



TYPE E KEYBOARDS



SOLUTIONS DE COMMANDE ET DE SIGNALISATION
POUR ENVIRONNEMENTS SÉVÈRES



TYPE E KEYBOARDS



Robust

Long life durability :

- A reliability recognized for more than 30 years
- Qualified according to nuclear standards IEEE 323 & 344
- A foolproof mechanical and electrical robustness
- Applications in harsh environments

Configurable

Adaptable to your applications :

- From 2 to 20 configurable tabs on demand
 - Momentary action
 - Alternate action
 - Mechanical interlock combinations
 - Locking by key, electromagnet
- Up to 4 stages equipped with 2 change-over contacts or 4 stages configurable at your request
- Illuminated , recessed push buttons...

APPLICATION

➤ Electrical equipment's control.

- Type E keyboards have a particularly strong design which allows them very numerous applications in severe environments (shocks, vibrations, temperature, radiations, earthquakes).
- This range of product is a reference for more than 30 years in control room of power plant (nuclear, hydraulics...) or raw materials transformation complex (petrochemical, steel ...) around the world.
- It allows simple control functions as well as more complex functions to ensure secure control of electrical installations (mechanical or electrical interlocking ...)



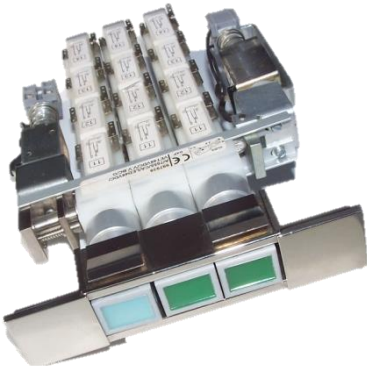
General



Keyboard with 26X21 tabs



Keyboard with 17X21 tabs – Locking by key



Keyboard with 17X21 tabs – Locking by electromagnet



Keyboard with 17X21 tabs – Locking by electromagnet
- Wiring on connectors – Special assembly

Fixing

Snap fastened from the front on 2 to 4 mm thick panel

Functions

From 2 to 20 configurable tabs on demand

- Keyboard A : Illuminated tab 17X21
- Keyboard M : Illuminated tab 26X21

- ✓ Momentary action (S.I)
- ✓ Alternate action (P.P)

Configurations

- Many mechanical combinations
- Keyboard locked by key
- Keyboard with electro-magnetic locking and resetting at zero by solenoid
- Keyboard with connectors

Contacts

- Stage with 110V change-over contacts
 - ✓ 2 change-over contacts by stage
 - ✓ 1,2,3 or 4 stages by tabs
- Stage with 220V contacts
 - ✓ 2 NO contacts per stage
 - ✓ 2 NC contacts per stage
 - ✓ 1 NO contact + 1 NC contact per stage
 - ✓ 1,2,3 or 4 stages by tabs

Signaling

- 1 T5,5 lamp by tab
- Many tab colors
- Possibility of engraving

Keyboard functions

Function



A keyboard is composed of a certain number of push buttons called tabs arranged in line.

It is possible to configure a keyboard from 2 to 20 tabs.

These tabs can be either independent or dependent on each other according to a certain number of functions defined in the table below.

Different functions are possible on the same keyboard.

Tabs	Combinations of the mechanisms	Types
Momentary action Without interlocking S.I	Pushed in by pressing, return to rest position on releasing it is possible to engage all the tabs in any order	501
« Push-push » Without interlocking P.P	Pushed in by 1st pressing released by 2nd pressing it is possible to engage all the tabs in any order	502
Momentary action With mutual interlocking	Pushed in by pressing, return to rest position on releasing impossibility to engage 2 tabs simultaneously	CM 01
« Push » with latching Without mutual interlocking + 1 reset tab	It is possible to engage all the tabs in any order the reset tab returns the engaged tab or tabs to the rest position (10 tabs max)	CM 02
« Push » with latching With mutual interlocking	Engagement of a tab frees the previously engaged tab impossibility to engage 2 tabs simultaneously	CM 03
« Push » with latching With mutual interlocking + 1 reset tab	Engagement of a tab frees the previously engaged tab impossibility to engage 2 tabs simultaneously the reset tab frees the remaining engaged tab	CM 04
« Push » with latching With mutual interlocking + 1 reset tab	Impossibility to engage 2 tabs simultaneously in order to engage another tab, the engaged tab must be freed by means of the reset tab	CM 05
« Push-push » With mutual locking	Pushed in by 1st pressing released by 2nd pressing impossibility to engage 2 tabs simultaneously	CM 06

Contacts stages

Configuration



Each keyboard tab can have its own electrical configuration

There are two types of electrical stages (110V and 220V) that can not be mixed on the same keyboard

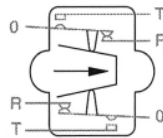
As standard, the keyboards are equipped with 110V change-over stages and the tabs have the same number of electrical stages.

