

ALPHA BOMO

The BOMO unit is a multitasking two-step device designed for the detection and measurement of radioactive contamination, ALPHA and BETA, on potentially exposed personnel. It has been specifically designed for controlled areas.

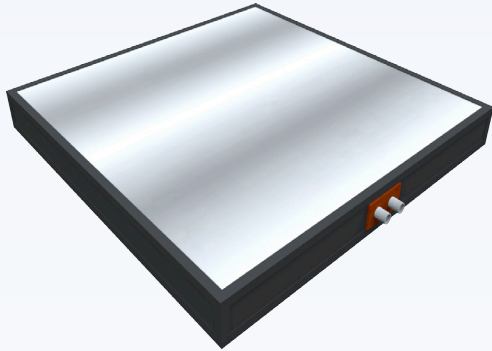


It includes 26 plastic scintillators + ZnS designed to measure alpha and beta particles which work autonomously and independently, allowing to perform simultaneous measurements with different alarm levels.

Its management is fully automated. The equipment has sensors that detect when a person enters the portal, interrupting the background reading and initiating automatically (when it detects that it is correctly positioned) a thorough examination of the subject.

Detectors:

The type of detector that the BOMO incorporates is plastic scintillation for alpha and beta. The beta detector consists of a thin layer (0.5mm / 0.25mm) of transparent material (plastic) doped with a sensitive organic molecule (POPOP:

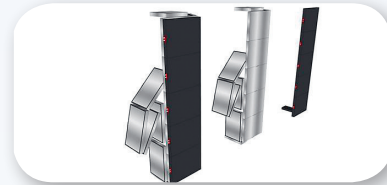
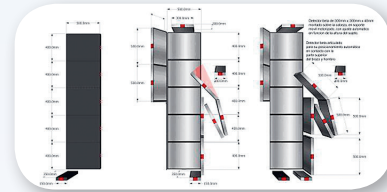


p-bis [2- (5-phenyloxazolyl)] benzene). This layer is attached to a block of PMMA (Polymethylmethacrylate) that serves as a light guide to the photomultiplier (integrated inside). The entry window is aluminized with mylar (0.9mg / cm² or 2.7mg / cm²).

The beta scintillator includes a thin layer of ZnS in order to detect alpha particles.

Characteristics:

Fast, low density and Z-value. High output power.



Applications:

Detection of particles. Alpha detection. Beta detection.

Each detector has its own HV source and electronics in order to separate the performance of each detector. This allows to disconnect a detector if malfunctioning is detected, keeping the rest of the equipment 100% functional. This is one of our competitive advantages that makes HSS stand out over the rest of our competitors.

Voice notifications:

A voice synthesizer module has been incorporated to allow the user to personalize the messages that will be heard by the loudspeaker.

Through this tool user can write a voice message for each of the different events available in the application, and indicate how many times it should be played.

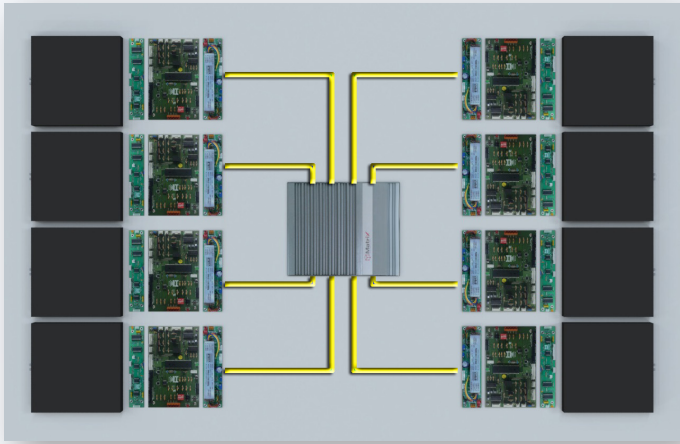
User can also set the dictation speed and choose between different voices available (male and female).

MENSAJES DE VOZ			
PÁGINA 1		PÁGINA 2	
EVENTO	TEXTO	REPETIR	
AL INICIAR LA APLICACIÓN	EQUIPO INICIÁNDOSE	0	ESCUCHAR
DIAGNÓSTICO DE COMUNICACIONES:	REALIZANDO CHEQUEO DE COM	0	ESCUCHAR
CHEQUEO CONTROLADORA #	COMPROBANDO CONTROLADOR	0	ESCUCHAR
DIAGNÓSTICO SUPERADO:	TEST EN CONTROLADORA # COR	0	ESCUCHAR
DIAGNÓSTICO NO SUPERADO:	ERROR EN CONTROLADORA #	0	ESCUCHAR
MODO DE OPERACIÓN SELECCIONADO:	MODO # SELECCIONADO	0	ESCUCHAR
PREPARANDO FONDO:	PREPARANDO MEDIDA DE FONDO	0	ESCUCHAR
INICIANDO FONDO:	INICIANDO MEDIDA DE FONDO	0	ESCUCHAR
FONDO COMPLETADO:	FONDO COMPLETO	0	ESCUCHAR
SUJETO APROXIMÁNDOSE DURANTE FONDO:	PASE, POR FAVOR	0	ESCUCHAR
SUJETO EN EL INTERIOR DURANTE FONDO:	ESPERE, POR FAVOR	0	ESCUCHAR
PREPARANDO CONTAJE:	SE VA A INICIAR LA MEDIDA	0	ESCUCHAR
SUJETO APROXIMÁNDOSE DURANTE CONTAJE:	PASE, POR FAVOR	0	ESCUCHAR
CUENTA ATRÁS DURANTE CONTAJE #:	#	1	ESCUCHAR
CONTAJE FINALIZADO:	SALGA, POR FAVOR	0	ESCUCHAR

