

### Use

Enable the creation of large size synoptic displays in order to operate:

A network (electricity, water supply, water treatment, road traffic, motorway, tunnel, railway, etc), a process (petrochemical, cement manufacture, etc) by including various warning lights, displays, control appliances, etc.
The size and luminosity enable easy reading at a comfortable distance.

The complete display of a process that is a major aid in the operation of complex systems. The complete schematic representation of a complex installation provides operators with better comprehension of the events, enabling them to react quickly and efficiently while at the same time reducing their eye fatigue.

#### **Advantages**

• A self-supporting item, light, insulating and modular.

Its non-reflective and dirt resistant surface provides excellent visibility over the whole of the panel; this visual comfort is particularly appreciated by operators.

• A modular system comprising several units, all of the same size, Assembly is by the back of the panel (rear face keys) and it enables the user to make modifications to the process without modifying the display software when using a supervision system. Its flexibility enables displays to be laid out flat, in facets or continuous curves (semicircular array) providing improved visibility for the operators.

• The panel holds the signalling equipment and the direct control appliances, if required. Its panel by panel assembly greatly facilitates handling, transport and installation (a delicate point for finishing parts). These panels can be installed alone or combined with computer supervision, with which they can be integrated.

### Operation

A metal support structure (not included) receives a panel made up of small plastic tiles (25 by 25 mm or 50 by 50 mm) assembled by keys. These keys enable the panel to be fixed to support bars by stirrups. The support bars are fixed to the structure by threaded rods (structural hardware). A service clearance of a minimum of 90cm allows for access behind the panel, for wiring the equipment and maintenance. The simple frame has large openings to provide immediate access to appliances wherever they are positioned. The whole of the rear surface is available, and easily modifiable. The base of the panel rests on a support and vertical uprights handle its vertical fixing and tilt; an outer strip (cover strip) masks the thermal expansion of the panel.







### **Technical specifications**

Evolutive design. Made from insulating material (electrical).

The panel containing the block diagram should not be a tight fit in the board. A space should be provided around it to allow for expansion in the event of hygrometric variations.

#### Limits of use

To prevent distortion of the panel it should not be tight fitting. Relatively stable temperature and humidity (no sudden variations no hot spots, etc) The clearance should be 5 % evenly distributed; minimum clearance 10 millimetres. Strict observance of these requirements enables very long panels to be produced (> 10 metres)

#### **DIMENSIONS/MOUNTINGS**

Base element dimension	25 x 25 50 x 50
Weight per square metre	10 kg/m²
Minimum radius of curvature 25 x 25	5 m
Minimum radius of curvature 50 x 50	7 m
Mounting	front face
Dismantling	by removing keys from the rear

#### **GENERAL SPECIFICATIONS**

Front face protection index	IP40
Rear face protection index	IP00
Storage temperatures	-40°C to +70°C
Working temperatures	-40°C to +40°C
Relative humidity	maximum 80 %
Material	Polyamide 6.6
Colours available	Black Grey
Front face	Satin finish
Fire resistance	V2
Average dissipation for installing lights	5W/dm <sup>2</sup> for the whole of a board 10W/dm <sup>2</sup> in a high dissipation zone
Expansion	5%. Minimum peripheral clearance 10 mm

#### MOUNTING

30 x 30 lugs (1500 mm max.) are assembled vertically on the panel at 200 mm intervals; they enable the panel to be mounted using 8 mm threaded rods.

The lugs are fixed to the tiles by stirrups spaced at 200 mm intervals (8 x 25 mm).

This system provides the possibility of:

- fitting the panel on its edge (facilitating transport and installation)
- excellent holding
- · constructing flat, semi-circular or faceted panels with the same product.
- modifying the distribution (partial dismantling by the rear).



### **Construction principle**

To obtain good visibility of the schematic diagram, the tiles are machined to create the lines or text engraving; the hollow produced is filled with paint: The engraving can be done in two ways: single lining engraving or double line engraving.

• Single line engraving (1): the standard width is 4 mm. Widths of 1 to 6 mm are available to order This engraving technique is used to produce diagrams of simple circuits or processes, e.g.: electricity distribution.

• Double line engraving (2): the standard width is 4 mm. Widths of 2 to 10 mm are available to order This engraving technique is used to produce diagrams of complex circuits or processes. Paint is then applied between the two lines.

