A6 Series – Miniature Switches and Pilot Devices: 16mm

Key features:

- 16mm (5/8") mounting hole
- LED illumination
- Compact design saves space
- Momentary, Maintained, Selectors, and E-Stops
- · Gold-clad Silver contacts for reliable low level switching
- Snap action contacts
- IP40 (dustproof) or IP65 (oiltight) versions







	Degree of Protection		IP40: Dustproof IP65 Watertight/Oiltight						
	Contact Configuration		SPDT, DPDT						
	Maximum Voltage		250V AC/DC						
	Thermal Current		3A						
	Minimum Applicable Load		5V AC/DC, 1mA						
	Contact Material		Gold-clad silver						
suo	Terminal Style		.110" Solder/ Quick Connect						
	Operating Temperature		-25° to +55°C (no freezing)					
	Operating Humidity		45 to 85% RH						
catio	Contact Resistance		$50m\Omega$ maximum (initial va	alue)					
Specifications	Insulation Resistance		100MΩ minimum (500V DC megger)						
	Vibration Resistance		10 to 55Hz, amplitude 1.5mm p-p						
	Shock Resistance		Damage limits: 500m/sec ² (approx. 50G) Operating extremes: 200m/sec ² (approx. 20G)						
	Electrical Life		100,000 operations minimum (at full rated load)						
	Mechanical Life		Maintained: 100,000 operations minimum Momentary: 1,000,000 operations minimum Selector/Keylock: 250,000 operations minimum						
	Dielectric Strength		Switch Unit: 2,000V AC, 1 min. between live/dead part and terminals of different poles; 1,000V AC, 1 minute between terminals of the same pole; 1,500V AC, 1 minute between contact and lamp terminals. Illumination Unit: 2,000V AC, 1 min. between live part/ground						
	Soldering Temperatur	е	20W/5 seconds or 260°C/3 seconds						
	Operating Voltage		24V		120V		240V		
Contact Ratings	A Q (50/0011)	Resistive	_		1.0A		0.5A		
ct Ra	AC (50/60Hz)	Inductive	_		0.7A		0.5A		
ontac	20	Resistive	1.0A		0.2A		_		
0	DC	Inductive	0.7A		0.1A		_		
			5V DC ±5%	6V	AC/DC (±10%)	12V AC	/DC (±10%)	24V AC/DC (±10%)	
Rated Voltage/Current		t	AC 9mA		C: A, R, W, Y: 8mA G, S: 7mA C: A, R, W, Y: 6mA G, S: 5mA			AC: 9mA DC: 8mA	

LED Lamp

AC Inductive Load, PF = 0.6 - 0.7; DC Inductive Load, L/R = 7ms. 1

2. LED lamp contains a built-in current limiting resistor and a protection diode.

3. LED's don't "burn out." Luminance is reduced to 50% of initial intensity after being lit for 50,000 hours continuously.



ø16mm - A6 Series

Switches & Pilot Devices

Non-Illuminated Pushbuttons

AB6 Non-Illuminated Pushbuttons (Assembled)

VUII	Part Number									
	Style	Contact	Mome	entary	Maintained	l (Latching)				
			Dustproof (IP40)	Oiltight (IP65)	Dustproof (IP40)	Oiltight (IP65)				
Standard Button	Round 18mm	SPDT DPDT	AB6M-M1-① AB6M-M2-①	AB6M-M1P-① AB6M-M2P-①	AB6M-A1-① AB6M-A2-①	AB6M-A1P-① AB6M-A2P-①				
	Square 18mm	SPDT DPDT	AB6Q-M1-① AB6Q-M2-①	AB6Q-M1P-① AB6Q-M2P-①	AB6Q-A1-① AB6Q-A2-①	AB6Q-A1P-① AB6Q-A2P-①				
	Rectangular 18mm x 24mm	SPDT DPDT	AB6H-M1-① AB6H-M2-①	AB6H-M1P-① AB6H-M2P-①	AB6H-A1-j AB6H-A2-j	AB6H-A1P-① AB6H-A2P-①				
	Round 23.5mm	SPDT DPDT	_	AB6M-M1P-M@ AB6M-M2P-M@	_	AB6M-A1P-M① AB6M-A2P-M①				
Oversize Button	Square 23.5mm	SPDT DPDT	_	AB6Q-M1P-Q① AB6Q-M2P-Q①	_	AB6Q-A1P-Q① AB6Q-A2P-Q①				
	Rectangular 17.5 X 23.5mm	SPDT DPDT	_	AB6Q-M1P-H① AB6Q-M2P-H①	_	AB6Q-A1P-H① AB6Q-A2P-H①				

