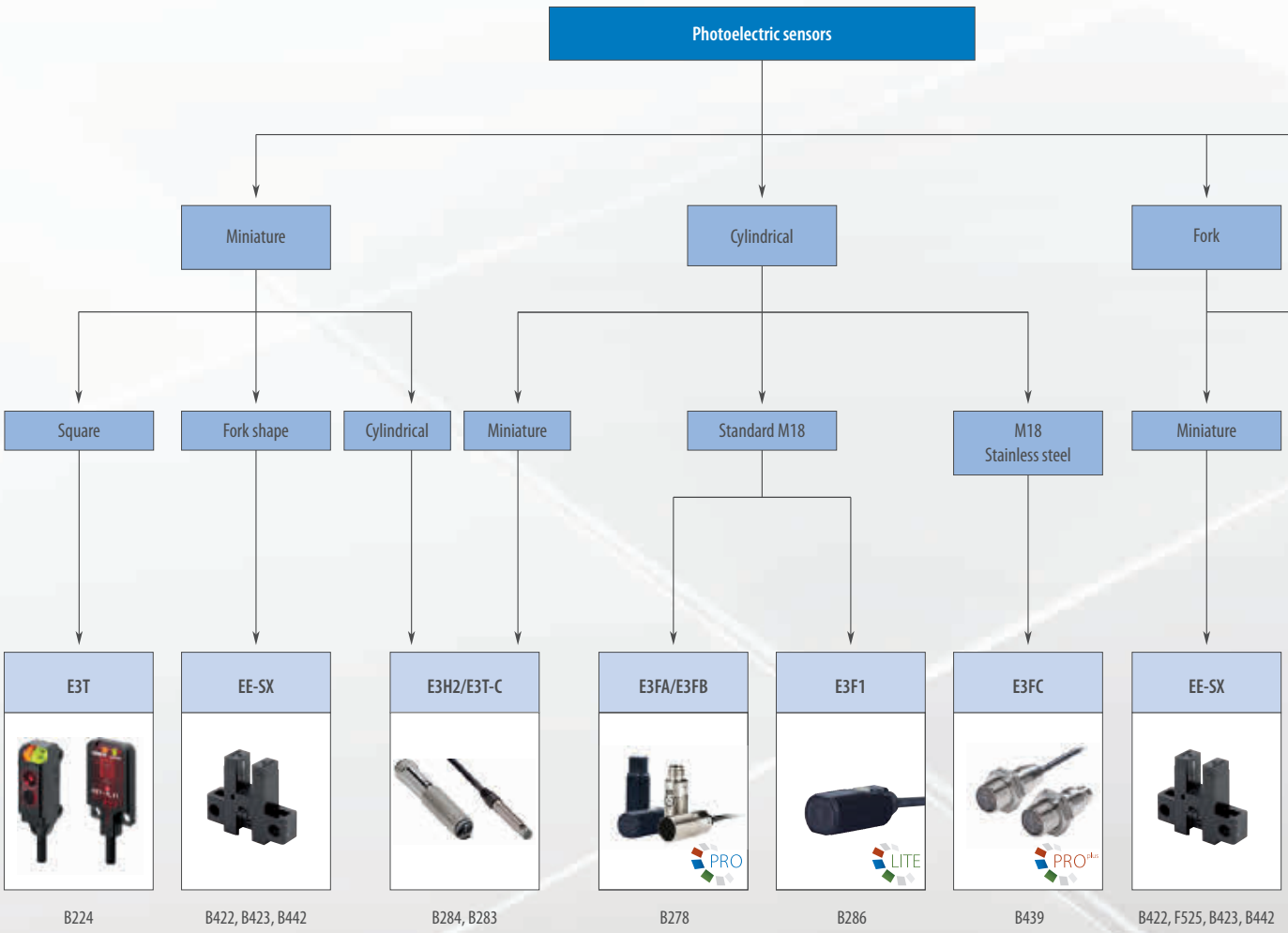
Model	SX (400 V)	SX (690 V)
	 IP54	
	High performance vector control	
400 V three-phase	0.75 kW to 800 kW	–
690 V three-phase	–	90 kW to 1,000 kW
Application	High power flux vector and variable torque applications	High power flux vector and variable torque applications
Control method	Flux vector and V/F control	Flux vector and V/F control
Torque features	120% at 0,0 Hz (CLV) 120% at 0,5 Hz (OLV)	120% at 0,0 Hz (CLV) 120% at 0,5 Hz (OLV)
Connectivity	Modbus, DeviceNet, PROFIBUS, EtherCAT, Modbus TCP, CAN	Modbus, DeviceNet, PROFIBUS, EtherCAT, Modbus TCP, CAN
Logic programming	Standard firmware	Standard firmware
Customisation options	Hardware customisation (main switch, liquid cooling, 12-pulse rectifier, …)	Hardware customisation (main switch, liquid cooling, 12-pulse rectifier, …)
Quick Link	D243	D243

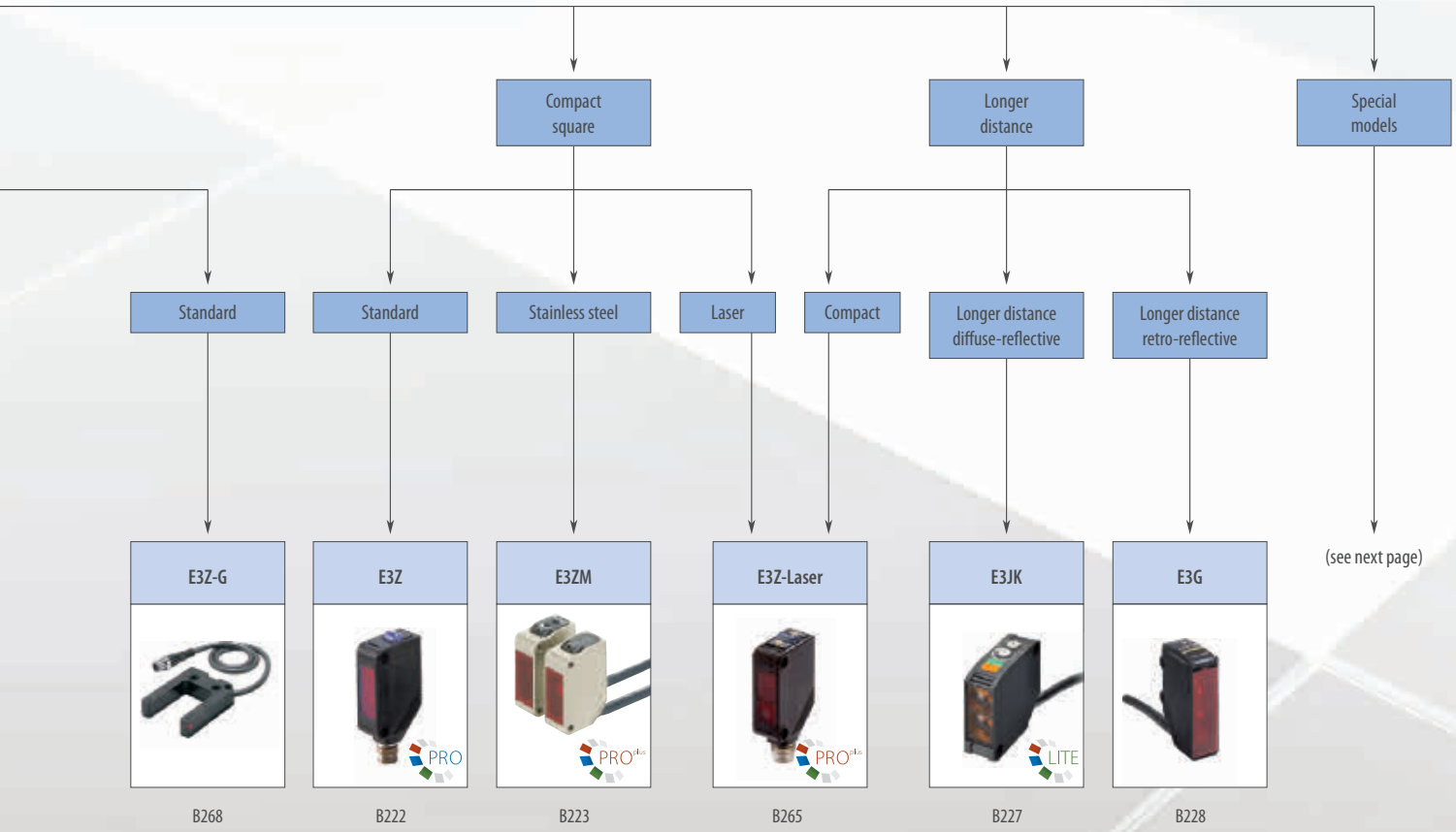
FOR MACHINES BUILT TO LAST

Reliability and accuracy confirmed by millions . . . every day

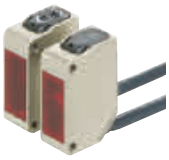
With more than one million units sold, OMRON Photoelectric sensors are among the world's most popular and successful photoelectric sensors.
Manufactured to exceptionally high engineering standards, you can take the performance reliability for granted.

- Optimal sensing performance tuned to your application
- Various housing designs fitting your application concept
- Proven performance and unmatched reliability




Compact square
Longer distance
Special models
Standard
Standard
Stainless steel
Laser
Compact
Longer distance diffuse-reflective
Longer distance retro-reflective
E3Z-G
E3Z
E3ZM
E3Z-Laser
E3JK
E3G
PRO
PRO
PRO
LITE
(see next page)
B268
B222
B223
B265
B227
B228

Selection table

Type	Compact square			Longer distance	
					
Model	**E3Z**	**E3ZM**	**E3Z Laser**	**E3S-CL**	**E3JK**
361°	PRO	PRO^{plus}	PRO^{plus}	n.a.	LITE
Housing	PBT	Stainless steel	PBT	Zinc diecast	ABS
Through-beam	15 m, 30 m	15 m	60 m	–	40 m
Retro-reflective with M.S.R.	5 m	4 m	15 m	–	7 m
Diffuse-reflective (energetic)	1 m	1 m	–	–	2.5 m
Diffuse-reflective (background suppression)	200 mm	200 mm	300 mm	500 mm	–
Quick Link	B222	B223	B265	B249	B227

Type	Cylindrical			
				
Model	**E3FA/E3FB**	**E3F1**	**E3FC**	**E3H2**
361°	PRO	LITE	PRO^{plus}	n.a.
Housing	M18 PBT, metal	ABS	M18 stainless steel	M12 metal, M8 stainless steel
Through-beam	20 m	15 m	20 m	4 m, 2 m
Retro-reflective with M.S.R.	4 m	3 m	4 m	2 m
Diffuse-reflective (energetic)	1 m	300 mm	1 m	300 mm
Diffuse-reflective (background suppression)	200 mm	–	200 mm	–
Quick Link	B278	B286	B439	B284

Type	Miniature			Fork
				
Model	**E3T-C**	**E3T**	**EE-SX47/67**	**E3Z-G**
361°	n.a.	n.a.	n.a.	n.a.
Housing	M5, M6 stainless steel	PBT	PBT	PBT
Through-beam	1 m	1 m, 2 m	5 mm (slot width)	25 mm
Retro-reflective with M.S.R.	–	200 mm	–	–
Diffuse-reflective (energetic)	50 mm	30 mm	–	–
Diffuse-reflective (background suppression)	–	30 mm	–	–
Quick Link	B283	B224	B423	B268

Type	Oil resistant	Mark detection	Transparent detection			
						
Model	**E3ZM-C**	**E3ZM-V**	**E3ZM-B**	**E3Z-B**	**E3F_-B/-V**	**E3S-DB**
361°	PRO^{plus}	PRO^{plus}	PRO^{plus}	PRO^{plus}	PRO^{plus}	PRO^{plus}
Key features	Oil and lubricant resistant stainless steel housing	White LED for optimal contrast recognition	Optimised optical system for all transparent objects	Optical system for standard transparent objects	Optimised optical system for all transparent objects	Enhanced performance for all transparent objects, SmartTeach, Narrow spot
Housing	Stainless steel	Stainless steel	Stainless steel	PBT	M18 PBT/metal	PBT/ABS
Through-beam	20 m	–	–	–	–	–
Retro-reflective with M.S.R.	4 m		500 mm	500 mm, 2 m	2 m	4.5 m
Diffuse-reflective	1 m	12mm±2mm	–	–	–	–
Diffuse-reflective (background suppression)	200 mm	–	–	–	50 mm	–
Quick Link	B267	B274	B266	B271	B285	B346

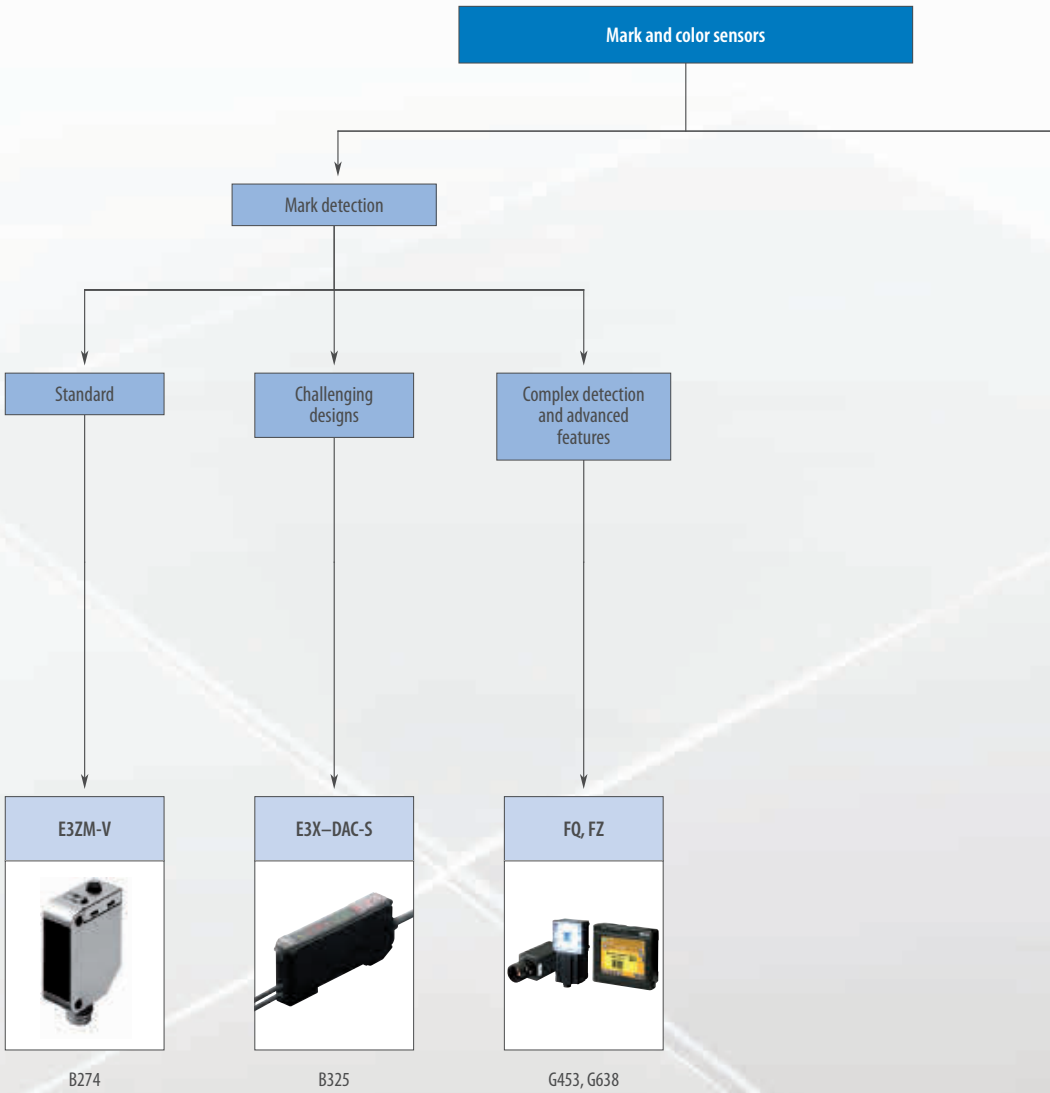
Type	High precision positioning	Structured object detection	Multi voltage power supply
			
Model	**E3NC Laser Sensors**	**E3S-LS3**	**E3JK, E3JM, E3G-_M**
361°	n.a.	n.a.	n.a.
Key features	0.1 mm Laser spot, line beam, CMOS BGS, EtherCAT connectivity	Wide beam	AC/DC power supply and relay output
Housing	PBT	PBT	ABS, ABS, PBT
Through-beam	–	–	40 m, 10 m, –
Retro-reflective with M.S.R.	8 m	–	9 m, 4 m, 10 m
Diffuse-reflective	1.2 m	60 mm	2.5 m, 700 mm, 2 m
Diffuse-reflective (background suppression)	250 mm	–	–, –, 1.2 m
Quick Link	B289, B292	B259	B227, B226, B282

FAST ADAPTION TO CHANGING PACKAGINGS

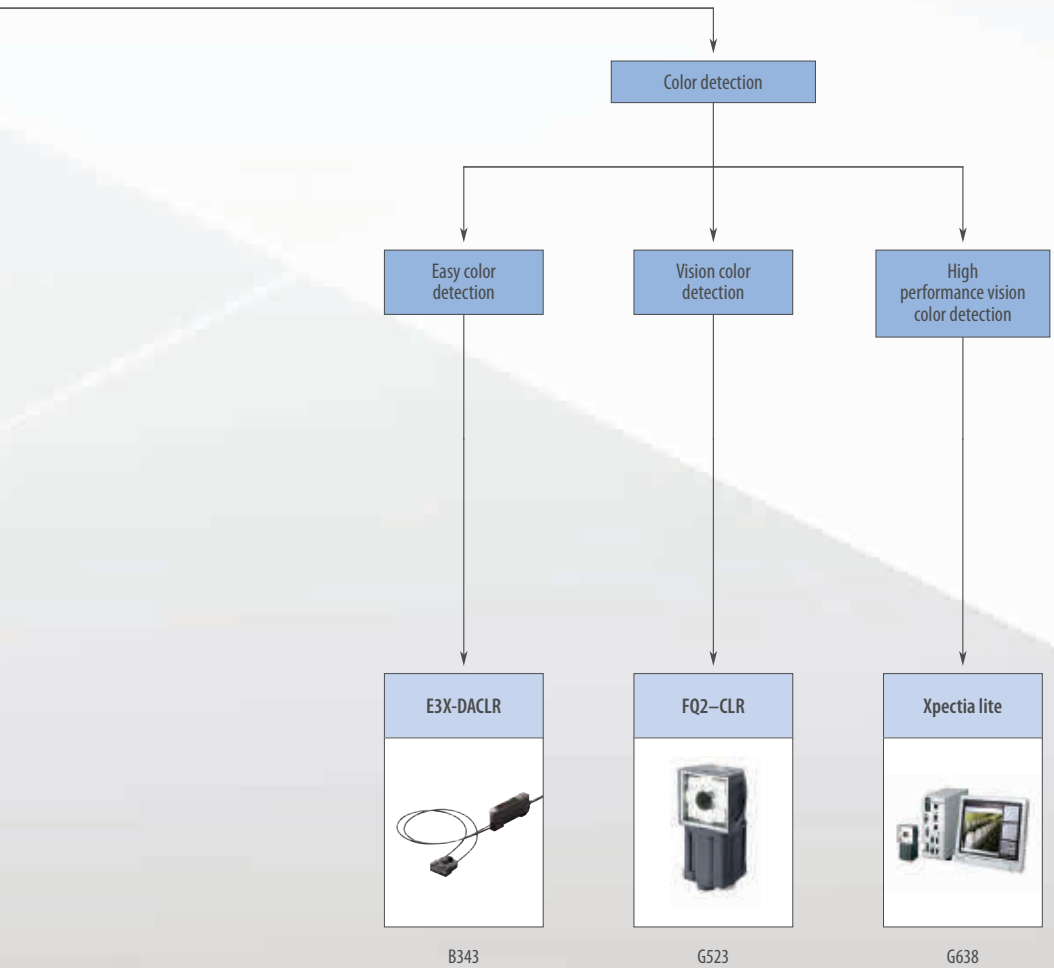
Choose the performance you need

Packaging machines have to adapt quickly to a large variety of different packaging designs with minimal change-over time and no quality loss. For sensors detecting registration marks or colors this requires flexibility and simplicity in handling while keeping the precision and operational stability. At OMRON we closely work together with leading packaging machine makers to evaluate the requirements for sensors from commonly used packaging material as well as most critical designs or materials. Our portfolio is set up to balance the performance and budget requirements in these situations ... simply choose the performance you need.

- Reliable mark detection even in changing environmental conditions during machine operation
- Fast and easy setup up after packaging material exchange
- Performance levels fitting the machine value concept




OMRON
OK
Popcorn 30 packs
2012.05.14


Color detection
Easy color detection
Vision color detection
High performance vision color detection
E3X-DACLR
FQ2-CLR
Xpectia lite
B343
G523
G638

Type		Standard print mark detection	Challenging designs	Complex detection and advanced features
				
Model		E3ZM-V	E3X-DAC-S	FQ, FZ
Key feature		White LED, stainless steel housing	White LED, RGB ratio comparison and extended functionality	High performance vision inspection functionality
Detection distance		12±2 mm	5–50 mm	See QUALITY CONTROL AND INSPECTION GUIDE
Response time		50 µs	60 µs	
Quick Link		B274	B325	

Type		Easy color detection	Vision color detection	High performace vision color detection
				
Model		E3X-DACLR	FQ2-CLR	Xpectia lite
Key feature		Easy one-button teach operation		
No of simultaneous color inspections		1 to 4	1 to 32	1 to 128
Output	Color detected – digital out	■	■	■
	RGB value out (via ethernet)	–	■	■
	HSI value out (via ethernet)	–	–	■
Tolerance adjustment	Auto tolerance	■	–	–
	Teachable	■	■	■
	Manually adjustable	–	■	■
	Advanced	–	–	■
Quick Link		B343	G523	See QUALITY CONTROL AND INSPECTION GUIDE

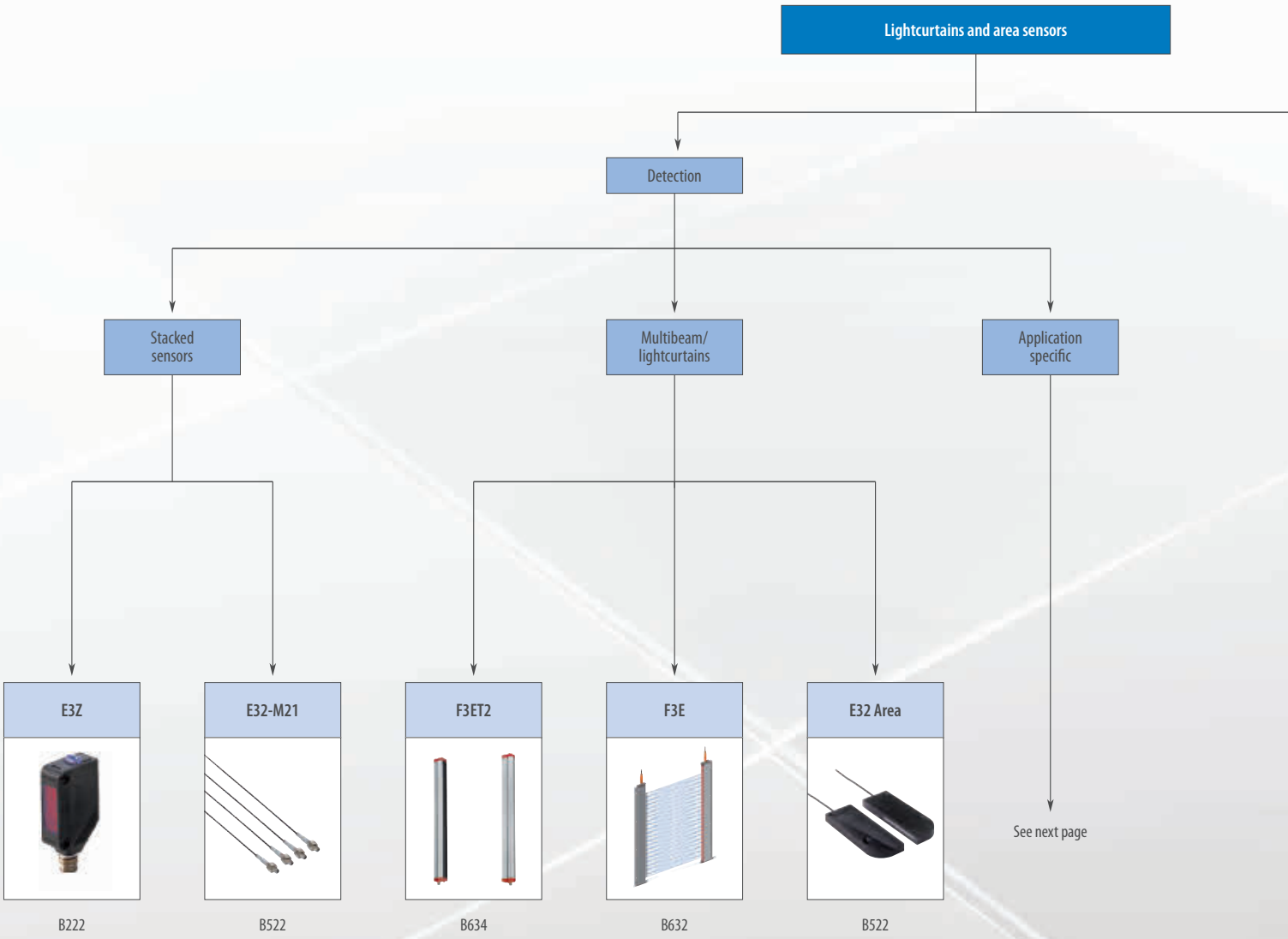
PRESENCE, HEIGHT OR PROFILE ...

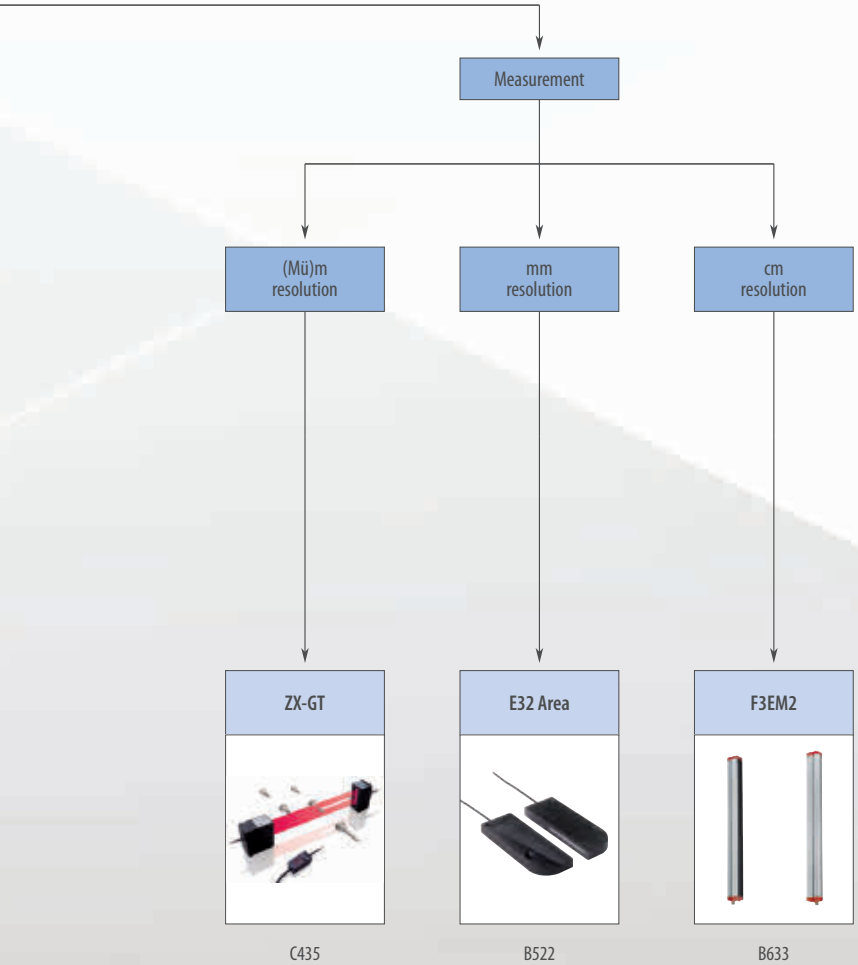
... choose the accuracy you need

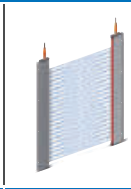
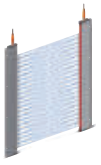
Objects with varying positions or heights or objects with holes can create multiple signals or stay undetected when using single beam sensors. These objects (e.g. parcels, bikes or natural products like ham or fish) are then wrongly classified as multiple smaller items or are not detected correctly.

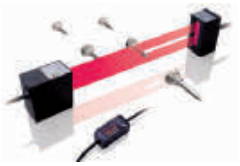
Detecting these objects over their whole length or acquiring the more detailed object profile can be realized using multiple sensors or light curtains.

Omron offers a wide range of models with varying max detection heights, different resolutions and with digital, analog or serial outputs to provide the best performance match fitting your application.




