

# QSO

A Group Brand |  legrand

## Distribution boards for medical use



**bticino**

# Distribution boards for medical use

## ADVANTAGES OF THE RANGE

Specific distribution boards for the protection of people and equipment in rooms used for medical purposes, as required by the CEI 64-8 standard, with special reference to section 710.

- Versions with insulation transformer up to 10 kVA, with or without power supply for shadowless lamp.
- System monitoring using insulation surveyors and repeater panels for the remote control.
- Total selectivity between the general circuit breaker of the distribution board and the starting lines downstream the insulation transformer.





Distribution board with insulation and safety transformer

**COMPOSITION OF DISTRIBUTION BOARDS FOR MEDICAL USE**

Item	QS03VSA	QS05VSA	QS05VSAS	QS07VSA	QS07VSAS	QS010VSA	QS010VSAS
Insulation transformer power (kVA)	3	5	5	7.5	7.5	10	10
1000 VA safety transformer	-	-	1	-	1	-	1
MA125 In=16A general circuit breaker	1						
MA125 In=25A general circuit breaker	-	1	1	-	-	-	-
MA125 In=40A general circuit breaker	-	-	-	1	1	-	-
MA125 In=63A general circuit breaker	-	-	-	-	-	1	1
BTDIN45 In=6A 2-pole circuit breaker	-	-	1	-	1	-	1
BTDIN45 In=16A 2-pole circuit breaker	2	5	5	5	5	6	6
BTDIN45 In=10A 2-pole circuit breaker	3	-	-	-	-	-	-
BTDIN45 In=25A 2-pole circuit breaker	-	-	-	2	2	3	3
Insulation surveyor for separate 230 Vac circuit	☒ (*)	☒ (*)	☒ (*)	☒ (*)	☒ (*)	☒ (*)	☒ (*)
Insulation surveyor for 24 Vac circuit	-	-	☒ (*)	-	☒ (*)	-	☒ (*)
230 Vac surveyor alarm and control panel	☒ (*)	☒ (*)	☒ (*)	☒ (*)	☒ (*)	☒ (*)	☒ (*)
24 Vac surveyor alarm and control panel	-	-	☒ (*)	-	☒ (*)	-	☒ (*)

# MAS 800

## Distribution boards for medical use



QSO5VSA



QSO230SS



QSO230VRS

STANDARD DISTRIBUTION BOARDS FOR MEDICAL USE			
Item	Electric distribution boards with 230/230 V, 50 Hz insulation transformer, MA125 general circuit breaker, BT DIN45 divisional 2-pole circuit breakers, insulation surveyor for separate 230 Vac circuit, alarm and control panel complete with flush mounted box.		
	P (kVA)	Vn (Vac)	f (Hz)
QSO3VSA	3	230/230	50
QSO5VSA	5	230/230	50
QSO7VSA	7.5	230/230	50
QSO10VSA	10	230/230	50

DISTRIBUTION BOARDS FOR MEDICAL USE WITH TRANSFORMER FOR SHADOWLESS LAMP			
Item	Electric distribution boards with 230/230 V, 50 Hz insulation transformer, safety transformer for shadowless lamp, MA125 general circuit breaker, BT DIN45 divisional 2-pole circuit breakers, insulation surveyor for separate 230 Vac circuit and for 24 Vac circuit, alarm and control panel complete with flush mounted box.		
	P (kVA)	Vn (Vac)	f (Hz)
QSO5VSAS	5	230/230	50
QSO7VSAS	7.5	230/230	50
QSO10VSAS	10	230/230	50