①Button Color Code

Color	Code				
Black	В				
Green	G				
Red	R				
Blue	S				
White	W				
Yellow	Y				

1. In place of ① specify Button Color Code from the table at right.

- from the table at right. 2. To order as sub-assembled, see page 459.
- For accessories, see page 466.
 For dimensions, see page 468.

AB6 Non-Illuminated Pushbuttons (Sub-Assembled)



Operators

Style	Contact	Operator	Part Number			
Style	Contact		Round	Square	Rectangular	
Non-Illuminated Pushbuttons	SPDT	Momentary	AB6M-M100	AB6Q-M100	AB6H-M100	
STM		Maintained	AB6M-A100	AB6Q-A100	AB6H-A100	
	DPDT	Momentary	AB6M-M200	AB6Q-M200	AB6H-M200	
		Maintained	AB6M-A200	AB6Q-A200	AB6H-A200	

Oversize rectangular button uses square operator.

Buttons

Dut			
Button			
Dustproof (IP40)	Oiltight (IP65)		
AB6M-BK1-j	AB6M-BK2-j		
AB6Q-BK1-j	AB60-BK2-j		
AB6H-BK1-j	AB6H-BK2-j		
-	AB6M-BK2-Mj		
-	AB6Q-BK2-Qj		
-	AB6Q-BK2-Hj		
	Dustproof (IP40) AB6M-BK1-j AB6Q-BK1-j		

2. Buttons which are rated IP65 include a waterproof rubber gasket.

For accessories, see page 466.

①Button Color Code

Color	Code
Black	В
Green	G
Red	R
Blue	S
White	W
Yellow	Y



AL6 Illuminated Pushbuttons (Assembled)

LED Illuminated Pushbuttons

			Part Numbers					
Description	Style	Contact	Mom	entary	Maintained (Latching)			
			Dustproof (IP40)	Oiltight (IP65)	Dustproof (IP40)	Oiltight (IP65)		
	Round (18mm lens)	SPDT DPDT	AL6M-M13-2 AL6M-M23-2	AL6M-M13P-2 AL6M-M23P-2	AL6M-A13-2 AL6M-A23-2	AL6M-A13P-2 AL6M-A23P-2		
Standard Lens	Square (18mm lens)	SPDT DPDT	AL6Q-M13-2 AL6Q-M23-2	AL6Q-M13P-2 AL6Q-M23P-2	AL6Q-A13-2 AL6Q-A23-2	AL6Q-A13P-2 AL6Q-A23P-2		
	Rectangular (18mm x 24mm lens)	SPDT DPDT	AL6H-M11-@ AL6H-M21-@	Al6H-M1IP-@ Al6H-M2IP-@	AL6H-A1I-@ AL6H-A2I-@	AL6H-A11P-@ AL6H-A21P-@		
	Round (24mm lens)	SPDT DPDT	_	AL6M-M13P-M2 AL6M-M23P-M2	_	AL6M-A13P-M2 AL6M-A23P-M2		
Oversize Lens	Square (24mm lens)	SPDT DPDT	_	AL6Q-M13P-Q2 AL6Q-M23P-Q2	_	AL6Q-A13P-Q2 AL6Q-A23P-Q2		
	Rectangular (18mm x 24mm lens)	SPDT DPDT	_	AL6Q-M13P-H2 AL6Q-M23P-H2	_	AL6Q-A13P-H2 AL6Q-A23P-H2		

1. In place of ⁽²⁾, specify Lens/LED Color Code from table below.

In place of ⁽³⁾, specify Voltage Code from table below.
 Lamps also available in 5V DC, 6V AC/DC or 12 V AC/DC, change "4" using voltage/lamp codes (ie AL6M-M13-k uses 12V AC/DC LED).

