

Professional Switches & Front Panel Solutions



Various switches
Tactile switches
Thermostats
Signaling device
Heaters & Hygrostats
Radio controllers
Joysticks

Our Front Panel Solution Partners:



Index



1. APEM (France, UK)	1-12
2. MEC (Denmark)	13-16
3. STEGO (Germany)	17-19
4. MATSUO (Japan)	20-21
5. UCHIYA (Japan)	22-23
6. EMA (China)	24-26
7. SUNMULON (Japan)	27
8. ELMA (Switzerland)	28
9. ESCHA (Germany)	29
10. EDK (China)	29
11. JINTAY (Taiwan)	29
12. PFANNENBERG (Germany)	30-32
13. APT (China)	33
14. ELEKTRA (Germany)	34
15. BREMAS (Italy)	35
16. DECA (Taiwan)	36
17. GROSS FUNK (Germany)	38
18. JUUKO (Taiwan)	39
19. LAIRD (Germany)	39
20. ELCA (Italy)	40





IC series

- Short case
- For harsh environments
- Momentary
- Square or round actuator



IL series

- Long bushing for thick panels
- Momentary
- Round actuator
- Illuminated or non-illuminated



IM series

- Snap-action
- Momentary
- Round actuator



IH series

- Hall effect
- Linear (IHL) or momentary (IHS)
- 5 million cycles



IQ series

- Snap-in mounting
- Dia. 16 mm bushing
- Momentary or latching
- Square or round actuator
- Illuminated or non-illuminated



13000X778 series

New models :

- 3-pole versions of momentary switches
- Alternate action models



CG series

- Capacitive for underlay applications
- 50 million cycles
- Custom colours and marking



CP series

- Capacitive
- 50 million cycles
- Bushing dia. 16, 19 or 22 mm
- Momentary or latching
- Illuminated or non-illuminated



FP series

- Fully illuminated actuator
- Suited for integrated designs
- Large but lightweight
- Bushing dia. 24 mm
- Momentary or latching



MP series

- Two-steps
- SIL2 safety level
- For harsh environments
- Easy to integrate



MT series

- Sealed selector switch
- Multiple single functions
- Up to 4A



ES series

- Heavy-duty emergency stop
- 2 and 3-pole configurations
- 100.000 cycles
- Lower behind-panel depth

Selection guide Toggle switches



www.apem.com

										
Series	ZL	SMT TL	TL	S and SF	5000	21000N	10600	11000	12000	12000X778
Poles	1	1	1,2	1,2	1,2,3,4	1,2	1,2	1,2,3,4	2,3,4	2,3,4
Maximum current	500mA 48VDC	0,4VA 20V AC/DC	0,5A 48V AC/DC	(2A 250VAC)* 4A 30VDC	(3A 250VAC)* 4A 30VDC	4A 30VDC	3A 24VDC	4A 30VDC	4A 30VDC	4A 30VDC
Bushing dimension										
Ø4,83 (10-48)	X									
Ø6 (.236)					X					
Ø6,35 (1/4)				X	X	X		X		
Ø10 (.393)							X			
Ø11,9 (15/32)					X				X	X
Mounting options										
Horizontal SMT		X								
Vertical right angle SMT		X								
Vertical - Through hole	X		X	X	X			X	X	X
Horizontal - Through hole			X	X	X	X		X		
Vert. right angle Through hole			X	X	X					
Panel	X			X	X	X	X	X	X	X
Terminal options										
PCB	X	X	X	X	X	X		X	X	X
Solder lugs	X			X	X		X	X	X	X
Quick-connect					X					
Wire wrap			X		X					
Sealing	No	Process sealed	Process sealed	Process sealed	Optional	Optional	No	Optional	Optional	IP67

										
Series	1000	1500	1600/1700	4600/4400	600H	600NH	660	3500	3600NF	6000
Poles	1	1	1	1,2,3	1,2,3	1,2,3	4	1,2	1,2	1,2,3,4
Maximum current	6A 30VDC	(6A 250VAC)* 5A 12VDC	4A 30VDC	(4A 250VAC)*	(15A 250VAC)* 10A 24VDC	(15A 250VAC)* 10A 24VDC	10A 30VDC	15A 28VDC	(6A 250VAC)* 15A 28VDC	6,5A 30VDC
Bushing dimension										
Ø11,9 (15/32)								X		X
Ø12 (.472)	X	X	X	X	X	X	X		X	
Mounting options										
Vertical Through hole				X						
Panel	X	X	X	X	X	X	X	X	X	X
Terminal options										
PCB				X						
Solder lugs	X	X	X	X	X	X	X	X	X	X
Quick-connect	X	X	X	X	X	X	X	X	X	X
Screw	X		X		X	X	X	X	X	X
Sealing	No	No	No	No	Optional	No	Optional	IP67, IP69K	Yes	Optional

()* See applicable approvals

Selection guide

«I» range



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	<i>New!</i> 	<i>New!</i> 	<i>New!</i> 			<i>New!</i> 	<i>New!</i> 	<i>New!</i> 
Series	IC	IL	IM	IP mom. & latching	IB-IS	IHS hall effect	IHL hall effect	IQ momentary
Poles	1	1	1	1	1	1 NPN	1	1
Maximum current	5A 28VDC	2A 24VDC	3A 28VDC	5A 28VDC 4A 12VDC	100mA 24VDC	5mA 24VDC	1,25mA 4,5VDC	4A 28VDC
Illuminated		X		X				X
Bushing dimension								
Ø12 (.472)	X	X	X	X	X	X	X	
Ø16 (.629)								X
Mounting options								
Panel	X	X	X	X	X	X	X	
Snap-in					X			X
Terminal options								
PCB	X	X	X	X	X			X
Solder lugs	X	X		X	X			X
Quick-connect	X		X	X	X			X
Screw								X
Flying leads	X	X		X		X	X	X
Sealing	IP67	IP67	IP67	IP67	IP54 or IP67	IP67	IP67	IP54

	<i>New!</i> 	<i>New!</i> 	<i>New!</i> 	<i>New!</i> 	<i>New!</i> 	<i>New!</i> 	<i>New!</i> 	<i>New!</i> 
Series	IQ latching	IZ metal	IZ plastic	IR standard	IR microswitch	IR latching	IA	IF
Poles	1	1	1	1	1	1	1	1
Maximum current	100mA 24VDC	4A 48VDC 100mA 24VDC	4A 48VDC 100mA 24VDC	4A 48VDC	5A 250VAC	100mA 24VDC	2A 24VDC	100mA 48VDC
Illuminated	X	X	X	X	X	X		
Bushing dimension								
Ø12 (.472)								
Ø16 (.629)	X	X	X	X	X	X	X	X
Mounting options								
Panel		X	X	X	X	X	X	X
Snap-in	X							X
Terminal options								
PCB	X	X	X	X		X		
Solder lugs	X	X	X	X		X		
Quick-connect	X	X	X	X	X	X		X
Screw		X	X	X				
Flying leads	X	X	X	X		X	X	
Sealing	IP54	IP67	IP67	IP67	IP67	IP67	IP67	IP67

Selection guide Pushbutton switches



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Series	ZP	SMT TP	TP	9500	PHAP40	SP	8000	9400/9600
Poles	1	1	1,2	1	2	1,2	1,2	1
Maximum current	500mA 48VDC	0,4VA 20V AC/DC	0,5A 48V AC/DC	100mA 30VDC	100mA 30VDC	1A 30VDC	(3A 250VAC)* 4A 30VDC	1A 30VDC
Bushing dimension								
Ø4 (.157)				X				
Ø4,83 (10-48)	X							
Ø6,35 (1/4)						X	X	X
Ø11,9 (15/32)							X	
Ø16 (.629)								X
Mounting options								
Horizontal SMT		X						
Vertical right angle SMT		X						
Vertical Through hole	X		X	X	X	X	X	X
Horizontal Through hole			X			X	X	
Vert. right angle Thr. hole			X	X		X		
Panel	X			X		X	X	X
Terminal options								
PCB	X	X	X	X	X	X	X	X
Solder lugs	X			X			X	X
Quick-connect								X
Sealing	No	Process	Process	Optional	No	Process	Optional	Optional
<p>() * See applicable approvals</p>        								
Series	10400	13000	13000X778	18000	IT	1200	1400	4700/4800
Poles	1,2	1,2	2	1,2	2	1	1	1,2
Maximum current	3A 24VDC	4A 30VDC *2A 250VAC)*	4A 30VDC	7A 30VDC	1,5A 250VAC	(4A 250VAC)* 4A 24VDC	6A 12VDC	(3A 250VAC)*
Bushing dimension								
Ø6,35 (1/4)		X		X				
Ø10 (.393)	X							
Ø11,9 (15/32)		X	X					
Ø 12 (.472)						X		X
Mounting options								
Vertical Through hole		X	X	X			X	X
Horizontal Through hole		X		X	X			
Vert. right angle Through hole				X				
Panel	X	X	X	X		X	X	X
Snap-in				X			X	
Terminal options								
PCB		X	X	X				
Solder lugs	X	X	X	X		X	X	X
Quick-connect						X	X	X
Screw						X		
Sealing	No	Optional	IP67	No	No	No	No	No