It is also possible to realize on demand a keyboard with a different number of stages for each tab

The three types of 220V stages can also be mixed on the same tab

110V Contacts stages :

A tab can be equipped from 1 to 4 stages (2 to 8 change-over contacts). Standard contacts are in silver. For low current application the contacts can be in an gold-silver alloy (Z).

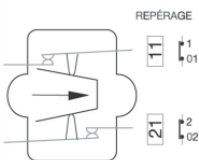


220V Contacts stages (3 types of stages available) :

A push button can be equipped from 1 to 4 stages .220V contacts are available in silver only.

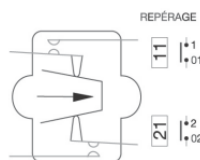
Stage 2R :

Consisting of 2 Normally Close contacts.



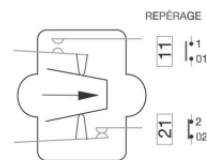
Stage 2T :

Consisting of 2 Normally Open contacts.



Stage 1TR :

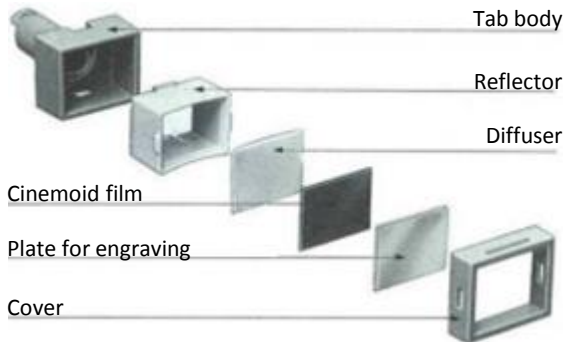
Consisting of 1 Normally Open contact + 1 Normally Close contacts



The three types of 220V stages can also be mixed on the same tab

Tab colors and engraving

Constitution



The 17X21 or 26X21 tabs are composed of similar elements

The color is obtained by a film inserted between the plate for engraving and the light diffuser

The available colors are : white, red, green, yellow, orange, blue.

Nota : Tabs which are white lit are bluish when extinguished

Engraving

	Tab 17X21 mm	Tab 26X21 mm
Characters 2 mm	3 lines of 8 letters or numbers	4 lines of 8 letters or numbers
Characters 3 mm	2 lines of 6 letters or numbers	3 lines of 6 letters or numbers
Characters 4 mm	1 line of 6 letters or numbers	2 lines of 6 letters or numbers

Signaling

Constitution



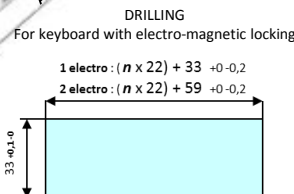
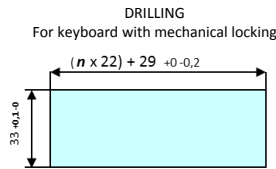
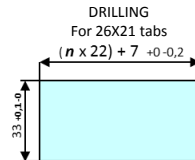
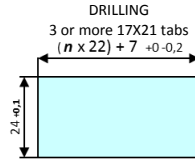
Tabs 17X21 or 26X21 are equipped as standard with socket for lamp or LED with base T5,5

Front access to the lamp after extracting the front of the tab, using the extractor



Tab extractor : 1SNA357753R1700

Dimensions and drilling



$A = (n * 22) + 61$ pour 2 electro-magnets

** The specifications and drawings given are subject to change and are not binding unless confirmed by our specialists.*

Standard keyboard

Snap fastened from the front on 2 to 4 mm thick panel

n : Number of tabs

①: Tab 17X21

2: Tab 26X21

L : rear dimensions (mm)

1 stage	2 stages	3 stages	4 stages
109	140	171	202

**Keyboard with mechanical locking
(only on 17X21 tab)**

The mechanical locking is realized by key type switch, 2 or 3 positions with or without contact stage

The lock can be placed on the left or on the right according to the type of keyboard

Note : For any request for mechanical locking keyboard please contact us for verification of the feasibility

Keyboard with electro-magnetic locking and resetting at zero by solenoid (only on 17X21 tab)

Operating factor:

- 100 % power for locking
- 5% for resetting at zero

Available voltages:

- 24, 48, 60 V=
- 24, 48, 60, 127, 230 V~

Note : For any electromagnetic locking keypad request, please contact us for verification of the feasibility

How to order a keyboard ?