Measurement
(Mü)m resolution
mm resolution
cm resolution
ZX-GT
E32 Area
F3EM2
C435
B522
B633

Type	Stacked sensors		Multibeam sensors/lightcurtains			Application specific lightcurtains	
							
Model	**E3Z**	**E32-M21**	**F3ET2**	**F3E**	**E32 area**	**Safety lightcurtains**	**F3E Elevator lightcurtains**
Key features	Mutual interference prevention	4 × M3 heads combined in one fiber	Models with 5 and 18 mm pitch	Thin aluminum housing	Teachable sensitivity	Type 2, type 4 or application specific	Fulfills EN81-70
Max. sensing distance	60 m	1.3 m	15 m	5 m	4 m	50 m	5 m
Max. detection height	n. a.	4 m	2.1 m	1.8 m	70 mm	2.4 m	1.8 m
Quick Link/Page	B222	B522	B634	B632	B522	84	B632

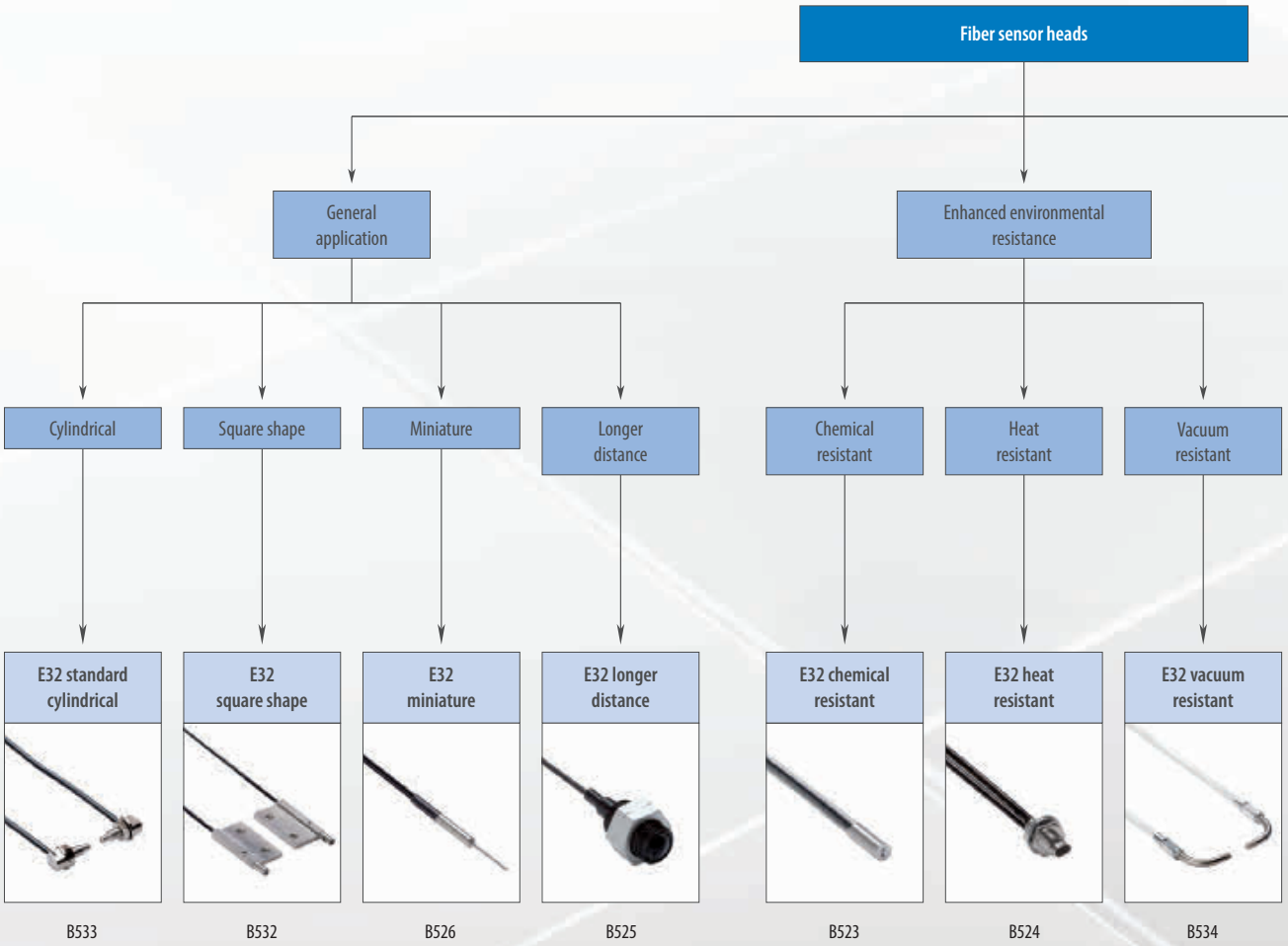
Type	Measuring lightcurtains		
			
Model	**F3EM2**	**E32 area**	**ZX-GT**
Key features	cm accuracy	mm accuracy	µm accuracy
Max. sensing distance	15 m	4 m	0.5 m
Max. measurement height	2.1 m	70 mm	28 mm
Quick Link	B633	B522	C435

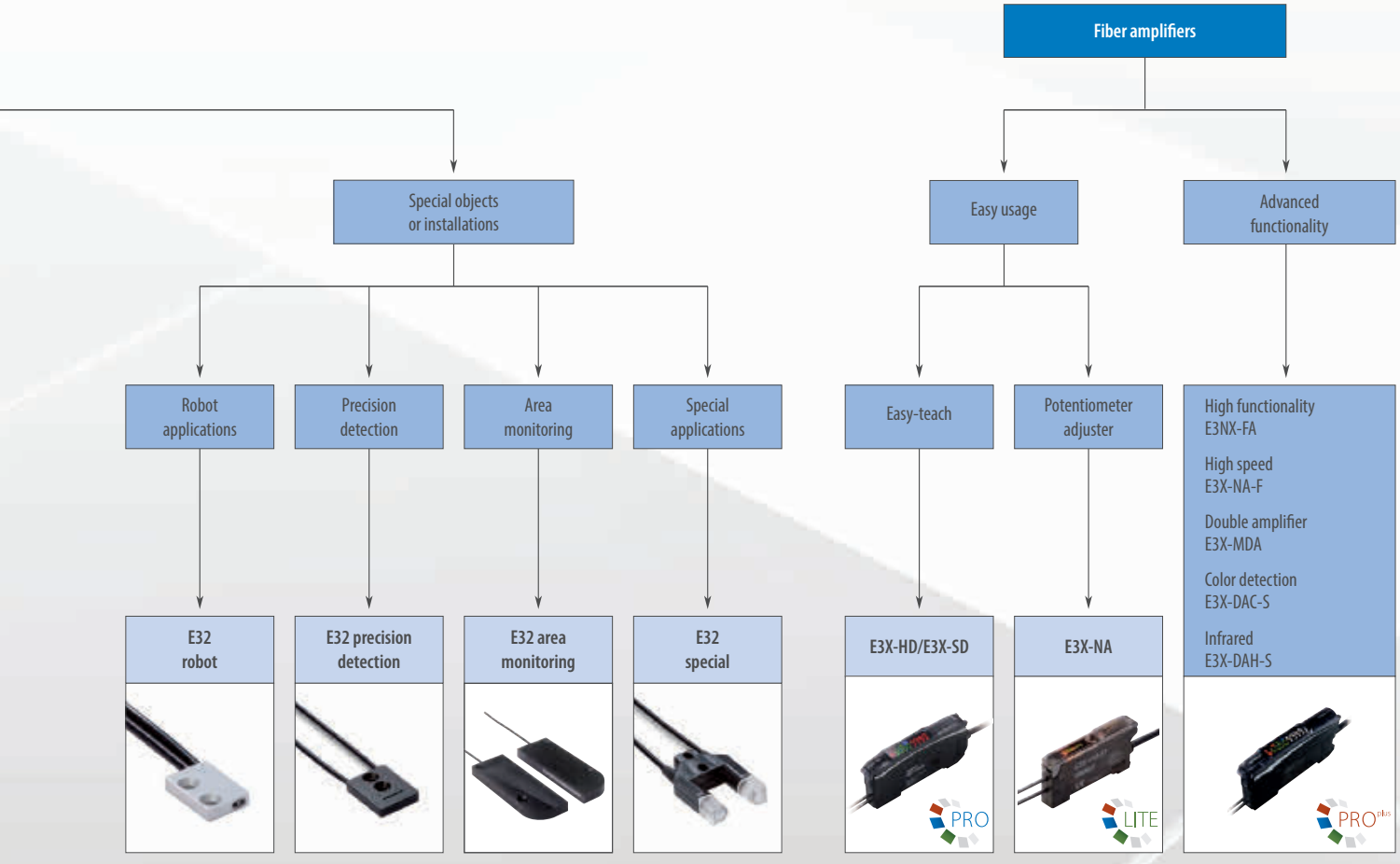
HIGH PRECISION IN SMALL SPACES

Precision and performance you can rely on

The requirements for fiber optic solutions can be very demanding particularly for applications with extreme temperatures and aggressive chemicals or for applications requiring highest precision with limited mounting space.
With the wide range of E32 fiber heads and the easy-usage amplifiers, the best performance fit for your application can be provided. The highest quality control procedures in design and manufacturing ensure that you get the precision and long service life that you can rely on.

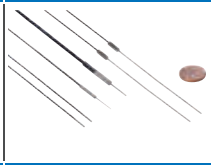
- Long operational life
- Easy to install and adjust
- Wide portfolio range for best performance fit




Fiber amplifiers
Special objects or installations
Easy usage
Advanced functionality
Robot applications
Precision detection
Area monitoring
Special applications
Easy-teach
Potentiometer adjuster
High functionality E3NX-FA
High speed E3X-NA-F
Double amplifier E3X-MDA
Color detection E3X-DAC-S
Infrared E3X-DAH-S
E32 robot
E32 precision detection
E32 area monitoring
E32 special
E3X-HD/E3X-SD
E3X-NA
PRO
LITE
PRO plus
B528
B527
B522
B529
B342, B334
B328
E3NX-FA B345
E3X-NA_F B339
E3X-MDA B326
E3X-DAC-S B325
E3X-DAH-S B338

Selection table

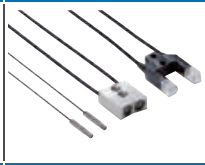
Fiber sensor heads

Type	Cylindrical	Square shape	Miniature	Longer distance	Chemical resistant
					
Model	**E32 standard cylindrical**	**E32 square shape**	**E32 miniature**	**E32 longer distance**	**E32 chemical resistant**
Key features	• Standard and high-flex fibers • Sizes M3 to M6	• 3 or 4 mm thin housing • Models in X,Y or Z-axis • Direct mounting without bracket	• Sizes from dia 500 µm to 3 mm • Bendable sleeves	• Built in focal lenses	• Fluoroplastic cover or coating
Through-beam	1,550 mm	1,550 mm	1,550 mm	20 m	4 m
Retro-reflective	250 mm	–	–	1.5 m	–
Diffuse-reflective	650 mm	600 mm	600 mm	1.4 m	350 mm
Quick Link	B533	B532	B526	B525	B523

Note: All sensing distances measured with E3X-DA-SE-S. Longer sensing distances up to 80% can be achieved with E3X-DA-S.

Fiber amplifiers

Type	Easy teach/double display	Easy teach/single display	Potentiometer adjuster	High performance	Double amplifier
					
Model	**E3X-HD**	**E3X-SD**	**E3X-NA**	**E3NX-FA**	**E3X-MDA**
361°	PRO	LITE	LITE	PRO^{plus}	n.a.
Key features	• Easy operation by smart tuning • Dynamic power control • Fieldbus connectivity	• 1 button object teaching • Auto teach during operation	• Easy adjustment by potentiometer	• High functionality signal processing (timer, counter, dynamic power control, etc. • High signal resolution • Increased sensing distance • Double output/external input • Fieldbus connectivity	• 2 inputs and AND, OR signal comparison
Response time (min.)	1 ms (50 µs in super-high-speed mode)	1 ms	200 µs	1 ms (30 µs in super-high-speed mode)	1 ms (130 µs in high speed mode)
Quick Link	B342	B334	B328	B345	B326

Heat resistant	Vacuum resistant	Robot applications	Precision detection	Area monitoring	Special application
					
E32 heat resistant	**E32 vacuum resistant**	**E32 robot**	**E32 precision detection**	**E32 area monitoring**	**E32 special**
• Heat resistant up to 400°C	• Leakage rate of 1×10^{-10} Pa*m^3/s max	• Free moving multicore fibers for >1 Mio bending cycles	• Detection accuracy up to 100 µm • Coaxial fibers • Adjustable focal points	• Area monitoring up to 70 mm	• Detection of special objects (wafer, liquid level, flat glass, print mark ...)
3 m	950 mm	1,350 mm	3.8 m	4 m	3.8 m
–	–	–	–	–	–
500 mm	–	350 mm	600 mm	300 mm	20 mm
B524	B534	B528	B527	B522	B529

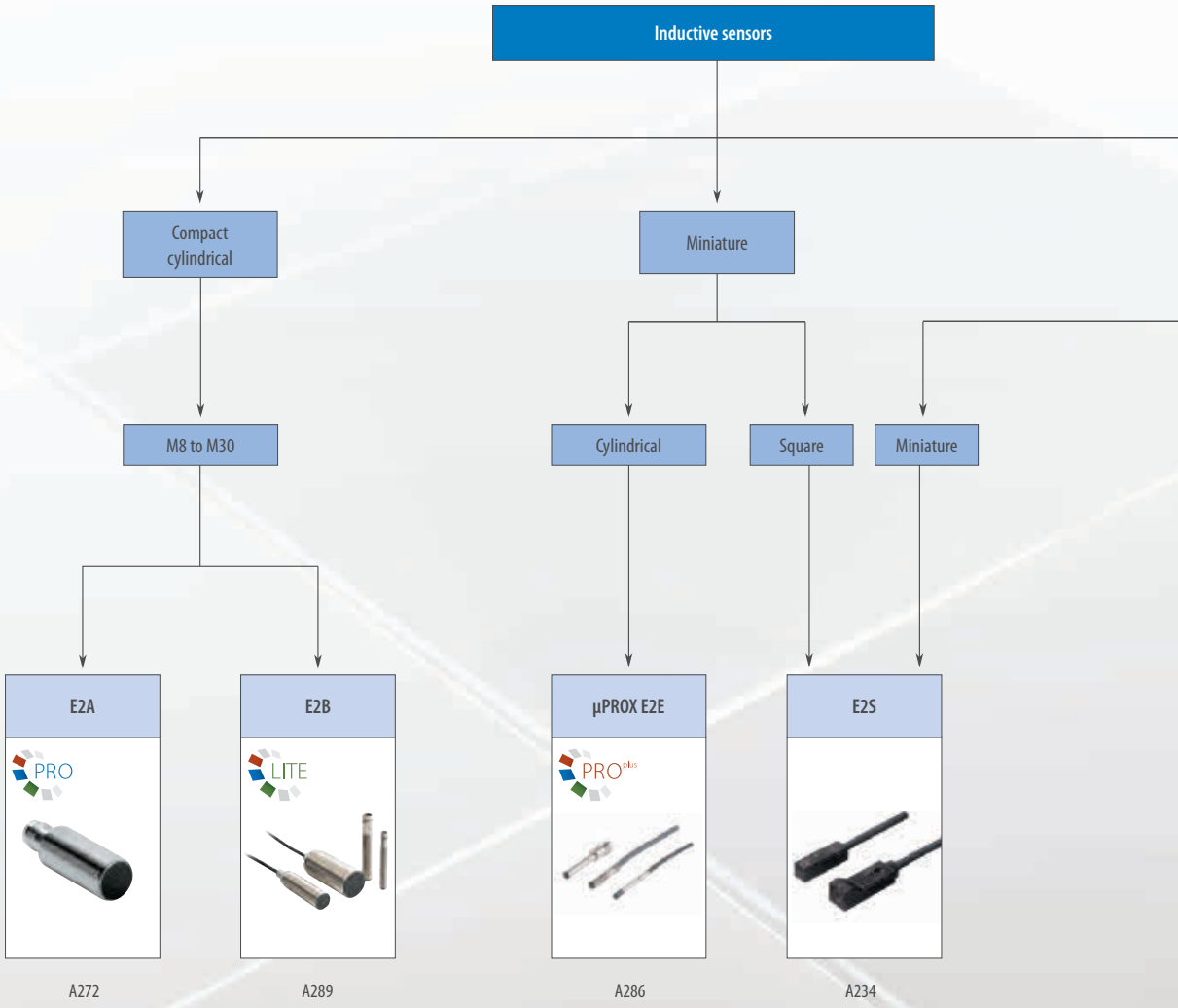
High speed	Color/print mark detection	Infrared LED
		
E3X-NA-F	**E3X-DAC-S**	**E3X-DAH-S**
n.a.	n.a.	n.a.
• Short turn on time of 20 µs	• White LED and RGB ratio comparison	• Infrared LED
20 µs	1 ms (60 µs in super high speed mode)	1ms (55µs in super high speed mode)
B339	B325	B338

ZERO TOLERANCE ON FAILURE

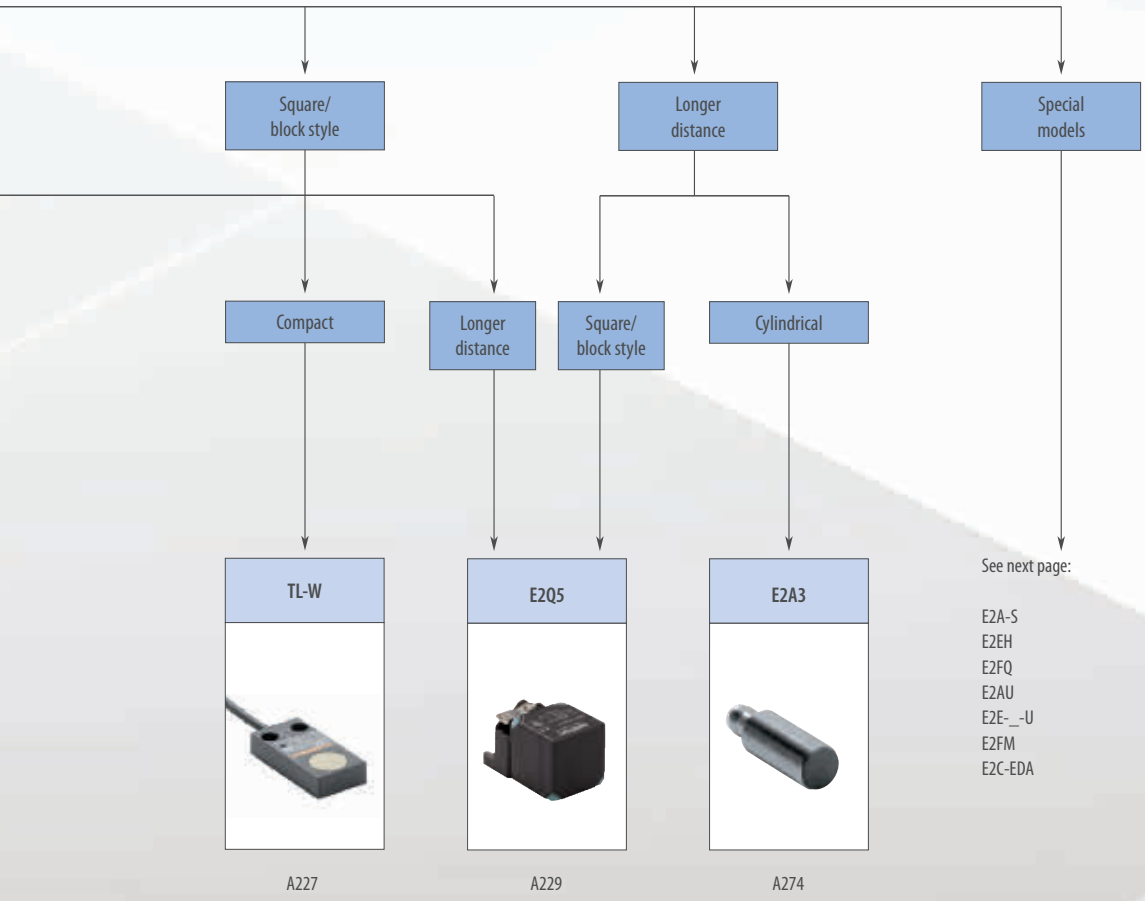
Tested reliability for demanding conditions

Our inductive sensors are designed and tested to ensure a long service life and to achieve maximum machine availability even in the harshest environments.
This trusted reliability makes the E2A one of the world's most popular and successful inductive proximity sensors with more than one million units sold every year.

- Wide portfolio and application range
- Highest reliability even in demanding environments
- Designed for flexibility - modular housing design for best performance fit




361°


Square/ block style
Longer distance
Special models
Compact
Longer distance
Square/ block style
Cylindrical
TL-W
E2Q5
E2A3
See next page:
E2A-S
E2EH
E2FQ
E2AU
E2E-_-U
E2FM
E2C-EDA
A227
A229
A274

Selection table

Format		Cylindrical			
					
Model		**E2A**	**E2A3**	**E2A-S**	**E2B**
361° product line		PRO	PRO^{plus}	PRO	LITE
Type		Compact	Long distance	Compact	Compact
Material		Brass, SUS	Brass	Stainless steel	Stainless steel
Max. sensing distance	dia. 3	–	–	–	–
	dia. 4	–	–	–	–
	M5	–	–	–	–
	dia. 6.5	–	–	–	–
	M8	2/4 mm	3 mm	2/4 mm	2/4 mm
	M12	4/8 mm	6 mm	4/8 mm	4/8 mm
	M18	8/16 mm	11 mm	8/16 mm	8/16 mm
	M30	15/30 mm	20 mm	15/20 mm	15/30 mm
	19 × 6 × 6	–	–	–	–
	22 × 8 × 6	–	–	–	–
	31 × 18 × 10	–	–	–	–
	53 × 40 × 23	–	–	–	–
	67 × 40 × 40	–	–	–	–
Mount.	Shielded	■	■	■	■
	Non-shielded	■	–	■	■
Oper. mode	NO	■	■	■	■
	NC	■	■	■	■
	NO + NC	■	–	■	–
Wiring	DC 2-wire	■	–	–	–
	DC 3-wire	■	■	■	■
	DC 4-wire	■	–	■	–
	AC 2-wire	–	–	–	–
Voltage	10 to 30 VDC	■	■	■	■
	12 to 240 VAC	–	–	–	–
IP rating	IP67	■	■	■	■
	IP69K	■	■	■	–
	Quick Link	A272	A274	A278	A289

Special models

Type	Vehicle usage certified	Detergent and heat resistant	Chemical resistant	Small diameter
				
Model	**E2AU**	**E2EH**	**E2FQ**	**µPROX E2E**
361° product line	PRO^{plus}	PRO^{plus}	PRO^{plus}	PRO^{plus}
Key features	• e1 type approval (according to automotive directive 2005/83/EC) • E1 (according to vehicle regulation ECE-R10)	• Stainless steel housing • 120°C heat resistance	• PTFE housing	• High frequency of 5 kHz: suitable for high-speed counting • All sizes are also available as non-shielded types
dia. 3	–	–	–	■
dia. 4				■
dia. 6.5	–	–	–	■
M5				■
M8	–	–	–	–
M12	■	■	■	–
M18	■	■	■	–
M30	■	■	■	–
Quick Link	A283	A244	A246	A286

Format		Square		
				
Model		**TL-W**	**E2S**	**E2Q5**
Type		Compact	Miniature	Long distance
Material		ABS	Polyarylate	PBT
Max. sensing distance	dia. 3	–	–	–
	dia. 4	–	–	–
	M5	–	–	–
	dia. 5.4	–	–	–
	M8	–	–	–
	M12	–	–	–
	M18	–	–	–
	M30	–	–	–
	19 × 6 × 6	–	1.6 mm	–
	22 × 8 × 6	3 mm	2.5 mm	–
	31 × 18 × 10	5 mm	–	–
	53 × 40 × 23	20 mm	–	–
	67 × 40 × 40	–	–	40 mm
Mount.	Shielded	■	–	■
	Non-shielded	■	■	■
Oper. mode	NO	■	■	■
	NC	■	■	–
	NO + NC	–	–	■
Wiring	DC 2-wire	■	■	–
	DC 3-wire	■	■	■
	DC 4-wire	–	–	■
	AC 2-wire	–	–	–
Voltage	10 to 30 VDC	■	■	■
	12 to 240 VAC	–	–	–
IP rating	IP67	■	■	■
	IP69K	–	–	■
	Quick Link	A227	A234	A229

Special models

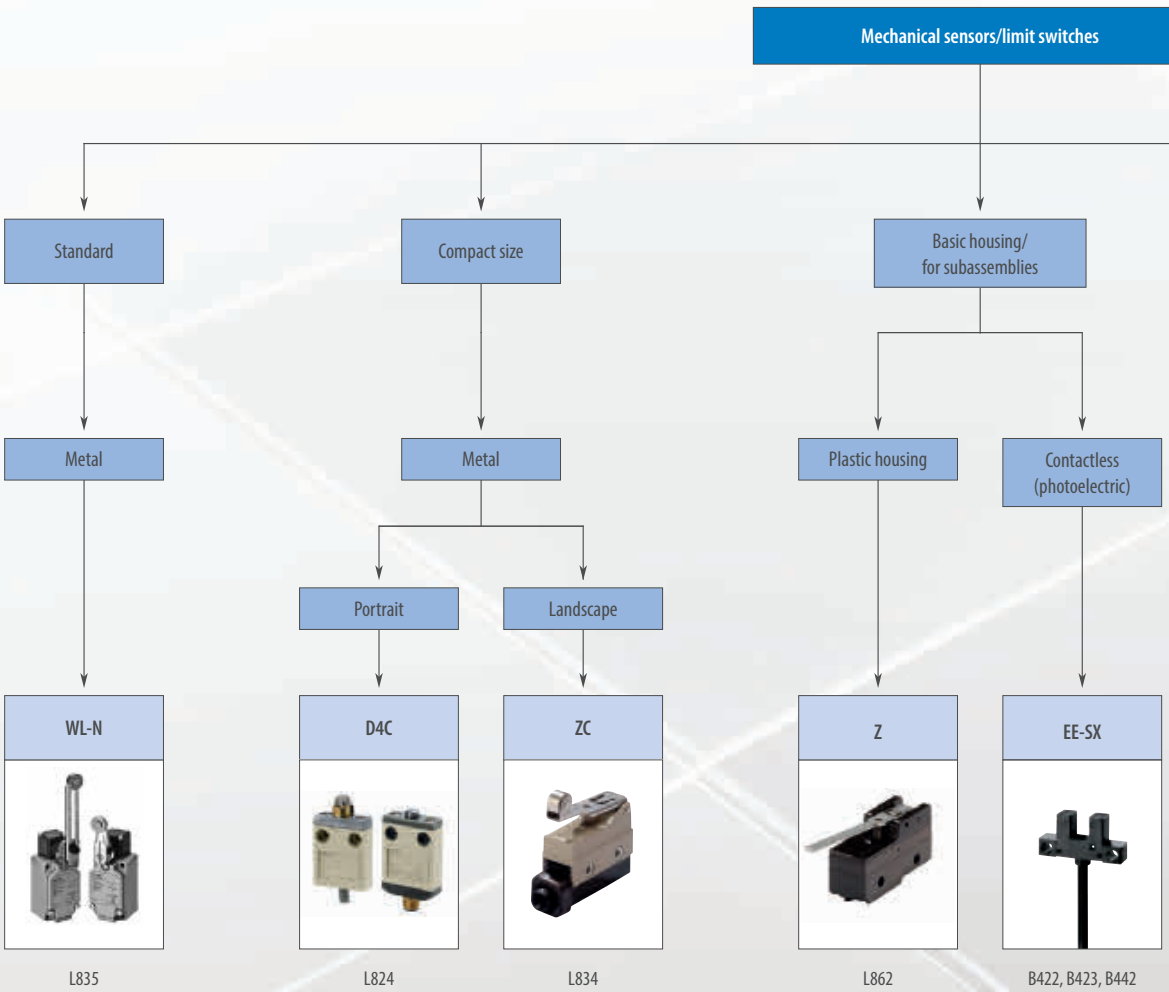
Type	Full metal face	Oil resistant	High precision positioning
			
Model	**E2FM**	**E2E-_U**	**E2C-EDA**
361° product line	PRO^{plus}	PRO^{plus}	PRO^{plus}
Key features	• Immune to aluminum and cast iron chips on sensing surface • Oil resistant	• Tested oil resistance on commonly used lubricants	• Distance teaching up to µm accuracy
dia. 3	–	–	■
dia. 4	–	–	–
dia. 6.5	–	–	–
M5	–	–	–
M8	■	■	–
M12	■	■	■
M18	■	■	■
M30	■	■	–
Quick Link	A243	A222	C433

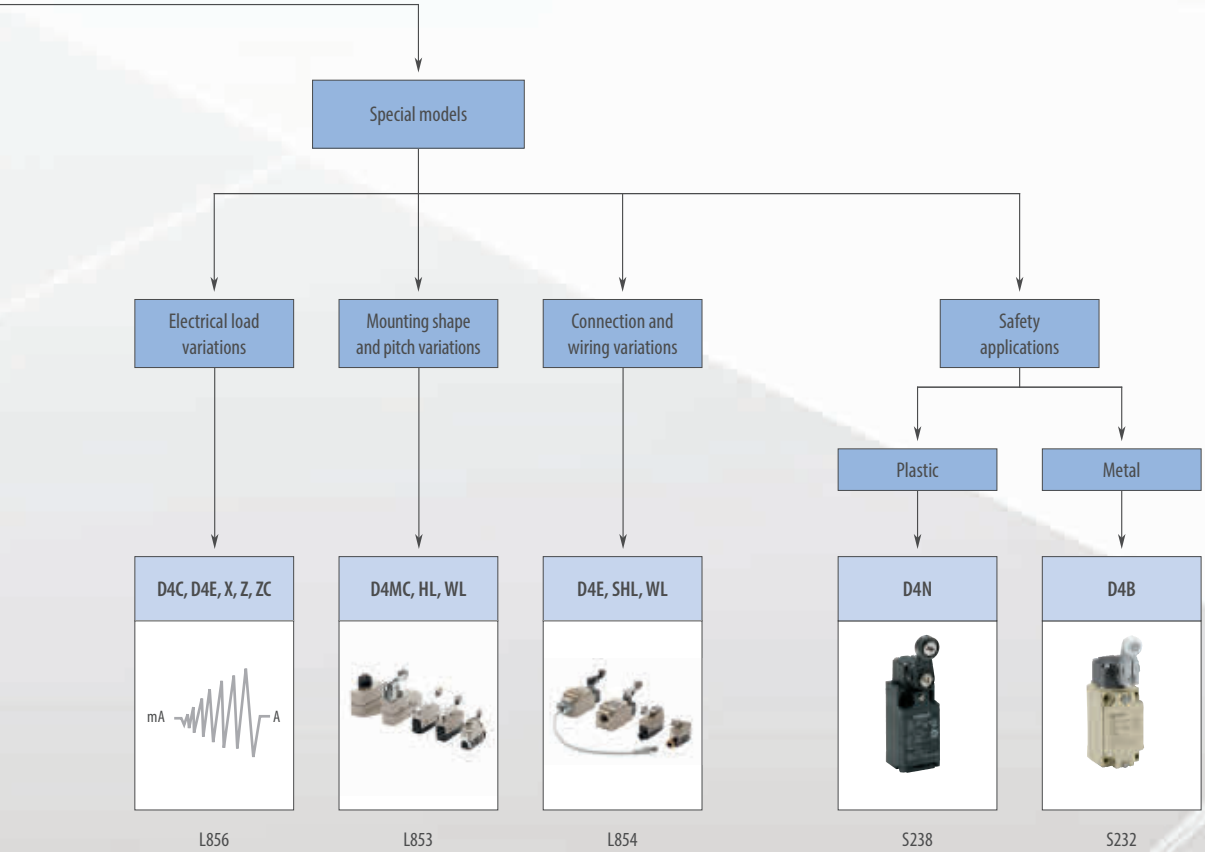
■ Standard ☐ Available – No/not available

THE RELIABLE AND FLEXIBLE WAY ...

... to stop your machines

For the detection of machine part movement especially for the detection of end positions, the mechanical and optical limit switches provide accurate and reliable operation with a large variety of actuation possibilities optimized for a widest range of application and usage requirements. The easy positioning and intuitive installation, the high immunity to changing environmental influences (electromagnetic fields, sunlight, temperatures, etc.) as well as the possibility to directly switch loads with up to 15 A make these sensors ideal for a wide range of conveying and handling applications.

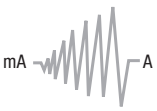



Special models
Electrical load variations
Mounting shape and pitch variations
Connection and wiring variations
Safety applications
Plastic
Metal
D4C, D4E, X, Z, ZC
D4MC, HL, WL
D4E, SHL, WL
D4N
D4B
mA
A
L856
L853
L854
S238
S232

Type		Standard			Compact	Basic housing
						
Model		**D4N**	**D4B**	**WL-N**	**D4C**	**Z**
Material		Plastic	Metal	Metal	Metal	Plastic
Screw terminal	No conduit	–	–	–	–	■
	Cable dia. 8.5 to 10.5	–	–	–	–	–
	M20	■	■	■	–	–
	PG13.5	□	–	■	–	–
	G1/2	□	□	■	–	–
	1/2-14NPT	□	□	■	–	–
Cable connector	M12	■	–	■	■	–
	Prewired	–	–	–	■	–
Degree of protection		IP67				IP00
Quick Link		S238	S232	L835	L824	L862

Special models

Type	High precision multi direction	Compact
		
Model	**D5B**	**ZC**
Material	Metal	Metal
Key Features	– X, Y, Z action – several µm switching accuracy – M5, M8, M10 sizes	– Small housing size – Screw terminals – IP67
Quick Link	L833	L834

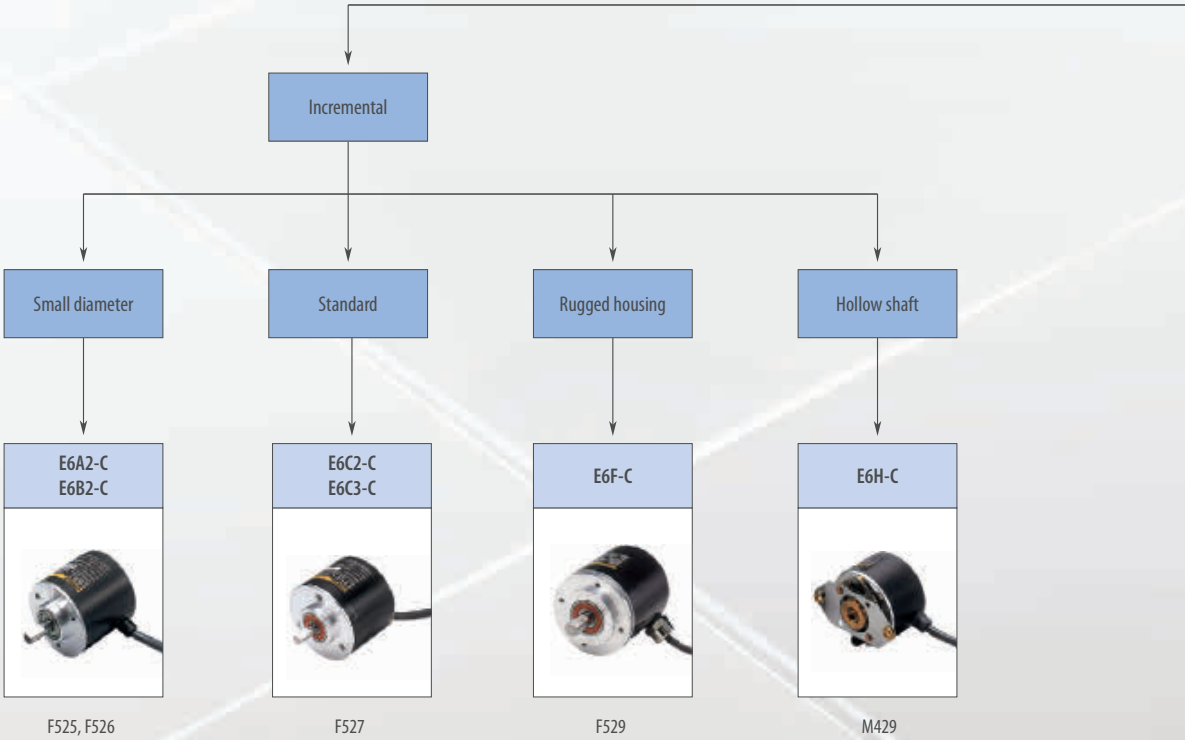
Type	Highest precision tactile measurement	Electrical load variations	Mounting shape and pitch variations	Connection and wiring variations	Safety limit switches
					
Model	**ZX-T**	**D4C, D4E, X, Z, ZC**	**D4MC, HL, WL**	**D4E, SHL, WL**	**D4 Safety**
Material	Plastic	Plastic and Metal	Metal	Metal	Plastic and Metal
Key Features	Measurement resolution up to 0.1 µm	– Microloads (1 mA to 100 mA) – High current at high voltage switching (10 A at 125 VDC) – Double circuit switching	– Mounting shapes and pitches popular in different countries in the world – Mounting pitch variations (base mounting, diagonal pitches, ...) – Alternative actuator positions	– Screw conduit variations (PG13.5, G1/2, 1/2"14NPT – Cable exit variations (pigtails, rubber snap on covers, screw on covers, with or without cable breakage protection for different cable diameters	– Mechanical form lock – Manual reset – Door hinge switches
Quick Link/Page	C428	Contact your OMRON representative			77

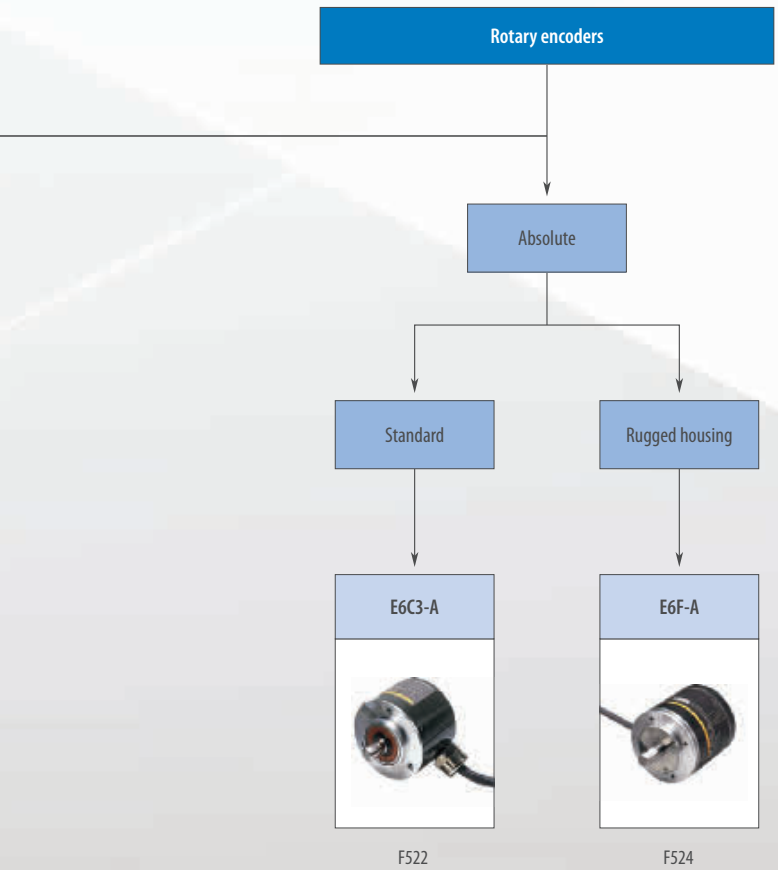
ACCURACY AND ROBUSTNESS MADE RELIABLE

Close the loop – angle, position and velocity on hand

Rotary encoders create information which represent the movement of your application. To meet challenging demands, Omron offers a wide range of absolute and incremental encoders.