Selection guide

Pushbutton switches



















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	<i>New!</i> 	<i>New!</i> 		<i>New!</i> 	<i>New!</i> 			
Series	CG	CP	PBA	FP	MP	LPI		
Poles	1 NPN	1 NPN	1	1,2	1,2	1		
Maximum current	200mA 24VDC	200mA 24VDC	1A 24VDC	200mA 12VDC	20mA 5VDC	5A 12VDC 100mA 12VDC		
Illuminated	X	X	X	X		X		
Bushing dimension								
Ø15,20 (.598)					X			
Ø16 (.629)		X	X					
Ø19 (.748)		X	X					
Ø22 (.866)		X	X					
Ø24 (.944)				X				
Ø38 (1.496)						X		
Ø44 (1.732)						X		
Mounting options								
Panel	X	X	X	X	X	X		
Terminal options								
Solder lugs				X				
Screw						X		
Flying leads		X	X					
Cable		X	X	X				
Connector	X	X			X			
Sealing	N/A	IP68, IP69K	IP68, IP69K	No	IP68	IP53		

Selection guide AV series



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General specifications								
Anti-vandal (IK08/IK10)	X	X						
Security			X	X	X	X	X	X
Approval (optional)	UL/CSA	UL/CSA			UL/CSA			
Sealing	Up to IP65	Up to IP65	Up to IP65	Up to IP65	Up to IP65	IP65, IP69K	Up to IP67	Up to IP65
Illumination							X	X
Marking					X			
Electrical specifications								
Maximum current	2A 48VDC (4A 250VAC)*	2A 48VDC (4A 250VAC)*	0,2A 48VDC	1A 24VDC	2A 48VDC (4A 250VAC)*	5A 15VDC 5A 250VAC	1A 30VDC	2A 48VDC
Momentary (NO)	X	X			X			
Momentary (NO) tactile			X					
Momentary (NO/NC)						X	X	
Latching				X				X
Diameter and shape								
Ø 16 (.629)								
Flat			AV063	AV061				
Curved			AV163	AV161				
Ø 19 (.748)								
Flat	AV09				AV09	AV19LP	AV9	AV09..EA
Curved	AV19				AV19	AV19LB		AV19..EA
Ø 22 (.866)								
Flat		AV03					AV3	
Curved		AV02						
<p>()* See applicable approvals</p>        								
General specifications								
Security	X	X	X	X	X	X	X	X
Approval (optional)			UL/CSA					
Sealing	Up to IP65	Up to IP67,IP69K	Up to IP65	Up to IP65	Up to IP65	Up to IP65	IP65	IP65
Illumination	X	X				X		
Marking	X	X		X	X			
Electrical specifications								
Maximum current	50mA 24VDC	50mA 24VDC	2A 48VDC (4A 250VAC)*	2A 250VAC	3(1,5)A 250VAC	2A 48VDC	5A 250VAC	5A 250VAC
Momentary (NO)			X					
Momentary (NC)				X				
Momentary (NO) tactile	X	X	Mom. (NO)					
Momentary (NO/NC)							X	X
Latching						X		
Alternate action					X			
Diameter and shape								
Ø 19 (.748)								
Flat	AV09C7	AV9S						
Curved	AV19C7							
Ø 22 (.866)								
Flat		AV3S	AV03	AV031200	AV044700	AV03..EA	AV22LP	
Curved			AV02	AV021200		AV02..EA	AV22LB	AV22PNA
Ø 24 (.944)								
Flat							AV24LP	
Curved							AV24LB	
Concave							AV24LC	

Selection guide

Tact switches



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Series	D162	PHAP3390 PHAP3391	PHAP3380	PHAP3371 PHAP3372 PHAP3373 PHAP3374	PHAP3378	PHAP3361	PHAP3355	PHAP3366 PHAP3365
Type (SMT/Through hole)	SMT	SMT	SMT	SMT	SMT	SMT	SMT	SMT
Contact	N.O.	N.O.	N.O.	N.O.	N.C.	N.O.	N.O.	N.O.
Case format	6x6mm	4,2x4,2mm	6x6mm	6,2x6,2mm	7,6x7,6mm	6x3,5mm	6x3,5mm	6,1x3,7mm
Button height from PCB	3,96mm	1,5mm	1,6mm	2,6 to 3,4mm	4,3mm	4,3 and 5mm	1,8mm	2,5mm
Grounding tab	Yes	-	Yes	Yes	-	-	Yes	-
Packaging	T/R	T/R - Bags	T/R - Bags	T/R - Bags	T/R	T/R - Bags	T/R	T/R
Maximum ratings	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC
Mounting options								
SMT	X	X	X	X	X	X		X
Right angle SMT							X	
Series	PHAP3368	PHAP3305	PHAP3362 PHAP3363	PHAP3301 to PHAP3308	PHAP3307	PHAP3350 PHAP3351 PHAP3352	PHAP3353	PHAP3320 PHAP3321
Type (SMT/Through hole)	SMT	SMT	Through hole	Through hole	Through hole	Through hole	Through hole	Through hole
Contact	N.O.	N.O.	N.O.	N.O.	N.O.	N.O.	N.O.	N.O.
Case format	6x6mm	6x6mm	6x3,5mm	6x6mm	6,1x6,1mm	7,2x7,2mm	10x10mm	12x12mm
Button height from PCB	4,3 to 13mm	5,9mm	4,3 and 5mm	4,3 to 13mm	4,3 to 7mm	4,35 to 13mm	13mm	4,3 to 12mm
Grounding tab	-	Yes	-	Yes	-	Yes	-	Yes
Caps	Yes	-	-	Yes	-	-	-	Yes
Packaging	T/R - Bags	T/R	Bags	Bags	Tape	Bags	Bags	Bags
Process sealed						Yes	Yes	
Maximum ratings	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC	50mA 12VDC
Mounting options								
SMT	X							
Right angle SMT		X						
Through hole			X	X	X	X	X	X
Right angle Through hole			X	X		X		

Selection guide

Rocker and paddle switches








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					<i>New!</i> 		
Series	SMT TR	TR	S-SR	AS	MT	7000	FM
Poles	1	1,2	1,2	1	1	1,2	1
Maximum ratings	0,4VA 20V AC/DC	0,5A 48V AC/DC	(2A 250VAC)* 4A 30VDC	(2A 250VAC)*	4A 30VDC	(3A 250VAC)* 4A 30VDC	(10A 250VAC)*
Illuminated							X
Mounting options							
Horizontal SMT	X						
Vertical Through hole		X	X	X	X	X	X
Horizontal Through hole		X	X			X	
Vert. right angle TH		X	X			X	
Snap-in			X	X		X	X
Rear mounting			X			X	
Panel cut-out				18,65X8,9	Ø 17,65		19,2x12,9
Terminal options							
PCB	X	X	X	X	X	X	X
Solder lugs			X	X	X	X	X
Quick-connect							X
Sealing	Process sealed	Process sealed	Process sealed	No	No	No	Optional boot