- 1) Specify the type of the needed keyboard : Keyboard A (Tabs 17X21) or Keyboard M (Tabs 26X21)
- 2) Specify the number of tabs of the keyboard
- 3) For each tab specify the function of the tab and / or the mechanical combinations between the tabs (see page 4)
- 4) For each key, specify the number of electrical stages:
 - 110 V stage: number of change-over stages (specify Z if used at low level)
 - 220 V stage : number and type of stage configuration
- 5) For each tab, specify whether it is illuminated not. If yes :
 - Specify the type of lamp desired: Filament or LED lamp
 - Specify the supply voltage of the lamps or LEDs (eg 48V)
- 6) For each tab specify the color and the possible engraving

Note: To facilitate the definition of the keyboard we can provide you with a definition frame (see next page)

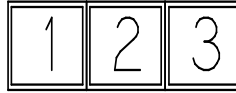
Definition frame

Example

Tab type :	M: 26x21
Mounting	Horizontal
Grid number	



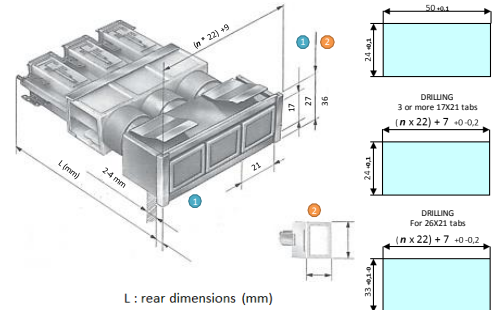
horizontal



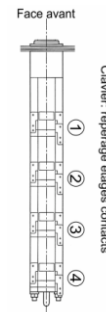
	Tabs			
	1	2	3	4
Engraving	ARRET	Marche Local	Marche Distance	Arret d'urgence
Tab color	WHITE bluish appearance off	ORANGE	GREEN	RED
Lamp/LED				
Combination of the mechanism	Push with latching	Push with latching	Push with latching	Push with latching
Function CM03 : Engagement of a tab frees the previously engaged tab impossibility to engage 2 tabs simultaneously				

Contacts stages configuration	Stage 1	220V - 2R (NC)	220V - 2T (NO)	220V - 2T (NO)	220V - 2T (NO)
	Stage 2	220V - 2R (NC)	220V - 2T (NO)	220V - 1T(NO) 220V - 1R (NC)	220V - 2T (NO)
	Stage 3				
	Stage 4				

Type contact	standard
Options / accessories	



L : rear dimensions (mm)				
1 stage	2 stages	3 stages	4 stages	
109	140	171	202	



Types of contacts stages		
110V - 2 change-over	A-B-C-CA	
220V - 2T (NO)	D	
220V - 2R (NC)	G	
220V - 1T(NO) 220V - 1R (NC)	E	
220V - 1R (NC) 220V - 1T(NO)	R	



Electrical, mechanical, environmental characteristics

Electrical characteristics

Rated thermal current (I_{th})

4A

Dielectric strength

2000V-50Hz-1min

Rated alternate current (I_e) (AC)

Standard silver contacts	110 V contacts				220 V contacts			
Rated working voltages (V)	<= 60		110 127		<= 60		110 127	
AC-11 (A)	4		3		4		3	
AC-21 (A)	4		4		4		4	
AC-22 (A)	4		4		4		4	
AC-23 (A)	4		4		4		4	
Rated direct current (Ie) (DC)								
Standard silver contacts	110 V contacts				220 V contacts			
Rated working voltages (V)	24	48	60	110 127	24	48	60	110 127
DC-11 (A)	2,5	0,8	0,6	0,2	3,2	1,2	0,8	0,2
DC-21 (A)	4	2,5	1,8	0,5	4	4	2,5	0,65
DC-22 (A)	3	1	0,7	0,2	4	1,5	1	0,25
DC-23 (A)	2	0,7 5	0,5	0,15	3	1	0,75	0,2

Minimum utilization characteristics

Standard silver contacts

5V-50mA

Special Gold/Silver contacts

1V-10mA

Maximum connection (Cu only)

Rigid or flexible cable

By soldering

Fast-On Clips : 2,8 X0,3

2 X 1 mm² max
1 mm²

Electrical, mechanical, environmental characteristics

Mechanical and environmental characteristics

Mechanical strength	500 000 cycles of semi-intensive operation
Fitting	Snap-fastened on panel from 2 to 4 mm thick The device does not have to support the weight of the cables
Terminals protection level	IP00 (without cover)