- Wide resolution variety
- Models with rugged housing
- Models for multi- turn applications




Rotary encoders
Absolute
Standard
Rugged housing
E6C3-A
E6F-A
F522
F524

Output		Incremental				
						
Model		**E6A2-C**	**E6B2-C**	**E6C2-C**	**E6C3-C**	**E6F-C**
Type		Small diameter shaft		Standard		Rugged housing
Resolution range	Min.	10			100	
	Max.	500	2,000		3,600	1,000
Output	NPN	■	■	■	■	■
	PNP	–	■	■	–	–
Size dia. in mm		25	40	50	50	60
Max. force	Radial	10	30	50	80	120
	Axial	5	20	30	50	50
IP rating	IP50	■	■	–	–	–
	IP64	–	–	■	–	–
	IP65	–	–	–	■	■
Max. rotation frequency		5,000	6,000		5,000	
Quick Link		F525	F526	F527		F529

Output		Incremental	Absolute			
						
Model		**E6H-C**	**E6C3-A**	**E6F-A**		
Type		Hollow shaft	Standard	Rugged housing		
Resolution Range	Min.	300	6	256		
	Max.	3,600	1,024			
Output	NPN	■	■	■		
	PNP	–	■	■		
Size dia. in mm		40 (hollow)	50	60		
Max. force	Radial	29.4	80	120		
	Axial	4.9	50	50		
IP rating	IP50	■	–	–		
	IP64	–	–	–		
	IP65	–	■	■		
Max. rotation frequency		10,000	5,000	5,000		
Quick Link		M429	F522	F524		

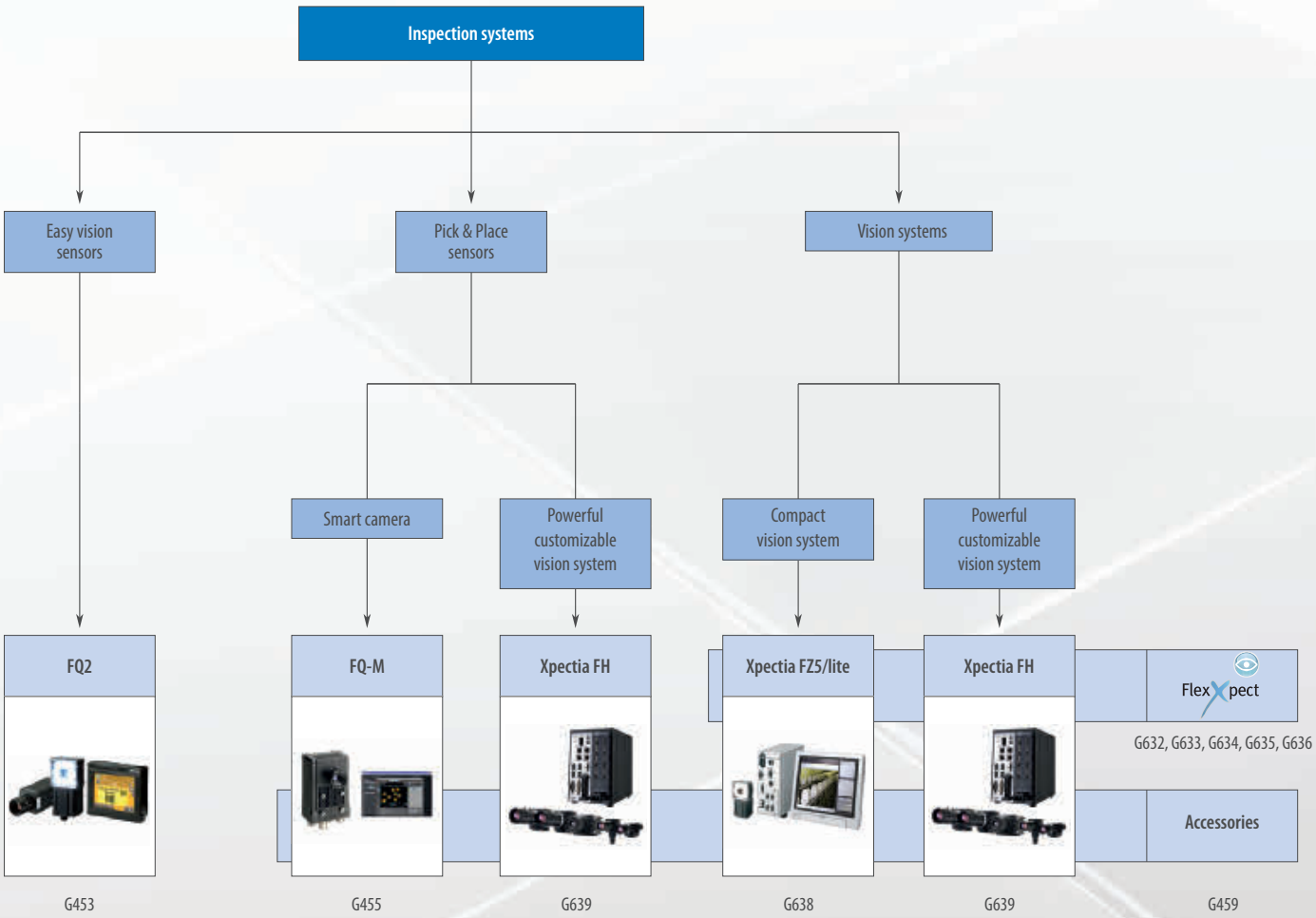
■ Standard ☐ Available – No/not available

EASY VISION: TOUCH, COMMUNICATE AND GO

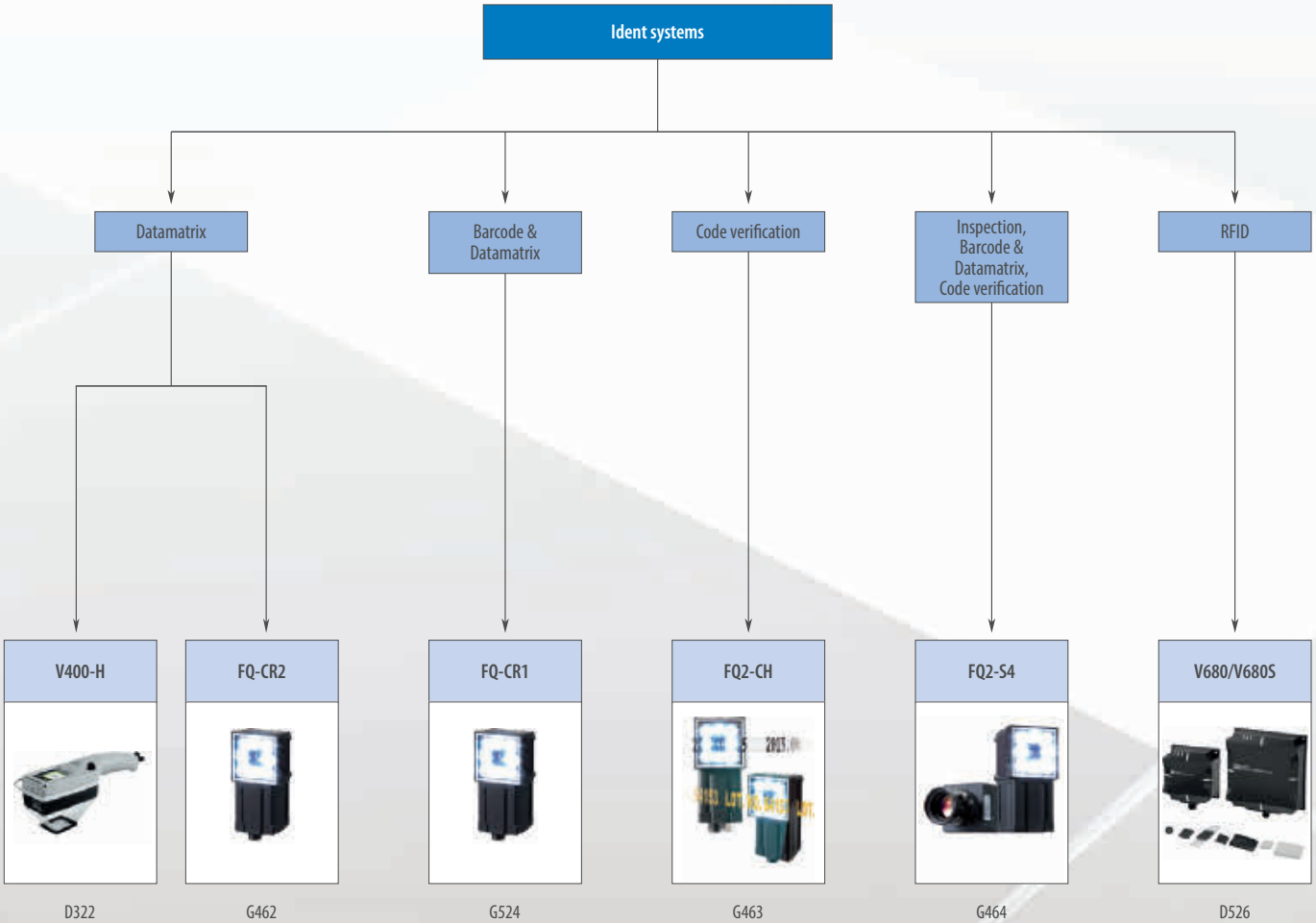
Built-in LCD monitor for setup and immediate image visualization

The easy vision sensor FQ2 solves the applications by an intuitive teach & go procedure. For advanced applications features such as multiple inspections, position correction, intelligent image filtering and ethernet communication are offered by the Xpectia lite. The high end is addressed by the Xpectia FJ.

- Easy vision – intuitive user interfaces
- Communication – centralized set-up & inspection via Ethernet
- High-end vision – PC-based system for challenging applications
- True color – close to human eye identification and image processing




OMRON
OK
Popcorn 30packs
2012.05.14


Ident systems
Datamatrix
Barcode & Datamatrix
Code verification
Inspection, Barcode & Datamatrix, Code verification
RFID
V400-H
FQ-CR2
FQ-CR1
FQ2-CH
FQ2-S4
V680/V680S
D322
G462
G524
G463
G464
D526

Selection table

			Vision sensor	Pick & Place		Vision systems	
							
Model			**FQ2**	**FQ-M**	**Xpectia FH**	**Xpectia FZ5/Lite**	**Xpectia FH**
Selection criteria	**Number of connectable cameras**		Smart camera	Smart camera	8	4	8
	Camera type		Monochrome/Color	Color	Digital color or black & white	Digital color or black & white	Digital color or black & white
	Resolution (usable) Display dots		752 × 480 928 × 828 1,280 × 1,024	752 × 480	from 640 × 480 to 2,040 × 2,048	from 640 × 480 to 2,488 × 2,044	from 640 × 480 to 2,040 × 2,048
	Working distance mm	**Min.**	8	Depends on selected lens	Depends on selected lens	Depends on selected lens	Depends on selected lens
		Max.	970	–	–	–	–
	Field of view	**Min.**	7.5 × 4.7	Depends on selected lens	Depends on selected lens	Depends on selected lens	Depends on selected lens
		Max.	300 × 268	–	–	–	–
	Number of storable configurations		32	32	–	–	–
	Number of tools/configuration		32	32	limited only by memory space	limited only by memory space	limited only by memory space
	IP-Rating camera head		IP67	IP40	Depends on setup & tools, IP20	Depends on setup & tools, IP20	Depends on setup & tools, IP20
	Supply voltage		24 VDC	24 VDC	–	–	–
Features	**Image processing tools**		Search, shape search II, sensitive search, area, color data, edge position, edge pitch, edge width, labeling, FQ2-S4 has additional: OCR, Bar code, 2D-code, 2D-code (DMP) and Model dictionary The types of characters and codes to be read are the same as those of FQ2-CH and FQ-CR1 & FQ-CR2	Contour based search, labelling, edge position	App. 70 processing tools for object or defect recognition, measurements, calculations, input/output, display and more. Includes also character recognition and high precision edge code inspection tools	App. 70 processing tools for object or defect recognition, measurements, calculations, input/output, display and more. Includes also character recognition and high precision edge code inspection tools	App. 70 processing tools for object or defect recognition, measurements, calculations, input/output, display and more. Includes also character recognition and high precision edge code inspection tools
	Image preprocessing		High dynamic range (HDR), polarizing filter (attachment), and white balance	High dynamic range (HDR), white balance	Smoothing, edge enhancement, edge extraction, erosion, dilation, median, background suppression - multiple passes, configurable	Smoothing, edge enhancement, edge extraction, erosion, dilation, median, background suppression - multiple passes, configurable	Smoothing, edge enhancement, edge extraction, erosion, dilation, median, background suppression - multiple passes, configurable
	Flow programming		–	–	■	■	■
	User interface		PC-Tool or Touch Display	PC-Tool or Touch Display	■	■	■
	Optional PC configuration software		Yes	Yes	■	■	■
	Security tools		–	■	–	–	–
Communication	**RS-232C**		Optional via FQ-SDU2	–	■	■	■
	USB		–	–	■	■	■
	Ethernet		Yes	■	■	■	■
	EtherCAT		–	Yes	Yes	–	Yes
	Number of digital I/O		7 in/3 out	9 in/5 out	19 in/34 out	11 in/26 out	19 in/34 out
	Quick Link		G453	G455	G639	G638	G639

			Code reader				
							
Model			**FQ-CR1**	**FQ-CR2**	**FQ2-CH**	**FQ2-S4**	**V400-H**
Selection criteria	**Number of connectable cameras**		Smart camera	Smart camera	Smart camera	Smart camera	1
	Camera type		Monochrome	Monochrome	Monochrome	Monochrome/Color	Digital black & white
	Resolution (usable) Display dots		752 × 480	752 × 480	752 × 480	752 × 480 928 × 828 1,280 × 1,024	–
	Working distance mm	**Min.**	8	8	8	8	40 mm
		Max.	970	970	970	970	40 mm
	Field of view	**Min.**	7.5 × 4.7	7.5 × 4.7	7.5 × 4.7	7.5 × 4.7	5 × 5 mm
		Max.	300 × 191	300 × 191	300 × 191	300 × 268	30 × 30 mm
	Number of storable configurations		32	32	32	32	limited by SD card
	Number of tools/configuration		32	32	32	32	–
	IP-Rating camera head		IP67	IP67	IP67	IP67	IP64
	Supply voltage		24 VDC	24 VDC	24 VDC	24 VDC	5 VDC
Features	**Image processing tools**		2D-codes: Data Matrix, QR Code, Micro QR Code, PDF417, Micro PDF417, GS1-Data Matrix Bar codes: JAN/EAN/UPC, Code39, Codabar (NW-7), IFT (interleaved2 of 5), Code93, Code128/GS1-128, GS1-DataBar, GS1-128 Composite Code, Pharmacode	2D-codes: Data Matrix, QR Code	OCR - Alphabet A to Z - Number 0 to 9 - Symbol '-. : / Model dictionary	Search, shape search II, sensitive search, area, color data, edge position, edge pitch, edge width, labeling, OCR, Bar code, 2D-code, 2D-code (DMP) and Model dictionary The types of characters and codes to be read are the same as those of FQ2-CH and FQ-CR1 & FQ-CR2	Data Matrix, ECC200, 10×10 to 64×64, 8×18 to 16×48, QR Code (Models 1, 2), 21×21 to 57×57 (Versions 1 to 10).
	Image preprocessing		High dynamic range (HDR), polarizing filter (attachment), and white balance	High dynamic range (HDR), polarizing filter (attachment), and white balance	High dynamic range (HDR), polarizing filter (attachment), and white balance	High dynamic range (HDR), polarizing filter (attachment), and white balance	–
	Flow programming		–	–	–	–	–
	User interface		PC-Tool or Touch Display	PC-Tool or Touch Display	PC-Tool or Touch Display	PC-Tool or Touch Display	–
	Optional PC configuration software		Yes	Yes	Yes	Yes	–
	Security tools		–	–	–	–	–
Communication	**RS-232C**		–	–	Optional via FQ-SDU2	Optional via FQ-SDU2	–
	USB		–	–	–	–	–
	Ethernet		Yes	Yes	Yes	Yes	–
	EtherCAT		–	–	–	–	–
	Number of digital I/O		7 in/3 out	7 in/3 out	7 in/3 out	7 in/3 out	–
	Quick Link		G524	G462	G463	G464	D322

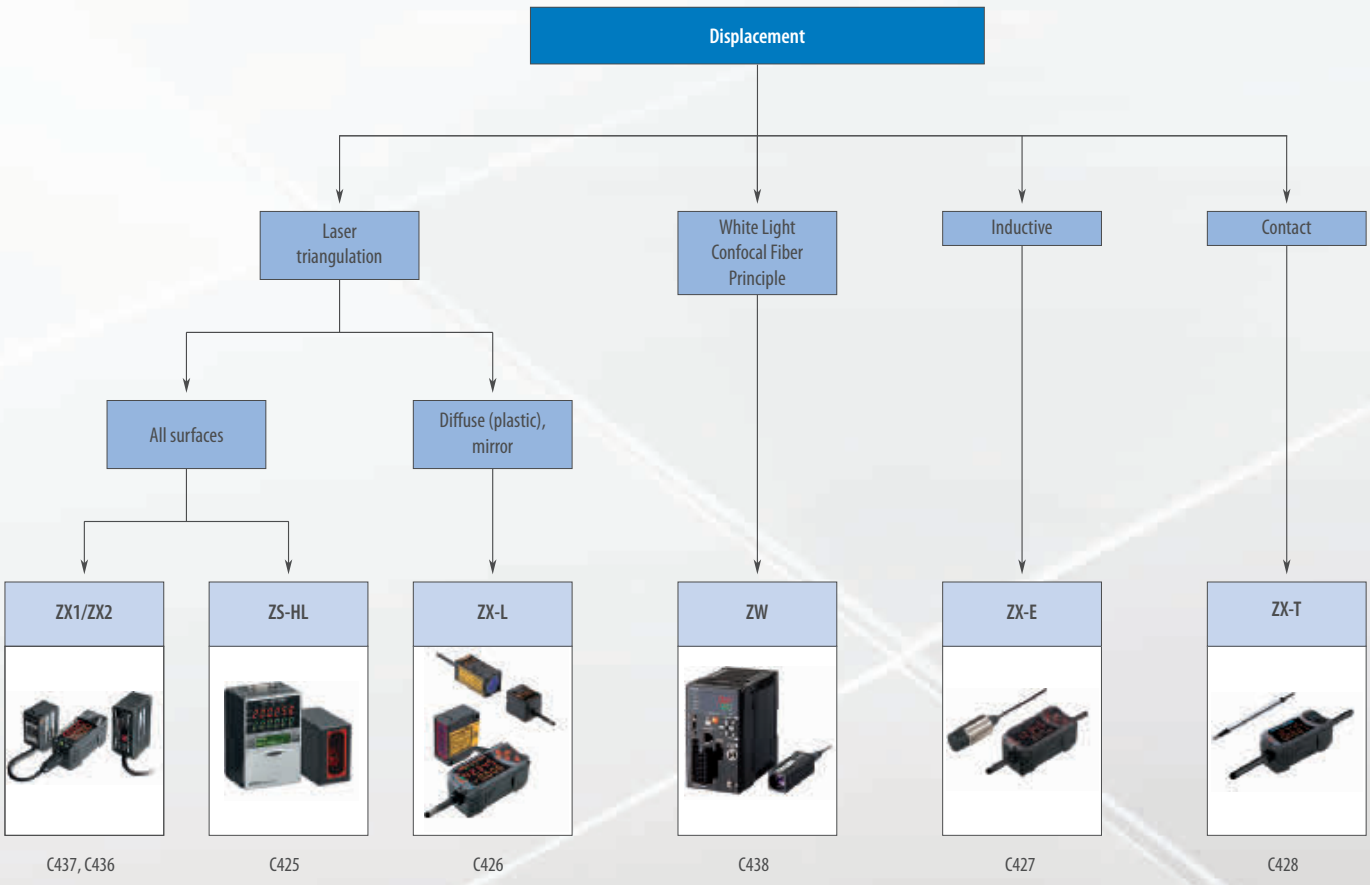
■ Standard – No/not available

HIGH PRECISION QUALITY INSPECTION

Zero defect becomes reality – scalable accuracy in inspection

The Smart displacement sensor family offers a modular and scalable approach to solve the most challenging measurement tasks. The powerful portfolio enables you to measure profiles, thickness, distance, evenness/warpage, as well as width, edge, etc. Several measurement profiles can be performed simultaneously, using a single- or multi-controller unit. Aided by Omron's advanced technologies, the highest accuracy over long distances, speed and reliability will be achieved.

- Accurate and fast – 0.25 µm at less than 110 µs sampling time
- Scalable – multi-controller unit to coordinate and calculate up to 9 units
- Smart – data storage and remote control via networking capabilities



Profile

Position/
Diameter/Width

ZG2

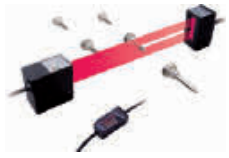
C422

ZX-GT

C435

Selection table

		Laser displacement sensor			Confocal fiber sensor
					
Selection criteria	Model	ZX1/ZX2	ZS-HL	ZX-L	ZW
	Measurement range Z Min.	50±10 mm	10±0.5 mm	30±2 mm	7 mm
	Max.	600±400 mm	1500±500 mm	300±200 mm	40 mm
	Measurement range X Min.	–	–	–	–
	Max.	–	–	–	–
	Resolution Z	1.5 µm	0.25 µm	0.25 µm	0.01 µm
	Resolution X	–	–	–	–
	Linearity (±% of full scale)	0.05%	0.05%	0.2%	0.1%
	Response time	60 µs	110 µs	150 µs	500 µs
	Spot beam	■	■	■	■
	Line beam	■	■	■	–
	IP-rating head	IP67	IP64/IP67	IP50	IP40
	IP-rating controller	IP40	IP40	IP40	IP20
	Ambient oper. temperature	0 to 50°C	0 to 50°C	0 to 50°C	0 to 40°C
	Number of connectable sensors	5	9	5	4
Features	Thickness measurement	■	■	■	■
	Eccentricity	■	■	■	–
	Height	■	■	■	■
	Step	■	■	■	–
	Profile	–	–	–	–
	Distance	–	–	–	–
	Evenness	–	–	–	–
	Warpage	–	–	–	–
	Edge	–	–	–	–
	Width	–	–	–	–
	Peak	■	■	■	–
	Peak to peak	■	■	■	–
	Bottom	■	■	■	–
	Self-trigger	■	■	■	–
	Calibration	■	■	■	■
	Signal scaling	■	–	–	■
	PC-software	–	■	■	■
Application	Mirror	■	■	–	■
	Glass	■	■	–	■
	Metal	■	■	□	■
	Plastic	■	■	■	■
	Black rubber	■	■	–	■
	Paper	■	■	□	■
Supply voltage	12 to 24 VDC	■	–	■	■
	21.6 to 26.4 VDC	–	■	–	■
Control I/O	4 to 20 mA	■	■	■	■
	1 to 5 VDC	■	–	■	–
	Judgement output High/Pass/Low	■	■	■	■
	Trigger	■	■	■	■
Commu-nication	RS-232C	■	■	■	–
	USB2.0	■	■	–	–
	Quick Link	C437, C436	C425	C426	C438

		Inductive displacement sensor	Contact displacement sensor	Profile sensor	Laser micrometer
					
	Model	ZX-E	ZX-T	ZG2	ZX-GT
Selection criteria	Measurement range Z Min.	0.5 mm	1 mm	20 ±0.5 mm	–
	Max.	7 mm	10 mm	210 ±30 mm	28 mm
	Measurement range X Min.	–	–	3 mm	–
	Max.	–	–	70 mm	–
	Resolution Z	1 µm	0.1 µm	0.2 µm	10 µm
	Resolution X	–	–	3 mm/631 pixels	–
	Linearity (±% of full scale)	0.5%	0.3%	0.5%	0.1%
	Response time	150 µs	1 ms	5 ms	150 µs
	Spot beam	–	–	–	–
	Line beam	–	–	□	–
	IP-rating head	IP67	IP67	IP64/66	IP40
	IP-rating controller	IP40	IP40	IP20	IP40
	Ambient oper. temperature	0 to 50°C	0 to 50°C	0 to 50°C	0 to 50°C
	Number of connectable sensors	5	7	1	5
Features	Thickness measurement	■	■	■	■
	Eccentricity	■	■	■	■
	Height	■	■	■	■
	Step	■	■	■	■
	Profile	–	–	□	–
	Distance	■	■	–	–
	Evenness	■	■	–	–
	Warpage	■	■	–	–
	Edge	–	–	–	■
	Width	–	–	□	■
	Peak	■	■	■	■
	Peak to peak	■	■	■	■
	Bottom	■	■	■	■
	Self-trigger	■	■	■	■
	Calibration	–	–	■	–
	Signal scaling	■	■	–	■
	PC-software	■	■	■	■
Application	Mirror	–	■	■	■
	Glass	–	■	■	■
	Metal	■	■	■	■
	Plastic	–	■	■	■
	Black rubber	–	■	■	■
	Paper	–	–	■	■
Supply voltage	12 to 24 VDC	■	■	–	■
	21.6 to 26.4 VDC	–	–	■	■
Control I/O	4 to 20 mA	■	■	■	■
	1 to 5 VDC	■	■	–	■
	Judgement output High/Pass/Low	■	■	■	■
	Trigger	■	■	■	■
Commu-nication	RS-232C	■	■	■	■
	USB2.0	■	–	■	–
	Quick Link	C427	C428	C422	C435

■ Standard □ Available – No/not available

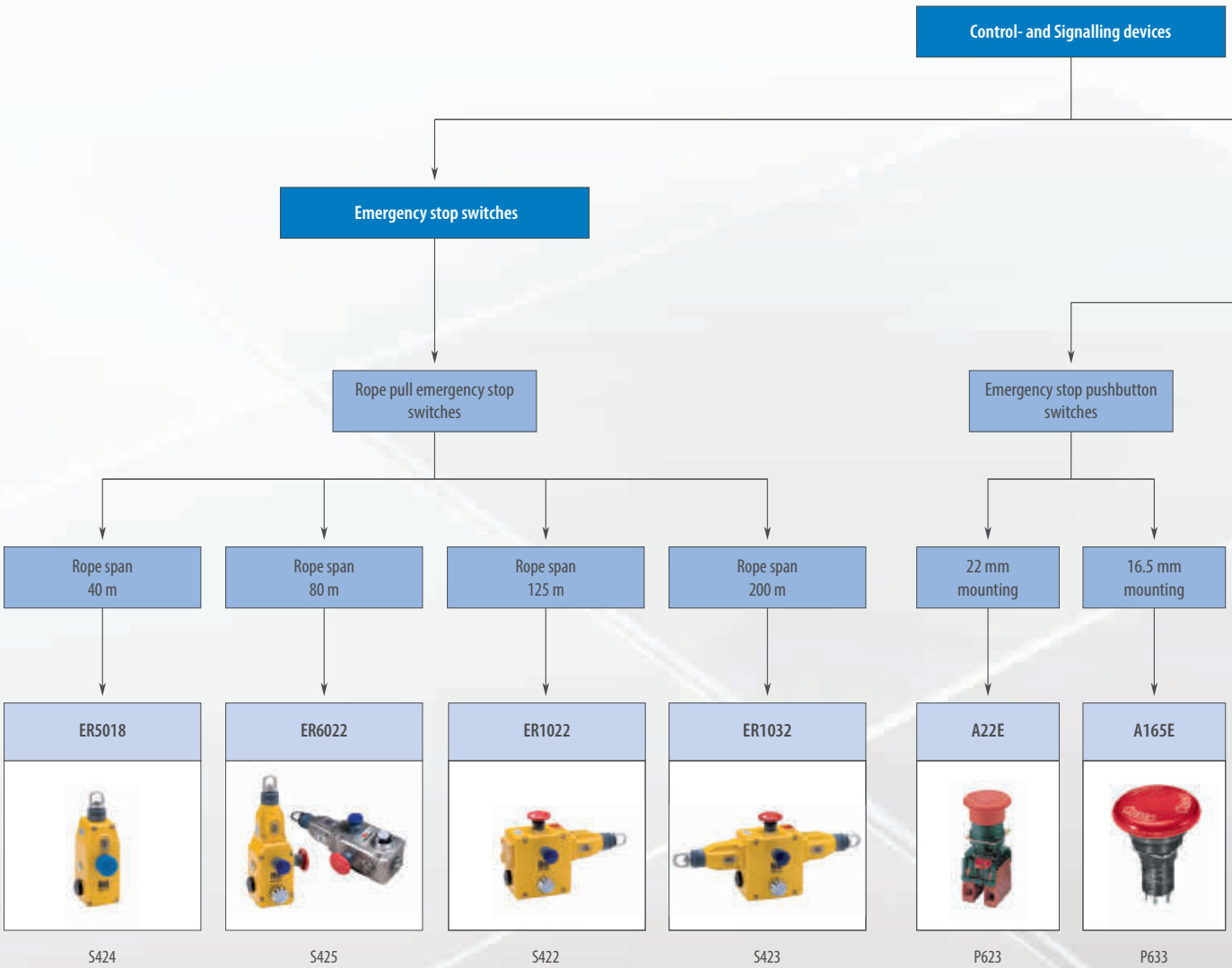
INTERACT WITH YOUR MACHINE

Patlite Signal towers

Machines that are stopped during production are creating extra cost, our signal towers are used to show this status and guide workers to service the machines efficiently, minimizing downtime and production loss.