4. LED lamp is included in unit and contains a current-limiting resistor and a protection diode. (External resistor not required.)

5. To order as sub-assembled, see page.

6. For accessories, see page.

7. For dimensions, see page.

8. Light independent of switch position.

②Lens/LED Color Code

Code
A
G
R
S
W
JW
Y

Signaling Lights

Contactors

Terminal Blocks

AL6 Illuminated Pushbuttons (Sub-Assembled)



Operators

Style	Contact	Operator	Operator Part Nu		ber	
Style	GUIILAGE	Operator	Round	Square	Rectangular	
AL6 Illuminated Pushbuttons	SPDT	Momentary	AL6M-M100	AL6Q-M100	AL6H-M100	
		Maintained	AL6M-A100	AL6Q-A100	AL6H-A100	
	DPDT	Momentary	AL6M-M200	AL6Q-M200	AL6H-M200	
		Maintained	AL6M-A200	AL6Q-A200	AL6H-A200	

Oversize rectangular button uses square operator.

Lenses

Unit	Part Number						
Degree of Protection	Dustproof (IP40)	ht (IP65)					
Size	Standard	Standard	Oversize				
Round	AL6M-LK1-k	AL6M-LK2-@	AL6M-LK2-M k				
Square	AL6Q-LK1-k	ALGO-LK2-k	AL60-LK2-0 k				
Rectangular	AL6H-LK1-k	AL6H-LK2-k	ALGO-LK2-H k				

In place of ⁽²⁾, specify Lens Color Code from table below.
 Lenses which are rated IP65 include a waterproof rubber gasket.

3. For accessories, see page.

②Lens/LED Color Code

Color	Code
Amber	А
Green	G
Red	R
Blue	S
Warm White	W
Cool White	JW
Yellow	Υ

LED	Lamps	

. _ _ .

Appearance	Rated Voltage	Part Number		
	5V DC	LATD-5 @		
e	6V AC/DC	LATD-6 @		
	12V AC/DC	LATD-1 @		
	24V AC/DC	LATD-2 @		
1. In place of ©, specify	1. In place of @, specify LED Color Code from table at left.			

	OWITCHES OF LIDE DEVICES	ilat Davia



AL6 Pilot Lights (Assembled)

Signaling Lights

Relays & Sockets

Timers

LED Pilot Lights

Description	Part Number		
Description	Dustproof (IP40)	Oiltight (IP65)	
Round (18mm Lens)	AL6M-P③-②	AL6M-P3P-@	
Square (18mm Lens)	AL60-P3-2	AL6Q-P③P-②	
Rectangular (18mm x 24mm Lens)	AL6H-P3-@	AL6H-P③P-②	

LEDs also available in 5V DČ, 6V AC/DC or 12 V AC/DC, change "4" using voltage codes (ie AL6M-P3-@ uses 12V AC/DC LED).
 LED is included and contains built-in current limiting resistor and reverse polarity protection diode. (no

external resistor required)

5. To order sub-assembled, see page.

6. For accessories, see page.

Y

7. For dimensions, see page.

8. For one piece pilot lights and/or dome lens pilot lights, see AP series miniature pilot lights.

②Lens/LED Color Code ③Voltage		Code	
Color	Code	Voltage	Code
Amber	А	5V DC	1
Green	G	6V AC/DC	2
Red	R	12V AC/DC	3
Blue	S	24V AC/DC	4
Warm White	W		
Cool White	JW		

