

# ALARM ANNUNCIATORS

## ALARM ANNUNCIATORS

Minilec Microprocessor Based Alarm Annunciators are designed to keep an alert & watchful eye on your plant & processes. The entire range has been designed with an insight into the modern day manufacturing plant & its future requirements. Minilec Alarm Annunciators are equipped with microprocessor-based design, super bright LED facia windows, site selectable, programmed sequences as per ISA standard & thoughtful provisions for troubleshooting & maintenance. Dynamic, Alert & Responsive... These unique advantages have helped the Minilec Annunciators to be an icon in the power T & D industry & engineering establishments in India. The world class Minilec Annunciator has made its presence felt in Overseas markets.



**MODELS :**  
**MICROWARN 0600,**  
**MBAS 0600,**  
**MBAS 9700,**  
**MBAS 9900,**  
**Accessories,**  
**Annunciation Panels**

### FEATURES

- 4 windows to 128 windows
- Integral & Split models
- Microprocessor based
- Super bright LEDs for facia
- Standard operating sequences
- Any other custom- made sequences
- NO-NC & Trip Non-Trip site selectable
- Repeat relays
- Supply fail annunciation / Indication
- Choice of 3 window sizes
- Choice of five colours

### Ordering Instructions

- ✓ Product Family Name
- ✓ Model Name
- ✓ Aux. Supply / Control supply voltage
- ✓ No. of Inputs (Windows)
- ✓ Operating sequence

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### The Undisputed Leader

Many pioneering advancements have been introduced for the first time by Minilec in the Indian market. The Minilec range is equipped with well researched and innovative features highly appreciated by consultants and customers (and imitated by competitors!)

Some of the trend setting technologies and features initiated by Minilec are as follows:

#### Microprocessor based system operation :

- For robust design and easier troubleshooting.
- ISO 9001 standards : For high standards of quality assurance and reliability.
- LEDs for facia : For lower maintenance costs, long life and low energy consumption.
- Multi coloured windows : For simplified fault differentiation.
- Standard modules : For seamless integration and better aesthetics.
- Moulded enclosure : For space savings and improved aesthetics.
- Easily accessible DIP switches : For faster programming by eliminating the need to open the unit.
- Any operating sequence : For added flexibility and convenience.
- Serial communication : For computerised fault detection and automatic documentation.

#### Solutions for Varying Needs

The Minilec range of annunciators is highly diversified and adaptable to a wide spectrum conditions. Be it a Power station, Sub station, Sugar factory, Steel plant, Fertiliser / Petrochemical plant, ships and dockyards, railways or for that matter, any process plant. Be it in the hot summers of Rajasthan, Egypt of Indonesia or the humid atmosphere of Clacutta, Chennai or Malaysia, Minilec takes it all in its stride !

#### The Product Range

**MICROWARN 0600** - Standard models for 6,8,12 points

**MBAS 0600** - Standard models for 4-16 points

**MBAS 9700** - Standard models for 16, 32, 48, 64, 80, 96 point

**MBAS 9900** - Standard models for 4, 6 & 8 points

#### The Advant -edges

Advantages of Microprocesor Based Alarm Annunciators over solid state version

- Less components hence high reliability.
- Compact size, light weight.
- Low power consumption.

- Flexibility - any operating sequence can be provided.
- Being the latest in technology, can be configured easily with any other advanced system.

#### The Unique Features

- Powerful microprocessor based circuit.
- Built in system watch dog.
- First fault identification.
- Optically isolated fault inputs.
- Wide range of site selectable alarm sequences (ISA standards)
- Facia with super bright LEDs instead of high power consuming short life filament lamps.
- Site selectable fault contact filament lamps. Site selectable fault contact configuration (NO/NC).
- Special SMPS power supply.
- Sleek, modern, aesthetic design.

#### Additional Features

- Grouping feature for differentiation between Trip / Non - Trip type faults.
- Repeat relays for parallel annunciation.
- Supply fail annunciation / indication.
- Manned / Unmanned feature.
- Parallelling of units.
- Group fault alarm.
- Choice of three window colours : Red, Green, Amber (Yellow).