- LED technology
- Optional sound system
- 30 mm, 50 mm, 60 mm and 70 mm diameter
- Modular and monolithic systems

Select your signal tower in a split second:
www.omron-industrial.com/safety



- **Pushbutton switches**
  - Standard pushbutton switches
    - 22 mm mounting
      - **A22**
      - P622
    - 16.5 mm mounting
      - **A16**
      - P632
- **Signal towers**
  - Monolithic system
    - 30 mm
      - **MP/MPS**
      - Y342
    - 60 mm
      - **LME**
      - Y325
  - Modular system
    - 50 mm
      - **LU5**
      - Y322
    - 70 mm
      - **LU7**
      - Y323

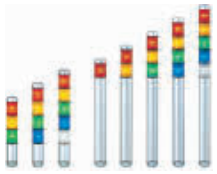
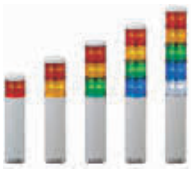
Selection table

Category			Pushbutton switch	
				
Model			A16	A22
Selection criteria		Mounting	Nut-mounting	
		Size	16 mm	22 mm
		Shape		
Pushbutton color	Incandescent lamp-lighted	Red	■	■
		Yellow	■	■
		Pure yellow	■	
		Green	■	■
		White	■	■
		Blue	■	■
	LED-lighted	Red	■	■
		Yellow	■	■
		Pure yellow	■	
		Green	■	■
		White	■	■
		Blue	■	■
	Non-lighted	Red	■	■
		Yellow	■	■
		Green	■	■
		White	■	■
		Blue	■	■
		Black	■	■
Features		Momentary operation	■	■
		Self-holding	■	■
		Number of contacts	2	6
		IP rating	IP65	
		Legend plate	■	■
Switch ratings [A]		125 VAC	5	10
		250 VAC	3	6
		30 VDC	3	10
		Rated load	5 A at 125 VAC, 3 A at 250 VAC, 3 A at 30 VDC	10 A at 110 VAC, 6 A at 220 VAC
Terminals		Solder	■	–
		PCB	–	–
		Screw-less Clamp	–	–
Operating voltage		5 VDC	■	■
		12 VDC	■	■
		24 VDC	■	■
Form		SPDT	■	–
		DPDT	■	–
		SPST-NO	–	■
		SPST-NC	–	■
		SPST-NO + SPST-NC	–	■
		DPST-NO	–	■
		DPST-NC	–	■
		Quick Link	P632	P622

Category			Emergency stop pushbutton switches	
				
Model			A165E	A22E
Selection criteria Features		Housing	Plastic	
		Protection class	IP65	
		Operating temperature range	–10 to 55°C	–20 to 70°C
		Head size	30 mm, 40 mm	30 mm, 40 mm, 60 mm
		Conformity	EN 60947-5-1	
		Max. rope span	–	
		Conduit size M20	–	
		Additional E-Stop button	–	
		LED indicator beacon	–	
		Stainless steel housing	–	
		Explosion proof housing	–	
		Lighted head	■	
		Push lock – pull reset	–	■
		Push lock – turn reset	■	
Application		E-Stop application	■	
		General safety application	■	
Contact configuration		SPST (NC)	■	
		DPST (NC)	■	
		SPST (NO) + SPST (NC)	–	■
		TPST (NC)	■	–
		Quick Link	P633	P623

■ Standard ☐ Available – No/not available

Category		Rope pull switches			
					
Model		ER 5018	ER 6022	ER 1022	ER 1032
Selection criteria	Housing	Metal			
	Protection class	IP67			
	Operating temperature range	–25 to 80°C			
	Head size	–			
	Conformity	EN60947-5-1:2004, EN60947-5-5:1997+A1:2005; EN60204-1; EN ISO 13850:2006			
Features	Max. rope span	40 m	80 m	125 m	200 m
	Conduit size M20	■			
	Additional E-Stop button	■			
	LED indicator beacon	–	■	■	■
	Stainless steel housing	–	Available	–	–
	Explosion proof housing	–	■	■	■
	Lighted head	–			
	Push lock – pull reset	–			
	Push lock, turn reset	–			
	Push lock, lock key reset	–			
Application	E-Stop application	■			
	General safety application	■			
Contact configuration	2NC+1NO	■	■	–	–
	3NC	■	■	–	–
	4NC+2NO	–	–	■	■
	Quick Link	S424	S425	S422	S423

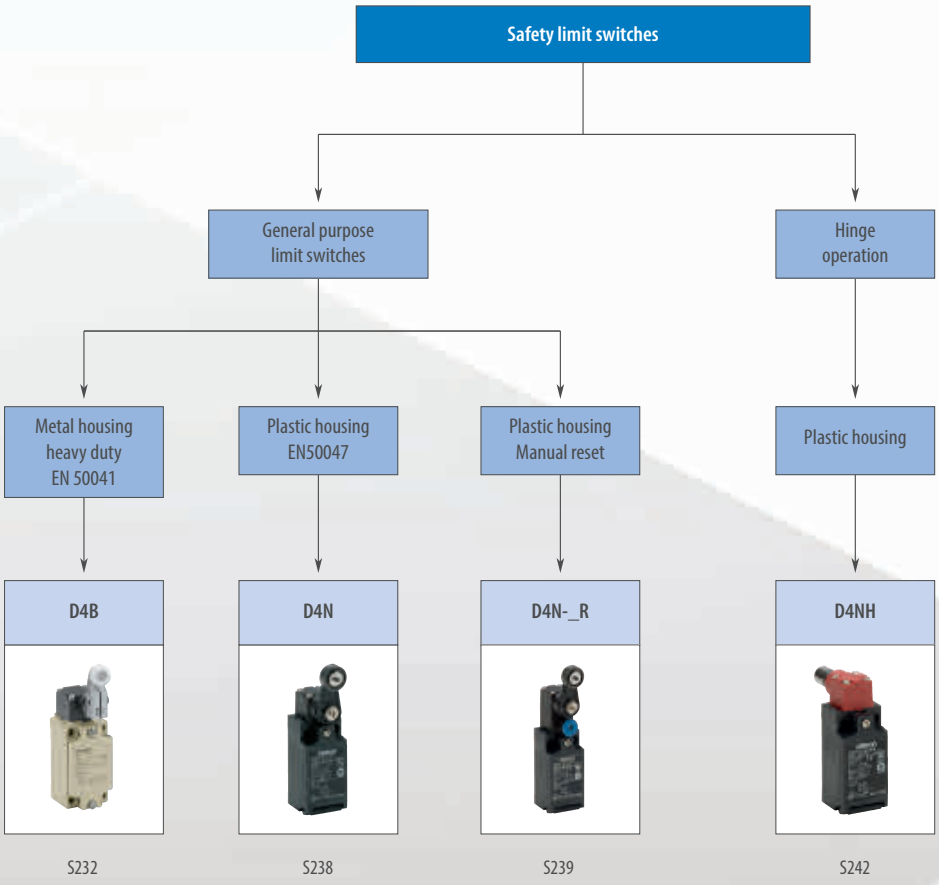
Category		Signalling devices			
					
		MP/MPS	LME	LU5	LU7
System		monolithic		modular	
Diameter		30 mm	60 mm	50 mm	70 mm
LED technology		■	■	■	■
Sound system		–	■	■	■
IP65		■	■	■	■
Maximum modules		5	5	5	5
Input voltage 24 VDC		■	■	■	■
Unit color		silver	white or silver or black	white or silver	white or silver or black
Quick Link		Y342	Y325	Y322	Y323

PRECISE MONITORING OF GUARD POSITION

Detect linear or rotational movement of guards: D4N

Guards and covers on machines protect workers. They limit access to the dangerous parts of the machine. Our safety limit switches guarantee that the guards and covers are in place before the machine is started.

- Wide variety of actuators to fit wide range of applications
- Gold-plated contacts for reliable operation with micro loads


Safety limit switches
General purpose limit switches
Hinge operation
Metal housing heavy duty EN 50041
Plastic housing EN50047
Plastic housing Manual reset
Plastic housing
D4B
D4N
D4N-_R
D4NH
S232
S238
S239
S242

		Safety limit switches			
					
Model		**D4B**	**D4N**	**D4NH**	**D4N-_R**
Selection criteria	Housing	Metal	Plastic	Plastic	Plastic
	M12 Plug connector	–	■	■	–
	Protection class	IP67			
	Operating Temperature Range	–40 to 80°C	–30 to 70°C	–30 to 70°C	–30 to 70°C
	Conformity	EN50047, EN1088			
Features	Conduit size M20	■	■	■	■
	Gold clad contacts	■	■	■	■
	Actuators				
	Resin roller, resin lever	–	■	–	■
	Resin roller, metal lever	■	■	–	–
	Metal roller, metal lever	–	■	–	–
	Bearing lever, metal lever	–	■	–	–
	Adj. resin roller, metal lever	■	■	–	■
	Adj. Rubber roller, metal lever	–	■	–	■
	Adj. Rod lever	■	–	–	–
	Top plunger	■	■	–	■
	Top roller plunger	■	■	–	■
	Horizontal roller arm lever	–	■	–	■
	Vertical roller arm lever	–	■	–	■
	Cat whisker	–	■	–	–
	Plastic Rod	■	■	–	–
	Fork lever lock (right operation)	–	■	–	–
	Fork lever lock (left operation)	–	■	–	–
	Hinge operation	■	–	■	–
Application	Position monitoring	■	■	■	■
Contact configuration	1NC/1NO snap action	■	■	–	–
	2NC snap action	–	■	–	–
	1NC/1NO slow action	■	■	■	■
	2NC slow action	■	■	■	■
	2NC/1NO slow action	–	■	■	■
	3NC slow action	–	■	■	■
	1NC/1NO (MBB slow action)	–	■	■	–
	2NC/1NO (MBB slow action)	–	■	■	–
	Quick Link	S232	S238	S242	S239

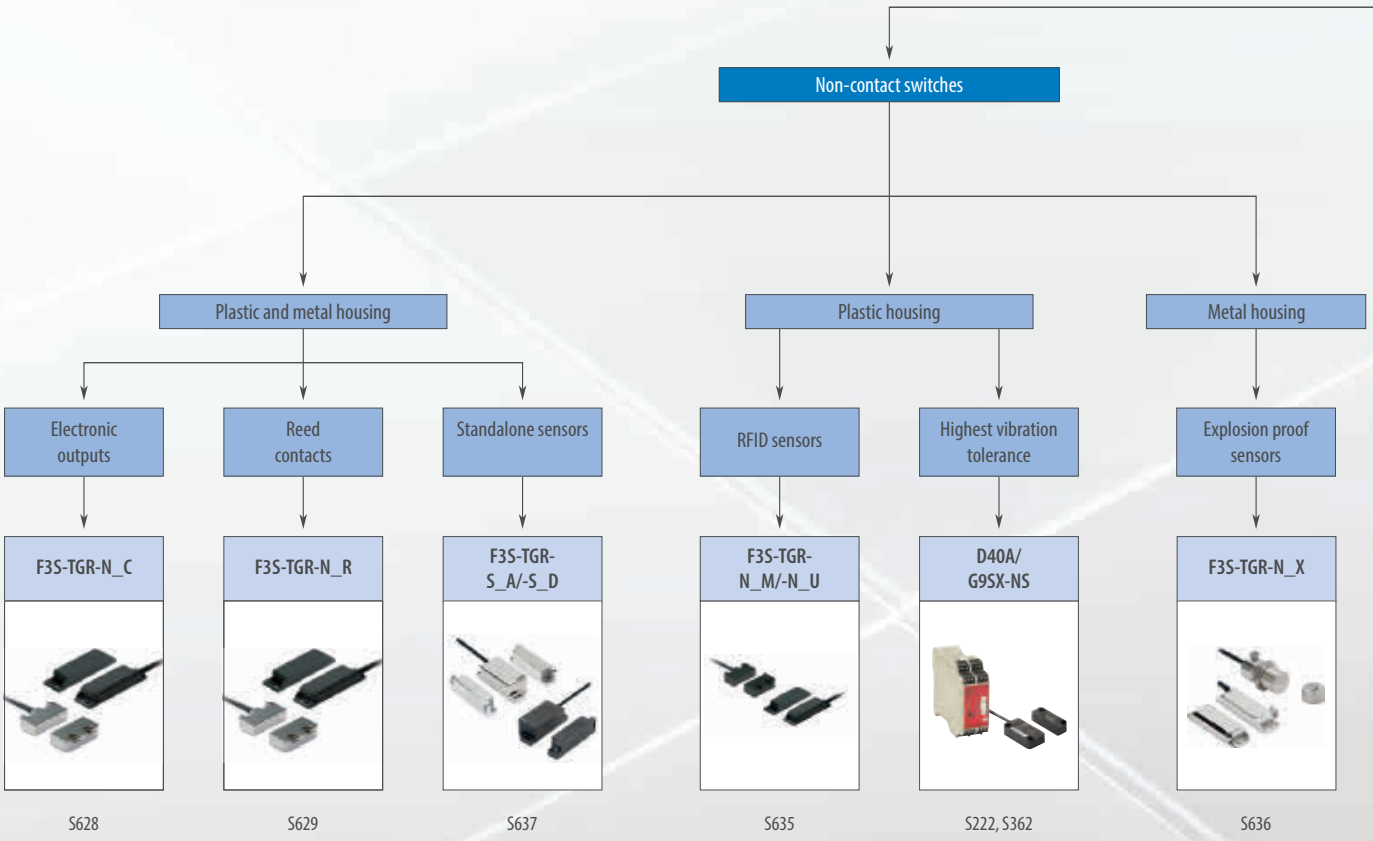
■ Standard – No/not available

BREAK CONVENTIONAL BARRIERS IN SAFETY DESIGN

Flexibility selecting best fit control device for non-contact switch application: F3S-TGR-N

Omron has introduced a series of magnetic coded contactless switches for interlocking machine guard doors. The switches feature a built-in control function, thus saving the cost and space required for an external controller. The non-contact switches offer advantages in applications where a precise approach of the guard and lock is not possible. Applications with a large amount of dirt or high hygienic standards can also be addressed.

- Operates with all Omron safety relay units and safety bus interfaces
- Operates behind stainless steel fittings
- Non-contact – no abrasion – no particles
- Conforms to safety categories up to 4 acc. EN 954-1 and PLe acc. EN ISO 13849-1



Safety door switches

- **Key operated switches**
  - **Safety switch**
    - Plastic housing → D4NS → S244
    - Stainless steel head → F3S-TGR-KM15, F3S-TGR-KM16 → S638, S639
    - Metal housing → D4BS → S234
    - Stainless steel housing → F3S-TGR-KH16 → S639
  - **Safety guard lock switch**
    - Plastic housing
      - Square size 1300 N → D4NL → S243
      - Slim size 1000 N → D4GL → S236
    - Plastic housing Plastic or metal head
      - Slim size 1300 N → D4SL-N → S245
    - Stainless steel housing
      - Standard size 1600 N → F3S-TGR-KHL1 → S649
      - Slim size 2000 N → F3S-TGR-KHL3 → S652

Selection table

		Non-contact safety door switches					
							
Model		**F3S-TGR-N_C**	**F3S-TGR-N_R**	**F3S-TGR-N_M/-N_U**	**F3S-TGR-S_A/-S_D**	**F3S-TGR-N_X**	**D40A/G9SX-NS**
Selection criteria	Housing	Plastic/Metal	Plastic/Metal	Plastic	Plastic/Metal	Metal	Plastic
	Protection class	IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67	IP67
	Conformity	EN ISO 13849-1, EN60947-5-3	EN ISO 13849-1, EN60947-5-3	EN ISO 13849-1, EN60947-5-3	EN ISO 13849-1, EN60947-5-3	EN ISO 13849-1, EN60947-5-3	EN ISO 13849-1
Features	Cable length 2 m	■	■	–	–	–	■
	Cable length 5 m	■	■	■	■	■	■
	Cable length 10 m	■	■	■	■	■	–
	Connector type M12	■	■	■	■	■	–
	High temperature sensor	■	■	–	–	–	–
	Operates with G9SA, G9SB	■	■	■	■	■	–
	Operates with G9SX	■	■	■	■	■	■
	Operates with programmable safety units G9SP and NE1A	■	■	■	■	■	–
Application	Door monitoring	■	■	■	■	■	■
Contact configuration	1NC/1NO	–	–	–	–	–	■
	2NC	■	■	–	–	–	–
	2NC/1NO	■	■	■	■	■	–
	Force guided relays	–	–	–	■	–	–
	Quick Link	S628	S629	S635	S637	S636	S222, S362

		Safety door switches					Safety door lock switches				
											
Model		D4NS	F3S-TGR-KM15	F3S-TGR-KM16	D4BS	F3S-TGR-KH16	D4NL	D4GL	D4SL-N	F3S-TGR-KHL1	F3S-TGR-KHL3
Selection criteria	Housing	Plastic	Plastic body Metal head	Plastic body Metal head	Metal	Stainless steel	Plastic	Plastic	Plastic/metal head available	Stainless steel	Stainless steel
	Head mounting	4 directions	2 directions	2 directions	4 directions	2 directions	4 directions	4 directions	4 directions	2 directions	4 directions
	Actuation	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight	Straight
	Key holding force	–	–	–	–	–	1,300 N	1,000 N	1,300 N	1,600 N	2,000 N
	Protection class	IP67	IP67	IP67	IP67	IP69k	IP67	IP67	IP67	IP69k	IP69k
	Conformity	EN50047, EN1088	EN1088	EN1088	EN50047, EN1088	EN1088	EN1088	EN1088	EN1088	EN1088	EN1088
Features	Conduit size M20	■	■	■	PG 13.5	■	■	■	■	■	■
	Screw terminal	■	■	■	■	■	■	■	■	■	■
	Connector terminal	–	–	–	–	–	–	–	■	–	–
	Operation key horizontal	■	■	■	■	■	■	■	■	■	■
	Operation key vertical	■	■	■	■	■	■	■	■	■	■
	Operation key adjustable horizontal	■	■	■	■	■	■	■	■	■	■
	Operation key adjustable horizontal and vertical	■	■	■	–	■	■	■	■	■	■
	Mechanical lock/ 24 VDC solenoid release	–	–	–	–	–	■	■	■	■	■
	Mechanical lock/ 110 VAC solenoid release	–	–	–	–	–	■	–	–	–	–
	Mechanical lock/ 230 VAC solenoid release	–	–	–	–	–	■	–	–	–	–
	24 VDC solenoid lock/ mechanical release	–	–	–	–	–	■	■	■	–	–
	110 VAC solenoid lock mechanical release	–	–	–	–	–	■	–	–	–	–
	240 VAC solenoid lock mechanical release	–	–	–	–	–	■	–	–	–	–
	High temperature sensor	–	–	–	–	–	–	–	–	–	–
	Operates with G9SR	■	■	■	■	■	■	■	■	■	■
	Operates with G9SA, G9SB	■	■	■	■	■	■	■	■	■	■
	Operates with G9SX	■	■	■	■	■	■	■	■	■	■
	Operates with programmable safety units G9SP and NE1A	■	■	■	■	■	■	■	■	■	■
Application	Door monitoring	■	■	■	■	■	■	■	■	■	■
	Door locking	–	–	–	–	–	■	■	■	■	■
Contact configuration	2 contact models	■	–	–	■	–	–	–	–	–	–
	3 contact models	■	■	■	–	■	–	–	–	–	–
	4 contact models	–	–	–	–	–	–	■	■	■	■
	5 contact models	–	–	–	–	–	■	■	■	–	–
	6 contact models	–	–	–	–	–	–	–	■	–	–
	Slow action contacts	■	■	■	–	■	–	–	–	■	■
	Quick Link	S244	S638	S639	S234	S639	S243	S236	S245	S649	S652

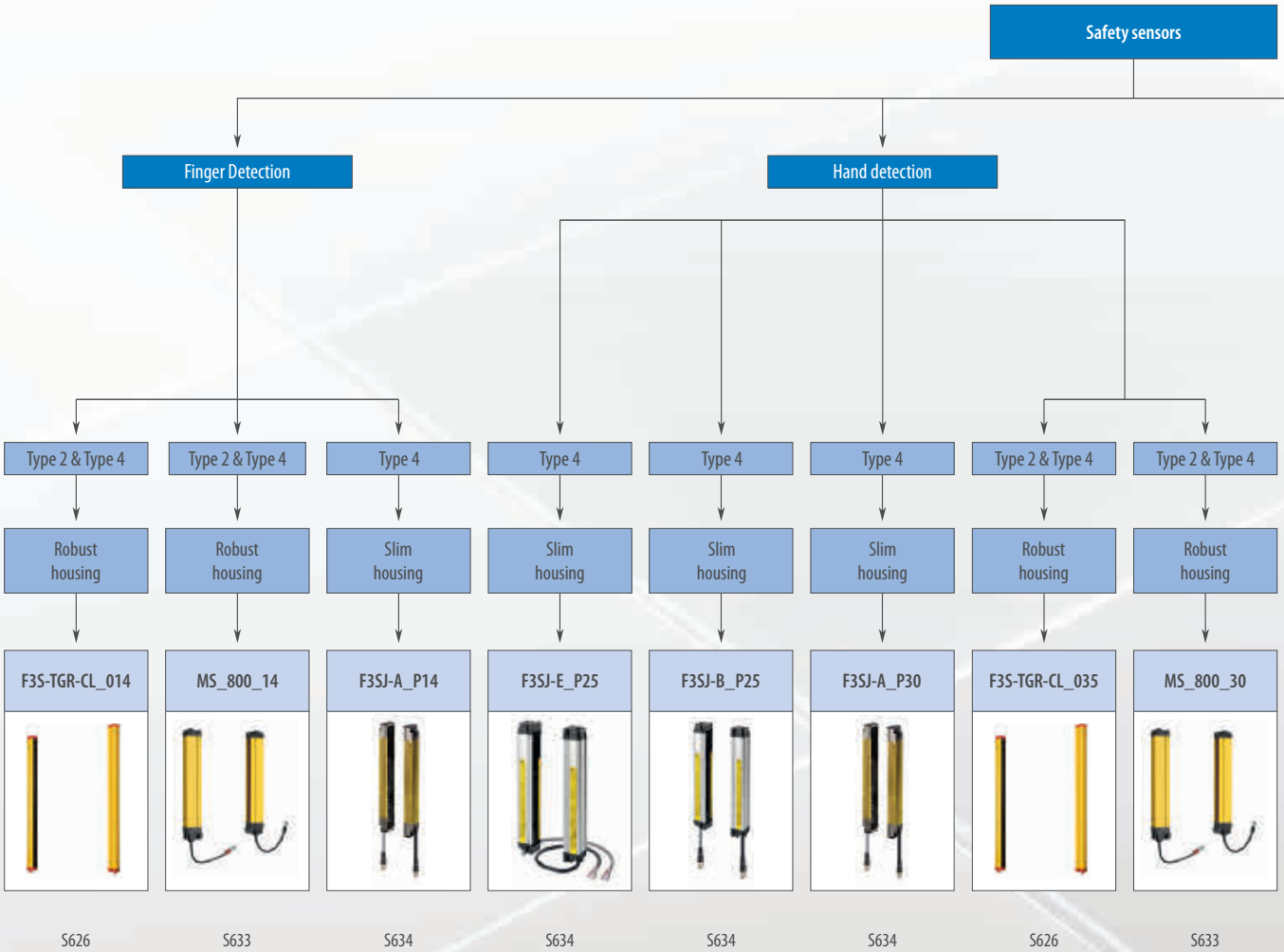
■ Standard – No/not available

PROTECT OPERATORS AND PRODUCTION

Total consistency across the board

Safety Sensors are the first choice in safeguarding workplaces where persons and machines cooperate. Built-in intelligence stops the machine in conditions that are dangerous for the worker. Our F3S-TGR-CL and F3SJ range offers safety light curtains with included safe control functions for finger-, hand- and body protection.

- Finger- and Hand and body protection models
- Control functions
  - X-, T- and L-muting
  - fixed and floating blanking
  - single and double break operation
  - pre-reset access control
- Easy mounting and common wiring for all types for simple design and installation
- Certified acc. EN61496 and EN ISO 13849-1.

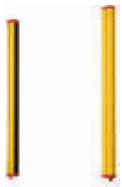


Human body detection and Muting applications

Presence sensing	Sensing distance up to 50 m	Sensing distance up to 12 m active/passive system	Muting actuators (only for F3S-TGR-CL series)	Sensing distance up to 10 m	Sensing distance up to 4 m
Type 2 & Type 4	Type 2 & Type 4	Type 2 & Type 4	Type 2 & Type 4	Type 2	Type 3
Robust housing	Robust housing	Robust housing	Robust housing	M18 housing	Plastic head metal body
F3S-TGR-CL_-070	F3S-TGR-CL_-K_	F3S-TGR-CL_-K_C	F39-TGR-MCL	E3FS + F3S-U3P	OS32C
S626	S627	S627	S644	S223, S623	S224

Selection table

		Safety Sensors			
					
Model		**F3SJ-E**	**F3SJ-B**	**F3SJ-A**	**MS2800 and MS4800**
Selection criteria	**Safety category**	Type 4	Type 4	Type 4	Type 2 & 4
	Safety integrity level (IEC 61508)	–	–	–	SIL 3
	Protective height	185 to 1,105 mm	185 to 2,065 mm	245 to 2,495 mm	280 to 2,120 mm
	Resolution	25 mm	25 mm	14, 30 mm	14, 30 mm
	Reaction time	15 ms	15 ms	10 to 25 ms	14 to 59 ms
	Temperature range	–10 to 55°C	–10 to 55°C	–10 to 55°C	–10 to 55°C
	IP class	IP65	IP65	IP65	IP65
Features	**Blanking function**	–	–	internal	internal
	Muting function	–	■	–	option
	EDM function	internal	internal	internal	internal
	Interlock function	–	internal	internal	internal
	Series connection	–	up to 3 sets	up to 4 sets	up to 4 sets
	Mounting kits	option	option	inclusive	inclusive
	Parameter setting	–	–	option (software incl., console)	internal DIP switch
	External control unit	–	–	–	–
Application	**Finger protection**	–	–	■	■
	Hand protection	■	■	■	■
	Arm protection	■	■	■	■
	Body protection	■	■	■	■
	Presence detection	–	–	–	■
	Muting application	–	–	–	–
	Blanking application	–	–	■	■
Supply voltage	**24 VDC**	■	■	■	■
In- and Outputs	**Safety outputs**	2 PNP OSSD transistor outputs	2 PNP OSSD transistor outputs	2 PNP OSSD transistor outputs	2 PNP OSSD transistor outputs
	Auxiliary output	–	1 PNP (non safety)	2 PNP (non safety)	1 PNP (non safety)
	Test input	■	■	■	■
	EDM input	■	–	■	■
	Reset input	■	–	■	■
	Muting sensor input	–	–	–	–
	Quick Link	S634	S634	S634	S633

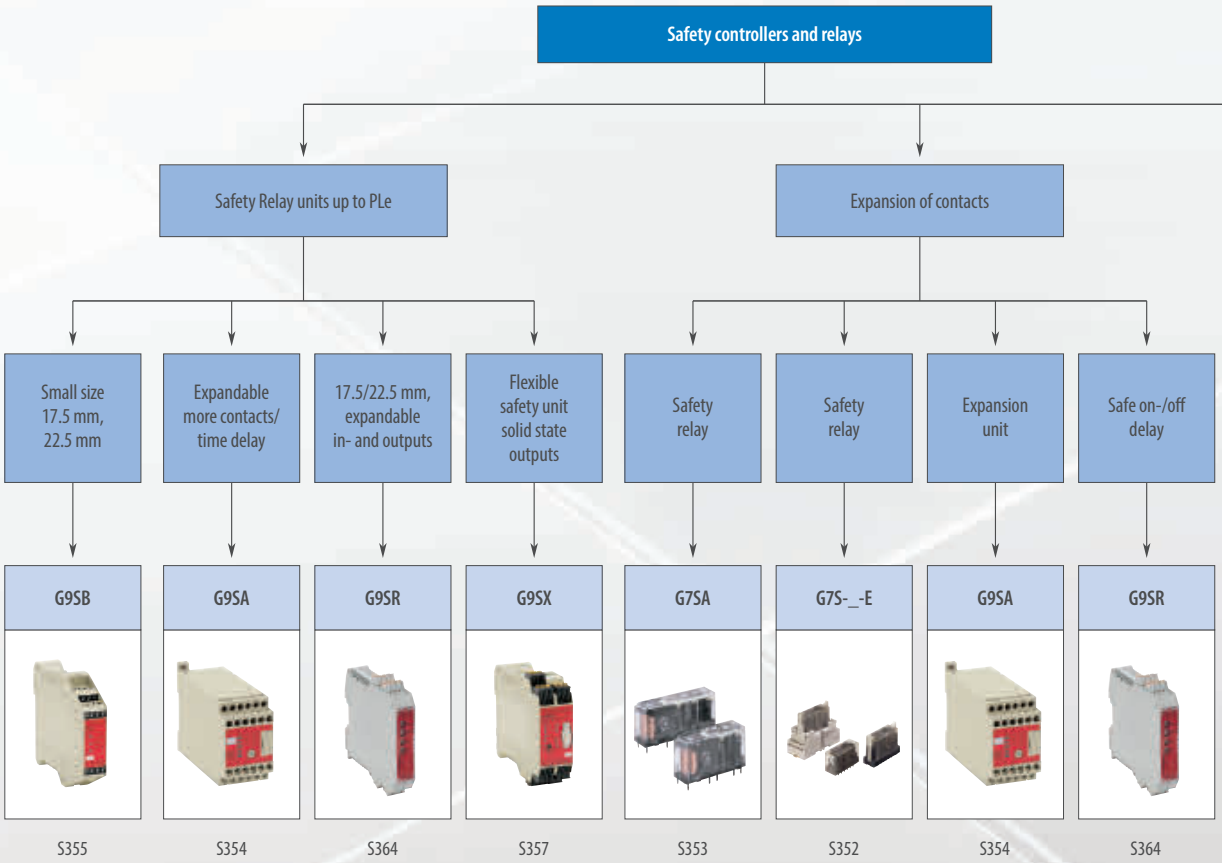
		Safety Sensors			
					
Model		F3S-TGR-CL	F3S-TGR-CL_-K_ / -K_C	E3FS + F3SP-U3P	OS32C
Selection criteria	Safety category	Type 2 & 4	Type 2 & 4	Type 2	Type 3
	Safety integrity level (IEC 61508)	–	–	–	SIL 2
	Protective height	150 to 2,400 mm	500 to 1,200 mm	–	Sensing range 4 m
	Resolution	14, 35, 70 mm	–	–	–
	Beam pitch	–	300, 400, 500 mm	–	–
	Reaction time	13 to 103 ms	13 ms	32 ms	80 ms
	Temperature range	–10 to 55°C	–10 to 55°C	–10 to 55°C	–10 to 50°C
	IP class	IP65	IP65	IP67	IP65
Features	Blanking function	internal	–	–	–
	Muting function	internal	internal	option	–
	EDM function	internal	internal	option	internal
	Interlock function	internal	internal	option	internal
	Series connection	option	–	–	–
	Mounting kits	inclusive	inclusive	–	option
	Parameter setting	internal DIP switch	internal DIP switch	–	Software (included)
	External control unit	–	–	■	–
Application	Finger protection	■	–	–	■
	Hand protection	■	–	–	■
	Arm protection	■	–	–	■
	Body protection	■	■	■	■
	Presence detection	■	–	–	■
	Muting application	■	■	■	–
	Blanking application	■	–	–	–
Supply voltage	24 VDC	■	■	■	
In- and Outputs	Safety outputs	2 PNP OSSD transistor outputs	2 PNP OSSD transistor outputs	2 PNP OSSD transistor outputs	2 PNP OSSD transistor outputs
	Auxiliary output	–	–	–	■
	Test input	■	■	■	–
	EDM input	■	■	–	■
	Reset input	■	■	■	■
	Muting sensor input	■	■	■	–
	EtherNet/IP	–	–	–	■
	Quick Link	S626	S627	S223, S623	S224

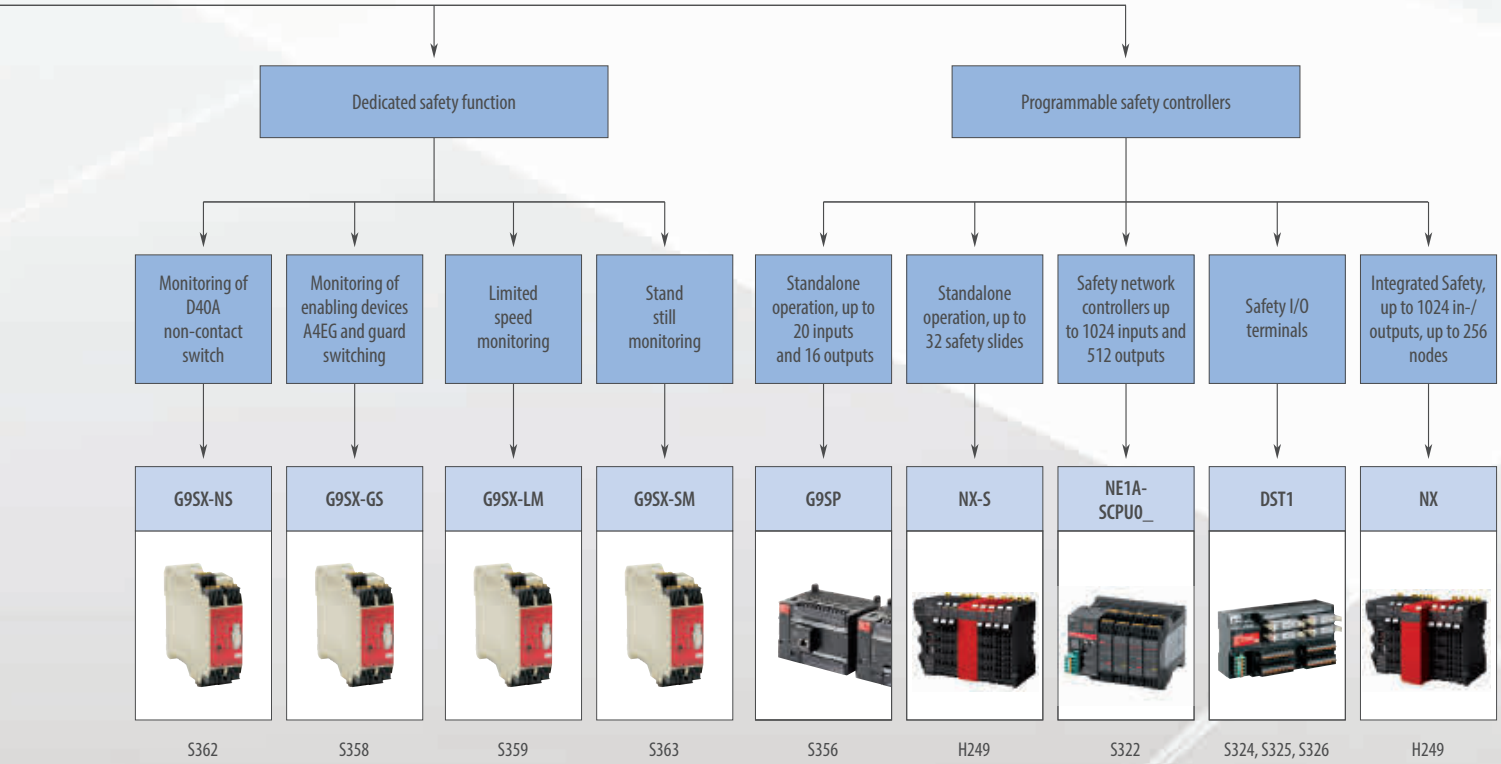
BREAK THROUGH BARRIERS IN SAFETY DESIGN

Configurable, flexible and simple

Omron safety controllers offer transparent standalone operation and scalability in safety networking applications for all sizes of machine safety control systems. The G9SP safety controller is simple to configure and setup and overcomes limitations of hard-wired solutions by adding flexibility of a software - based solution. Total cost of ownership is reduced by having user-defined function blocks and an integrated simulation tool for debugging or the application program.