Yellow

Contactors

AL6 Pilot Lights (Sub-Assembled)

Operator	+	LED Lamp	+	Lens	=	Completed Unit

Operators

Ctulo	Part Number				
Style	Round	Square	Rectangular		
AL6 Pilot Lights					
	AL6M-P00	AL6Q-P00	AL6H-P00		

Lenses

Part Ni	Part Number		
Dustproof IP40	Oiltight IP65		
AL6M-LK1-@	AL6M-LK3-@		
AL6Q-LK1-@	AL60-LK3-@		
AL6H-LK1-@	AL6H-LK3-@		
	Dustproof IP40 AL6M-LK1-@ AL6Q-LK1-@		

1. 2. 3.

In prace of (a), specify tens color code from table below.
 Lenses which are rated IP65 include a waterproof rubber gasket.
 For accessories, see page.

kLens/LED Color Code

Color	Code
Amber	А
Green	G
Red	R
Blue	S
Warm White	W
Cool White	JW
Yellow	Y

LED Lamps

Appearance	Rated Voltage	Part Number
e	5V DC	LATD-5 ©
	6V AC/DC	LATD-6 @
	12V AC/DC	LATD-1 @
	24V AC/DC	LATD-2 ©
1. In place of @, specify L	ED Color Code from tab	le at left.

Switches & Pilot Devices

Key

AS6M-2KT2P^①

AS6M-21KT2PB

AS6M-3KT2P①

AS6M-31KT2P①

AS6M-32KT2P①

AS6M-33KT2PD

AS6Q-2KT2P①

AS6Q-21KT2PB

AS6Q-3KT2P①

AS6Q-31KT2P①

AS60-32KT2P1

AS6Q-33KT2PD

AS6H-2KT2P①

AS6H-21KT2PB

AS6H-3KT2P①

AS6H-31KT2P①

AS6H-32KT2P①

AS6H-33KT2PD

AS6 Selector and Keylock Switches

Knob

AS6M-2Y2P

AS6M-21Y2P

AS6M-3Y2P

AS6M-31Y2P

AS6M-32Y2P

AS6M-33Y2P

AS6Q-2Y2P

AS6Q-21Y2P

AS6Q-3Y2P

AS6Q-31Y2P

AS6Q-32Y2P

AS6Q-33Y2P

AS6H-2Y2P

AS6H-21Y2P

AS6H-3Y2P

AS6H-31Y2P

AS6H-32Y2P

AS6H-33Y2P

AS6 Selector Switches and Keylock Switches (2 & 3 Position)

Maintained

Spring Return

Maintained

Spring Return

Right →Center Spring Return

Left →Center 2-Way

Return→Center

Spring Return to

Maintained

Maintained

Spring Return

Right→Center

Spring Return

Left →Center

Return→Center

Maintained

Spring Return

Maintained

Spring Return

Right →Center Spring Return

Left→Center 2-Way

Return→Center

2-Way

Right

Right

Right

06

2-Position

3-Position 45°

2-Position 90°

3-Position 45°

2-Position 90°

3-Position 45°

In place of ①, specify Key Retention Code. See table on right.

1. All models are IP65 and DPDT.

4. For accessories, see page 466. 5. For dimensions, see page 468.

Available as assembled units only.

Function

L`

′R

Style Round Selector

Signaling Lights	Round Keylock
------------------	---------------

Square Selector

Square Keylock

Rectangular Selector

Switches & Pilot Devices

Rectangular Keylock

2. 3.

S	
00	
ā	

_	1	
	ID	EC

Contact Operation (for all selectors)	ations		
Contents	Opera & Conta	tor Pos act Ope	
		Left	Right

Contents		act Operation
	Left	Left Right Contact Contact NO NC NO NC C C C
2-pos. (DPDT)	Right	Left Right Contact Contact NO NC NO NC C C C
3-pos. (DPDT)	Left	Left Right Contact Contact NO NC NO NC
	Center	Left Right Contact Contact NO NC NO NC C C C
	Right	Left Right Contact Contact NO NC NO NC C C C

Key Retention Codes

Code	Description
А	Key not retained in any position (removable in all positions)
В	Key retained in right position only
С	Key retained in left position only
D	Key retained in left and right (3 position only)
E	Key retained in center only (3 position only)
G	Key retained right and center (3 position only)
Н	Key retained left and center (3 position only)
	y cannot be removed in a spring return sition.