#### Reliability

Minilec annunciators have been tested satisfactorily at CPRI (Bangalore), SISIR Singapore, ERTL, ETDC for environmental and functional tests as per relevant standards.

Upon request available with CE marking.

#### All Alarm Annunciator carry 5 yrs. warrantee.

#### The Highlights

- MBAS series with replaceable windows, 2 window sizes, DIP switches outside for easy programming
- Common power supply 90-270 AC/DC and DIP switches outside for Microwarn 0600 models.
- Split architecture - economic/cost saving, for 19" rack concept for MBAS 9700 models.
- Serial port - RS232C / RS485 for MBAS 9700 models.



## MICROWARN 0600



12 Windows Model



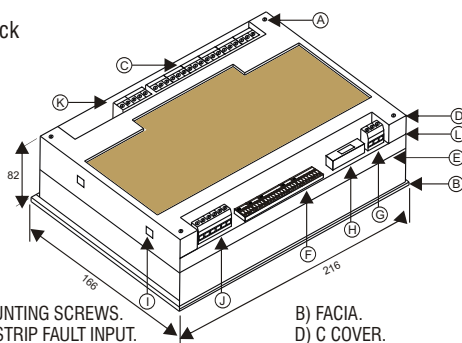
8 Windows Model with push button

Now with Reduced depth

This is a modified version of earlier Microwarn 9600 model which has been discontinued. Microwarn 0600 consists of 3 basic sections :

Microwarn 0600 is now more compact than before with reduced depth. Also it can have 3 rd output relas for extra function

- (A) The Power Pack
- (B) The CPU
- (C) The Facia,



**NOTES :-**

- A) COVER MOUNTING SCREWS.
- B) FACIA.
- C) TERMINAL STRIP FAULT INPUT.
- D) C COVER.
- E) LED BOARD.
- F) DIP SWITCH.
- G) POWER SUPPLY CONNECTOR.
- H) FUSE.
- I) SLOT FOR MOUNTING CLAMP.
- J) RELAY OUTPUT.
- K) TERMINAL FOR EXTERNAL PUSH BUTTON.
- L) SMPS + CPU CARD.

### TECHNICAL SPECIFICATIONS :

Supply Voltage	24/30/48/ V DC 90-270V AC/DC +10% -15%
Windows	12/8/6
Window Sizes	45 x 45 mm
Display Device	Super bright high efficiency low power consuming LED's
Facia Type	Front Replaceable
Window/LED Colour	Standard colour available RED, Optional colours Yellow / Amber, Green
Flash Rate	Fast - 60 flashes/min. Slow - 30 flashes/min.
Response Time	25 msec. ± 10 msec.
Input Signal	Potential free contacts (NO or NC site selectable)
Interrogation Voltage	+ 12 V DC
Output Contacts	1 NO + 1 NO (optional) + 1 NO ( Optional)
Architecture	Integrated
Operational Seq.	ISA Standards sequences - Auto/Manual/First-up/Ringback (optional) OR any other sequence on request
Operational Temp.	0-60°C
Power Consumption	1.5 Watts per Window (Max.)
Optional	Grouping / AC-DC fail Annunciation
Dimensions (mm)	
Panel Cutout (L x W)	153 x 203
Overall (L x W x D)	166 x 216 x 82

Wherever not specified Contact Rating : 5A @ 230 V AC (resistive) \* CE marked products available on request.

**A) The Power Pack :**

The Microwarn 0600 is powered by a highly reliable and noise free, specially designed power supply. It converts the available power source (AC/DC voltage supply) into a regulated and filtered DC output, which is fed to the annunciator unit.