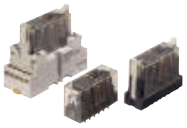
- EN ISO 13849-1 (PLe) and IEC 61508 (SIL3) certification for future-proof design of the safety system
- Predefined function blocks for simple configuration and self-explanatory validation
- Equipped with Ethernet and serial interface for transparent diagnosis




Dedicated safety function
Programmable safety controllers
Monitoring of D40A non-contact switch
Monitoring of enabling devices A4EG and guard switching
Limited speed monitoring
Stand still monitoring
Standalone operation, up to 20 inputs and 16 outputs
Standalone operation, up to 32 safety slides
Safety network controllers up to 1024 inputs and 512 outputs
Safety I/O terminals
Integrated Safety, up to 1024 in-/ outputs, up to 256 nodes
G9SX-NS
G9SX-GS
G9SX-LM
G9SX-SM
G9SP
NX-S
NE1A-SCPU0_
DST1
NX
S362
S358
S359
S363
S356
H249
S322
S324, S325, S326
H249

Selection table

		Safety relay units		Safety relays	Flexible safety unit
					
Model		**G9SA**	**G9SB**	**G9SR**	**G9SX**
Selection criteria	Performance level	up to PLe acc. EN ISO 13849-1 depending on application			
	Safety integrity level (IEC 61508)	–	–	SIL 3	SIL 3
	Reaction time	max. 10 ms	max. 10 ms	depend on safety application	15 ms
	DeviceNet safety Bus interface	–	–	–	–
	Standard DeviceNet Bus interface	–	–	–	–
	EDM function	■	■	■	■
	Interlock function	■	■	■	■
	Logical 'AND' connection	–	–	■	■
	Relay expansion units	■	–	–	■
	Housing	Plastic	Plastic	Plastic	Plastic
	Operating temperature	–25 to 55°C	–25 to 55°C	–10 to 55°C	–10 to 55°C
	Flux-tight	–	–	–	–
	Number of poles	–	–	–	–
Features	Gold clad contacts	–	–	–	–
	Relay socket	–	–	–	–
	Detachable cage clamp terminals	–	–	■	■
	Screw terminals	■	■	optional	■
	Safe timing functions	■	–	on-delay and off-delay	■
	USB-interface	–	–	–	–
	Programming software	–	–	–	–
Application	E-Stop application	■	■	■	■
	Door switch monitoring	■	■	■	■
	Safety light curtain monitoring	■	■	■	■
	EDM monitoring	■	■	■	■
	Interlock function	■	■	■	■
	Logic function blocks	–	–	■	–
	Safe ON delay timer	–	–	■	–
	Safe OFF delay timer	■	–	■	■
	Two-Hand control	■	–	■	–
	Manual/ automatic reset	■	■	■	■
	Non-contact switches monitoring	–	–	■	■
	Guard switching/ enabling function	–	–	■	■
	limited speed monitoring	–	–	–	■
	standstill monitoring	–	–	–	■
	General safety application	■	■	■	■
Supply voltage	24 VDC	■	■	■	■
	100 VAC to 240 VAC	■	–	–	–
In- and outputs	Safety inputs	■	■	■	■
	Test signal output	–	–	■	■
	Solid state safety outputs	–	–	■	■
	Safety relay outputs	3PST-NO, 5PST-NO	DPST-NO, 3PST-NO	DPST-NO, 3PST-NO	■
	Auxiliary outputs	SPST-NC	SPST-NC	Solid state, SPST-NO	■
	4PST-NO + DPST-NC	–	–	–	–
	3PST-NO + 3PST-NC	–	–	–	–
	3PST-NO + SPST-NC	–	–	–	–
	DPST-NO + DPST-NC	–	–	–	–
	5PST-NO + SPST-NC	–	–	–	–
	Quick Link	S354	S355	S364	S357

		Safety relays		Programmable safety system		
						
Model		**G7SA**	**G7S-_-E**	**G9SP**	**NE1A-SCPU0_**	**DST1**
Selection criteria	Performance level	–	–	up to PLe acc. EN ISO 13849-1 depending on application		
	Safety integrity level (IEC 61508)	–	–	SIL 3		
	Reaction time	–	–	dependent on safety application program		
	DeviceNet safety Bus interface	–	–	–	■	■
	Standard DeviceNet Bus interface	–	–	Diagnosis via Ethernet and Serial interface (option)	■	■
	EDM function	–	–	■	■	■
	Interlock function	–	–	■	■	■
	Logical 'AND' connection	–	–	–	–	–
	Relay expansion units	–	–	–	–	–
	Housing	Plastic	Plastic	Plastic	Plastic	Plastic
	Operating temperature	–40 to 85°C	–25 to 70°C	–10 to 55°C	–10 to 55°C	–10 to 55°C
	Flux-tight	■	■	–	–	–
	Number of poles	4 pole and 6 pole	6 pole	–	–	–
Features	Gold clad contacts	■	–	–	–	–
	Relay socket	■	■	–	–	–
	Detachable cage clamp terminals	–	–	–	■	■
	Screw terminals	–	–	■	–	–
	Safe timing functions	–	–	■	■	■
	USB-interface	–	–	■	■	–
	Programming software	–	–	■	■	–
Application	E-Stop application	–	–	■	■	■
	Door switch monitoring	–	–	■	■	■
	Safety light curtain monitoring	–	–	■	■	■
	EDM monitoring	–	–	■	■	■
	Interlock function	–	–	■	■	■
	Logic function blocks	–	–	■	■	■
	Safe ON delay timer	–	–	■	■	■
	Safe OFF delay timer	–	–	■	■	■
	Two-Hand control	–	–	■	■	■
	Manual/ automatic reset	–	–	■	■	■
	Non-contact switches monitoring	–	–	■	■	■
	Guard switching/ enabling function	–	–	■	■	■
	limited speed monitoring	–	–	–	–	■
	standstill monitoring	–	–	–	–	■
	General safety application	■	■	■	■	■
Supply voltage	24 VDC	■	■	■	■	■
	100 VAC to 240 VAC	–	–	–	–	–
In- and outputs	Safety inputs	–	–	■	■	■
	Test signal output	–	–	■	■	■
	Solid state safety outputs	–	–	■	■	■
	Safety relay outputs	–	–	–	–	■
	Auxiliary outputs	–	–	■	■	■
	4PST-NO + DPST-NC	■	■	–	–	–
	3PST-NO + 3PST-NC	■	■	–	–	–
	3PST-NO + SPST-NC	■	–	–	–	–
	DPST-NO + DPST-NC	■	–	–	–	–
	5PST-NO + SPST-NC	■	–	–	–	–
	Quick Link	S353	S352	S356	S322	S324, S325, S326

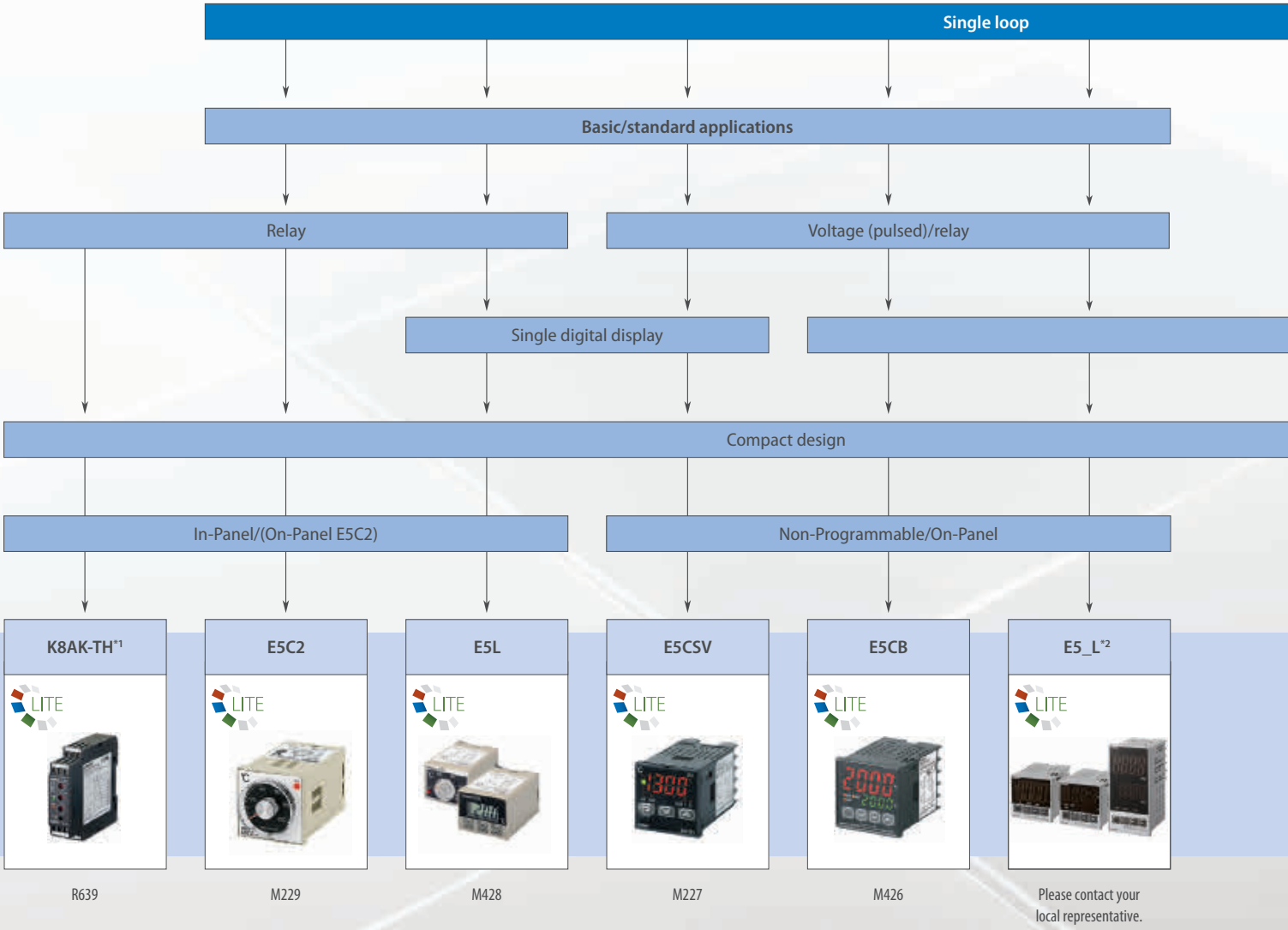
■ Standard – No/not available

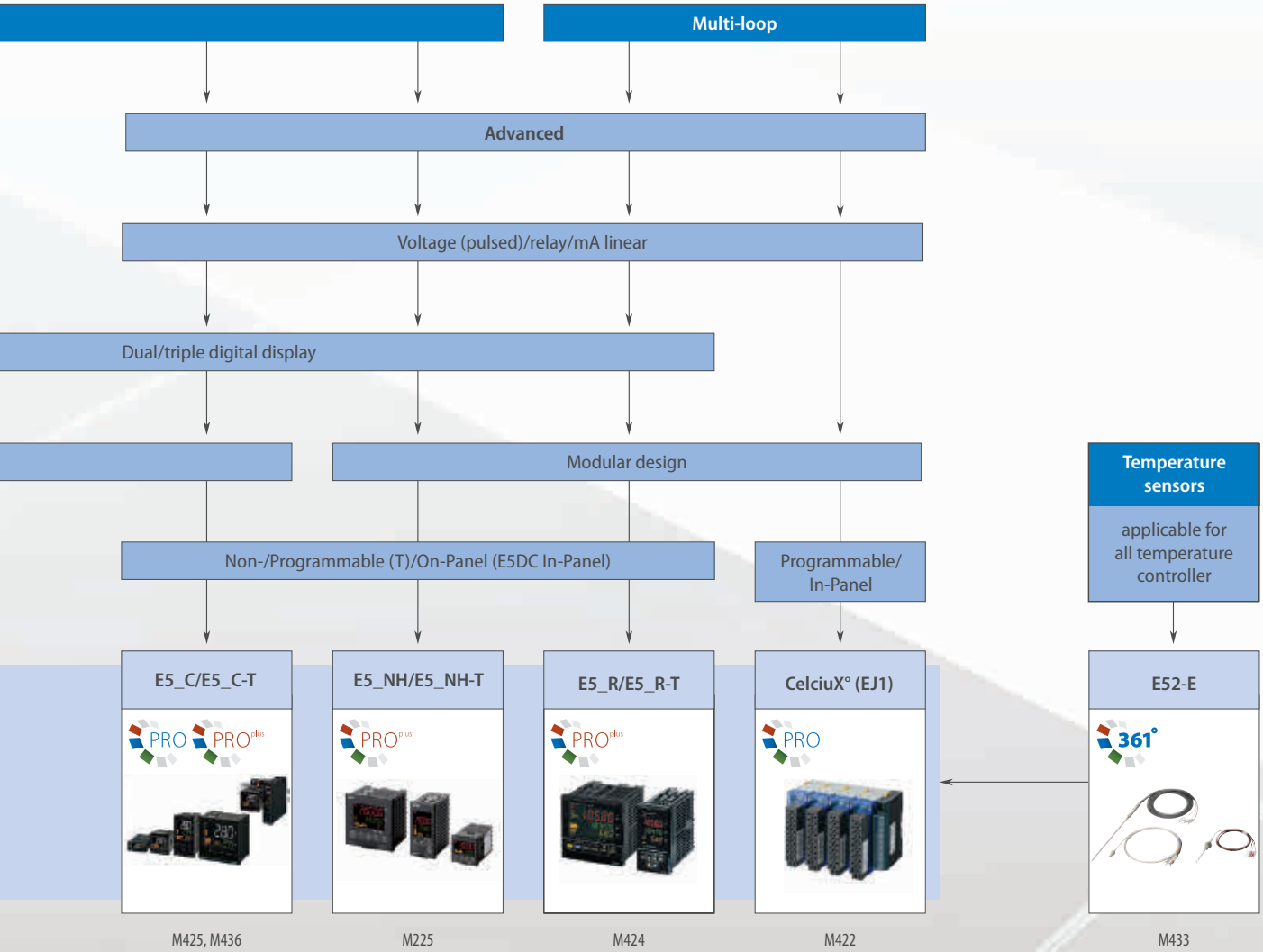
E5_C – THE NEW STANDARD

…in temperature control

Omron has been an active innovator in temperature control since introducing its first temperature controller in 1967. Now temperature control has taken a giant leap forward with Omron's next generation of controllers – the E_C, which set new global standards in the crucial areas of precision, user friendliness and control performance. The E_C series will save you time and effort in set-up and operation, while enabling faster and more accurate monitoring/control of your process. The high visibility display of the new series is also extremely easy to read and virtually eliminates any possibility for human error.

Always the latest news on:
industrial.omron.eu/en/news/product-news





*1 Temperature limiter
*2 Only available in Africa, Middle East and Russia

Selection table

Category		Analog temperature controller	Analog/digital temperature controller	Digital temperature controller		
						
Model		**E5C2**	**E5L-A/C**	**E5CSV**	**E5CB**	**E5_L**
Selection criteria	Type	Lite line				
	Panel	On-panel/In-Panel	In-Panel	On-panel		
	Loops	1	1	1	1	1
	Size	1/16 DIN	45 × 35 mm	1/16 DIN	1/16 DIN	1/16, 1/32 DIN
Control mode	ON/OFF | PID | 2-PID[*1]	■/P | ■ | –	■ | – | –	■ | – | ■	■ | – | ■	■ | – | ■
	Operation[*2]	H/C	H/C	H/C	H/C	H/C
	Valve Control[*3]	–	–	–	–	–
Features	Accuracy	–	±1°C	±0.5%	±0.5%	±0.5%
	Auto-/Self-/Gradient-tuning	– | –	– | –	■ | ■	■ | ■ | –	■ | ■ | –
	Transfer output	–	–	–	–	–
	Remote input	–	–	–	–	–
	Number of alarms	–	–	1	1	1
	Heater alarm	–	–	–	–	–
	IP rating front panel	IP40	IP40	IP66	IP66	IP50
	Display	–	Analog (A)/3 digit (C)	Single 3.5 digit	Dual 4 digit	Dual 4 digit
Supply voltage	110/240 VAC	■	■	■	■	■
	24 VAC/VDC	–	–	□	□	–
Comms	RS-232 | RS-485	– | –	– | –	– | –	– | –	– | –
	Event IP	–	–	–	–	–
	QLP port	–	–	–	■[*4]	–
	DeviceNet	–	–	–	–	–
	Modbus	–	–	–	■	–
	PROFIBUS	–	–	–	–	–
	Modbus TCP	–	–	–	–	–
	ProfiNet	–	–	–	–	–
Control output	Relay | SSR	– | –	– | –	■ | –	■ | –	■ | –
	Voltage (pulse)	–	–	■	■	■
	Linear voltage	–	–	–	–	–
	Linear current	–	–	–	–	–
Input type – linear	mA	–	–	–	–	–
	mV	–	–	–	–	–
	V	–	–	–	–	–
Input type – Thermocouple	K	■	–	■	■	■
	J	■	–	■	■	■
	T	–	–	■	■	■
	E	–	–	–	–	–
	L	–	–	■	–	–
	U	–	–	■	–	–
	N	–	–	■	–	–
	R	–	–	■	■	■
	S	–	–	–	■	■
	B	–	–	–	–	–
	W	–	–	–	–	–
	PLII	–	–	–	–	–
Input type – RTD	Pt100 | JPt100 | THE	■ | – | ■	– | – | ■[*5]	■ | ■ | –	■ | – | –	■ | – | –
	Quick Link	M229	Please contact your local representative.	M227	M426	Please contact your local representative.

[*1] 2-PID is Omron´s easy to use high performance PID algorithm
[*2] H = heat, H/C = heat or cool, H & C = heat and/or cool
[*3] Valve control = relay up and down
[*4] QLP: Quick Link Port to connected TC to PC using the smart USB cable E58-CIFQ2
[*5] SP sensor provided

Digital temperature controller	Digital programmable temperature controller	Digital (programmable) temperature controller		Digital temperature/ Gradient controller
				
E5_C	**E5_C-T**	**E5_NH/E5_NH-T**	**E5_R/E5_R-T**	**CelciuX° (EJ1/-G)**
Pro line	Pro^{plus} (Lite) line – Programmable (T)	Pro^{plus} line – Programmable (T)		Pro line
On-panel/In-Panel		On-panel		In-panel
1	1	1	2/4	2/4
1/4, 1/8, 1/16, 1/32, 22,5 mm	1/4, 1/8, 1/16 DIN	1/4, 1/8, 1/16 DIN	1/4, 1/8 DIN	31 × 95.5 × 109 mm
■ | – | ■	■ | – | ■	■ | – | ■	■ | – | ■	■ | – | ■
H & C	H & C	H & C	H & C	H & C
□	□	□	□	–
±0.3%	±0.3%	±0.1%	±0.1%	±0.5%
■ | ■ | –	■ | ■ | –	■ | ■ | –	■ | – | –	■ | – | ■ (only G)
□	□	□	□	□ (only EJ1)
□	□	□	□	□
0-4	3-4	2-3	2-3	2
□*6	□*6	□*6	□*6	□
IP66	IP66	IP66	IP66	IP20
Dual/triple 4 digit	Dual/triple 4 digit	Dual/triple 5 digit	Triple 5 digit	–
■	■	■	■	–
□	□	□	□	24 VDC
– | □	– | □	□ | □	– | □	■ | ■
□	□	□	□	□
■*7	■*7	■*10	■*10	■
–	–	–	□	□
■	■	■	■	■
□*8	□*8	□*8	□*8	□*8
□*9	□*9	□*9	□*9	□*9
□*9	□*9	□*9	□*9	□*9
■ | –	■ | –	■ | ■	■ | –	– | –
■	■	■	■	■
–	–	■	–	–
■	■	■	■	■ (only EJ1)
■	■	■	■	■
–	–	–	–	–
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	■	■
■	■	■	–	■
■ | ■ | –	■ | ■ | –	■ | ■ | –	■ | – | –	■ | ■ | –
M425	M436	M225	M424	M422

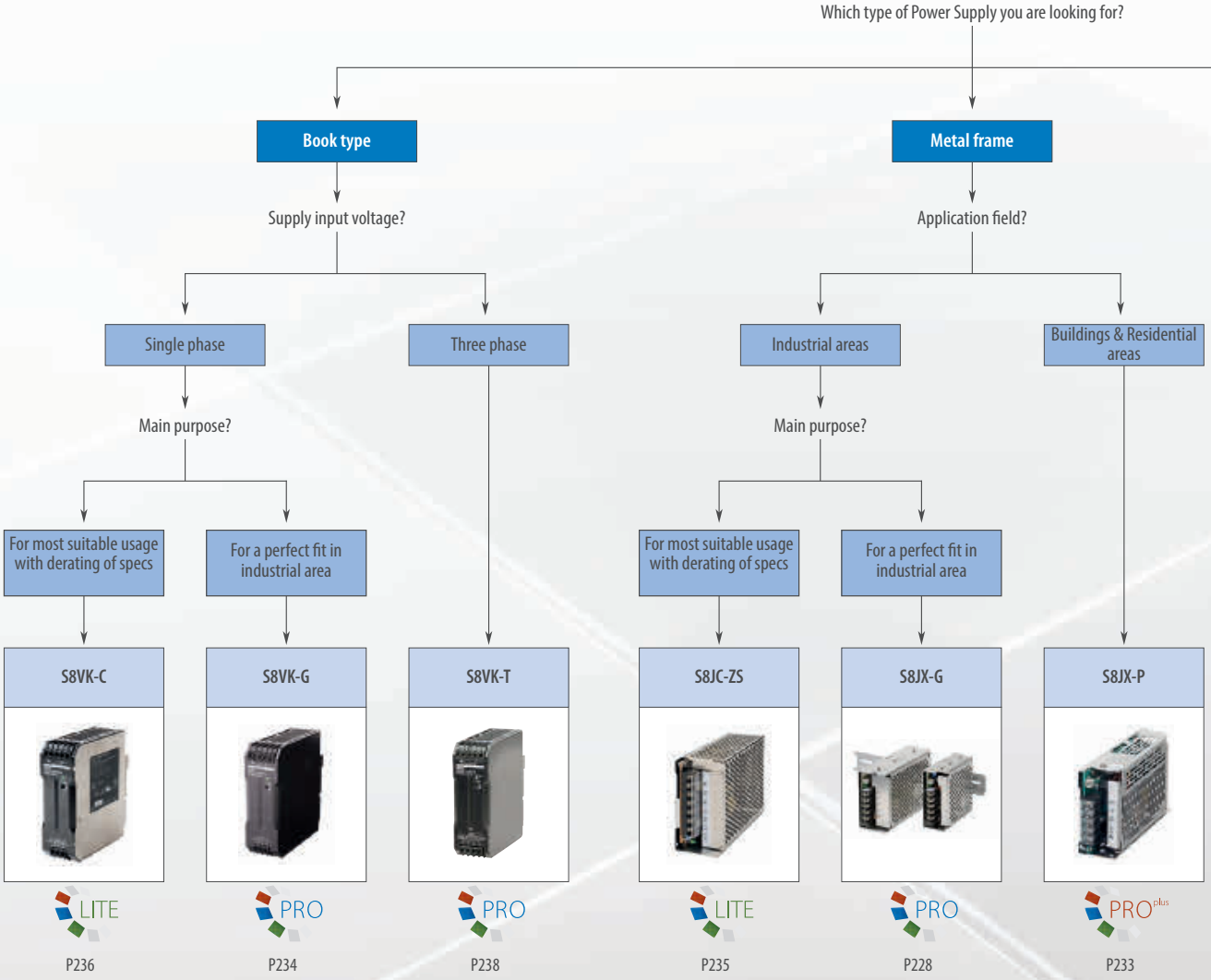
*6 Heater alarm = heater burnout & SSR failure detection
*7 Quick link port using comm. cable E58-CIFQ2
*8 PROFIBUS-DP communication option via PRT1-SCU11
*9 EJ1N-HFU-ETN Serial gateway
*10 QLP: Quick Link Port to connected TC to PC using the smart USB cable E58-CIFQ1

RELIABLE AND EASY OPERATION – WORLDWIDE

S8VK-G – The right power supply for your application

The S8VK-G offers a wide product range (from 15 W up to 480 W), in a very compact size.
It is 13% smaller than comparable power supplies and the smallest on the market of its type.

- Wide operating temperature range (–40 to +70ºC) to guarantee operation stability
- Double set of DC output terminals (three for the negative) to provide easy wiring
- High efficiency (90%) to reduce energy consumption
- Power Boost functionality (120%)
- Improved DIN-rail mounting clip to provide better vibration resistance and allow for easy installation



- **DC Backup**
  - Application purpose?
    - Power supply device → **S8TS** → P243
    - Battery backup → **S8T-DCBU-01** → P244
    - Buffer module → **S8T-DCBU-02** → P245
- **Redundancy unit** → **S8VK-R** → P237
- **Additional unit** → **S8M** → P227
- **Open frame** → **S8EX** → P239

Selection table

Category		Book type power supply						Metal frame power supply			
											
Model		S8VK-G				S8VK-C	S8VK-T	S8JX-P			
Selection Criteria	Type	Pro line				Lite line	Pro line	Pro plus line			
	Phases	Single phase					Three phases	Single phase			
	Rated voltage	100 V to 240 VAC (90 to 350 VDC)				100 V to 240 VAC	3 × 320 V to 576 VAC	100 V to 240 VAC			
	Voltage	5 V	12 V	24 V	48 V	24 V		5 V	12 V	24 V	48 V
Power	15 W	■ 3 A	■ 1.2 A	■ 0.65 A	–						
	25 W	–									
	30 W	■ 5 A	■ 2.5 A	■ 1.3 A	–						
	35 W	–									
	50 W	–						■ 10 A	■ 4.2 A	■ 2.1 A	■ 1.1 A
	60 W	–	■ 4.5 A	■ 2.5 A	–	■ 2.5 A	–				
	90 W	–									
	100 W	–						■ 20 A	■ 8.5 A	■ 4.5 A	■ 2.1 A
	120 W	–		■ 5 A	–	■ 5 A		–			
	150 W	–						■ 30 A	■ 13 A	■ 6.5 A	■ 3.3 A
	180 W	–									
	240 W	–		■ 10 A	■ 5 A	■ 10 A		–			
	300 W	–						■ 60 A	■ 27 A	■ 14 A	■ 7 A
	350 W	–									
	480 W	–		■ 20 A	■ 10 A	■ 20 A		–			
	600 W	–						■ 120 A	■ 53 A	■ 27 A	■ 13 A
	960 W	–					■ 40 A	–			
	1,500 W	–									
Features	Conformes to EN61000-3-2	■				–	■				
	DC back-up	–									
	Capacitor back-up	□					□	□			
	Undervoltage alarm	–									
	Overvoltage protection	■									
	Overload protection	■									
	DIN-rail mounting	■									
	Screw mounting (with bracket)	■									
	EMI Class B	■				–	■	■			
	UL Class 2	■ 15 W, 30 W, 60 W only				–					
	N+1 Redundancy	□						–			
	Parallel operation	■ by 2 units				–	■ by 2 units	■ 300 W, 600 W only by 5 units			
	Power Boost	■ 120%				–	■ 120%	■ 300 W, 600 W at 24 V 115%			
	Quick Link	P234				P236	P238	P233			

Metal frame power supply								Modular			Open frame power supply					
																
S8JX-G					**S8JC-ZS**			**S8TS**			**S8EX**					
Pro line					Lite line											
Single phase																
100 V to 240 VAC					200 V to 240 VAC			100 V to 240 VAC			100 to 240 VAC (85 to 264 VAC)					
5 V	12 V	15 V	24 V	48 V	5 V	12 V	24 V	5 V	12 V	24 V	5 V	12 V	15 V	24 V	36 V	48 V
■ 3 A	■ 1.3 A	■ 1.0 A	■ 0.65 A	■ 0.35 A	■ 3 A	■ 1.3 A	■ 0.7 A	–			■ 3 A	■ 1.3 A	■ 1.0 A	■ 0.7 A	–	■ 0.32 A
–								■ 5 A	–							
–								–	■ 2.5 A	–	■ 6 A	■ 2.5 A	■ 2 A	■ 1.3 A	–	■ 0.65 A
■ 7 A	■ 3 A	■ 2.4 A	■ 1.5 A	■ 0.75 A	■ 7 A	■ 3.0 A	■ 1.5 A	–								
■ 10 A	■ 4.2 A	–	■ 2.1 A	■ 1.1 A	■ 10 A	■ 4.2 A	■ 2.1 A	–			■ 10 A	■ 4.3 A	–	■ 2.1 A	–	■ 1.1 A
–									■ 5 A	■ 2.5 A	–					
–									■ 7.5 A	–	–					
■ 20 A	■ 8.5 A	–	■ 4.5 A	■ 2.1 A	■ 20 A	■ 8.5 A	■ 4.5 A	–			■ 20 A	■ 8.5 A	–	■ 4.3 A	–	■ 2.1 A
–									■ 10 A	■ 5 A						
■ 30 A	■ 13 A	–	■ 6.5 A	■ 3.3 A	■ 30 A	■ 12.5 A	■ 6.5 A	–			■ 30 A	■ 12.5 A	–	■ 6.3 A	–	■ 3.2 A
–										■ 7.5 A						
–										■ 10 A	–			■ 10 A	■ 6.7 A	■ 5 A
■ 60 A	■ 27 A	–	■ 14 A	■ 7 A	–											
–					■ 60 A	■ 29 A	■ 14.6 A	–								
–																
■ 120 A	■ 53 A	-	■ 27 A	■ 13 A	–											
–																
–																
–											■					
–										□	–					
–					□						–					
–								■			–					
■											■					
■											■					
■											–					
■					–						□					
–								■			■					
–								■	■ 1 unit		–					
–								■			–					
■ 300 W, 600 W only by 5 units					–				■		–					
–											□					
P228					P235			P243			P239					

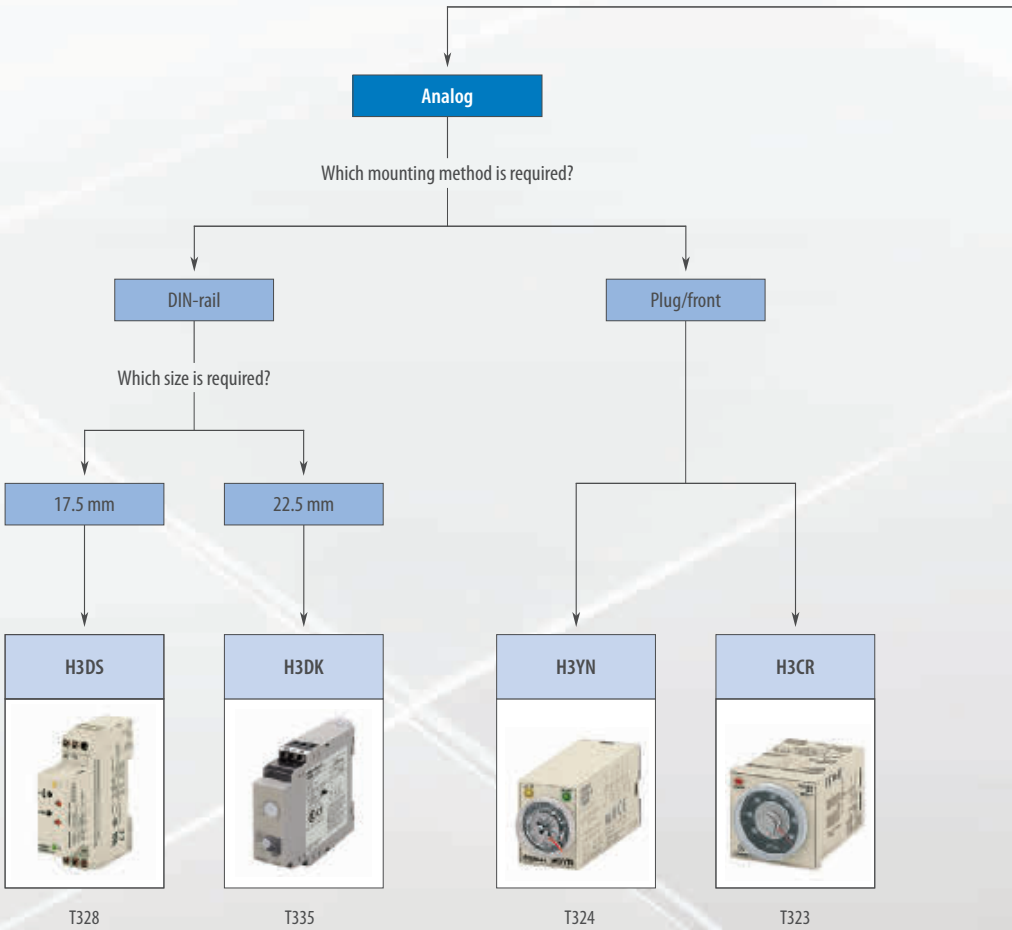
■ Standard □ Available – No/not available

WHEN TIMING ACCURACY MATTERS!