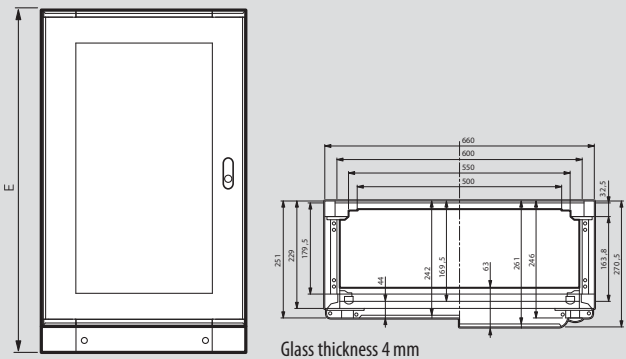
INSULATION SURVEYORS			
Item	Insulation resistance measurement of the transformer circuit, overload and overtemperature (only 230 V version). - It is possible to set alarms and pre-alarms. A 2-line display with 8 characters per line allows to set the limit values of the monitored parameters.		
	DIN modules	Vn (Vac)	
QSO230SS	4	230	
QSO24SS	4	24	

REPEATER PANELS	
Item	Double alarm signalling, light and sound. The sound signal can be silenced. Installation on 503E flush mounted box supplied.
QSO230VRS	remote panel for insulation surveyor 230 V
QSO24VRS	remote panel for insulation surveyor 24 V

CABLE USED TO CONNECT THE SURVEYORS TO THE PANELS	
336904	cable with 2 twisted conductors. It can be installed in underground piping, in accordance with the following standards (CEI 20-13 and CEI 20-14) - 200 m coil. It allows to connect the surveyors to the panels ensuring maximum efficiency up to a distance of 50 metres.

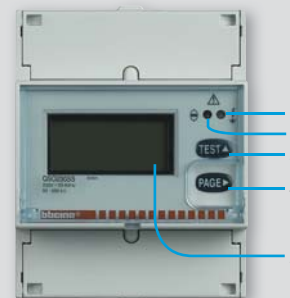
### TECHNICAL FEATURES

Conformity to standards	CEI EN 60439-1/3
Type of manufacture material	galvanised steel
Thickness (mm)	1.5
Colour	RAL 7035 grey
Protection index	IP30
Protection index	II
Type of device	B
Resistance to abrasion every 50 passages of the abrasive shoe (mm)	1
Heat resistance for hardened epoxy film (°C)	150
Max resistance to separation around an incision of the film after 100 hours in saline mist	1-2
Relative dielectric constant (measured at 10 <sup>3</sup> Hz)	3.5-4.5
Dielectric strength at 20°C (kV/mm)	38.5
Dielectric strength at 160°C (kV/mm)	20.6
Painting of the enclosures surfaces	epoxy polyester powder
Treatment of surfaces, supports, fasteners	passivated galvanising
Distance between glass and front panels (mm)	43 flat door / 62 curved door
Useful internal depth (plate/panel) (mm)	149



Glass thickness 4 mm

### TECHNICAL FEATURES

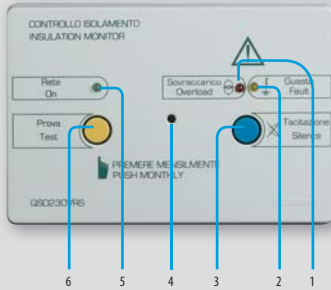


1. yellow signalling LED for insulation alarm
2. red signalling LED for overload and/or overtemperature alarm of the transformer (only for item QSO230SS)
3. TEST key, test pushbutton (it simulates an earth leakage)
4. PAGE key (to scroll display pages)
5. Display

	QSO230SS	QSO24SS
Supply voltage (Vac)	230	24
Variation of the power supply voltage	192-253	192-253
Rated frequency (Hz)	50	50
Operation frequency (Hz)	47-63	47-63
Line voltage measured (Vac)	230	24
Allowable frequency (Hz)	47-63	47-63
Measurement voltage (Vdc)	12	12
Measurement current (mA)	0.2	0.2
Operating temperature (°C)	-5+55	-5+55
Tripping precision	± 10%	± 10%
Tripping threshold	adjustable	adjustable
Tripping thresholds that can be set	5-500kΩ	5-50kΩ
Contact output	110 Vdc/ac 50 mA	110 Vdc/ac 50 mA
Max. No. of repeater panels	5	5