**B) The CPU :**

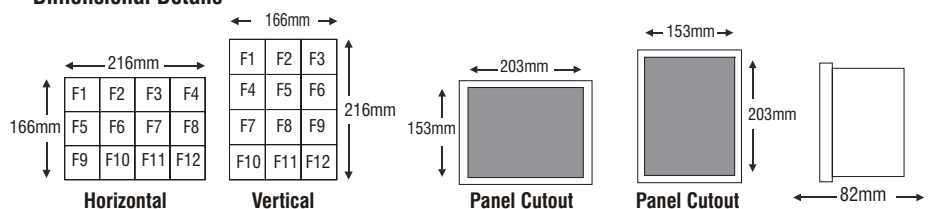
This is the Central Processing Unit of Microwarn 0600 which scans and processes the incoming fault signals from the various potential free field contacts and drives the corresponding LED windows and the audible devices in order to announce the fault, according to the operating sequence selected.

**C) The Facia :**

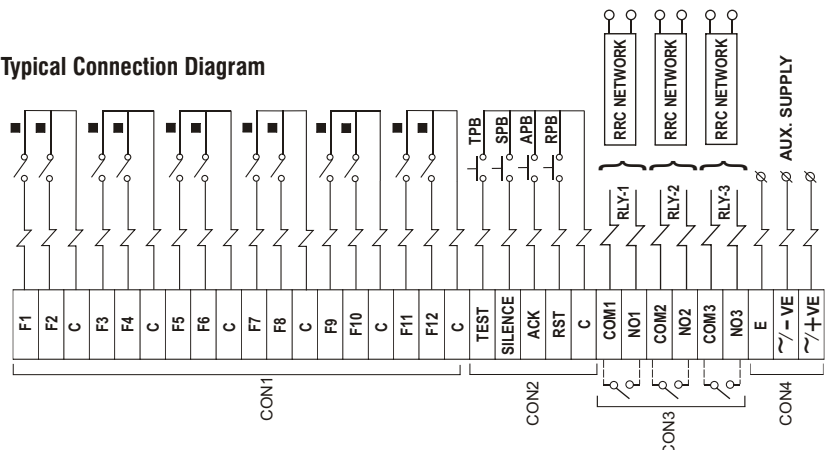
This section consists of facia windows illuminated by "Super Bright LEDs" on occurrence of any fault. The Super Bright LEDs ensure a long and absolutely maintenance free window life along with a good visibility, and have very low power consumption.

NO/NC or sequence selection DIP switches are located outside, hence programming is now possible without opening the unit. Models of 12, 8, 6 windows are available. 8 and 6 window models are with built-in push buttons.

### Dimensional Details



### Typical Connection Diagram



# ALARM ANNUNCIATORS

MBAS 0600



14B0S00



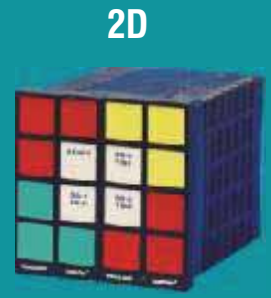
10B8S00



10B6SP0



22B10SP0



20B16S00

MBAS 0600 is a improved version of earlier MBAS 9400, and is available for 4 to 24 windows

### The Functional Features

- Fixed Sequence (S1/S2/S3/S4)
- Sequence as per ISA standard
- Potential free dry contact inputs
- NO/NC inputs grouping selectable configuration
- Relay output for external Audible Hooter
- 3<sup>rd</sup> Relay optional for either of below mentioned features
  - a) Ring back hooter
  - b) Supervisory control

### The Design Features

- Single chip microcontroller logic
- Opto isolated inputs and outputs
- Super Bright LED window illumination
- High Noise immunity / isolation
- Switch mode power supply
- Self surveillance watchdog LED

### The Constructional Flexibility

- Conforming to DIN panel cutouts
- Replacable snap-on window capsules
- Two different window size
- Expandable modules
- Moulded enclosures