H5CX – The most complete digital timer

The H5CX series offers multiple-functions and -timing ranges for precise timing control, as well as real twin-timing and memory function. These and other added-value features ensure that the H5CX covers almost every possible user requirement in timers.

- 15 different time functions
- Three color display value, red, orange or green
- Models with instantaneous contact outputs
- 0.001 s to 9999 h, 10 ranges



Which type of timer is needed?

Digital

Which size is required?

48×24 mm

H8GN timer/counter

T429

48×48 mm

H5CX

T322

Motor timer

H2C

T338

Selection table

Category			Analog solid state timer										
													
Model			H3DS-M	H3DS-S	H3DS-A	H3DS-F	H3DS-G	H3DS-X	H3DK-M	H3DK-S	H3DK-F	H3DK-G	H3DK-H
Selection criteria	Mounting		DIN-rail										
	Size		17.5 mm						22.5 mm				
	Type		Multi-functional			Twin timer	Star-delta	Two-wired	Multi-functional		Twin timer	Star-delta	Power OFF-delay
Contact configuration	Time limit		■	■	■	■	■	■	■	■	■	■	■
	Instantaneous		–	–	–	–	–	–	■	■	–	–	–
	Programmable contacts		–	–	–	–	–	–	■	■	–	–	–
	14 pins		–	–	–	–	–	–	–	–	–	–	–
	11 pins		–	–	–	–	–	–	–	–	–	–	–
	8 pins		–	–	–	–	–	–	–	–	–	–	–
	Screw terminals		■	■	■	■	■	■	■	■	■	■	■
	Screw-less clamp terminals		□	□	□	□	□	□	–	–	–	–	–
	Screw-less clamp sockets		–	–	–	–	–	–	–	–	–	–	–
Inputs	Voltage input		□	□	□	–	–	–	□	□	–	–	–
Outputs	Transistor		–	–	–	–	–	–	–	–	–	–	–
	Relay		■	■	■	■	■	–	■	■	■	■	■
	SCR		–	–	–	–	–	■	–	–	–	–	–
	Relay output type	SPDT	■	■	■	■	–	–	□	■	■	■ (2x)	■
		SPST-NO	–	–	–	–	■ (2×)	–	–	–	–	–	–
		DPDT	–	–	–	–	–	–	□	■	–	–	–
		4PDT	–	–	–	–	–	–	–	–	–	–	–
Features	Time range	Total time range	0.1 s to 120 h	1 s to 120 h	2 s to 120 h	0.1 s to 12 h	1 s to 120 s	0.1 s to 120 h	0.1 s to 1,200 h	0.1 s to 1,200 h	0.1 s to 1,200 h	1 s to 120 s	0.1 s to 120 s
		Number of sub ranges	7	7	7	6	2	7	12	12	8	2	2 (model dependent)
	Supply voltage		24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 240 VAC/DC or 12 VDC	24 to 240 VAC/DC or 12 VDC	24 to 240 VAC/DC or 12 VDC	24 to 240 VAC/ DC, 240 to 440 VAC, 12 VDC	100 to 120 VAC, 200 to 240 VAC, 24 to 48 VAC/DC
	Number of operating modes		8	4	1	2	1	1	8	4	1	1	1
Functions	ON-delay		■	■	–	–	–	■	■	■	–	–	–
	Flicker OFF start		■	–	–	■	–	–	■	–	■	–	–
	Flicker ON start		■	■	–	■	–	–	■	■	■	–	–
	Signal ON-/OFF-delay		■	–	–	–	–	–	■	–	–	–	–
	Signal OFF-delay		■	–	–	–	–	–	■	–	–	–	■
	Interval (signal or power start)		■	■	–	–	–	–	■	■	–	–	–
	One-shot output (ON-delay)		■	■	–	–	–	–	■	■	–	–	–
	ON-delay (fixed)		–	–	■	–	–	–	–	–	–	■	–
	Independent ON/OFF time setting		–	–	–	–	–	–	–	–	–	–	–
	Star-delta		–	–	–	–	■	–	–	–	–	–	–
Remarks	Transistor		–	–	–	–	–	■	–	–	–	–	–
	Quick Link		T328						T335				

Category			Analog solid state timer					Digital timer		Motor timer
										
Model			H3YN	H3CR-A	H3CR-F	H3CR-G	H3CR-H	H5CX	H8GN	H2C
Selection criteria	Mounting		Socket/on panel							
	Size		21.5 mm	1/16 DIN					1/32 DIN	1/16 DIN
	Type		Miniature	Multi-functional	Twin timer	Star-delta	Power OFF-delay	Multi-functional	Preset counter/ timer	Motor timer
Contact configuration	Time limit		■	■	■	■	■	■	■	■
	Instantaneous		–	■	–	■	■	■	–	■
	Programmable contacts		–	–	–	–	–	■	■	–
	14 pins		■	–	–	–	–	–	–	–
	11 pins		–	□	□	□	□	□	–	□
	8 pins		■	□	□	□	□	□	–	□
	Screw terminals		–	–	–	–	–	□	■	□
	Screw-less clamp terminals		–	–	–	–	–	–	–	–
	Screw-less clamp sockets		□	–	–	–	–	–	–	–
Inputs	Voltage input		–	□	–	–	–	–	–	–
Outputs	Transistor		–	□	–	–	–	□	–	–
	Relay		■	□	■	■	■	□	■	■
	SCR		–	–	–	–	–	–	–	–
	Relay output type	SPDT	–	□	–	–	□	□	■	■
		SPST-NO	–	–	–	■ (2x)	–	–	–	–
		DPDT	□	□	■	–	□	–	–	–
		4PDT	□	–	–	–	–	–	–	–
Features	Time range	Total time range	0.1 s to 10 h (model dependent)	0.05 s to 300 h, 0.1 s to 600 h (model dependent)	0.05 s to 30 h or 1.2 s to 300 h (model dependent)	0.5 s to 120 s	0.05 s to 12 s, 1.2 s to 12 min	0.001 s to 9999 h (configurable)	0.000 s to 9999 h (configurable)	0.2 s to 30 h
		Number of sub ranges	2	9	14	4	4	10	9	15
	Supply voltage		24, 100 to 120, 200 to 230 VAC, 12, 24, 48, 100 to 110, 125 VDC	100 to 240 VAC, 100 to 125 VDC, 24 to 48 VAC, 12 to 48 VDC	100 to 240 VAC, 12 VDC, 24 VAC/DC, 48 to 125 VDC	100 to 120 VAC, 200 to 240 VAC	100 to 120 VAC, 200 to 240 VAC, 24 VAC/DC, 48 VDC, 100 to 125 VDC	100 to 240 VAC, 24 VAC, 12 to 24 VDC	24 VDC	24, 48, 100, 110, 115, 120, 200, 220, 240 VAC
	Number of operating modes		4	6 (model dependent)	–	1	1	15	6	2
Functions	ON-delay		■	□	–	–	–	■	■	■
	Flicker OFF start		■	□	■	–	–	■	■	–
	Flicker ON start		■	□	■	–	–	■	–	–
	Signal ON-/OFF-delay		–	□	–	–	–	■	–	–
	Signal OFF-delay		–	□	–	–	■	■	■	■
	Interval (signal or power start)		■	□	–	–	–	■	■	–
	One-shot output (ON-delay)		–	□	–	–	–	■	–	–
	ON-delay (fixed)		–	–	–	–	–	■	–	–
	Independent ON/OFF time setting		–	–	–	–	–	■	■	–
	Star-delta		–	–	–	■	–	–	–	–
Remarks	Transistor		–	□	–	–	–	■	–	–
	Quick Link		T324	T323				T322	T429	T338

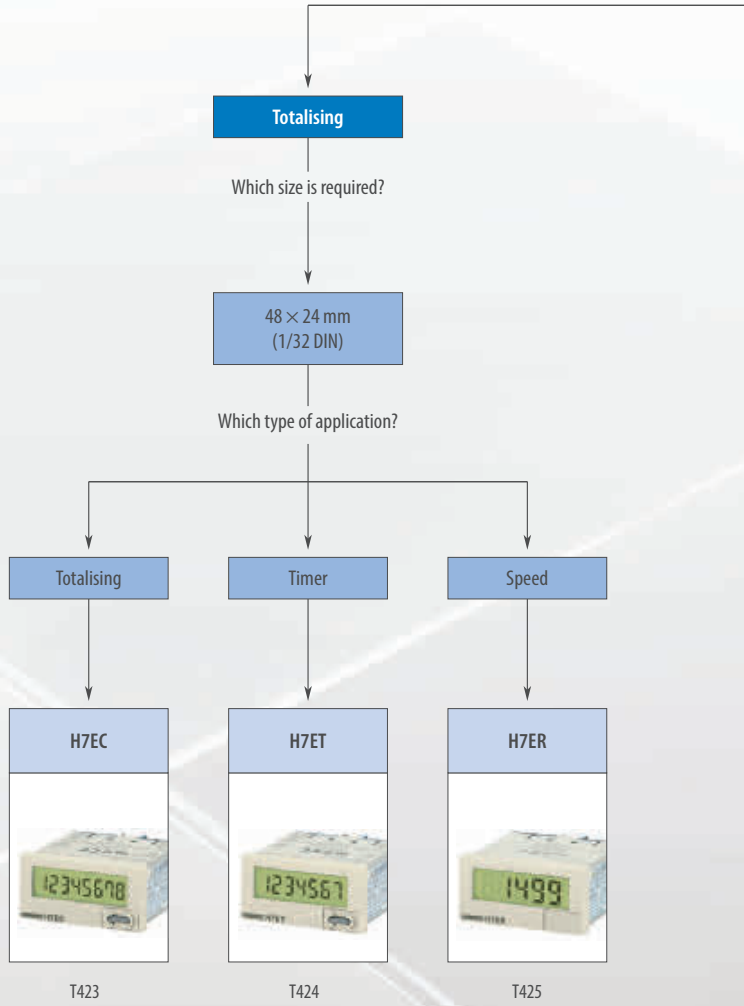
■ Standard □ Available – No/not available

MULTI-FUNCTIONAL PRESET COUNTER

H7CX – Designed with value added features

The H7CX series offers the ultimate in versatility and intuitive programming.

- 7 basic functions in one
- Switching color on threshold, green, orange & red
- Twin counter mode
- 12 different outputs modes
- Display 6 digits from -100 K +1 up to 1 M -1



What is the type of counting application?

Pre-set counter time count

Which size is required?

48 × 24 mm (1/32 DIN)

H8GN counter/timer

T429

48 × 48 mm (1/16 DIN)

H7CX

T422

Cam positioner

Which size is required?

96 × 96 mm (1/4 DIN)

H8PS

F424

Selection table

Category		Self-powered total	Self-powered timer	Self-powered tachometer
				
Model		**H7EC**	**H7ET**	**H7ER**
Selection criteria	Display	LCD		
	Size	1/32 DIN		
Outputs	Control outputs	–	–	–
	5 stage	–	–	–
	Total	■	■	–
	Time	–	■	–
	Preset	–	–	–
	Batch	–	–	–
	Dual	–	–	–
	Tachometer	■	–	■
Inputs	Control inputs	No-voltage, PNP/NPN, DC-voltage, AC/DC multi-voltage	No-voltage, PNP/NPN, DC-voltage, AC/DC multi-voltage	No-voltage, PNP/NPN
Features	Dual operation	–	–	–
	Number of digits	8	7	4 or 5
	NPN/PNP switch	■	■	■
	Back-lit	□	□	□
	External reset	■	■	–
	Manual reset	■	■	–
	Number of banks	–	–	–
	Built-in sensor power supply	–	–	–
	IP rating	IP66	IP66	IP66
Terminals	Screw terminals	■	■	■
	PCB terminals	–	–	–
	11-pin socket	–	–	–
Supply voltage	100 to 240 VAC	–	–	–
	12 to 24 VDC	–	–	–
	24 VDC	□	□	□
	Comms	–	–	–
Functions	Up	■	■	–
	Down	–	–	–
	Up/down	–	–	–
	Reversible	–	–	–
	Speed	0 to 30 Hz or 0 to 1 kHz	–	1 or 10 kHz
	Counting range	0 to 99999999	0.0 h to 999999.9 h <--> 0.0 h to 3999 d 23.9 h or 0 s to 999 h 59 min 59 s <--> 0.0 min to 9999 h 59.9 min	1000 s-1 or 1000 min-1; 1000 s-1 or 1000 min-1 <--> 10000 min-1
Color	Beige	■	■	■
	Black	■	■	■
	Quick Link	T423	T424	T425

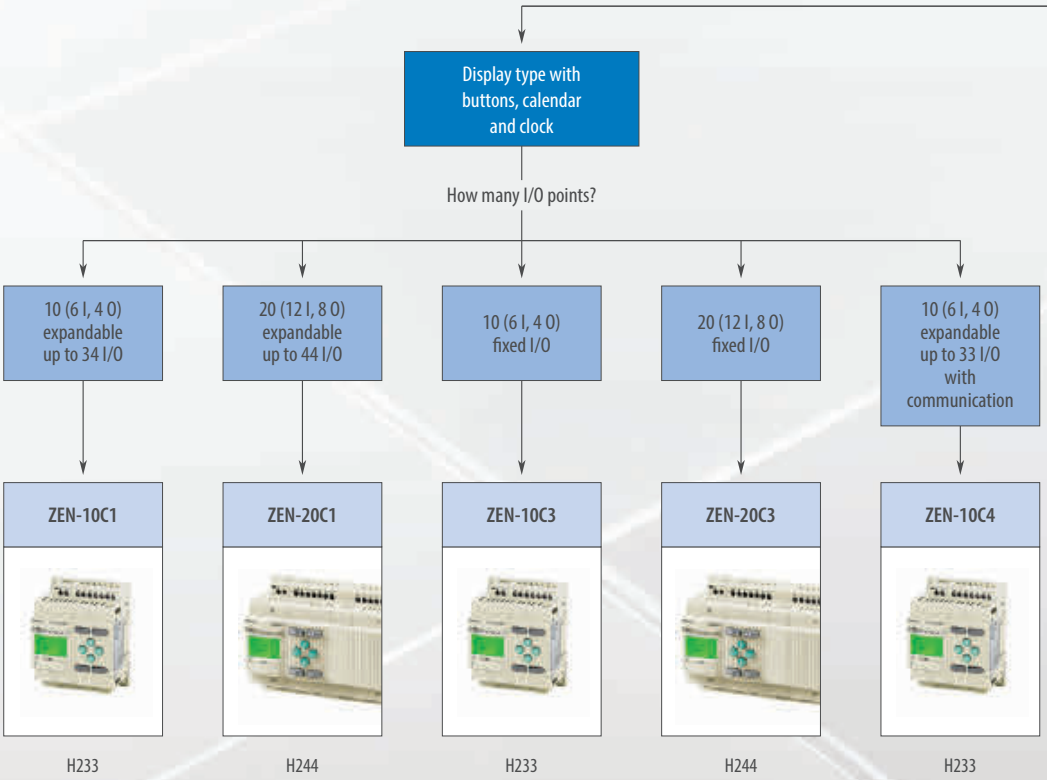
Counter type		Pre-set counter/timer	Pre-set counter	Cam positioner
				
Model		**H8GN**	**H7CX**	**H8PS**
Selection criteria	Display	LCD negative transmissive		LCD negative transmissive
	Size	1/32 DIN	1/16 DIN	1/4 DIN
Outputs	Control outputs	1 relay (SPDT)	1 relay (SPDT), transistor	NPN or PNP, cam outputs 8/16/32, run out, tachometer
	5 stage	■	□	–
	Total	■	□	–
	Time	■	–	–
	Preset	■	□	–
	Batch	■	□	–
	Dual	■	□	–
	Tachometer	–	□	–
Inputs	Control inputs	No-voltage	No-voltage, PNP/NPN	Encoder
Features	Dual operation	■	■	□
	Number of digits	PV: 4, SV: 4	PV: 4, SV: 4 or PV: 6, SV: 6	7
	NPN/PNP switch	–	■	–
	Back-lit	–	■	■
	External reset	■	■	–
	Manual reset	■	■	8 (16- and 32-output models only)
	Number of banks	4	–	–
	Built-in sensor power supply	–	■	–
	IP rating	IP66	IP66	IP40
Terminals	Screw terminals	■	■	■
	PCB terminals	–	–	■
	11-pin socket	–	□	–
Supply voltage	100 to 240 VAC	–	■	–
	12 to 24 VDC	–	■	–
	24 VDC	■	–	■
	Comms	□	–	–
Functions	Up	■	■	–
	Down	■	■	–
	Up/down	–	■	–
	Reversible	■	■	–
	Speed	0 to 30 Hz or 0 to 5 kHz	0 to 30 Hz or 0 to 5 kHz	–
	Counting range	-999 to 9999	-99999 to 999999	–
Color	Beige	–	–	■
	Black	■	■	–
	Quick Link	T429	T422	F424

■ Standard □ Available – No/not available

ZEN - SIMPLICITY AT ITS BEST

The ZEN series offers simple logic control for a wide variety of applications. With many on-board functions like season and weekly timers, counters, analog inputs and using the ladder logic, you can automate the application very quickly. Adjustments and maintanance is easy using the models with an LCD.

- RS-485 communication
- Expandable I/O
- Memory Data backup



What functionality is required?

- LED type
  - How many I/O points?
    - 10 (6 I, 4 O) expandable up to 34 I/O → ZEN-10C2 → H233
    - 20 (12 I, 8 O) expandable up to 44 I/O → ZEN-20C2 → H244
- Expansion unit
  - How many extra I/O points?
    - 8 I/O (4 I, 4 O) → ZEN-8E → H267
- Power supply → ZEN-PA → H268

				
Model	**ZEN-10C**	**ZEN-20C**		
Type	CPU unit	CPU unit		
Features C1	With LCD Display, program/control buttons, calendar and real-time clock	With LCD display, program/control buttons, calendar and real-time clock		
Features C2	With LED indication Logic control Programming by software	With LED indication Logic control Programming by software		
Features C3	Same as C1 but not expandable.	Same as C1 but not expandable.		
Features C4	Same as C1 but instead of one output relay you get RS-485 communication.	–		
Features Starter kits	Complete set with C1 CPU including software, cable and manual	–		
Number of I / O points	10 expandable up to 34 I/O (C4 up to 33 I/O)	20 expandable up to 44 I/O		
Inputs	6	12		
Inputs/power supply	100 to 240 VAC or 12 to 24 VDC	100 to 240 VAC or 12 to 24 VDC		
Outputs	4 relays (C4 = 3 relays) or 4 transistors	8 relays or 8 transistors		
Quick Link	H233	H244		

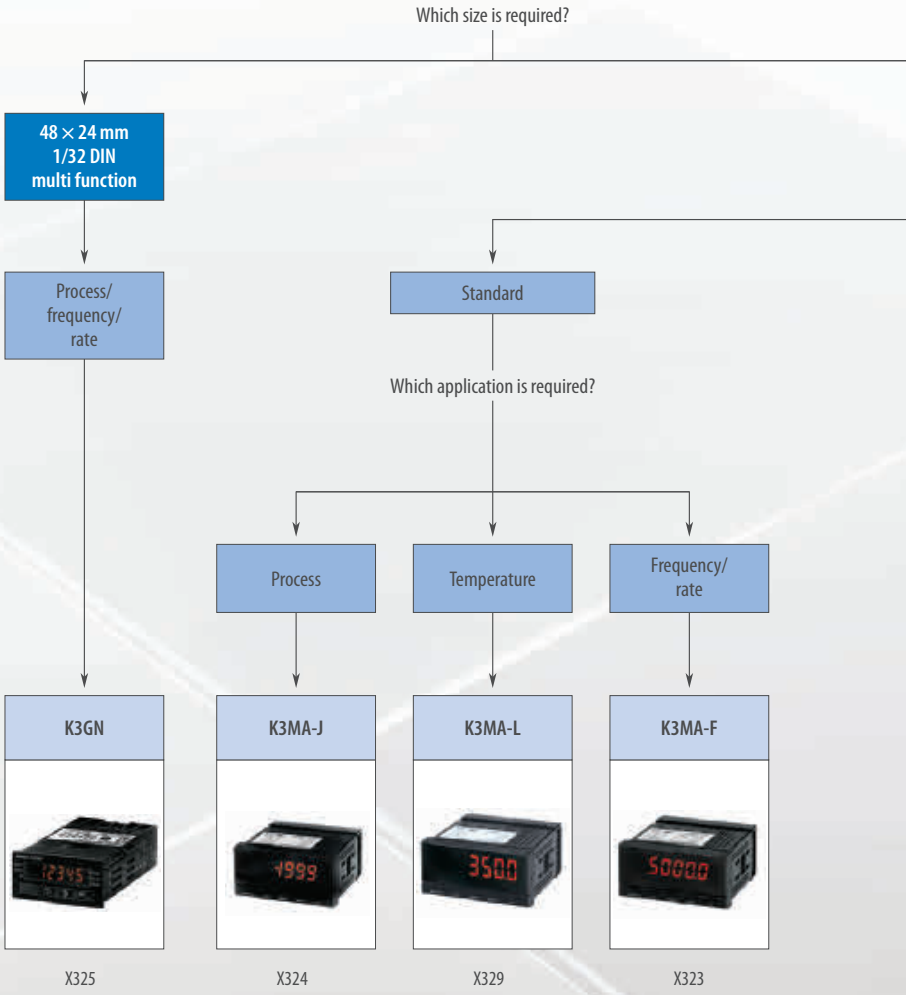
– No/not available

LOOKING FOR PERFECT MEASURING & READ-OUT?

K3HB-V – For perfect weighing

With our K3HB series we cover a wide range of applications. One of them is the weighing indicator which performs perfect measurement in any weighing application. The instrument can be equipped with a load-cell power supply of 10 V/100 mA. Several option boards for communication, contact output boards or event inputs are also available. On top of these you can get direct DeviceNet communication.

- High speed sampling 20 ms
- Equipped with position meter
- Two color display for easy recognition



96 × 48 mm (1/8 DIN)

Advanced

Which application is required?

Process	Temperature	Weighing	Linear sensor	Up/down counting pulse	Time interval	Rotary pulse
K3HB-X	K3HB-H	K3HB-V	K3HB-S	K3HB-C	K3HB-P	K3HB-R
						
X335	X332	X334	X333	X326	X327	X328

Selection table

Category		Multifunctional digital panel indicator	Process indicator	Temperature indicator	Frequency/rate indicator	Process indicator
						
Model		K3GN	K3MA-J	K3MA-L	K3MA-F	K3HB-X
Size		1/32 DIN	1/8 DIN			
Features	Color change display	■	■	■	■	■
	Number of digits	5	5	4	5	5
	Leading zero suppression	■	■	■	■	■
	Forced zero function	■	■	■	■	■
	Min./max. hold function	■	■	■	■	■
	Average processing	■	■	■	■	■
	User selectable inputs	■	■	■	■	■
	Start-up compensating time	■	–	–	■	–
	Key protection	■	■	■	■	■
	Decimal point position setting	■	■	■	■	■
	Accuracy	±0.1% of full scale	±0.1% of full scale	±0.1% of full scale	±0.1% of full scale	±0.1% of full scale (DC voltage & DC current), ±0.5% of full scale (AC voltage & AC current)
	Input range	0 to 20 mA, 4 to 20 mA or 0 to 5 V, 1 to 5 V, -5 to 5 V, -10 to 10 V or 0 to 30 Hz or 0 to 5 kHz	0 to 20 mA, 4 to 20 mA or 0 to 5 V, 1 to 5 V, -5 to 5 V, -10 to 10 V	Pt100, JPt100 or thermocouple K, J, T, E, L, U, N, R, S, B	0 to 30 Hz or 0 to 5 kHz	0.000 to 10.000 A, 0.0000 to 19.999 mA, -199.99 to 199.99 mA, 4.000 to 20.000 mA, 0.0 to 400.0 V, 0.0000 to 1.999 V, -199.99 to 199.99 V, 1.0000 to 5.0000 V
	Sample rate	250 ms	250 ms	500 ms	–	20 ms
	Features	Remote/local processing, parameter initialisation, programmable output configuration, process value hold	Teaching, comparative output pattern selection, parameter initialisation, programmable output configuration, process value hold	Programmable output configuration, process value hold	Teaching, comparative output pattern selection, programmable output configuration, process value hold	Scaling, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output
	Sensor power supply	–	–	–	■	□
Front protection	IP rating	IP66	IP66	IP66	IP66	IP66
	Supply voltage	24 VDC	24 VAC/VDC or 100 to 240 VAC	24 VAC/VDC or 100 to 240 VAC	24 VAC/VDC or 100 to 240 VAC	100 to 240 VAC or 24 VAC/VDC
Inputs	NPN	■	–	■	■	□
	PNP	■	–	■	■	□
	Temperature	–	–	–	–	–
	Contact	–	–	–	■	–
	Voltage pulse	–	–	–	■	–
	Load cell	–	–	–	–	–
	DC voltage	■	■	■	–	□
	DC current	■	■	–	–	□
	AC voltage	–	–	–	–	□
	AC current	–	–	–	–	□
Outputs	Relay	■	■	■	■	□
	NPN	■	–	–	–	□
	PNP	■	–	–	–	□
	Linear	–	–	–	–	□
	BCD	–	–	–	–	–
	Comms	■	–	–	–	□
	Quick Link	X325	X324	X329	X323	X335

Temperature indicator	Weighing indicator	Linear sensor indicator	Up/down counting pulse indicator	Time interval indicator	Rotary pulse indicator
					
K3HB-H	**K3HB-V**	**K3HB-S**	**K3HB-C**	**K3HB-P**	**K3HB-R**
1/8 DIN				–	–
■	■	■	■	■	■
5	5	5	5	5	5
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
–	–	–	–	–	■
■	■	■	■	■	■
■	■	■	■	■	■
Thermocouple: ±0.3% of full scale, Pt-100: ±0.2% of full scale	±0.1% of full scale	One input: ±0.1% of full scale, two inputs: ±0.2% of full scale		±0.08% rgd ±1 digit	±0.006% rgd ±1 digit ±0.02% rgd ±1 digit
Pt100, thermocouple K, J, T, E, L, U, N, R, S, B, W	0.00 to 199.99 mV, 0.000 to 19.999 mV, 100.00 mV, 199.99 mV	0 to 20 mA, 4 to 20 mA, 0 to 5 V, -5 to 5 V, -10 to 10 V	No voltage contact: 30 Hz, voltage pulse: 50 kHz, open collector: 50 kHz	No voltage contact: 30 Hz, voltage pulse: 50 kHz, open collector: 50 kHz	No voltage contact: 30 Hz, voltage pulse: 50 kHz, open collector: 50 kHz
20 ms	20 ms	0.5 ms	–	–	–
Scaling, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output	Scaling, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output	Scaling, 2-input calculation, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output	Scaling, measurement operation selection, output hysteresis, output OFF-delay, output test, display value selection, display color selection, key protection, bank selection, display refresh period, maximum/minimum hold, reset	Scaling, measurement operation selection, output hysteresis, output OFF-delay, output test, teaching, display value selection, display color selection, key protection, bank selection, display refresh period, maximum/minimum hold, reset	Scaling, measurement operation selection, averaging, previous average value comparison, output hysteresis, output OFF-delay, output test, teaching, display value selection, display color selection, key protection, bank selection, display refresh period, maximum /minimum hold, reset
□	□	□	□	□	□
IP66	IP66	IP66	IP66	IP66	IP66
100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC
□	□	□	■	■	■
□	□	□	■	■	■
■	–	–	–	–	–
–	–	–	–	–	–
–	–	–	■	■	■
–	■	–	–	–	–
–	–	■	–	–	–
–	–	■	–	–	–
–	–	–	–	–	–
–	–	–	–	–	–
□	□	□	□	□	□
□	□	□	□	□	□
□	□	□	□	□	□
□	□	□	□	□	□
–	–	–	□	□	□
□	□	□	□	□	□
X332	X334	X333	X326	X327	X328

■ Standard □ Available – No/not available

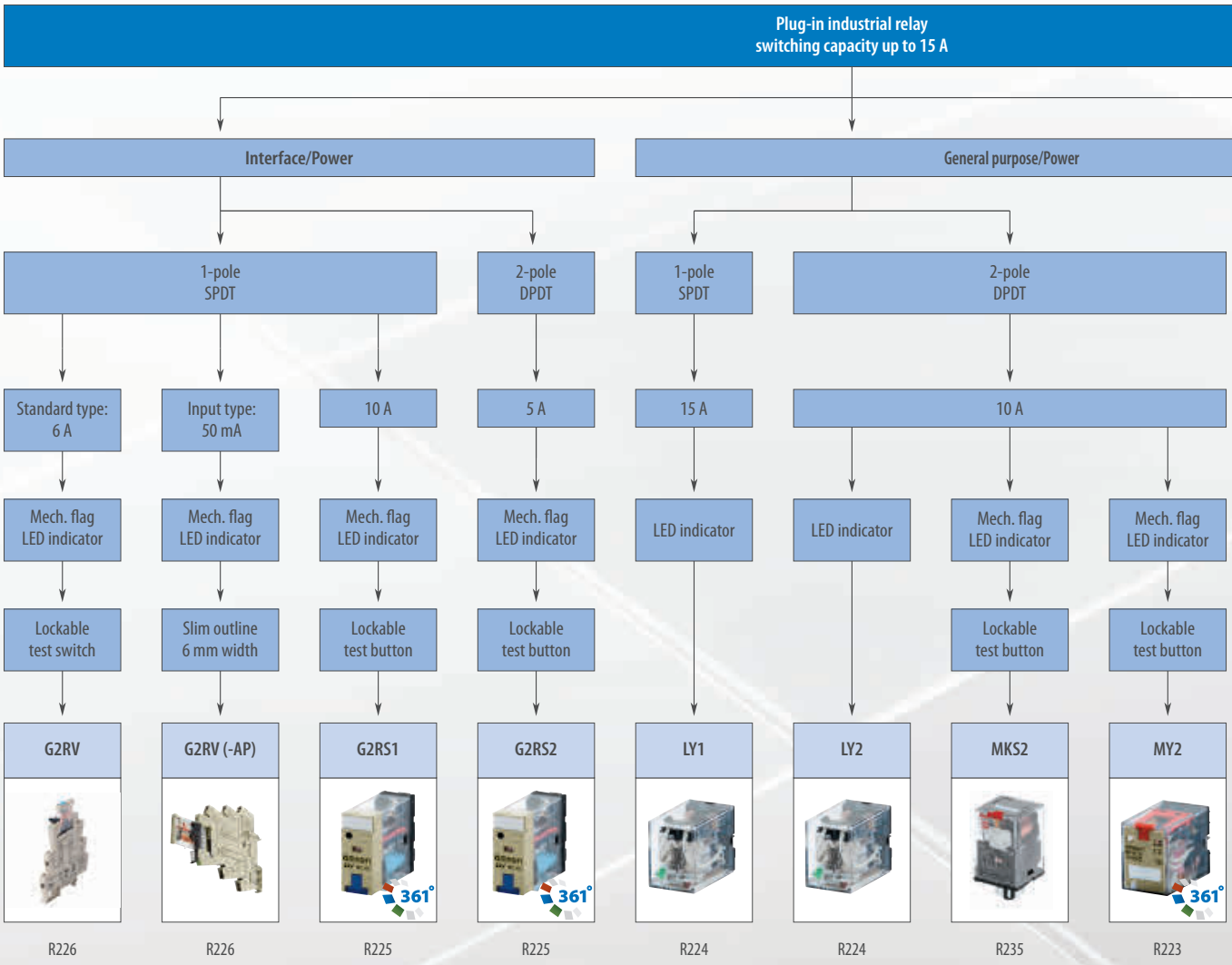
UNIQUE!