() * See applicable approvals

					
Series	2600	KR	KL	KI	KG
Poles	1,2	1,2	1,2		1,2
Maximum ratings	(16A 250VAC)*	10A 24VDC	10A 24VDC	24VDC	(12A 250VAC)* 15A 12VDC
Illuminated	X	X	X	X	X
Mounting options					
Snap-in	X	X	X	X	X
Panel cut-out	30 x 22	36,8 X 21,08	36,8 X 21,08	36,8 X 21,08	36,8 X 21,08
Terminal options					
Solder lugs	X	X	X	X	X
Quick-connect	X	X	X	X	X
Screw	X	X	X		X
Sealing	Optional boot	IP68	IP68	IP68	IP65

Selection guide Industrial controls



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Series	A1	A01	A01	A01	A01	A01ES	A01
Type	Pushbutton	Pushbutton	Indicator	Rotary	Keylock	Emergency Stop	Mushroom Head Pushbutton
Poles	1,2,3,4	1,2,3,4		1,2,3,4	1,2,3,4	1,2	1,2,3,4
Sealing	IP65	IP65	IP65	IP65	IP65	IP65	IP65
Back panel sealing	Option	Option	Option	Option	Option	Option	Option
Illuminated	Yes	Yes	Yes	No	No	No	No
Maximum current	6A 250VAC 6A 12VDC	6A 250VAC 6A 12VDC	N/A	6A 250VAC 6A 12VDC	6A 250VAC 6A 12VDC	1,5A 250VAC AC-15	6A 250VAC 6A 12VDC
Panel cut-out							
Ø16mm		X	X	X	X	X	X
Ø22mm	X	X	X	X	X		X
Flush mounting	Yes	Option	Option	Option	Option	No	Option
Terminal options							
Solder lugs	X	X	X	X	X	X	X
Quick-connect	X	X	X	X	X	X	X
PCB Mounting	Option	Option	Option	Option	Option	Option	Option
							 New!
Series	A02	A02	A02	A02ES	A02	A03	ES
Type	Pushbutton	Indicator	Rotary / Keylock	Emergency Stop	Mushroom Head Pushbutton	Pushbutton	Emergency Stop
Poles	1,2,3,4,n		1,2,3,4,n	1,2	1,2,3,4	1,2,3,4	2,3
Sealing	IP65	IP65	IP65	IP65	IP65	IP65	IP65
Back panel sealing	No	No	No	No	No	Option	No
Illuminated	Yes	Yes	No	No	No	Yes	No
Maximum current	16A 250VAC 12A 12VDC	16A 250VAC 12A 12VDC	16A 250VAC 12A 12VDC	2,5A 380VAC AC-15	16A 250VAC 12A 12VDC	6A 250VAC 6A 12VDC	1A 24VDC
Panel cut-out							
Ø22mm	X	X	X	X	X	X	X
Ø30mm	X	X	X			X	Ø 28mm
Flush mounting	Yes	Yes	Option	No	Option	Yes	No
Terminal options							
Solder lugs						X	X
Quick-connect	Option	Option	Option	Option	Option	X	
Screw	X	X	X	X	X		
Straight PC							X
PCB Mounting	No	No	No	No	No	Option	IP65,IP67,IP69K

Industrial Joysticks



POTENTIOMETER JOYSTICKS

M Series	Miniature resistive joysticks
4000 Series	Industrial resistive joysticks



HALL EFFECT JOYSTICKS

HF Series	Hall effect joysticks
3000 Series	Premium Hall effect joysticks
HT series	Ruggedized Hall effect joysticks
BF Series	Paddle controllers



SWITCHING JOYSTICKS

1000 Series	Compact switch joysticks
8000 Series	Ruggedized switch joysticks



DESKTOP JOYSTICKS

IPD Launch	USB desktop controllers
IP Desktop	Professional USB desktop controllers
IPD Ultima	Premium USB desktop controllers
VM Desktop	USB multifunction controller



THUMB CONTROLS

TS Series	Proportional Hall effect thumbsticks
TW Series	Hall effect thumbwheels



INDUCTIVE JOYSTICKS

9000 Series	Inductive sensing joysticks
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Industrial Joysticks



MULTI-AXES HALL EFFECT JOYSTICKS

- MS Series Mid-size Hall effect joysticks
- HG Series Hand grip Hall effect joysticks
- FG Series Fixed grip hand controllers



SINGLE AXIS THROTTLE JOYSTICKS

- TH Series Single axis throttle joysticks



PADDLE CONTROLS

- BF Series Single axis paddle controls



HALL EFFECT T-BAR FADER

- SN Series Hall effect T-bar fader



Indicators



SNAP-IN PANEL MOUNT LED INDICATORS

- QS Series
- 6mm, 8mm, 10mm and 12mm cut-out sizes
 - Voltage range: 2VDC – 220VAC
 - BI-color LED option

PANEL MOUNT LED INDICATORS



- Q Series
- 6mm, 8mm, 12mm, 14mm, 16mm, 19mm and 22mm cut-out sizes
 - Voltage range: 2VDC – 220VAC
 - BI-color and TRI-color LED option

REAR MOUNT LED INDICATORS



- QRM Series
- 8mm cut-out sizes
 - Voltage range: 2VDC – 28VDC
 - BI-color and TRI-color LED option
 - NVIS compliant to MIL Std 3009

PANEL MOUNT LED INDICATORS



- VL Series
- 6mm and 8mm cut-out sizes
 - Voltage range: 2VDC



Illuminated switches


































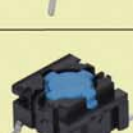

- **Surface mount and through-hole**
- **10 million operations life time**
- **Water and dust proof to IP67**
- **Modularity and tactile feeling**
- **Colourful and ergonomic design**


