### System Enclosures

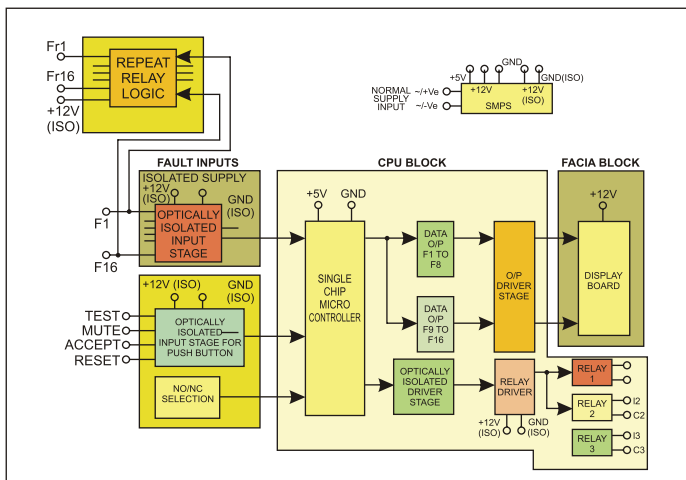
The MBAS 0600 annunciation systems is configured in multiples of four basic ABS moulded enclosures

Size 1 D      Size 2 D      Size 3 D      Size 4 D



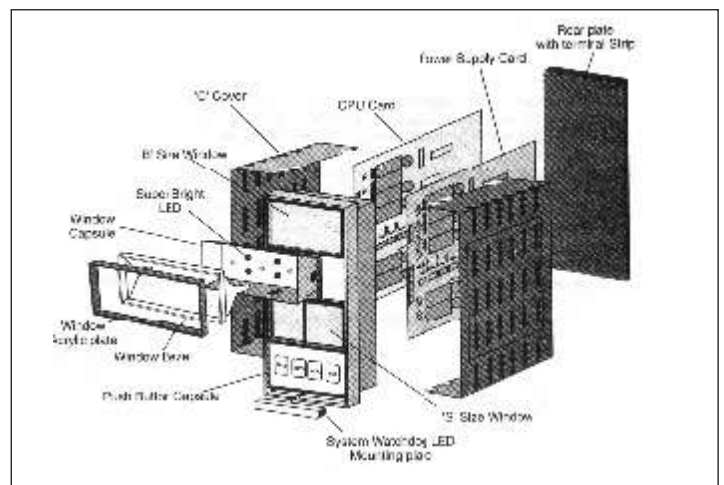
Basic Standard Enclosures

### Functional Block Diagram



Back view showing Terminal details

### Part names & locations



### Optional Features

- Site Selectable sequences (S1, S2, S3, S4)
- Pre-programmed Custom built operating sequences
- Trip & Non-Trip grouping facility for MBAS 0600
- Manned / Unmanned function
- Fault Follower contact output per fault Input (NO or NC)
- Ringback sequence with optional 3<sup>rd</sup> relay output for Ringback hooter, with Trip & Non-Trip grouping facility
- Supply fail indication / annunciation
- External and / or built-in control push buttons