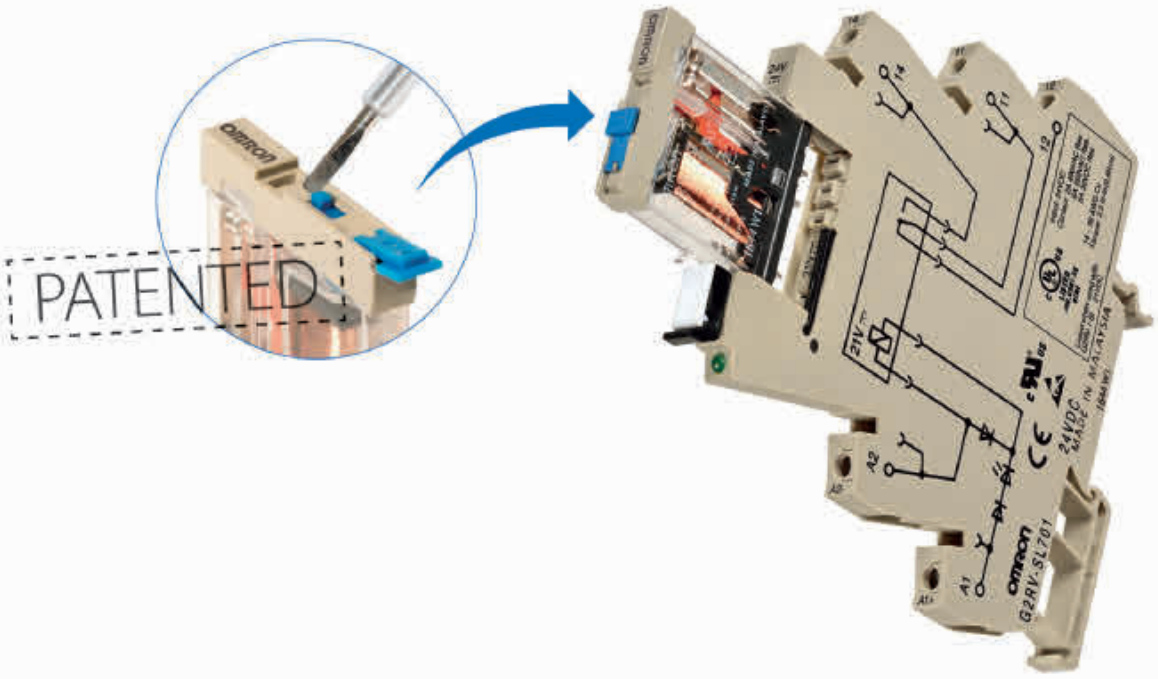
G2RV-SL☐☐ 1-6 mm relay with lockable test switch

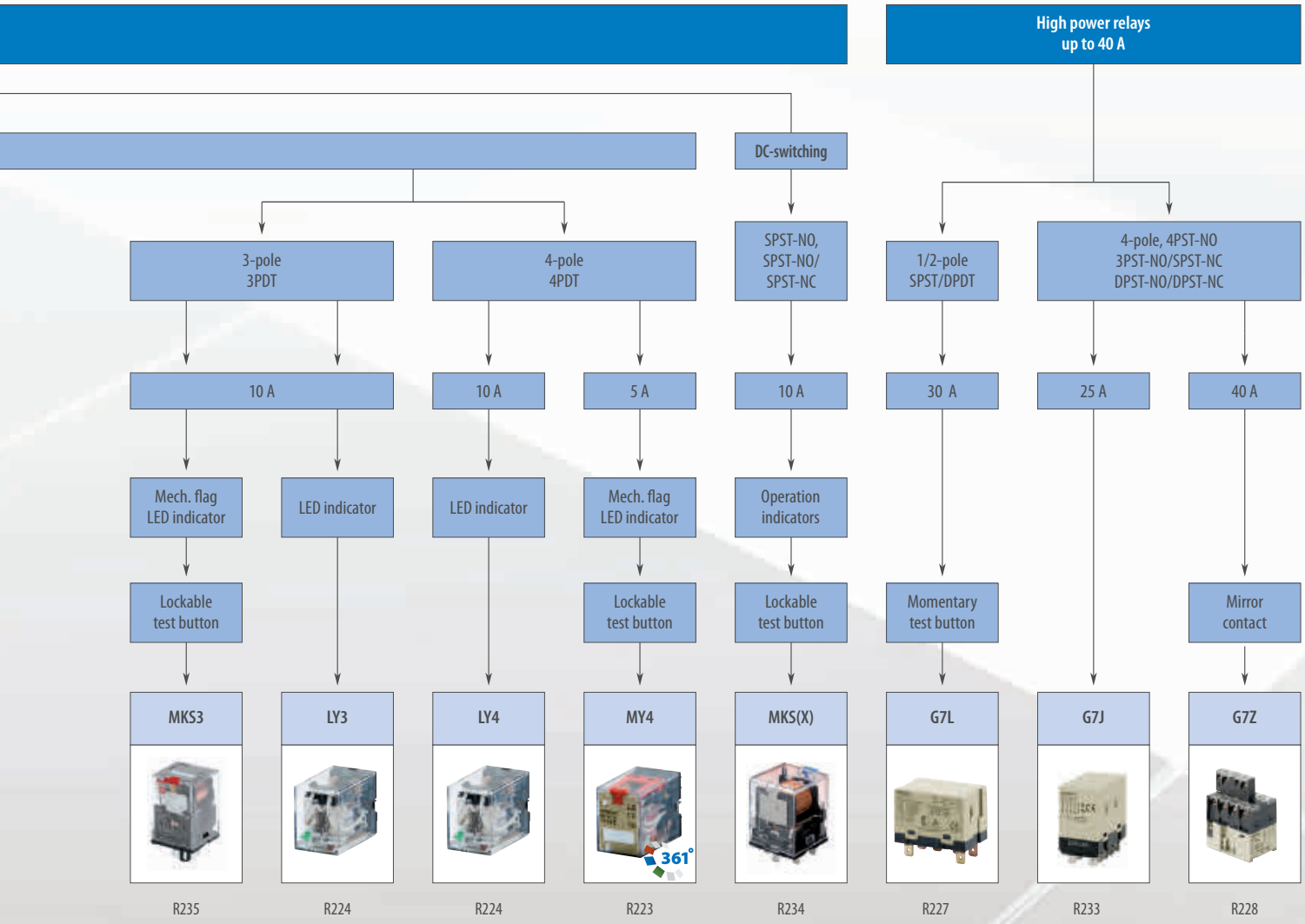
At the heart of the industrial G2RV relay is a strong mechanical pin with a large contact surface that ensures reliable connection and high conductivity between the socket and relay. The patented switch design with rotating protection cover is (almost) impossible to achieve in an adapted PCB relay.

Benefits lockable test switch:

- Test panel, machine or system functionality, or simulate an actuator when one or more modules are offline or have been removed
- Rotating protection cover stops accidental operation
- See from distance that the switch is protected – eg, in a hazardous environment




PATENTED
omron
G2RV-SL701
24VDC
6A/5E


High power relays
up to 40 A
DC-switching
3-pole
3PDT
4-pole
4PDT
SPST-NO,
SPST-NO/
SPST-NC
1/2-pole
SPST/DPDT
4-pole, 4PST-NO
3PST-NO/SPST-NC
DPST-NO/DPST-NC
10 A
10 A
5 A
10 A
30 A
25 A
40 A
Mech. flag
LED indicator
LED indicator
LED indicator
Mech. flag
LED indicator
Operation
indicators
Momentary
test button
Mirror
contact
Lockable
test button
Lockable
test button
Lockable
test button
MKS3
LY3
LY4
MY4
MKS(X)
G7L
G7J
G7Z
361°
R235
R224
R224
R223
R234
R227
R233
R228

Selection table

Category		Interface/Power				General purpose/Power		
								
Family		**G2RV**		**G2R-_-S**		**MY**		
Selection criteria	1-pole	■	■	■	–	–	–	–
	2-pole	–	–	–	■	■	–	–
	3-pole	–	–	–	–	–	–	–
	4-pole	–	–	–	–	–	■	■
	Contact configuration	SPDT	SPDT	SPDT	DPDT	DPDT	4PDT	4PDT bifurcated
	Contact material	AgSnIn	AgSnIn + gold plating	AgSnIn	AgSnIn	Ag	AgNi + Au	AgNi + Au
	Max. switching current	6 A	50 mA	10 A	5 A	10 A	5 A	5 A
	Min. switching current	10 mA at 5 VDC	1 mA at 100 mVDC	100 mA at 5 VDC	10 mA at 5 VDC	1 mA at 5 VDC	1 mA at 1 VDC	0.1 mA at 1 VDC
	Gold clad/plate	–	■	□	□	–	■	■
	Width max. (Relay only)	5.2 mm	5.2 mm	13.0 mm	13.0 mm	21.5 mm	21.5 mm	21.5 mm
Features	LED indication	■	■	□	□	□	□	□
	Mechanical flag	■	■	■	■	■	■	■
	Momentary testbutton	–	–	–	–	–	–	–
	Momentary/ Lockable testbutton (/switch)	□	–	□	□	□	□	□
	Label	□	□	□	□	□	□	□
	Diode (DC coil)	■	■	□	□	□	□	□
	Varistor (AC coil)	–	–	–	–	–	–	–
	CR network (AC coil)	■	■	–	–	□	□	□
Wiring to socket	Screw (plate clamp)	–	–	□	□	□	□	□
	Screw (box clamp)	□	□	□	□	□	□	□
	Screw-less clamp	□	□	□	□	□	□	□
	Quick Link	R226		R225		R223		

Category		High power relays								
										
Family		**G7J**				**G7L**		**G7Z**		
Selection criteria	1-pole	–	–	–	–	■	–	–	–	–
	2-pole	–	–	–	–	–	■	–	–	–
	3-pole	–	–	–	–	–	–	–	–	–
	4-pole	■	■	■	■	–	–	■	■	■
	Contact configuration	4PST-NO	4PST-NO	3PST-NO/ SPST-NC	DPST-NO/ DPST-NC	SPST-NO	DPST-NO	4PST-NO	3PST-NO/ SPST-NC	DPST-NO/ DPST-NC
	Max. switching current	25 A	25 A	25 A	25 A	30 A	25 A	40 A	40 A	40 A
	Min. permissible load	100 mA at 24 VDC	100 mA at 24 VDC	100 mA at 24 VDC	100 mA at 24 VDC	100 mA at 5 VDC	100 mA at 5 VDC	2 A at 24 VDC	2 A at 24 VDC	2 A at 24 VDC
	Auxilary contact block mirror contact	–	–	–	–	–	–	■	■	■
	Momentary testbutton	–	–	–	–	□	□	–	–	–
Relay terminals	Screw	□	□	□	□	□	□	□	□	□
	Quick-connect	□	□	□	□	□	□	–	–	–
	PCB terminals	□	□	□	□	□	□	–	–	–
Mounting	Screw	–	–	–	–	–	–	□	□	□
	DIN rail	–	–	–	–	–	–	□	□	□
	Clip (screw)	□	□	□	□	□	□	–	–	–
	Flange (screw)	□	□	□	□	□	□	–	–	–
	DIN rail (adapter)	–	–	–	–	□	□	–	–	–
	Quick Link	R233				R227		R228		

Category		General purpose/Power								
										
Family		**LY**					**MKS**		**MKS(X)**	
Selection criteria	1-pole	■	–	–	–	–	–	–	■	–
	2-pole	–	■	■	–	–	■	–	–	■
	3-pole	–	–	–	■	–	–	■	–	–
	4-pole	–	–	–	–	■	–	–	–	–
	Contact configuration	SPDT	DPDT	DPDT bifurcated	3PDT	4PDT	DPDT	3PDT	SPST-NO	SPST-NO/SPST-NC
	Contact material	AgSnIn	AgSnIn	AgSnIn	AgSnIn	AgSnIn	AgSnIn	AgSnIn	AgSnIn	AgSnIn
	Max. switching current	15 A	10 A	7 A	10 A	10 A	10 A	10 A	10 A, 220 VDC; 15 A, 250 VAC	5 A, 220 VDC; 15 A, 250 VAC
	Min. switching current	100 mA at 5 VDC	100 mA at 5 VDC	10 mA at 5 VDC	100 mA at 5 VDC	100 mA at 5 VDC	10 mA at 1 VDC	10 mA at 1 VDC	10 mA at 24 VDC	10 mA at 24 VDC
	Gold clad/plate	–	□	■	–	–	–	–	–	–
	Width max. (Relay only)	21.5 mm	21.5 mm	21.5 mm	31.5 mm	41.5 mm	34.5 mm	34.5 mm	34.5 mm	34.5 mm
Features	LED indication	□	□	□	□	□	□	□	□	□
	Mechanical flag	–	–	–	–	–	■	■	–	–
	Momentary testbutton	–	–	–	–	–	–	–	–	–
	Momentary/ Lockable testbutton	–	–	–	–	–	□	□	□	□
	Label	–	–	–	–	–	□	□	–	–
	Diode (DC coil)	□	□	□	□	□	□	□	Optional for socket	Optional for socket
	Varistor (AC coil)	–	–	–	–	–	□	□	–	–
	CR network (AC coil)	–	□	□	–	–	–	–	–	–
Wiring to socket	Screw (plate clamp)	□	□	□	□	□	□	□	□	□
	Screw (box clamp)	–	–	–	–	–	□	□	–	–
	Screw-less clamp	–	–	–	–	–	–	–	–	–
	Quick Link	R224					R235		R234	

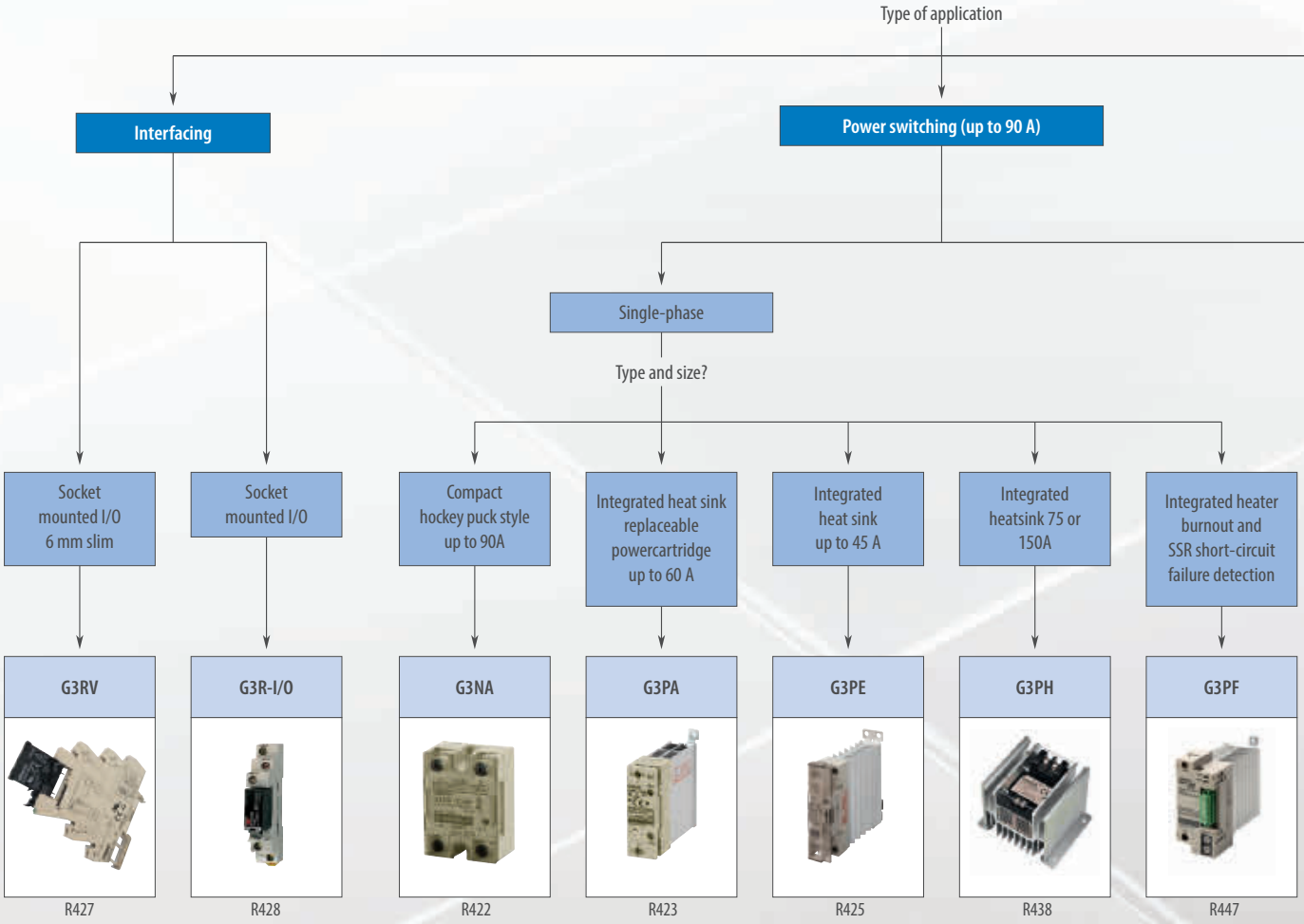
■ Standard □ Available – No/not available

COMPACT SOLID STATE RELAYS

G3_ series – Reliable interfacing and power switching

With a wide variety of output currents and voltages, our control-panel mounted types of power switching SSRs are available with (G3PE & G3PH) and without (G3NA) built-in heat-sink. The compact SSRs for I/O Interfacing G3RV & G3R offer high-speed models (G3R).

- Industrial 6 mm 'slim' SSR which is G2RV compatible (G3RV)
- G2RS compatible high-speed interface solutions (G3R-I/O)
- G3NA with 5-90 A output current, G3PB up to 45 A
- Output voltages up to 480 VAC / 200 VDC available on G3NA
- Effectively absorbing of external surge thanks to the built-in varistor



Power controlling

- Three-phase → Integrated heat sink up to 45 A → **G3PE**  R425
- Single phase → Integrated heat sink up to 60 A → **G3PW**  R442
- Multi channel up to 8 solid state relays → **G3ZA**  R426

Selection table

Category		Control panel mounting type				
						
Model		**G3RV**	**G3R-I/O**		**G3NA**	**G3PA**
Selection criteria	Type of load	Output module (interface)	Input Module (interface)	Output Module (interface)	Normal resistive heaters Motor control	Normal resistive heaters
	1-phase control	–	–	–	■	■
	2-phase control	–	–	–	–	–
	3-phase control	–	–	–	–	–
	Function	Signal switching	Signal switching	Signal switching	Heater control, motor control	Heater control
	Max. current rating	2 A (AC); 3 A (DC)	100 mA	2 A	90 A	60 A
Load voltage/ current [VAC]	24 to 240	–	–	–	■	■
	100 to 240	■	–	■	–	–
	200 to 480	–	–	–	■	■
Load voltage/ current [VDC]	5 to 200	3 to 26.4	4 to 32	■	■	–
Input voltages [VDC or VAC]	5 to 24 VDC	–	■	■	■	■
	12 to 24 VDC	12 VDC ±10%; 24 VDC ±10%	■	–	–	■
	24 VAC	■ 24 VAC/DC ±10%	–	–	–	■
	100 to 120 VAC	■ 110 VAC ±10%	■	–	■	–
	200 to 240 VAC	■ 230 VAC ±10%	■	–	■	–
	Analog input	–	–	–	–	–
Features	Built-in heat sink	–	–	–	–	■
	Zero-cross	□	–	□	■	■
	Built-in varistor	–	–	–	■	■
	LED operation indicator	■	■	■	■	■
	Protective cover	NA	NA	NA	■	■
	3-phase loads via 3 single-phase SSRs	NA	NA	NA	■	■
	Replaceable power cartridge	–	–	–	–	■
	Alarm output	NA	NA	NA	–	–
	Built-in failure detection	NA	NA	NA	–	–
	SSR open circuits detection	NA	NA	NA	–	–
	SSR short circuits detection	NA	NA	NA	–	–
Mounting	DIN-rail	■	–	–	■	■
	Screw	–	–	–	■	■
	Mounting socket	■	■	■	–	–
	Quick Link	R427	R428		R422	R423

Control panel mounting type				Power regulator	
					
G3PE	**G3PE**	**G3PH**	**G3PF**	**G3PW**	**G3ZA**
Normal resistive heaters	Normal resistive heaters	Normal resistive & lamp heaters	Normal resistors	Alloy heater Pure metal heater, nonmetal heater (Constant-current models recommended.)	Depends on the SSR used Distributes loop/control output levels (mV%) to SSRs
■	–	■	■	■	Depends on the SSR used
–	■	–	–	–	Depends on the SSR used
–	■	–	–	–	Depends on the SSR used
Heater control	Heater control	(Lamp) heater control	Heater control and diagnostics	Single-phase power control	Intelligent power control
45 A	45 A	150 A	35 A	60 A	Depends on the SSR used
–	–	–	–	–	–
■	■	■	■	■	■
■	■	■ (180 to 480)	■	–	■ 400 to 480
–	–	–	–	–	–
–	–	■	–	–	–
■	■	–	■	–	–
–	–	–	–	–	–
–	–	■ (100 to 240 VAC)	–	–	–
–	–	■ (100 to 240 VAC)	–	–	–
–	–	–	–	4 to 20 mA DC, 1 to 5 VDC	–
■	□	■	■	■	–
□	■	□	■	□	–
–	–	–	–	–	–
■	■	■	■	■	■
■	■	■	■	■	–
■	–	–	–	–	–
–	–	■	–	–	–
–	–	–	■	■	■
–	–	–	■	■	■
–	–	–	–	■	■
–	–	–	■	■	■
■	■	–	■	–	■
■	■	■	■	■	■
–	–	–	–	–	–
R425		R438	R447	R442	R426

■ Standard □ Available – No/not available NA Not applicable

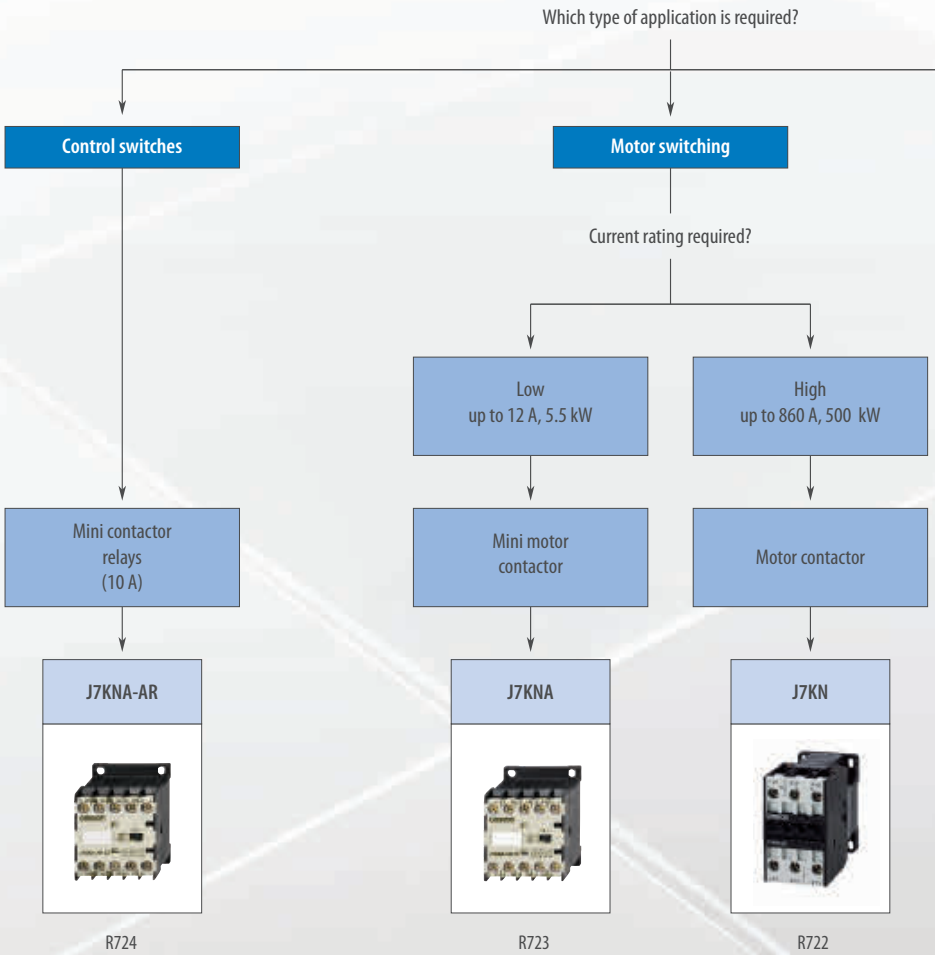
J7KN MOTOR CONTACTOR

J7KN – Motor contactors

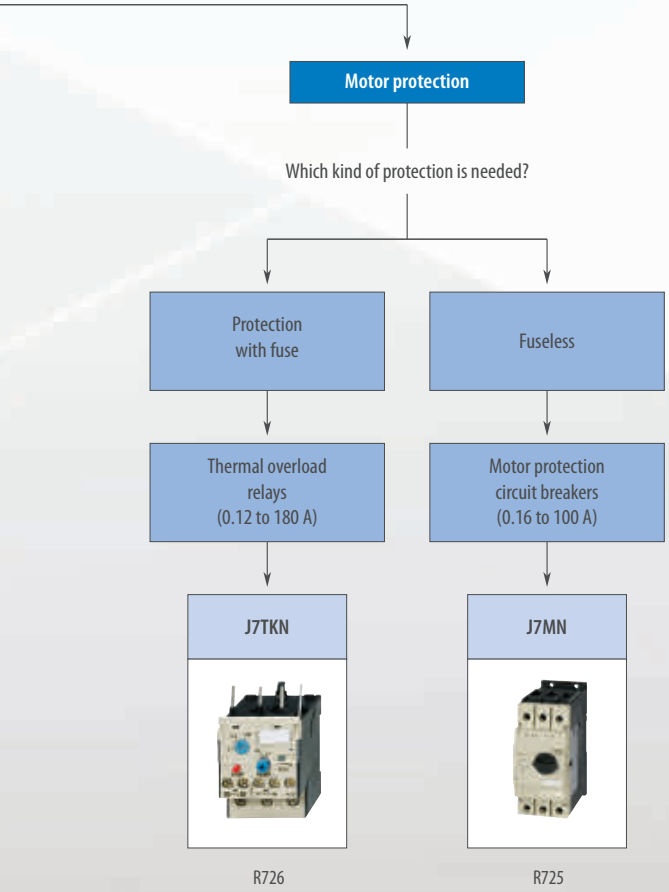
The popular J7KN series offers many outstanding benefits, such as space-saving, small footprint, great reliability, and an ambient temperature rating up to +90˚C. But now we've replaced it with a completely new design that extends its application range and will make your life even easier.

The new J7KN 10D to 22D series has the same footprint and severe ambient temperature rating, but has an improved design affording better protection, easier maintenance plus an integrated auxiliary double contact suitable for switching electronic circuits (17 V, 5 mA).

- Basic units can be combined with auxiliary contacts (top/side mounting)
- 3-main-pole and 4-main-pole versions are possible
- The power range covers 4 to 500 kW
- Different coil voltages (AC and DC)
- J7KN-10D to J7KN-22D models have integrated auxiliary contact for electronic circuits (3-pole versions)



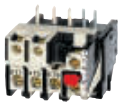




Motor protection
Which kind of protection is needed?
Protection with fuse
Fuseless
Thermal overload relays (0.12 to 180 A)
Motor protection circuit breakers (0.16 to 100 A)
J7TKN
J7MN
R726
R725

Selection table

MPCB			
Category			**Motor protection circuit breaker**
			 
	Type		**J7MN-3P/3R**
	Setting range current		0.16 - 32 A
	Number of ranges		16
	Auxiliary contact external		front 1 NO and 1 NC or 2 NO, side 1 NO and NC or 2 NO or 2 NC
	Quick Link		R725

Contactors							
Category			**Contactors**				
							
	Type		**J7KNA-AR**	**J7KNA-09/12**	**J7KN(G)-10(D)**	**J7KN(G)-14(D)**	**J7KN(G)-18(D)**	**J7KN(G)-22(D)**
	Maximum power AC3-380/415 V		–	4 kW or 5 kW	4 kW	5.5 kW	7.5 kW	11 kW
	Rated current AC3-380/415 V		10 A th	9/12 A	10 A	14 A	18 A	22 A
	Main contacts		4 in 4 configurations	3 or 4	3 or 4			
	Auxiliary contacts	**Included**	–	1	1 NO or 1 NC			
		External	4 in different combinations		4 contacts [*1]			
	Quick Link		R724	R723	R722		R722	

Thermal overload				
Category			**Thermal overload**	
				
	Type		**J7TKN-A**	**J7TKN-B**
	Setting range D.O.L.		0.12 - 14 A	0.12 - 32 A
	Number of ranges		13	16
	Auxiliary contacts included		1 NO and 1 NC	1 NO and 1 NC
	Quick Link		R726	R726

[*1] Using J7KN with DC double wiring coils results in 1 aux. less

	Motor protection circuit breaker	
J7MN-6R Over lapping area J7MN-3P/3R		
	J7MN-6R	**J7MN-9R**
	26 - 63 A	63 - 100 A
	5	4
front 1 NO and 1 NC or 2 NO, side 1 NO and NC or 2 NO or 2 NC		
	R725	

Contactors

							
J7KN(G)-24	**J7KN(G)-32**	**J7KN(G)-40**	**J7KN-50**	**J7KN-62**	**J7KN-74**	**J7KN-90**	**J7KN-115**
11 kW	15 kW	18.5 kW	22 kW	30 kW	37 kW	45 kW	55 kW
24 A	32 A	40 A	50 A	62 A	74 A	90 A	115 A
3			3			3	
–			–			–	
front and side 8-contacts[*1]			front and side 8-contacts[*1]			front and side 11-contacts	
R722			R722			R722	

Thermal overload

		
J7TKN-C	**J7TKN-D**	**J7TKN-E**
28 - 42 A	40 - 74 A	60 - 120 A
1	3	2
1 NO and 1 NC	1 NO and 1 NC	1 NO and 1 NC
R726	R726	R726

[*1] Using J7KN with DC double wiring coils results in 1 aux. less

Selection table

Category			Contactors			
Contactors						
	Type		J7KN-151	J7KN-176	J7KN-210	J7KN-260
	Maximum power AC3-380/415 V		75 kW	90 kW	110 kW	132 kW
	Rated current AC3-380/415 V		150 A	175 A	210 A	260 A
	Main contacts		3 or 4		3	
	Auxiliary contacts	Included	–		–	
		External	front and side 6-contacts		front and side 8-contacts	
	Quick Link		R722			

Category		Thermal overload		
Thermal overload				
	Type	J7TKN-E	J7TKN-F	J7TKN-G
	Setting range D.O.L.	60 - 120 A	120 - 180 A	144 - 320 A
	Number of ranges	2	1	2
	Auxiliary contacts included	1 NO and 1 NC	1 NO and 1 NC	1 NO and 1 NC
	Quick Link	R726		

Contactors				
				
J7KN-316	**J7KN-450-22**	**J7KN-550-22**	**J7KN-700-22**	**J7KN-860-22**
160 kW	250 kW	300 kW	400 kW	500 kW
315 A	450 A	550 A	700 A	860 A
3	3	3	3	3
–	4	4	4	4
front and side 8-contacts	front 4-contacts	front 4-contacts	front 4-contacts	front 4-contacts
R722				