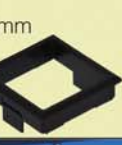




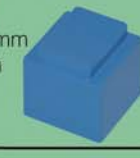














illumec

illuminated surface mount switches



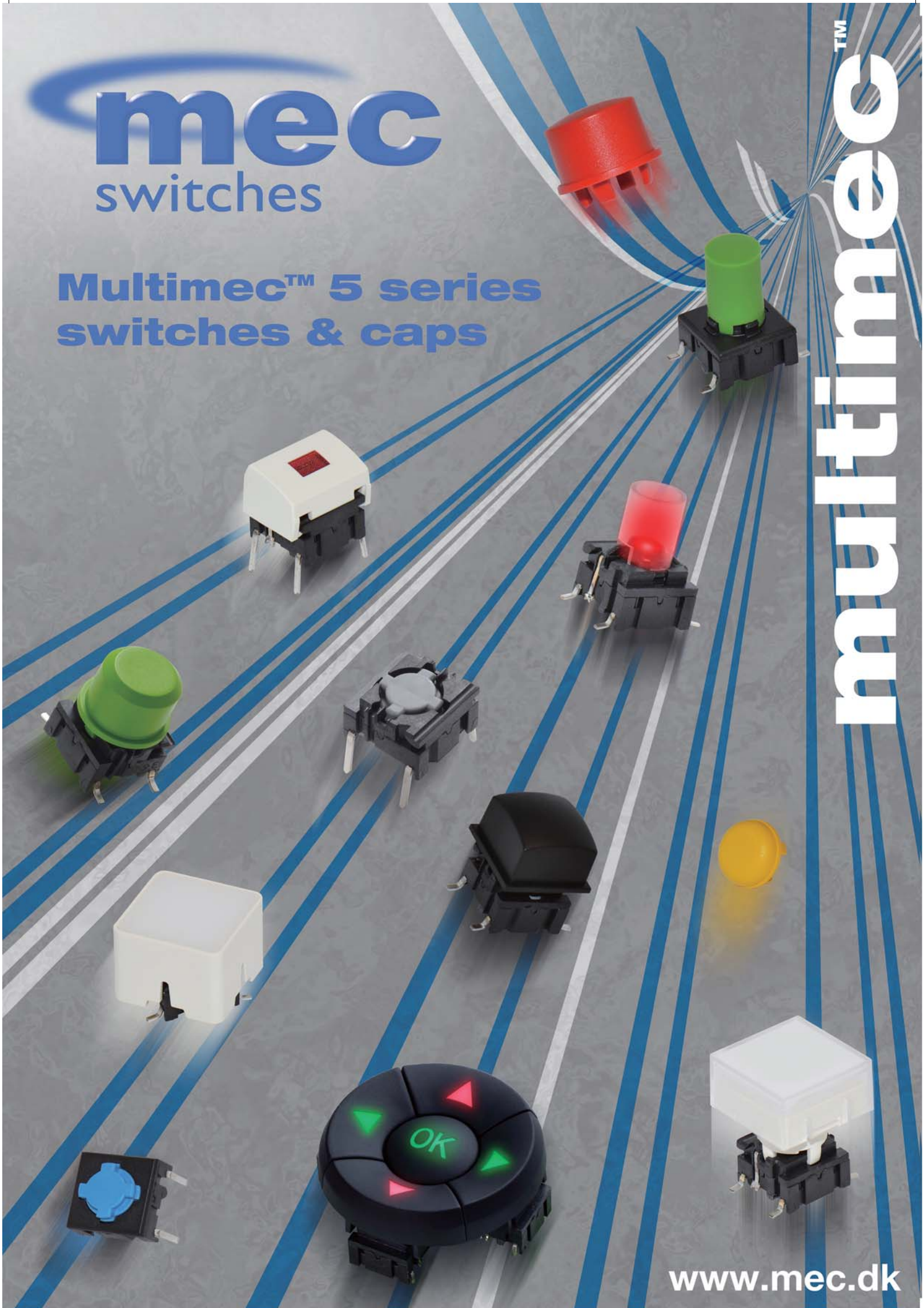
	Momentary	Alternate	Quiet	
2.5N actuation force	1550x 1.5M operations -40/+75°C silver or gold contacts 	1555x 0.5M operations -40/+75°C silver or gold contacts 	15500 1.5M operations -40/+75°C silver contacts 	Unimec: through-hole double pole 8 contact functions 1.8mm travel 
	1540x >10M operations -40/+160°C silver or gold contacts 	1545x 5M operations -40/+160°C silver or gold contacts 	15420 >10M operations -40/+160°C gold contacts 	
	Standard	Standard	illuminated	
3.5N (3 series) actuation force	3CTL6 through-hole -40/+115°C RAS version 	3ETL6 through-hole -40/+115°C 	3ATL6xx through-hole -40/+115°C 	Multimec 3 series: momentary/ single pole >10 million operations IP 67 1mm travel 3A LED colours: 00 blue 20 green 40 yellow 80 red 3F LED colours: 00 blue 20 green 8020 red/green 40 yellow 2040 green/yellow 65 white 8040 red/yellow 80 red
	3CTH9 through-hole -40/+160°C 	3ETH9 through-hole -40/+160°C 		
	3CSH9 surface mount -40/+160°C 	3ESH9 surface mount -40/+160°C 	3FTL6xx through-hole -40/+115°C 	
2.0N actuation force	5ETH920 through-hole quiet version RAS version 	5GTH920 through-hole quiet version RAS version 	5GTH920xx through-hole quiet version 	Multimec 5 series: momentary/ single pole >10 million operations IP 67 Temp. range: -40/+160°C 1mm travel LED colours: 01 blue 22 green 8222 red/green 42 yellow 2242 green/yellow 61 white 8242 red/yellow 82 red
	5ESH920 surface mount quiet version 	5GSH920 surface mount quiet version 	5GSH920xx surface mount quiet version 	
3.5N actuation force	5ETH935 through-hole RAS version 	5GTH935 through-hole RAS version 	5GTH935xx through-hole 	
	5ESH935 surface mount 	5GSH935 surface mount 	5GSH935xx through-hole 	
6.5N actuation force	5ETH965 through-hole RAS version 	5GTH965 through-hole RAS version 	5GTH965xx through-hole 	
	5ESH965 surface mount 	5GSH965 surface mount 	5GSH965xx through-hole 	

	Non-illuminated	Non-illuminated & illuminated			illuminated
ROUND	1SS Ø6.5mm h=8.0 - 15.0mm *for 5E 	1JS Ø9.6mm h=10.4mm 	1DS Ø9.6mm h=14.9mm 	1GAS Ø11mm h=12.5mm 	1IS Ø6.5mm h=10.4 - 15.0mm 
	varimec round Ø5.2; 7.8; 11.6mm h=10.4-22.5mm *for 3E 	1US Ø10.6mm h=14.9mm 	1ZCS Ø14.3mm h=11.7mm 	1GCS Ø15mm h=12.5mm 	1LS Ø6.5mm h=12.0mm; 15.0mm 
		1Z Ø29.5mm h=12.55mm 	1ZW Ø29.5mm h=12.55mm 	aquamec Ø10.6mm h from front panel=14.3mm h=24.2-27.2mm *for 3F/4F 	1ES Ø9.6mm h=14.9mm 
		10R Ø30mm h=10.5mm 	10R16HOMS Ø30mm h=10.5mm 	navimec Ø34.25mm h=11.7/12.2mm 	1FS Ø9.6mm h=14.9mm 
SQUARE/RECTANGULAR	1ZA 18.65x10.1mm h=12.2mm 	1PS 12.5x6.5mm h=15.7mm 	1X 7.4x9.4mm h=18.5mm *for 3F/4F 	1QS 12.5x6.5mm h=15.7mm 	1RS 12.5x6.5mm h=15.7mm 
	1M 25.0x10.1mm h=12.2mm 	1A 12.5x10.1mm h=12.2mm 	1TS 10.6x10.6mm h=14.9mm 	1H 12.5x10.1mm h=12.2mm 	1C + 2C/2D 15.1x15.1mm h=12.2mm 
	varimec square 5.2x5.2; 7.8x7.8; 11.6x11.6mm h=10.4-22.5mm *for 3E 	1B + 2C/2D 15.1x15.1mm h=12.2mm 	1KS 14.3x14.3mm h=19.1mm 	2K 17.75x17.75mm 	1KBS 14.3x14.3mm h=20.2mm 
	16300 7.0x12.6mm h=16.9mm 	10Q 22x22mm h=12.5mm 	10Q16HOMS 22x22mm h=12.5mm 		1KCS 14.3x14.3mm h=20.1mm 
	16700 14.9x14.9mm h=14.6mm 				1YS 15x15mm h=12.5mm *for 5E 
OTHER	2SS extender for 5G snap on caps h=5-10mm 	1N Ø9.6/□4.9mm h=14.9mm *for 3F/4F 	1VS 10.6x13.25mm h=14.9mm 	1ZB 90° R=17.5mm h=12.2mm 	 <ul style="list-style-type: none"> ● ALARM ● WARNING ● MEMORY ● OVERRIDE
	1TW/1UW/1VW sealing for 1TS/1US/1VS 	1WA 6.5x12.5mm h=15.7mm *for 3F/4F 	1WD 8.0x15.2mm h=15.7mm *for 3F/4F 	1WP 6.5x12.5mm h=15.7mm *for 3F/4F 	

mec
switches

**Multimec™ 5 series
switches & caps**

multimec™



www.mec.dk

Heating



RCE 016 series
5W, 9W



RC 016 series
8W, 10W, 13W



HGK 047 series
10W ~ 30W



CSK060 series
10W, 20W



HG140 series
15W ~ 150W



CREx020 series
50W, 100W



CS060 series
50W ~ 150W



CSF060 series
50W ~ 150W



CS028/CSL028 series
150W ~ 400W



HGL046 series
250W, 400W



HV031/HVL031 series
100W ~ 400W



CR027 series
UP TO 650W



CR030 series
950W



CR130 series
950W



CS032 series
1000W



CSF032 series
1000w



CS030 series
1200W



CS130 series
1200W

Regulating

◆ Thermostat



KTO011/KTS011 series



ZR011 series



FTO011/FTS011 series



FTD011 series



STO011/STS011 series



FZK011 series



ETR011 series



ET011 series



REX011 series

◆ Hygrostat



MFR012 series



EFR012 series



ETF012 series

◆ Switch Module(Relay)



SM010 series

Ventilating



FF018 series

FF018 series

FF018 series(Out door)