## MBAS 0600



### 3D



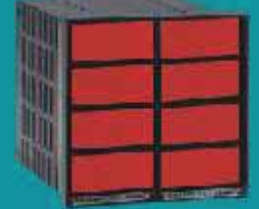
312B0S00

### 4D



416B0S00

### 2D

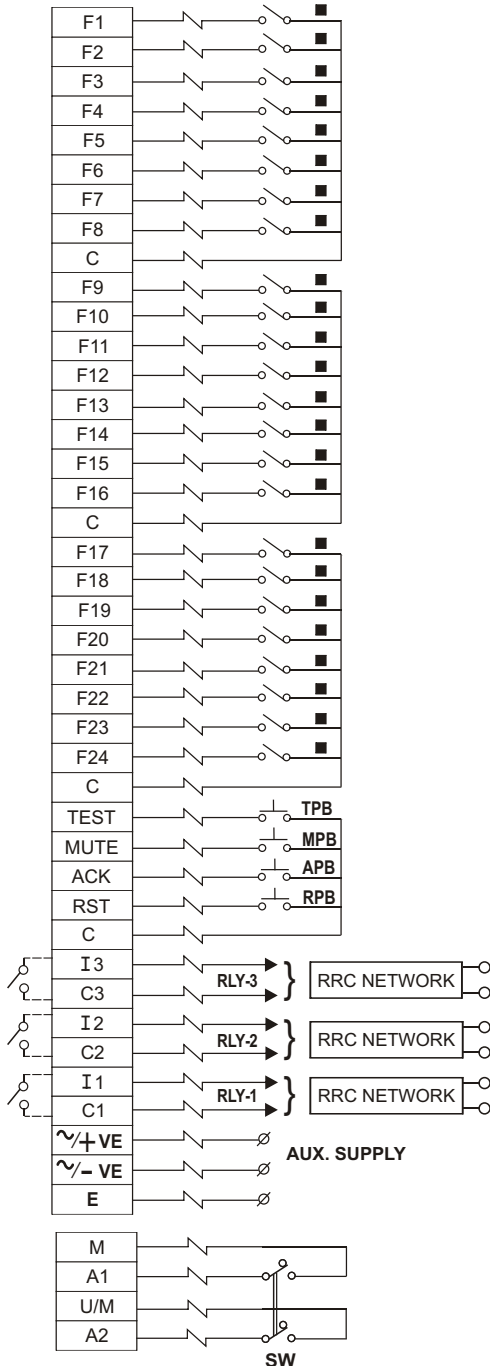


28B0S00



30B24S00

### Connection Diagram (FOR MAX. 24 POINT MBAS 0600.)

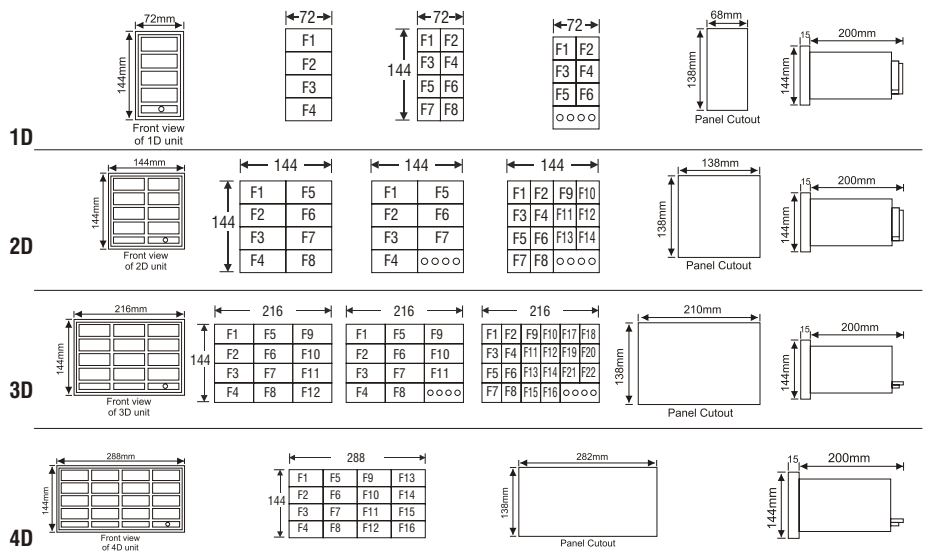


### TECHNICAL SPECIFICATIONS :

Supply Voltage	24 / 30 / 48 / V DC 90 - 270 V AC / DC			
Windows	4 / 6 / 8 / 12 / 16 / 18 / 22 / 24			
Window Sizes	30 x 30mm / 30 x 65 mm			
Display Device	Super bright high efficiency low power consuming LED's			
Facia Type	Individual windows front Individual windows / Front Replaceable			
Window/LED Colour	Standard colour available RED, Optional colours Yellow / Amber, Green			
Flash Rate	Fast - 60 flashes/min. Slow - 30 flashes/min.			
Response Time	25 msec. ± 10 msec.			
Input Signal	Potential free contacts (NO or NC site selectable)			
Interrogation Voltage	+ 12 V DC			
Output Contacts	1 NO + 1 NO (Optional) + INO (optional)			
Architecture	Integrated			
Operational Seq.	ISA Standards sequences - Auto/Manual/First-up/Ringback (optional) OR any other sequence on request			
Operational Temp.	0-60 degrees C			
Power Consumption	1.5 Watts per Window (Max)			
Optional	Grouping / AC-DC fail Annunciation / Repeat Relay cards			
Dimensions (mm)	<b>1D</b>	<b>2D</b>	<b>3D</b>	<b>4D</b>
Panel Cutout (L x W)	138 x 68	138 x 138	138 x 210	138 x 282
Overall L x W x D	144 x 72 x 215	144 x 144 x 215	144 x 216 x 215	144 x 288 x 215

Wherever not specified Contact Rating : 5A @ 230 V AC (resistive) \* CE marked products available on request.

### Dimensional & Panel Cutout Details



# ALARM ANNUNCIATORS

## MBAS 9700



Integral Model : 16 Pts. Small



Integral Model : 16 Pts. Big

### STANDARD FEATURES

- Single chip micro-controller logic.
- Super bright LED's for window illumination.
- Site selectable NO/NC type fault contacts.
- Site selectable trip /Non trip (Grouping).
- Easy card replacement & hence fault diagnosis.
- Switch Mode Power Supply. (Suitable for Both AC/DC Supply)
- High noise immunity and wide input supply variation.
- Opto-isolated Inputs and Outputs.
- Site Selectable sequences.
- Potential free dry input contacts.
- Two different window sizes.
- Replaceable windows & window legends.
- Computer linking for fault logging with printer facility for report.
- Self-surveillance watch dog LED.