Switch Engraving Order Form – A6 Series

Copy this order form and use it to specify Letter Height, Maximum Number of Lines and Text to be engraved.

To insure engraving accuracy, fax it to your IDEC representative or $\ensuremath{\mathsf{Distributor}}$.

Your Company:	Telephone:
Name:	Fax:
Address:	Email:
PO:	Part Numbe

Part Number to be Engraved:

Please check one of the boxes below to indicate your choice of engraving options:

	Rectar Swit	
# of Lines	Letter Height	Max. Characters Per Line
1	5/32	6
2	5/32	6
Z	1/8	6
3	1/8	6
4		N/A

	Squar Swite	
 # of Lines	Letter Height	Max. Characters Per Line
1	5/32	5
2	5/32	5
Z	1/8	6
3	1/8	6
4		N/A

Round Switch					
	# of Letter Max. Characters Lines Height Per Line				
	1	5/32	3		
	I	1/8	3		
	2	5/32	Custom*		
	3	1/8	Custom*		
	4	3/32	Custom*		
*Engraving is possible, but character size will be					

Engraving is done on the button itself for non-Illuminated pushbuttons and on marking plate for illuminated pushbuttons and pilot lights.
 Please enter text exactly how you want it engraved, take care to emphasize capital or small letters.

be engraved		
	be engraved	be engraved

Sample Letter Sizes

smaller than standard sizes.



	-
For IDEC Internal Use Only:	
Work Order #:	



Ac	се	SS	î î	rı	es
	~~	00	-	••	~~

	Appearance		Description	Used With	Part Numb
				Ø 5/8" (16mm) units	MT-001
1	Locking Ring Wrench		Made of metal. Used for tightening plastic locking ring during	Ø 31/64" (12mm) AP2M units	MT-002
1		installation. Tightening torque should not exceed 3kgf-cm	Ø 13/32" (10mm) AP1M units	MT-003	
I	Lens Removal Tool		Made of metal. Used for removing lens or button from the housing	All pushbuttons and pilot lights	MT-101
1	Lamp Holder Tool	Constant Constant	Made of rubber. Used for removing and replacing LED lamps in illuminated units	All illuminated pushbuttons and pilot lights	OR-77
			Prevents inadvertent switch operation. IP40 dust-tight. 90 degrees opening maintained	Round/Square	AL-K6
	Switch Guard			Rectangular	AL-KH6
;			Prevents inadvertent switch operation. IP65 oiltight 180 degrees opening, spring return	Round/Square	AL-K6SP
				Rectangular	AL-KH6SP
	Terminal Cover		Made of translucent nylon. Fits over and shields the terminals	All 5/8" (16mm) units	AL-V6
				All round units	AL-D6
	Dust Cover		Fits over the lens or button to provide extra protection from dust	All square units	AL-DQ6
I			(not applicable for oversize lenses or buttons).	All rectangular units	AL-DH6
-			Plug-on terminal adaptor with solder terminals	All 5/8″ (16mm) units	AL-C6
,	Adaptor Socket		Plug-on terminal adaptor with PCB terminals		AL-C6V
	Mounting Hole Plug		Fills unused panel cutouts. Made of nitrile rubber. Push-in installation from front of panel. IP65 (oiltight).	Rubber	AL-B6
1			Fills unused panel cutouts. Made of aluminum. Screw-on locking ring from inside of panel. IP65 (oiltight).	Aluminum	AL-BM6
			Round Mounting Hole Plug	Plastic (Applicable for flush mount – switches only)	LA9Z-BS6
			Square Mounting Hole Plug		LA9Z-BS7
			Rectangular Mounting Hole Plug		LA9Z-BS8
	Replacement LED Lamps	<u>e</u>	LED with built in current limiting resistor (with all illuminated assemblies).	5V DC	LATD-5 @
				6V AC/DC	LATD-6 @
				12V AC/DC	LATD-1 @
				24V AC/DC	LATD-2 @
	Replacement Locking Ring	0	Fastens operators to panel (included with all operators).	All switches & pilot lights	HA9Z-LN
,	Anti-Rotation Ring	0	Prevents rotation of switches in panel (included with all operators).	All switches & pilot lights	AL6-LP
				Round standard	AL6M-W
	Replacement Engraving Inserts		Engraving plates to allow legends underneath translucent lenses (included with all lenses).	Square standard	AL6Q-W
				Rectangular standard	AL6H-W
				Round oversize	AL6M-MW
				Square/rectangular oversize	AL6Q-QW
1	Replacement Keys		Pair of keys (#132). All key switches use same standard key.	All key selectors	AS6-SK