VOZ SELECCIONADA:	VELOCIDAD:	
Carmen	VELOCIDAD 3	
GUARDAR	RESTAURAR	CERRAR

The computer centralizes communications with the controller cards associated with each detector. These manage the high voltage modules and pre-amplifiers and are responsible for the data acquisition task.

All the electronic adjustments, corresponding to the acquisition (thresholds, gain, high voltage, etc.), are made through the presence of digital potentiometers controlled from the tools available in the software itself.



AJUSTE ELECTRONICO

	THRESHOLD	GANANCIA	HV	FACTOR HV	SENSOR HV	CPS	CLK
DET#1	2500	500	790	1	828	183	1
DET#2	2500	500	800	1	830	201	1
DET#3	2500	500	800	1	833	141	1
DET#4	2500	500	780	1	792	172	1
DET#5	2500	500	780	1	802	186	1
DET#6	2500	500	890	1	913	254	1
DET#7	2500	500	850	1	898	130	1
DET#8	2500	500	750	0.965	763	191	1

-
+

N° COL.:
100

NORMAL

V MIN.: 100
V MAX.: 400

CPS

HV

... MEDIA: 170.22
... V. MÁX: 306
... V. MÍN: 77
σ: 42.17
Δ: 229

D1

D2

D3

D4

D5

D6

D7

D8

TODOS

NINGUNO

GUARDAR

INFORME

RESTAURAR

CERRAR



Calibrations:

The equipment can be calibrated to report activities. For this, a module is available to register patterns (calibration sources), which will be used in the calibration process.

Each zone is calibrated individually, and even different patterns can be used in each of them.

PATRONES

PATRONES EXISTENTES
1235-42-2(Co60)

NOMBRE DEL PATRÓN: 1235-42-2(Co60)

FECHA DE EMISION: 01/04/2007

ISÓTOPO: Co-60 PERÍODO (DÍAS): 1923.915

ACTIVIDAD A FECHA DE EMISION: 35600

ACTIVIDAD A FECHA DE HOY: 18011.642

GUARDAR

ELIMINAR

CERRAR

Special Features:

- Detectors totally independent for each type of radiation. 26 plastic scintillators + ZnS. More than 9000 cm² of sensitive area.
- Each detector is configurable via software by the operator to define its operating energy (beta or gamma), zones, alarms, cancellation of a specific detector, etc.
- Efficiency for Beta (2π in contact with grid): C-14 ≥ 4% Co-60 ≥ 22% Cl-36 ≥ 44% Sr90/Y90 ≥ 52%
- TCP / IP and / or RS232 / RS485 communication between modules.
- Sensors for the automatic detection of people, both in proximity / access and in the counting position.
- Motorized head detector, with automatic adjustment on the head of the subject.
- Exit door in metallic frame with high impact methacrylate panels. Electrically operated entrance barrier.
- Operation / measurement in two steps (front position and back position).
- LED lighting.
- To facilitate any technical intervention, all the equipment's electronics are located on the right side panel (in front of the detectors).
- Digital parameter adjustment. (without potentiometers or mechanical actuators)
- LCD or LED-Color touch screens for information and control. External keyboards included.
- Integrated industrial PC (without maintenance), with Windows 10 operating system.
- Includes calibration routines, verification and configuration (alarms, levels, gain, etc).
- Software, HS-RAD, customizable in all its functions and languages.
- Critical routines such as calibration, algorithms, etc., protected by password.
- Allows its remote operation (TCP / IP). Optional module for ADR interconnection.
- It has a standard USB port for data and historical dump in any USB external support (memory stick, disk, etc) as well as TCP / IP connector.
- It has signal output for remote alarm indicators.
- Texts, tone and volume of voice messages configurable by the user.
- Record of events, funds, measures, alarms, operation failures, etc.
- Dynamic automatic calculation of measurement duration.
- Different configurable operating modes (background accounts, counting, etc...).
- Indication, exterior and interior, optical and acoustic, status, alarms, etc.
- All software and documentation in English.
- Electronics and software used in multiple equipment installed in the Spanish's NPPs, interchangeable and standardized.