Based on our experience, we advise using single lining engraving for single wire diagrams and reserving the double line engraving for the representation of processes.



The tiles can be drilled individually for fitting control or signalling devices. If the appliances to be installed are larger than the dimensions of these modules, machining can be performed on several assembled tiles (measurement appliances, recorders, signalling boxes, etc). Control devices (C and E switches) and signalling devices (illuminated symbols) are particularly suited for installation in the tiles.







## Colours

It is preferable to use the usual colours used for energy distribution block diagrams for your synoptic display panel.

	DAINT		
	PAINT		
COLOURS	REF.	EDF STANDARD	RAL
FRENCH BLUE	BC	750 & 150 kV	5010
CYCLAMEN	CN	380 kV	4008
CARDINAL RED	RC	225 kV	3002
EAU DE NIL	VE	90 kV	6021
CHROME YELLOW	JC	63 kV	1021
BATTLESHIP GREY (aluminium)	GT	45 kV	7042
GLACIER WHITE	BG	33 kV	9010
LATOUR BLUE	BL	30 kV	5012
SALMON PINK	SN	20 kV	3022
TRAVEL BAG BROWN	BV	15 kV	8008
YELLOW OCHRE	OJ	10 kV	1011
STRAW YELLOW	JP	5.5 kV	1014
BLACK	NR	current voltage < 500 V	9005
ORANGE	OE	current =	2008

Example of a definition:

25 x 25 tile, new grain black with one straight line engraving centred and painted French blue Line width = 4 mm  $\,$ 





## Fitting and removal

Fitting: a key is inserted between two tiles with the key dovetail carefully assembled between them; to finish the assembly; a pin goes into each tile to lock the key Removal: the removal tool is inserted into the key; by rocking the remover the key is removed in line without damage







## Installation and infrastructure to be provided

The mosaic panels are supporting but it is still necessary to absorb the forces.

A support is necessary to maintain the verticality and bending if necessary. Fitting and assembly are greatly simplified by metal bars (base support). The panels always rest on flat plates spreading the loads (current and future). The tie rods must be firmly fixed to the same structure to avoid sagging, tipping or distortion of the board.

Vertical and horizontal cover strips complete the finish and leave the panel free to expand.

### Installation and fixing system





## Fitting possibilities

With the panel flat the surface of the tiles is flat Semi-circular panel

Facetted panel





## Design principle

Starting from a developed diagram (for electricity distribution diagrams) or a civil engineering or other drawing it is necessary to:

- establish the drawing or process that will represent the installation schematically

- determine the size of panel on a squared paper drawing to scale.

To facilitate construction and improve legibility, the circuits and symbols should be drawn on the axis of the tiles. This arrangement facilitates modifications to the process, the positioning of appliances and other symbols.

Example of a diagram on a squared paper background







## Spare parts characteristics

IT	EMS	COLOURS	MATERIAL	AVERAGE UNIT WEIGHT	NEW GRAIN REFERENCE
		BLACK			82112201
	PARTITIONED	GREY (light)	POLYAMIDE	6.33 g	82112302
TILE		CHARCOAL GREY (dark)		-	82112605
25 X 25		BLACK			82112706
	NON-PARTITIONED*	GREY (light)	POLYAMIDE	5.37 g	82128117
	CHARCOAL GREY (dark)			82113102	
		BLACK			82210021
TILE 50 x 50	SMOOTH	GREY (light)	POLYAMIDE	19.32 g	82210116
		CHARCOAL GREY (dark)		-	82210411
KEYS		LIGHT	POLYAMIDE	0.46 g	83101107
KEY REMOVAL TOOL			49.33 g	83199913	
NORMAL TIE ROD KIT L = 170 mm		STEEL	36.74 g	82113811	
NORMAL TIE ROD KIT L = 235 mm			47.68 g	82113912	
SPECIAL TIE ROD L =	to order			1 kg/m	

\* NOT TO BE USED FOR CONSTRUCTING PANELS

*C25 bulb or LED warning lights for self-supporting mosaic boards* 









LED symbol Self-supporting mosaics

# C25 bulb warning lights



### Use

Provides luminous information on a mosaic panel.

## **Advantages**

Can be fitted directly into the schematic diagram, or improve its comprehension.

### Operation

A coloured warning light fitted with two or four Lilliput T5.5 long life. The visible part can be coloured or clear. Lights can be single or two-coloured.