2. LEDs include built-in current limiting resistor and reverse polarity protection diode.

Circuit Breakers



Signaling Lights

Relays & Sockets

Timers

Appearance		Description	Used With	Part Number
	5	ø24mm round, metal (aluminum color), panel cut-out ø20.2mm	Pushbuttons, pilot lights, illuminated pushbutton, selector switches, key selector switches and illuminated selector switches.	LA9Z-SM61
Flush Bezel	5	ø24mm round, plastic (black), square panel cut-out ø20.2mm	A6 Switch	LA9Z-S61B
	5	24mm square, plastic (black), panel cut-out 20.2 x 20.2mm	+	LA9Z-S71B
		24 x 30mm rectangular, plastic (black), rectangular panel cut-out ø20.2 x 26.2mm	Flush Bezel =	LA9Z-S81B
Switch Guard w/ Flush Bezel (spring return)		Rectangular, plastic (black)	Flush Switch	LA9Z-KS8

Schematics – A Series: 5/8" (16mm)





Square

(TOP)

□18

ø18

(TOP)

Round

5.7

Dimensions (mm)

29

Panel Thickness 0.5 to 6

Rectangular

(TOP)

24

Pushbuttons, Ø 5/8" (16mm)

Terminal Width 2.8×0.5t

3

2.5

Rubber Gasket

Anti-rotation Ring

0

6

Locking Ring

1

0.6



ഹ











All dimensions are in mm



Switch Guard, Ø 5/8" (16mm)





Lever



800-262-IDEC (4332) • USA & Canada

24 min.*



1705151131

24 min.*

30 min.*

ø16mm - A6 Series

Switches & Pilot Devices



Contactors

Terminal Blocks



Engraving must be made on the engraving area within 0.02" (0.5mm) deep.

Replacing and Marking Plate

Removal

Remove the lens holder assembly (lens, marking plate and holder) from the operator by holding the color lens recesses with the lens removal tool (Part No.MT-101) and pulling out. Remove marking plate by pushing the color lens from the rear to disengage the latches. Marking plate must be engraved on the side as shown in the figure on the right. Ø 5/8" (16mm)



Installation

For illuminated pushbuttons:

- 1. Insert marking plate inside lens in correct direction
- 2. Press color lens on to lens holder to engage latches.



3. Insert lens holder into housing in correct direction. Do not loosen spring on illuminated pushbutton units (except on pilot light units). The marking plate must be engraved on the front side as shown above.



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

IDEC:

AL-KH6SP AL-C24 AL-V6 AL-B2 AL-V2 AL-C6V AL-V1 AL-C8 AL-B1 AL-C1 AL-K6SP AL-C21 AL-K8 AL-K1 AL-KH2 AL-KH1 AL-K6 AL-DQ2 AL-C8V AL-K2 AL-C6 AL-V8 AL-KH8 AL-B8 AL-KH6