# TECHNICAL FEATURES

## Distribution boards for medical use

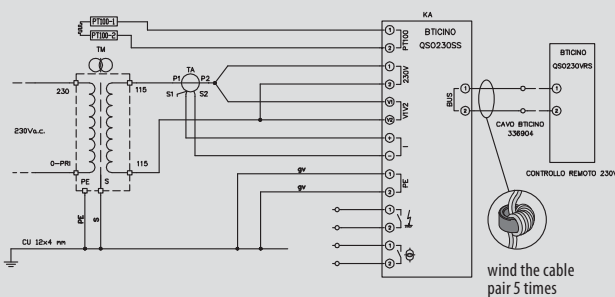


1. red signalling LED for overload and/or overtemperature alarm of the transformer (only for item QSO230VRS)
2. yellow signalling LED for insulation alarm
3. "silencing" key for sound signal
4. sound signal
5. green signalling LED for supplied device
6. TEST key, test pushbutton (it simulates an earth leakage)

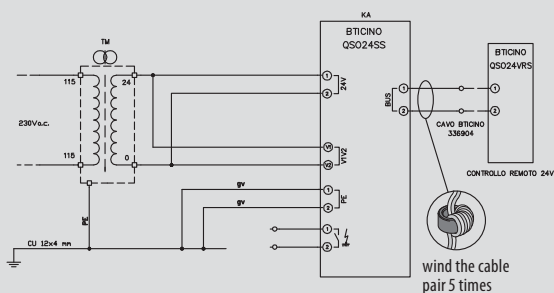
### FUNCTIONS

Repeater panels are installed to give the light and sound signal. They are connected to the insulation control devices by means of terminal boards in the distribution board. The repeater panel is obligatory even when the distribution board is installed directly in the operating theatre: in fact if there are faults only the panel gives a double alarm signal (light and sound), while the insulation control device installed in the distribution board only gives a light alarm. The panel also signals, by means of the red LED, the alarm for the overload and/or overtemperature, detected by the Pt100 sensor in the windings of the insulation transformer. Up to 5 repeater panels can be associated to each surveyor: in fact a distribution board can supply several operating theatres, each of which normally needs a panel. One repeater panel is supplied with the distribution board, complete with flush-mounted box (item 503E) for each surveyor.

### WIRING DIAGRAM FOR REMOTE SURVEYOR AND PANEL (230 V)

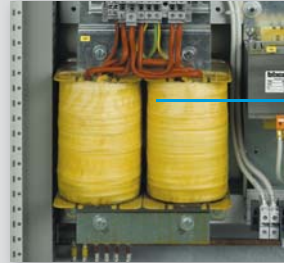


### WIRING DIAGRAM FOR REMOTE SURVEYOR AND PANEL (24 V)



\* It is necessary to insert the ferrite bead supplied on connection cable 366804, between the surveyor and the remote panel, as close as possible to the surveyor, by removing the cable sheath for a length of approximately 20 cm and winding the cable pair five times around it.

### TECHNICAL FEATURES



Insulation transformer

Rated power (kVA)	3	5	7.5	10
Primary/secondary transformation ratio	230/230			
Primary rated voltage (Vac)	230			
Secondary rated voltage (Vac)	230			
Rated frequency (Hz)	50-60			
Short-circuit voltage	3%			
Losses in the copper at 20°C (+/- 10%) (W)	60	100	130	200
Losses in the iron (+/- 10%) (W)	36	45	50	70
Magnetising current	3%			
Maximum switch-on current (EN 61558)	12In			
Overload current (1 hour) (A)	23	36	49	65
Primary-earth leakage current (mA)	0.5			
Secondary-earth leakage current (mA)	0.5			



Safety transformer

Rated power (kVA)	1*
Primary/secondary transformation ratio	230/24
Primary rated voltage (Vac)	230
Secondary rated voltage (Vac)	24
Rated frequency (Hz)	50-60
Short-circuit voltage	-
Losses in the copper at 20°C (+/- 10%) (W)	40
Losses in the iron (+/- 10%) (W)	23
Magnetising current	-
Maximum switch-on current (EN 61558)	12In
Overload current (1 hour) (A)	8.7
Primary-earth leakage current (mA)	0.5
Secondary-earth leakage current (mA)	0.5

\* Safety transformer for shadowless lamp.

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