The bulbs and lamp holders are extractable from the rear. The light and the bulb holder are square and an alignment system prevents assembly errors.

### **General points**

A special warning light for mosaic panels; the variety of presentations covers all schematic symbolisation situations.

### **Technical specifications**

#### CONNECTION

2 flexible conductors	1 mm <sup>2</sup>
Soldered	2 x 1 mm <sup>2</sup>
Fast-On/Clips	1 x 2.8 x 0.5 (conductor 0.3 to 1mm <sup>2</sup> )
Cable	

### **ELECTRICAL SPECIFICATIONS**

Signalling	Clear, red, green, yellow	
Voltage	24 V - 50 mA -1.2 W	
	48 V - 20 mA - 1 W	
	24 V LED - T5.5 - 24VAC/DC-W T5	5.5 base
	48 V LED -T5.5 - 24VAC/DC-W	
Power dissipated	2 W maximum per light	
Dielectric strength	3 kV 50 Hz 1 minute	
Degree of pollution	Туре 3	
Degree of protection	IP20 (connected)	
Non-polarised		

#### Non-polarised

### **MECHANICAL SPECIFICATIONS**

Fitting	horizontal
Working temperature	-25°C to +30°C
Storage temperature	-40°C to +70°C





# C25 bulb warning lights

FRONT FACE	TYPE	Symbol colours	Front face appearance	Signalling size	in	Fits module	es
					C25	C50	
	8250	Clear Green Yellow Red	Smooth : L Grooved : S	17 X 17	•	•	
	8251	Clear Green Yellow Red	Smooth : L Grooved : S	2 bars 17 x 7	•	•	
	8254	Clear Green Yellow Red	Grooved : S	Ø10	•	•	
	8255	Clear Green Yellow Red	Grooved : S	10 x 10	•	•	
	8256	Clear Green Yellow Red	Grooved : S	17 x 6	•	•	
	8257	Clear Green Yellow Red	Grooved : S	2 squares 6 x 6	•	•	
	8259	Clear Green Yellow Red	Grooved : S	6 x 6	•	•	
	8252	Clear Green Yellow Red	Grooved : S	c = 15 h = 7.7	•	•	
-	8258	Green Yellow Red	Grooved : S	17 x 4	•	•	
	8249	Clear Green Yellow Red	Grooved : S	a = 6 b = 10 c = 17			
	82900	White	Smooth : L	42 x 17			
	8261	Clear Green Yellow Red	Smooth : L	2 bars 27 x 11		•	
	8266	Clear Green Yellow Red	Smooth : L	27 x 11	E10 (10 x 40)	•	E10

How to order Indicate the type, the colour of the front face, the size of the module and its colour (also specify any engraving, and the voltage of the bulbs). E.g.: 8260/RED/C50NBLACK/engraved "STOP" /E10-60V

# C25 LED warning lights



### Use

Provides luminous information on a mosaic panel.

### Advantages

Can be fitted directly into the schematic diagram panel, or improve its comprehension.

### Operation

A block of LEDs is fed by a suitable circuit built into the light. The visible part can be the colour of the light or clear. The warning lights can be two-coloured.

### **General points**

A special warning light for mosaic panels; the variety of presentations covers all schematic symbolisation situations.

## **Technical specifications**

#### CONNECTION

2 flexible conductors	1 mm <sup>2</sup>
Soldered	2 x 1 mm <sup>2</sup>
Fast-On/Clips	1 x 2.8 x 0.5 (conductor 0.3 to 1mm <sup>2</sup> )
Cable	-

### **ELECTRICAL SPECIFICATIONS**

Signalling	Red, Green, Yellow
Voltage	12 V, 24 V or 48 V
Power dissipated	~ 1,5 W maximum per Led
Dielectric strength	3.5 kV 50 Hz 1 minute
Consumption	~ 20 mA
Degree of pollution	Туре 3
Degree of protection	IP20 (connected)
Polarised and protected against polarity reversal	
Limits of use	Permanent lighting at an ambient temperature of 20°C Fitting in a 2 x 2 matrix

#### MECHANICAL SPECIFICATIONS

Fitting	horizontal
Working temperature	-25°C to +30°C
Storage temperature	-40°C to +70°C

To remove the torch holder/ cover, hold the light and turn the cover 1/8 turn withdraw the cover in the direction of the cable.