RFP018 series

LE019 series

Lighting



KL025 series

LED025 series

SL025 series

DL026 series

DL026 series

Accessories



SD035 series

DA084 series

DA284 series

DD084 series

INNOVATION
FOR PERFECT THERMAL
MANAGEMENT WORLDWIDE





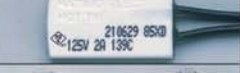




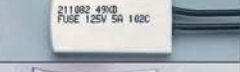






EM MATSUO

Temperature Power Sensor

www.matsuo-ele.com

Control Type Thermostat

Narrow differential / Extremely long life / Compact / Inexpensive

2 Amp. series (AC125V/2A·AC250V/1.3A) each model is available in a double sealed construction.		
MQT 8K		Standard 2 Amp. series with a mounting hole. 150mm lead wires standard.
MQT 8H		MQT8K without a mounting hole. 150mm lead wires standard.
MQT 8KT		} Provided with #110 tab. } With a receptacle for 2 leads (female housing) } Individual receptacle can be used for each terminal.
MQT 8HT		
MQT 11K MQT 11H		Fail-safe design with a built-in fuse in series with MQT8K and MQT8H.
MQT 8H(DS)		Double sealed MQT8H in a vinyl tube to increase water and impact resistance.
5 Amp. series (AC125V/5A·AC250V/3A) each model is available in a double sealed construction.		
M3		Standard 5 Amp. series with 2 mounting holes. 150mm lead wires standard.
M3(Z)		M3 model with back contact. Outside appearance is identical to M3, provided with three 150mm lead wires, in white, black and red standard.
M2		Thin model. Not suitable for small differential. Long life, with 150mm lead wires no mounting hole.
M2F		Fail-safe design with a built-in fuse in series with M2.
MQT 5S		Sealed in a vinyl tube. Back contact model (with 3 lead wires) is also available.
Liquid Temperature Control Thermostat		
MQT 81P 2A type		A completely water tight thermostat to be fitted into side wall of a liquid tank by screw. The size of screw is PT3/8. Body material is brass or 304-stainless steel.
MQT 72P 5A type		A model with a DIN connector. This is fitted into side of a liquid tank by screw. The size of screw is PT3/4. Body material is brass.
MQT 83P 2A type		} Types to be installed through an opening on top of a tank. } 304-stainless steel body.
MQT 83PD 2A type		
MQT 83PN 2A type		Installed through an opening on top of a tank. Brass body(pipe length optional).

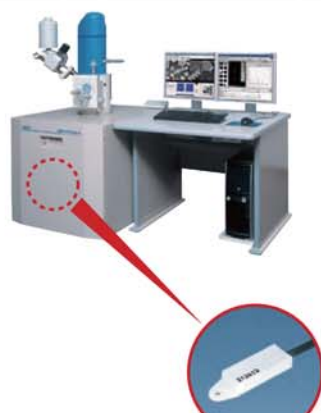
TPS Certification List				
Model	Standard	CMJ (Japan)	UL (U.S.A.)	VDE (Germany)
MQT8·11		J-44,J-46,J-129	E-104206	40007786
M3·M2·M2F		J-130, J-135	E-104206	40013485

Ozon generator for medical utensils cleaning



MQT81P 23YB

Vacuum pump of electron microscope



MQT8K 60XD

Supplied-air respirator



MQT8K 80XD

Flexible cable heater



MQT8K 45XC

Jacket heater for the semiconductor manufacturing equipment



METF III MAC100/140 X 5

Chiller control



MQT8H 90YD

Linear motor for the semiconductor and FPD manufacturing equipment



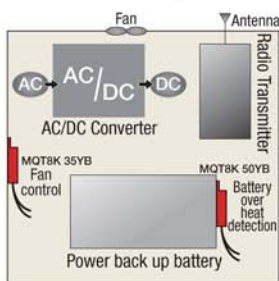
MQT8KT 50XC

Anti-freezing of the rain gauges



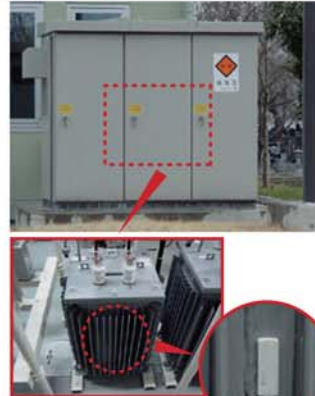
MQT8K 6XC

Electrical enclosure of mobile phone base station



MQT8K 35YB
MQT8K 50YB

Over heat detection of transformer in cubicle



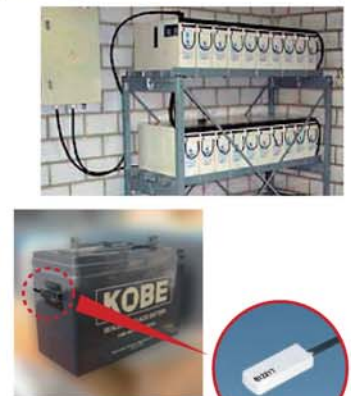
MQT8H 80YD

Freeze protection for the control tower of aerogenerator



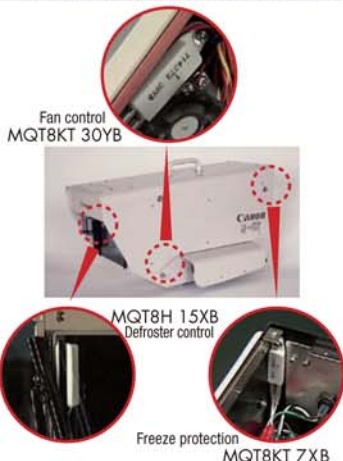
MQT8K 0XB

Over heat protection of industrial lead-acid battery



MQT8H 50YB

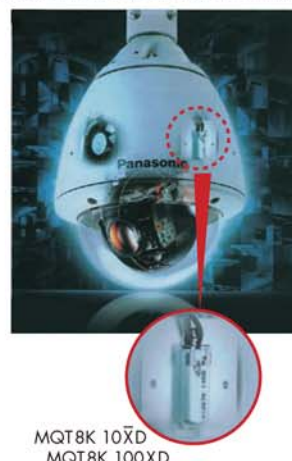
Anti-freezing heater, cooling fan and defroster control for monitoring camera



MQT8H 15XB
Defroster control

Freeze protection
MQT8KT 7XB

Anti-freezing heater, cooling fan and defroster control for monitoring camera



MQT8K 10XD
MQT8K 100XD

Over heat detection of forklift battery



MQT8K 40YC

Countermeasures against snow for the bullet train



MQT8H 45XC

MQT8K 60XC

Snow melter

보호용 서모스텝 UCHIYA (SINCE 1959)



UCHIYA is the specialized manufacturer of Thermostat, Thermal Protector and Thermal cut-out.



Model/Type	Contact Ratings	Cover	Normally ON/OFF	Remarks
UB7	Hair Drier, Hair Brush, Fan Heater, Dish Dryer , etc			
UB7 	13A 125V AC	8A 250V AC	OPEN	ON
UB76 	13A 125V AC	8A 250V AC	OPEN	ON
UB77 	13A 125V AC	8A 250V AC	OPEN	ON
UB8	Heavy Duty Hair Dryer, Fan Heater, Blender, Food Processor, Dish Dryer , etc			
UB8 	25A 125V AC	13A 250V AC	OPEN	ON
UB81 	25A 125V AC	13A 250V AC	DUST -PROOF	ON
UB8P 	25A 125V AC	13A 250V AC	OPEN	ON Self Holding Type(*1)
UB81P 	25A 125V AC	13A 250V AC	DUST -PROOF	ON Self Holding Type(*1)
JP	Motor, Transformer, Solenoid, Lightning fiXtures, Heating Appliance, Ceramic Resistor, Battery Charger, Projector, Robot etc			
JP 7 	8A 125V AC	5A 250V AC	SEALED	ON Motor Protector
JP 6 	8A 125V AC	5A 250V AC	SEALED	ON