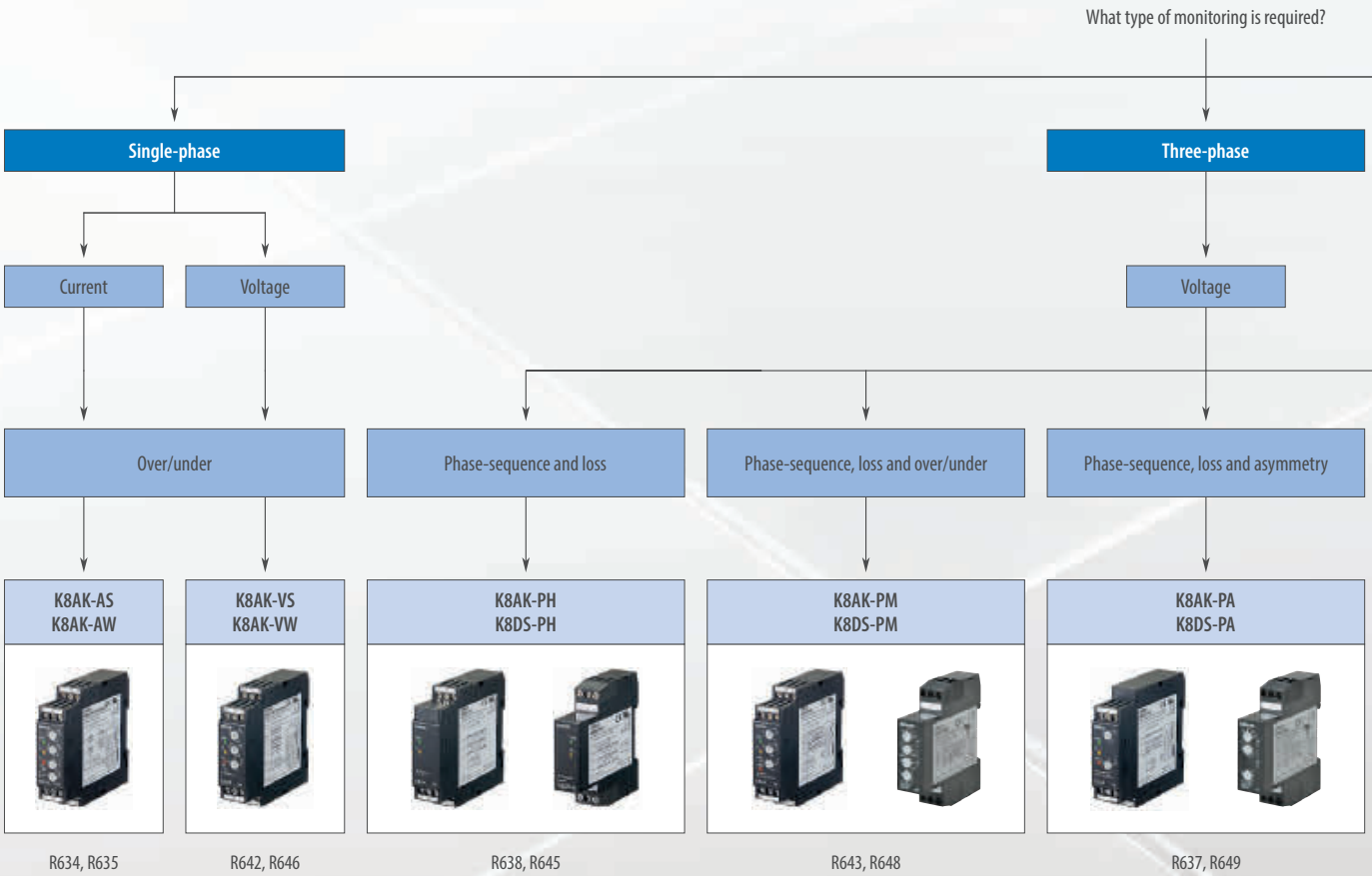
Thermal overload	
	
J7TKN-G	**J7TKN-H**
144 - 320 A	240 - 800 A
2	3
1 NO and 1 NC	1 NO and 1 NC
R726	

THE COMPLETE MONITORING RANGE

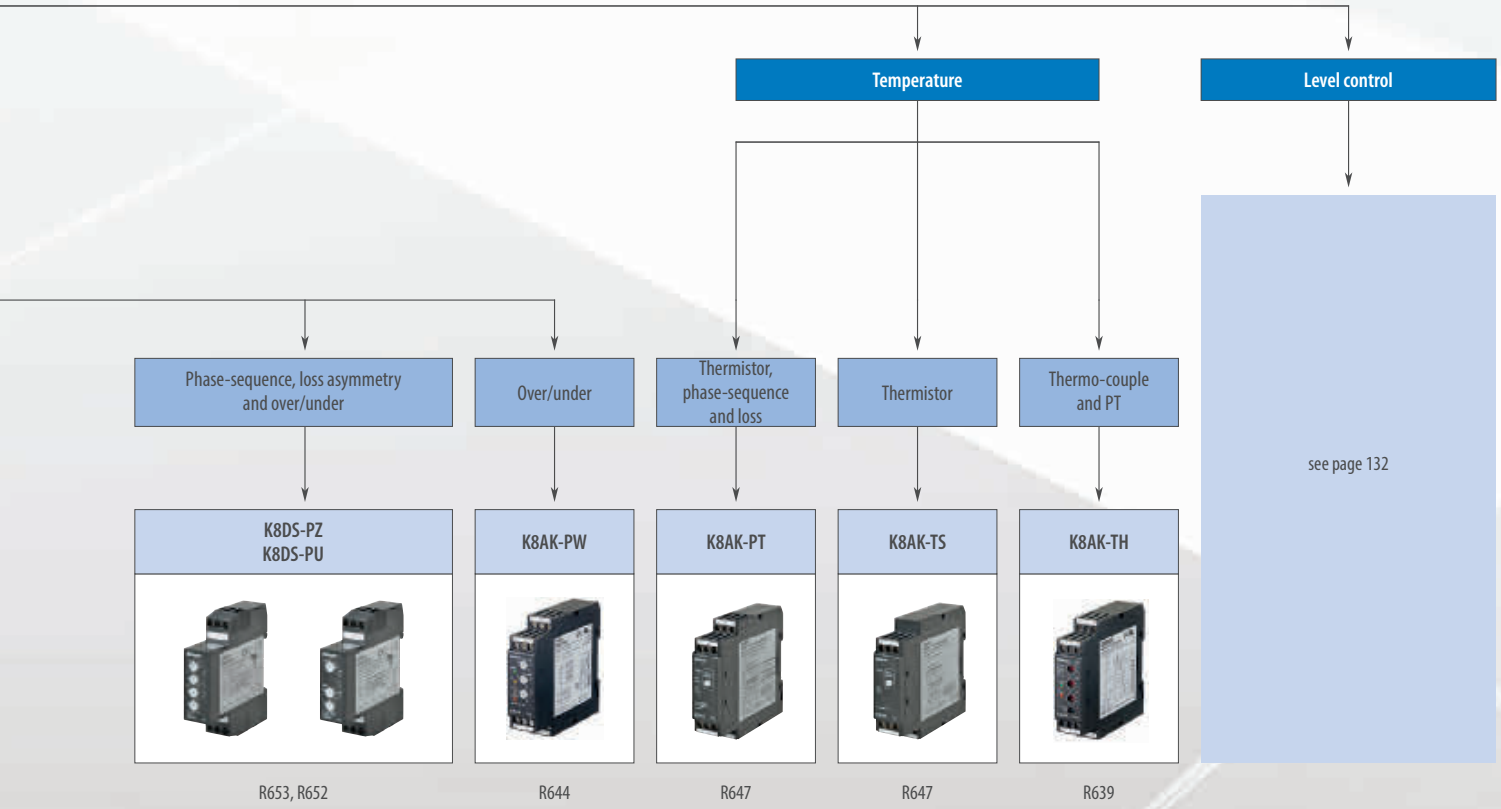
K8 series – The smart way to protect your system

The K8 series offers you a flexible and complete one-stop shopping solution!
This monitoring range can be split into models for single-phase current and single-phase voltage, three-phase voltage, conductive level and a temperature alarm unit.

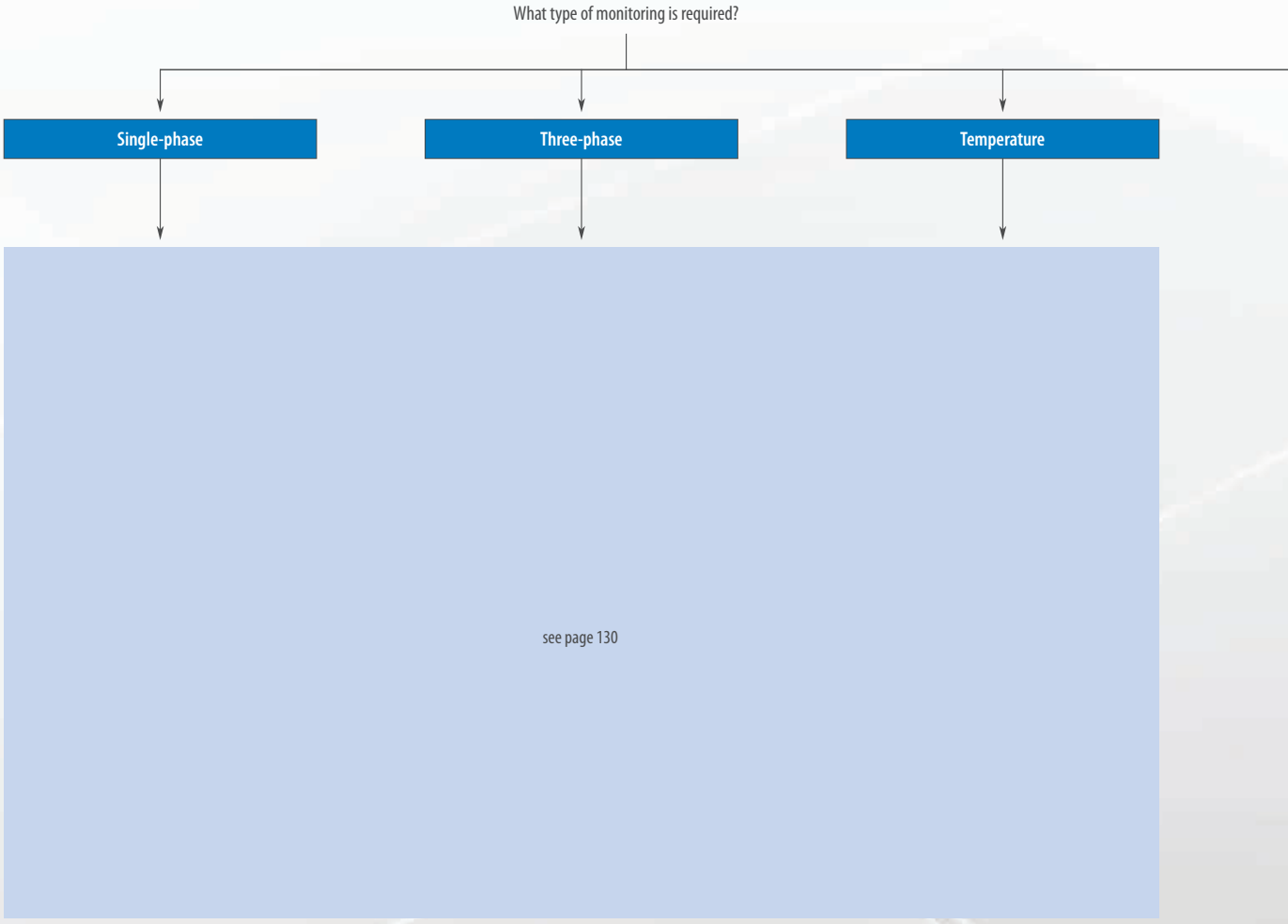
- 1-phase: full-span of range setting, all models with timer function
- 3-phase: wide range of global voltage settings
- Temperature monitoring relay: wide temperature range with precision increased
- Easy-to-set parameters



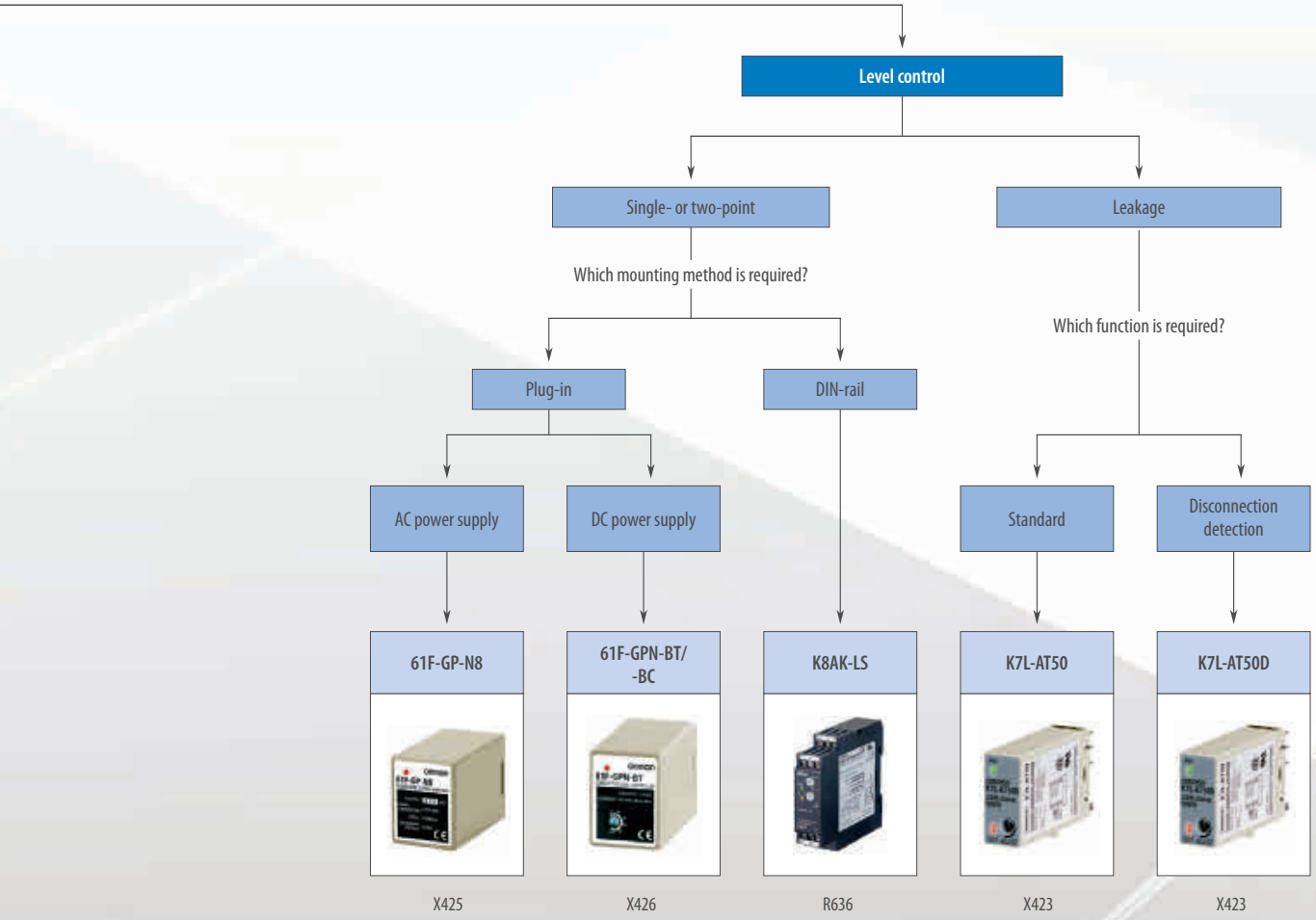

K8AK AS
K8AK AW
K8AK VS
K8AK VW
K8AK PH
K8AK PM
K8AK PA
K8AK PW
K8AK LS
K8AK TH11
K8DS PH


Temperature
Level control
Phase-sequence, loss asymmetry and over/under
Over/under
Thermistor, phase-sequence and loss
Thermistor
Thermo-couple and PT
see page 132
K8DS-PZ
K8DS-PU
K8AK-PW
K8AK-PT
K8AK-TS
K8AK-TH
R653, R652
R644
R647
R647
R639

Monitoring products




OMRON
61F-GP-N8
FLOATLESS LEVEL SWITCH
SOURCE : 230 VAC
POWER CONSUMPTION : 3.5VA Max
FREQ. : 50/60Hz
SECONDARY VOLTAGE : 8 VAC
CONDUCTIVE LEVEL CONTROLLER
K8AK
LS


Level control
Single- or two-point
Leakage
Which mounting method is required?
Which function is required?
Plug-in
DIN-rail
AC power supply
DC power supply
Standard
Disconnection detection
61F-GP-N8
61F-GPN-BT/ -BC
K8AK-LS
K7L-AT50
K7L-AT50D
X425
X426
R636
X423
X423

Selection table

Category		1-phase current		1-phase voltage		3-phase voltage phase-sequence/phase-loss		3-phase voltage phase-sequence/phase-loss over/under	
									
Model		**K8AK-AS**	**K8AK-AW**	**K8AK-VS**	**K8AK-VW**	**K8AK-PH**	**K8DS-PH**	**K8AK-PM**	**K8DS-PM**
Selection criteria	**Specialty**	Ideal for current monitoring for industrial heaters and motors.		Ideal for voltage monitoring for industrial facilities and equipment.		Ideal for phase-sequence and phase-loss monitoring for industrial facilities and equipment.		Ideal for monitoring 3-phase power supplies for industrial facilities and equipment.	
	Sensing range (configurable)	20 mA to 8 A, 100 or 200 A with current transformer		1 to 600 V		Same as supply voltage			
Supply voltage AC	**24 VAC**	■	■	■	■	–	–	–	–
	100 VAC	–	–	–	–	–	–	–	–
	110 VAC	–	–	–	–	–	–	–	–
	115 VAC	–	–	–	–	–	–	–	–
	120 VAC	–	–	–	–	–	–	–	–
	200 VAC	–	–	–	–	–	–	–	–
	220 VAC	–	–	–	–	–	–	–	–
	230 VAC	–	–	–	–	–	–	–	–
	240 VAC	–	–	–	–	–	–	–	–
	100 to 240 VAC	■	■	■	■	–	–	–	–
	200 to 480 VAC	–	–	–	–	■	■	–	–
	200 to 240 VAC	–	–	–	–	–	–	■ (-PM1, 3-wire)	■
	115 to 138 VAC	–	–	–	–	–	–	■ (-PM1, 4-wire)	–
	380 to 480 VAC	–	–	–	–	–	–	■ (-PM2, 3-wire)	■
	220 to 277 VAC	–	–	–	–	–	–	■ (-PM2, 4-wire)	–
Supply voltage DC	**24 VDC**	■	■	■	■	–	–	–	–
	12 to 24 VDC	–	–	–	–	–	–	–	–
Control output	**Transistor NPN**	–	–	–	–	–	–	–	–
	Transistor PNP	–	–	–	–	–	–	–	–
	Relay	■ (1 SPDT)	■ (2 SPDT)	■ (1 SPDT)	■ (2 SPDT)	■ (1 DPDT)	■ (1 SPDT)	■ (2 SPDT)	■ (1 SPDT)
Features	**LED operation indicator**	■	■	■	■	■	■	■	■
	Adjustable sensitivity	–	–	–	–	–	–	–	–
	Electrode types	–	–	–	–	–	–	–	–
	Quick Link	R634	R635	R642	R646	R638	R645	R643	R648

3-phase voltage phase-sequence, loss and asymmetry		3-phase voltage phase-sequence, loss, asymmetry and over/under		3-phase voltage over/under	Temperature thermistor, phase-sequence and loss	Temperature thermistor	Temperature thermo-couple and PT
							
K8AK-PA	**K8DS-PA**	**K8DS-PZ**	**K8DS-PU**	**K8AK-PW**	**K8AK-PT**	**K8AK-TS**	**K8AK-TH**
Ideal for 3-phase voltage asymmetry monitoring for industrial facilities and equipment.		Ideal for monitoring 3-phase power supplies for industrial facilities and equipment		Ideal for monitoring 3-phase power supplies for industrial facilities and equipment.	Monitor temperature rise through internal motor		Compact and slim relay ideal for temperature alarms and monitoring
Same as supply voltage					100 to 240 VAC 24 VAC/DC		100 to 240 VAC 24 VAC/DC
–	–	–	–	–	■	■	■
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	–	■	■	■
–	–	–	–	–	–	–	–
■ (-PA1, 3-wire)	■	■	■	■ (-PW1, 3-wire)	–	–	–
■ (-PA1, 4-wire)	–	–	–	■ (-PW1, 4-wire)	–	–	–
■ (-PA2, 3-wire)	■	■	■	■ (-PW2, 3-wire)	–	–	–
■ (-PA2, 4-wire)	–	–	–	■ (-PW2, 4-wire)	–	–	–
–	–	–	–	–	■	■	■
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
■ (1 SPDT)	■ (1 SPDT)	■ (1 SPDT)	■ (1 SPDT)	■ (2 SPDT)	■ (1 SPDT)	■ (1 SPDT)	■ (1 SPDT)
■	■	■	■	■	■	■	■
–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–
R637	R649	R653	R652	R644	R647	R647	R639

■ Standard □ Available – No/not available

Conductive level controller				Liquid leakage sensor amplifier	
					
61F-GP-N8	**61F-GPN-BT**	**61F-GPN-BC**	**K8AK-LS**	**K7L-AT50**	**K7L-AT50D**
Single or two-point	AC sine wave between electrodes for stable detection with no electrolysis	AC sine wave between electrodes for stable detection with no electrolysis	Ideal for level control for industrial facilities and equipment	Sensor amplifier, AC sine wave between electrodes for stable detection with no electrolysis	Sensor amplifier with disconnection detection function
4 to 50 kΩ	0 to 100 kΩ	1 to 100 kΩ	10 to 100 kΩ	0 to 50 MΩ	1 to 50 MΩ
☐	–	–	☐	–	–
☐			–		
☐			–		
–			–		
☐			–		
☐			–		
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–			–		
–	■	■	☐	–	–
–	–	–	–	☐	☐
–	–	■	–	■	■
	–	–	–	■	■
■	■	■	■ (1 SPDT)	–	–
■	■	■	■	■	■
–	■	■	–	■	■
Electrode holder: PS-_S, PS-31, BF-1 and BS-1			–	Liquid leakage sensor band F03-16PE	
X425	X426		R636	X423	

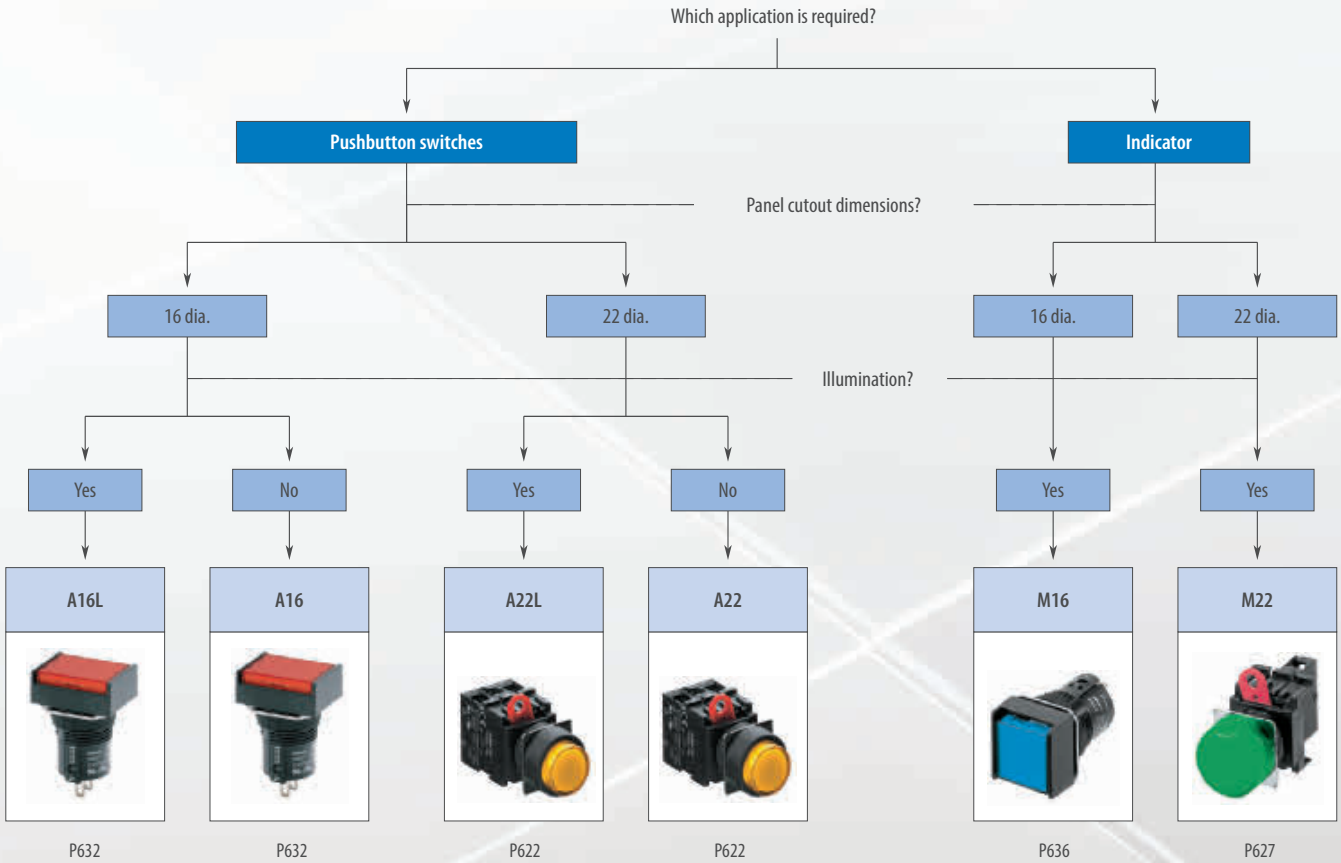
■ Standard ☐ Available – No/not available

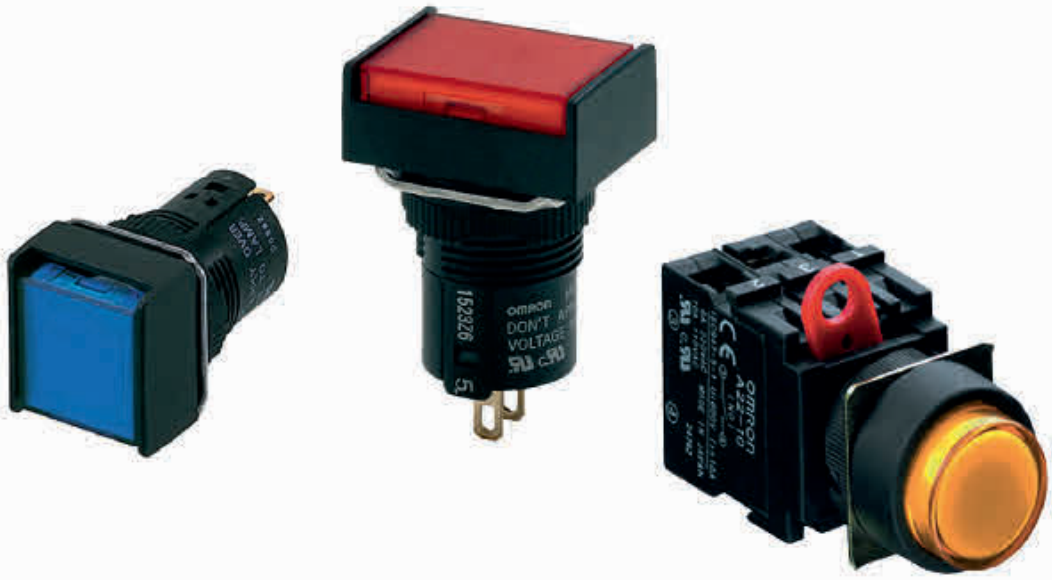
16 MM SUB-ASSEMBLED PUSHBUTTON SWITCHES

A165 – Full range with IP65 rating

All our 16 mm pushbuttons are upgraded to IP65 rating. This will increase the reliability of your application. The pushbuttons are very easy to assemble due to their modular construction: Pushbutton + case + lamp (if applicable) + switch.

- Wide range of models: rectangular, square & round
- With or without lamp
- Easy assembly and installation





Category		Pushbutton switch		Indicator	
					
Model		**A16**	**A22**	**M16**	**M22**
Selection criteria	Mounting	Nut-mounting			
	Size	16 mm	22 mm	16 mm	22 mm
	Shape	▭ □ ○	▭ □ ○	▭ □ ○	▭ □ ○
Pushbutton color – Incandescent lamp-lighted	Red	■	■	■	■
	Yellow	■	■	■	■
	Pure yellow	■		■	–
	Green	■	■	■	■
	White	■	■	■	■
	Blue	■	■	■	■
Pushbutton color – LED-lighted	Red	■	■	■	■
	Yellow	■	■	■	■
	Pure yellow	■		■	–
	Green	■	■	■	■
	White	■	■	■	■
	Blue	■	■	■	■
Pushbutton color – Non-lighted	Red	■	■	–	–
	Yellow	■	■	–	–
	Green	■	■	–	–
	White	■	■	–	–
	Blue	■	■	–	–
	Black	■	■	–	–
Features	Momentary operation	■	■	–	–
	Self-holding	■	■	–	–
	Number of contacts	2	6	–	–
	IP rating	IP65			
	Legend plate	■	■	■	■
Switch ratings [A]	125 VAC	5	10	–	–
	250 VAC	3	6	–	–
	30 VDC	3	10	–	–
	Rated load	5 A at 125 VAC, 3 A at 250 VAC, 3 A at 30 VDC	10 A at 110 VAC, 6 A at 220 VAC	–	–
Terminals	Solder	■	–	■	–
	PCB	–	–	■	–
	Screw-less Clamp	–	–	■	–
Operating voltage	5 VDC	■	■	■	■
	12 VDC	■	■	■	■
	24 VDC	■	■	■	■
Form	SPDT	■	–	–	–
	DPDT	■	–	–	–
	SPST-NO	–	■	–	–
	SPST-NC	–	■	–	–
	SPST-NO + SPST-NC	–	■	–	–
	DPST-NO	–	■	–	–
	DPST-NC	–	■	–	–
	Quick Link	P632	P622	P636	P627

■ Standard □ Available – No/not available

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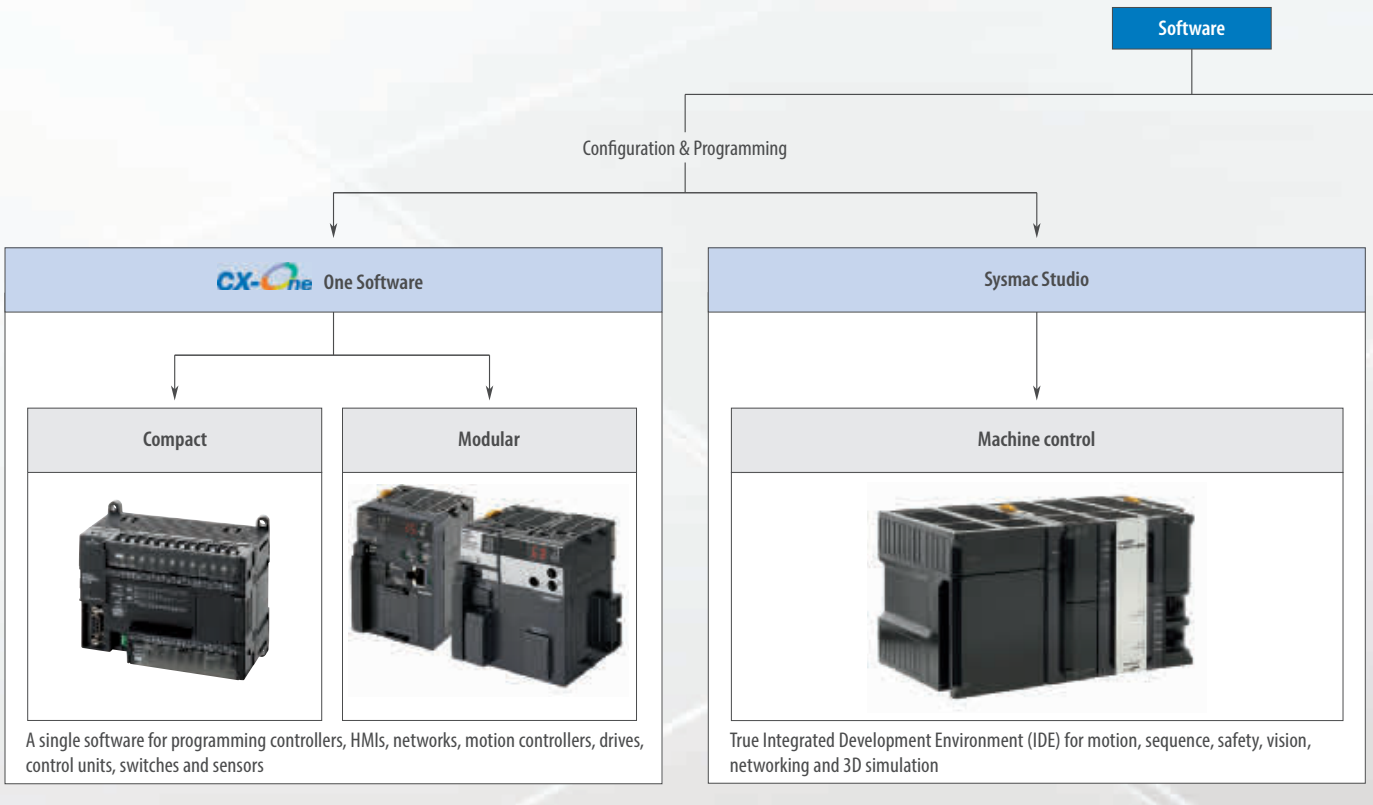

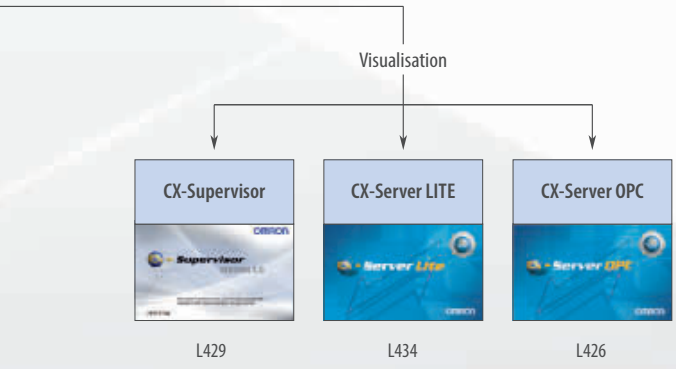

L429 L434 L426

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Z

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.
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