UP6		Small motor, Transformer, Switching Power Supply, Inverter Ballast, Projector, Electronic Circuit Boards, etc				
UP6		4A 125V AC	2.5A 250V AC	SEALED	ON	
UP6G ECO PRODUCT		1A 125V AC	0.5A 250V AC	SEALED	ON	PGS Contact (*2)
OP6 ECO PRODUCT		4A 125V AC	2.5A 250V AC	SEALED	OFF	
OP6G ECO PRODUCT		1A 125V AC	0.5A 250V AC	SEALED	OFF	PGS Contact (*2)
UP7		Small motor, Transformer, Switching Power Supply, Lighting Fixture etc				
UP7		4A 125V AC	2.5A 250V AC	SEALED	ON	Motor Protector
UP7G ECO PRODUCT		1A 125V AC	0.5A 250V AC	SEALED	ON	PGS Contact (*2)
OP7 ECO PRODUCT		4A 125V AC	2.5A 250V AC	SEALED	OFF	
OP7G ECO PRODUCT		1A 125V AC	0.5A 250V AC	SEALED	OFF	PGS Contact (*2)
UP72T150		4A 125V AC	2.5A 250V AC	SEALED	ON	Motor Protector
EP		Power Tools, Battery Pack, Small Motor etc				
EP 2		13A 26V DC		SEALED	ON	
EP42P		Small Motor, Lightning fixtures, Power Tools, Gardening Tools, Vending machine, Industrial Machinery				
EP 42P			(5A 250V AC)	SEALED	ON	Self Holding Type(*1) Motor Protector
UI 2		Cartridge Heater, Steering Heater, Small Motor, Projector etc				
UI 2		12A 125V AC	10A 250V AC	SEALED	ON	Motor Protector
TH		Home Care Appliance, Kitchen Appliance, Various Heater etc				
TH				OPEN	ON	SOD (*3)
TH		(5A 125V AC)		DUST-PROOF	ON	

ema Group



16Ø PB SWITCH **META**



PROTECTON IP-40
IP-65

CLEAR LED

OPERATING VOLTAGE
DC TYPE : 6V 12V 24V
AC TYPE : 110V 220V

22m/m Control Switches



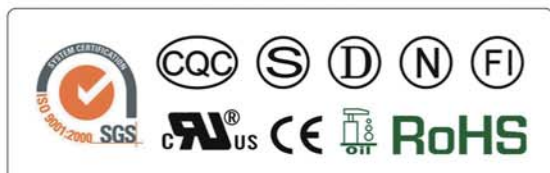
META

30m/m Flush Mounting



META

Linking your system



www.ema-electronic.com

Pushbutton switches



16mm Switches

Mounting hole diameter 16mm
Snap-action which accelerates on-off switching.
High bezel that prevents accidental touching.



22/25/30mm Switches

22, 25, and 30mm mounting holes
Whole series slim: delicate and light
Lower and flush housing actuators

LED Light Towers • Float Level Switches



LED Light Towers

Long lifetime, brightness LEDs
Buzzer volume: 100 dB / 1M
Certification: CE, RoHS



Float Level Switches

Protection classification: IP68
Certification: CE, RoHS
Anticorrosive, high resistance to acid

Fork Level Limit Switches • Encoders



Fork Level Limit Switches

Various output modes, flexible use.
Protection classification: IP67.
Certification: CE, RoHS



Encoders

Angle run length coding (axis of rotation)
Linear coding (laser remote measuring)
Max.24-bit encoding

Sensors



Capacitive Proximity Sensors

Sensing substance: non-metal (solid, liquid)
 Output: NPN, PNP
 Display: LED
 Protection classification: IP67
 Certification: CE, RoHS



Inductive Proximity Sensors

Sensible substance: metal
 Output: NPN, PNP, AC, DC, NO/NC
 Display: LED
 Protection classification: IP67
 Certification: CE, RoHS
 Long life time with bright LED lamp



Photoelectric Sensors

Sensible substance: solid, liquid
 Output: NPN, PNP
 Display: LED
 Protection classification: IP67
 Certification: CE, RoHS



Flow Sensors

Sensible substance: air, liquid
 Mounting: M18 x 1.5
 Output: NPN, PNP, Relay
 Display: LED
 Protection classification: IP67
 Certification: CE, RoHS



Pressure Sensors

Sensible Substance: Air, Liquid
 Output: NPN, PNP, 4~20mA, 0~10V
 Display: LED
 Protection classification: IP67
 Certification: CE, RoHS



Flow+Temperature Sensors

Sensing object: air, liquid
 Output: NPN, PNP, Relay
 Display: LEDs
 Protection classification: IP67
 Certification: CE, RoHS



Lighted Pushbutton Switches



CH•DH•EH•FH•KH•MH•VH•WH•XH
 Button sizes from 11.4mm-19mm
 Full-Face, Split-Face and Dual-Color Illumination
 Small size and Short profile available



Type CA•TA•ST•PH
 Cross action, 2-action, touch switches
 Full-Face, Split-Face and Dual-Color Illumination

Lighted Pushbutton Switches • LCD Pushbutton Switch

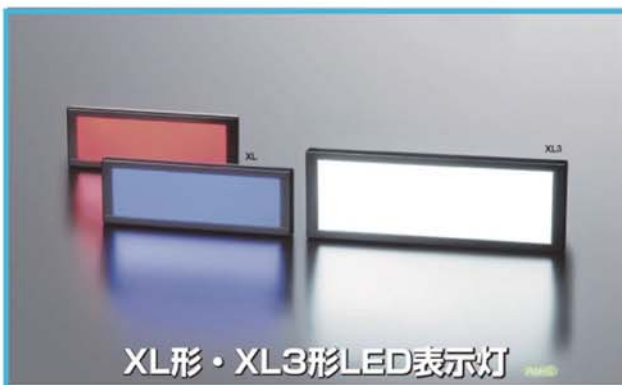


Type EH-G + FLAT
 Flat body, Full Face
 Illumination Pushbutton



Type TD : LCD pushbutton switch
 Hi-density LCD Display with Pushbutton switch
 20 X 52dots(1,040dots) FSTN LCD
 9 characters X 2 columns and also graphics.

LED Indicators•Display Units



LED indicators : XL•XL3 Type
 Bright and even illumination
 Full-face, split-face and dual-color illumination



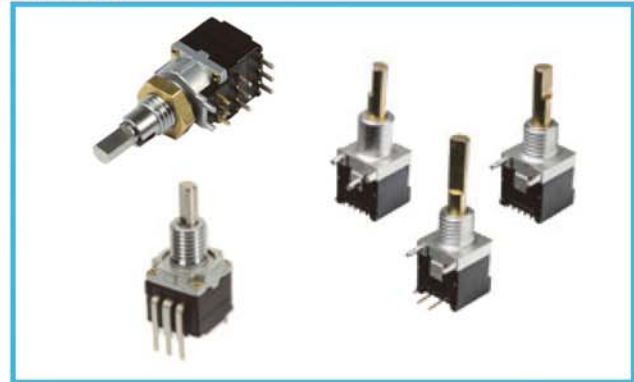
Digital Display : Type AD•BD•ED•HD•KD
 Versatile 7-segment display
 Every unit connectable

Your Solution Partner Coded Switches



■ Type C07

10/16 position coded output
>10,000 switching cycles
Up to 3,5Ncm torque
Small and rugged
Sealable up to IP68(2bar)



■ Type C08•C07A•C07(Concentric)

16 position coded output
>10,000 switching cycles
Up to 3,5Ncm torque
Steel spindle-shaft
Sealable up to IP68(2bar)

Encoders



■ Mechanical Type E20(SMD)•E27

16 or 30 detent
>100,000 rotations(1,5Ncm)
Up to 2,5 Ncm torque
Aluminium spindle-shaft
IP 65 available



■ Optical Type E50

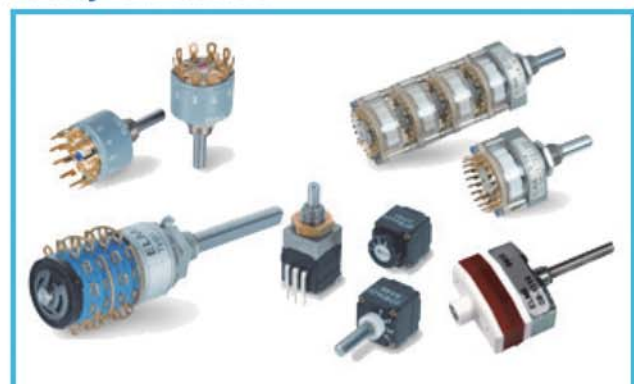
With pushbutton function
24/32 detent
Contactless magnetic indexing provides tactile feedback for accurate position indication
Standard with connector(IDC), cable on request

Audio Switches•Rotary Switches



■ Audio Switches Series A•N•R

24 position switch
Compact high grade attenuator with low switching torque



■ Rotary Switches Type 01•04•06•07R•08

4/12/24 position switch
Steel spindle-shaft and metal bush
Gold flash contact standard



Door-opening buttons

- Various colors
- Various pictograms
- Various plugs



Signal devices

- LEDs in white, red, green, yellow
- Various plugs



Fuse Holders

- Rating: 250V AC 10A/15A
- Matching Fuse: $\phi 5.2$, $\phi 6.36$, $\phi 6.4$, $\phi 10.31$
- Insulation Resistance: $>100M\Omega$ at 500V DC



SC/SE/SF/SJ Series

- Rating: 125V 15A
- Contact resistance: Under $30m\Omega$
- Insulation Resistance: $>100M\Omega$ at 500V DC



Type $\phi 12 \cdot \phi 16 \cdot \phi 19$

- Diameters : 12mm, 16mm, 19mm
- Tubular key & flat key styles
- Two/Three/Four positions



Type $\phi 12 \cdot \phi 15 \cdot \phi 16 \cdot \phi 17 \cdot \phi 19 \cdot \phi 22$

- Diameters : 12mm, 16mm, 19mm
- Tubular key & flat key styles
- Key rotation could be CW or CCW and 90° or 180°



Visual Signaling Devices



Audible Signaling Devices



Visual-Audible Signaling Devices



Signal Towers



Ex-ATEX Signaling Devices



Cooling units



Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)
DTI 6801	400W	400V 3~	1539 x 485 x 372 mm
DTS 6801			1549 x 485 x 372 mm
DTI 6501	2500W	230V / 400V 3~	1536 x 485 x 278 mm
DTS 6501			1543 x 485 x 278 mm
DTI 6401	2000W	115V / 230V / 400V 3~	1536 x 485 x 278 mm
DTS 6401			1543 x 485 x 278 mm
DTI 6301	1500W	115V / 230V / 400V 2~	1536 x 485 x 218 mm
DTS 6301			1539 x 485 x 218 mm
DTI 6201	1000W	115V / 230V / 400V 2~	1536 x 485 x 218 mm
DTS 6201			1539 x 485 x 218 mm



Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)
DTI 9141	950W	115V / 230V / 400V 2~	958 x 410 x 248 mm
DTS 9141			964 x 410 x 248 mm
DTI 9341C	1500W	115V / 230V / 400V 2~	958 x 410 x 248 mm
DTS 9341C			964 x 410 x 248 mm
DTI 9341C	1500W	115V / 230V / 400V 2~	958 x 410 x 248 mm
DTS 9341C			964 x 410 x 248 mm



Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)
DTI 9141	950W	115V / 230V / 400V 2~	958 x 410 x 248 mm
DTS 9141			964 x 410 x 248 mm
DTI 9341C	1500W	115V / 230V / 400V 2~	958 x 410 x 248 mm
DTS 9341C			964 x 410 x 248 mm



Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)
DTI 9041	870W	115V / 230V / 400V 2~	599 x 380 x 231/231/363 mm
DTS 9041			604 x 380 x 231/231/363 mm
DTI 9031	510W	115V / 230V / 400V 2~	562 x 310 x 212/212/353 mm
DTS 9031			565 x 310 x 212/212/353 mm

Cooling units



Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)
DTFI 9021	320W	115V / 230V / 400V 2~	326/326/464 x 385 x 252 mm
DTI 9021	320W	115V / 230V	329 x 385 x 252 mm



Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)
DTS 9011H	300W	115V / 230V	300 x 495 x 140 mm



Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)
DTS 7541	2500W	400V 3~	1350 x 397 x 270mm
DTS 7441	2000W	400V 3~	1350 x 397 x 270mm



Type	Cooling capacity	Rated voltage	Dimensions (HxWxD)
DTS 7341	1500W	115V / 230V / 400V 2~	1350 x 390 x 200mm
DTS 7241	1000W	115V / 230V	1350 x 390 x 200mm

**Effective Cost Savings with
Pfannenberg
ECOOL Cooling Units**



Pushbuttons LA39

- Hole Diameter : $\Phi 30$, $\Phi 22$, $\Phi 16$, $\Phi 12$
- High contact reliability
- Various button heads and indicator lights



Buzzers

- Hole Diameter : $\Phi 30$, $\Phi 22$, $\Phi 16$ types.
- Sound : continuous & discontinuity sound.
- Sound integrated flash boards available.
- Volume: 10cm/100dB



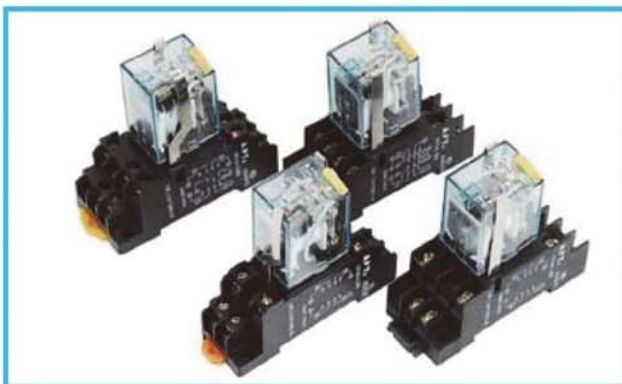
Indicators

- Hole Diameter : $\Phi 30$, $\Phi 22$, $\Phi 16$, $\Phi 12$
- Showing specification : $30 \times 30\text{mm}$ $30 \times 60\text{mm}$ $60 \times 60\text{mm}$.
- Head types, five kinds of color



Indicators

- Insulation resistance: $\geq 2\text{M}\Omega$
- Brightness $\geq 100\text{cd/m}^2$
- Allowable voltage fluctuation: $\pm 20\%$



ZY/DY Series Miniature Power Relay

- Rated coil voltage:
DC 6V, 12V, 24V, 48V, 110V
AC 12V, 24V, 48V, 110V, 220V
- Pole: 2/3/4 pole, ZY:5A/3A, DY:10A



Industrial Cabinet

- Pushbutton Enclosure
- Terminal Enclosure
- Standard Enclosure
- Illumination Enclosure



VN series
IP 54, IP 69K



Emergency-off switches D series
Rear fixing with door coupling and door interlock



Motor switches T series
IP 65



Foot-operated switches
-Enclosure with flat-type cover
-Enclosure with high cover



CEE Industrial plugs and sockets
IP 44



Socket combinations ESTK
Wired ready for connection, in plastic enclosure



POSITION LIMIT SWITCHES

Ui lth(A): 500V 10A
 Approvals: UL, UR, CSA, VDE, GOST, OVE
 IP 66, Plastic & Metal Body



SAFETY LIMIT SWITCHES

Ui lth(A): 500V 10A
 Approvals: UL, UR, CSA, VDE, GOST, OVE
 IP66, Plastic & Metal Body, 2 & 4 Contacts



PREWIRED LIMIT SWITCHES

Ui lth(A): 500V 10A
 Approvals: UL, UR, CSA, VDE, GOST, OVE
 IP67, Plastic & Metal Body, 2 Contacts



MINIATURIZED LIMIT SWITCHES

Ui lth(A): 500V 10A
 Approvals: UL, UR, CSA, VDE, GOST, OVE
 IP40, Plastic & Metal Body, 2 Contacts with 'Snap'



POWER TOOLS SWITCHES

Rated Voltage: From 250V up to 400V
 Approvals: UL, UR, CSA, VDE, GOST, OVE
 N° of Poles: 2-3
 IP00, Lever & Trigger s/w



DISCONNECTORS CAM SWITCHES



Ø16mm Waterproof Pushbutton Switches

- Push button, Selector, Key lock, Emergency stop Indicator, Buzzer
- Hole Diameter: 16φmm



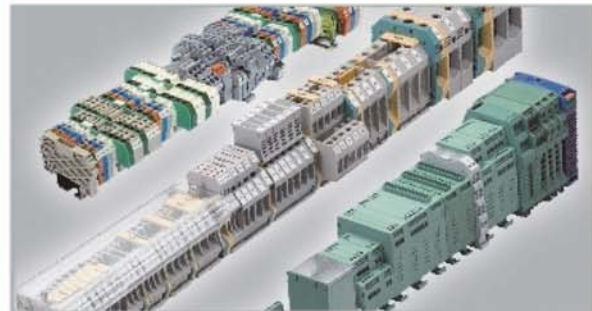
Ø22mm Waterproof Pushbutton Switches

- A20 Series Control Units Special Features
- Push button, Selector, Mushroom pushbutton, Pilot light, Emergency stop
- Hole Diameter: φ22mm: Compact and light weight



Limit Switches

- Model : SLZ, SLZC, SL4MC, SLZE, SL4V, SL4C, SL51, SL4B, SL4N, SL4NS
- IEC : IP62/IP65/IP67



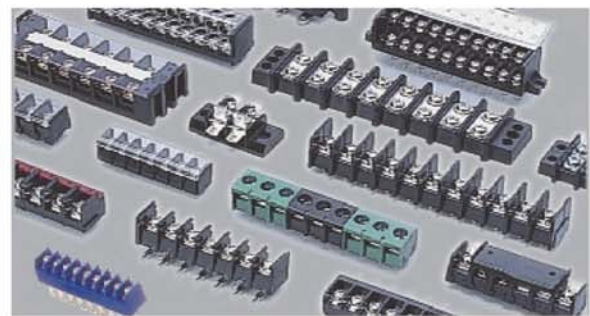
Din Rail Terminal Blocks

- Model : CDU, CPE, CDK, CTR, SDU, SDK, SPE
- Screw Connection, Spring Clamp Technology



Euro Type Terminal Blocks

- Model : MA, MB, MC, ME, MD, MF, MWX, MPX, MX
- Pitch : 2.5mm, 2.54mm, 3.5mm, 3.81mm, 5.00mm, 5.08mm, 7.62mm, 10.16mm



Barrier Type Terminal Blocks

- Model : T1, T2, T3, T4, T5, T6, TD1, TD4, TE, TS
- Rated current: 10~30Amp, AC250/300/600V, DC24V

산업용 무선조정기



■ 핸드타입 무선 조정기



■ 조이스틱 타입 무선 조정기



■ 특수분야 (방폭지역 / 철도차량)



방폭 산악지역 및 각종 산업현장에서 안전하게 사용되는 무선조종기

○ 방폭지역

- 석유 화학, 탄광 석유 시추공, 석유 보관 창고 등
- 먼지와 가스가 발생하는 Zone1 과 2 지역 또는 탄광지역
- 위험지역에서 배터리 교환 불가시 Can 오픈 인터페이스 케이블제어로 사용 가능
- 정전기 또는 발화, 폭발 장치로부터 보호 받아야 하는 지역
- 고객의 요청에 따른 모든 설비에 적용 가능

○ 산악지역

- 30년 이상 산림 현장 설치 운영하여 풍부한 기술력을 바탕으로 하여 무선 조종기에 적용함
- 튼튼한 소재로 제작하여 내열, 충격, 방수에 강함
- 인체공학적으로 설계하여 사용하기 편리하고 허리에 차고 운전할 수 있음
- 다중 전송 핸드오버 기능(선택 사양)
- 프로그램에 의한 속도 조절 가능
- 중복 안전 시스템, 사고방지 규정과 산림과 건설분야 보험연합 규정에 따른 안전시스템 확보
- 고객의 요청에 따른 모든 설비에 적용 가능



K2 standard / GF-T30

A classic! Universally applicable

- extremely robust and functional design
- tried and tested in many areas of use
- choose from a variety of standard units available at short notice

-KC 인증



1. 기지재 명칭 : 산업용 무선 수신기/GF-R61
2. 등록번호 : MSP-REI-DER-R61
3. 적합성평가를 받은 자의 상호 : 도원산업
4. 제조년월일 : 별도 표기
5. 제조자/제조국가 : GROSSFUNK / 독일



1. 기지재 명칭 : 특정소출력 무선기/GF-T30
2. 등록번호 : MSP-CRI-DER-T30
3. 적합성평가를 받은 자의 상호 : 도원산업
4. 제조년월일 : 별도 표기
5. 제조자/제조국가 : GROSSFUNK / 독일



GF-T23

GF-T24



GF-R61

- KACSYS compatible
- easy assembly and adaption
- with various output signals from digital to analogue





○ 제철소 철도차량 전문용

- 최신기술의 듀얼 프로세서로 장착하여 전기적으로 보호함
- 높은 안전등급으로 하드웨어&소프트웨어적으로 보호
- IOS 13849-1 시행수준 d의 분야에 적합
- 각종 인증과 다양한 주파수 대역으로 전세계 어디에서나 사용가능
- 외부 트랜스키 RFID를 통해 주파수 및 ID 관리
- 충격에 강한 폴리카보네이드 수지 소재로 제작하여 내열, 충격, 방수에 강함
- 안전표준 : EN 60204-1 / -32.EN IOS 133557.EN 954-1 카테고리 3정지용.EN IOS 14849-1 레벨d급
- 충격 / 진동 : EN 60068-2-27 / EN 60068-2-6



○ 제철소 고로용 • 크레인 • 철도 • 철광용

- 튼튼한 소재로 제작하여 내열 • 충격 • 방수에 강함
- 인체공학적으로 설계하여 사용하기 편리하고 허리에 차고 운전할 수 있음
- 다중제어 시스템에 여러 없이 정확한 신호전달
- 데이터 피드백, 양방향 통신, 다중 송신기간의 작동, 한 개의 송신기로 두개의 수신기 제어 두개의 송신기로 한 개의 수신기 제어 Tilt 센서 특징



LRC_{L1}

- 디지털이나 아날로그 구동 시스템을 제어하는데 사용
- 중요한 피드백 정보를 그래픽 LCD 나 LED 상태를 통해 표시
- 예비용 하드/소프트웨어로 안전등급이 높음
- 인증과 주파수(Approval and Frequencies)의 폭이 넓어 어디에서나 사용 가능
- 특정분야의 특정한 송신기 제작가능
- 폴리카보네이트로 제작되어 고충격에도 강함
- 산업환경에 적합한 초강도 재질
- 다양한 수신기와 호환이 되며, 다양한 인터페이스 옵션 특징

LRC_{M1}

- 예비용 하드/소프트웨어로 안전등급이 높음
- 인증과 주파수의 폭이 넓어 어디에서나 사용 가능
- 외부 트랜스키를 통하여 시스템 구성
- 산업환경에 적합한 특정한 레이아웃 제공
- 고충격에 강하며, 폴리카보네이트 수지로 된 외관
- 다양한 수신기와도 호환 됨



○ 각종 산업 현장에서 적용 가능한 무선조종기

- 보호등급 IP67의 MEC 스위치를 사용하여 일 천만회 버튼 조작이 가능하고 잔 고장이 없음
- 같은 대역 주파수 사용시 자동으로 채널 변경되어 전파간섭 없음
- 저전력 설계로 AA 1.5V 건전지 두개 사용으로 4개월 이상 사용
- 주파수, ID, 기능 변경시 브츠로더 펌웨어로 변경 가능
- 송 수신기 교체 시 버튼으로 페어링 가능
- 송신기 재질 PA (30% GF) 으로 튼튼하고 견고함
- 송신기 최대 12개 2단 버튼으로 속도 제어



-수신기-

-송신기-





- 1. 주파수 : 433 / 868 MHz
 - 2. 동작온도 : -20 ~ 55 °C
 - 3. 통신거리 : 150m
 - 4. 배터리 : 리튬폴리머 배터리
 - 5. 배터리시간 : 8~10H
 - 6. IP65
- ※ 고객주문형 생산가능 ※

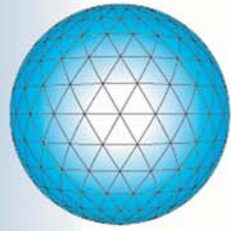


송신기(Transmitter)



수신기(Receiver)





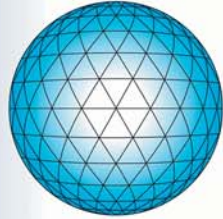
APEM

- SWITCHING JOYSTICKS
- HALL EFFECT JOYSTICKS
- POTENTIOMETER JOYSTICKS



INDUSTRIAL JOYSTICKS





APEM

Sealed Pushbuttons



RoHS
COMPLIANT

 **도한실업**

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