- Relay output for external audible hooter.
- Diagnostics Menu
- Redundant Power Supply (Only in 19" Rack Model)
- CPU fail & PSU fail indication with relay output contact (Only in 19" Rack)
- User Friendly terminal Connectors

### CONSTRUCTIONAL DETAILS

MBAS 9700 consist of four basic sections (in 16 point moulded enclosure these are inbuilt)

- 1) The Power Supply Unit (PSU Module).
- 2) The Main Control Unit (CPU + IOU Module).
- 3) The Display Facia Unit (DFU Module).
- 4) Computer interface.

### THE MAIN CONTROL UNIT (MCU)

CPU module is the Main Processing Unit of MBAS 9700 which scans and processes the incoming fault signals from the various potential free field contacts through IOU module, and drives the corresponding LED windows and the audible device in order to annunciate the fault through IOU module. The IOU module is the input & output interfacing unit. To each IOU module 16 input contacts (potential free) & 16 window LED's can be connected.

### MINILEC

offers its unique alarm

Annunciator based on the latest single chip micro-controller technology with serial communication facility. Now available in both 19" rack type enclosure as well as in moulded enclosure. MBAS 9700 annunciators have split architecture for 16, 24, 32, 48, 64, 80, 96, 112 & 128 windows and integral type of architecture for 16 small or big window models. 24, 32, 48, 64, 80, 96, 112, & 128 window models are housed in 19" rack type enclosures, separate for MCU & for PSU. Here choice of facia (DFU) is of 3 types (a) Small size i.e. 30 x 30 mm and (b) Big size is 30 x 65 mm / 50 x 70 mm. (c) Facia is available in multiples of 16 windows. In addition to all other standard features, MBAS 9700 has additional facility of computer linking. A serial port (RS232C /RS485) output is available which can be supported by an IBM compatible PC of minimum 386 configuration. Minilec can supply the standard software with every model or can develop suitable software as per customer requirements or can provide source coding / protocol details to enable client to develop their own suitable software.

### THE POWER SUPPLY UNIT (PSU)

PSU converts the available power source into a regulated and filtered DC output, which is fed to the MCU Module & DFUs. The power supply can accept Specified AC or DC I/P supply, depending upon the application.

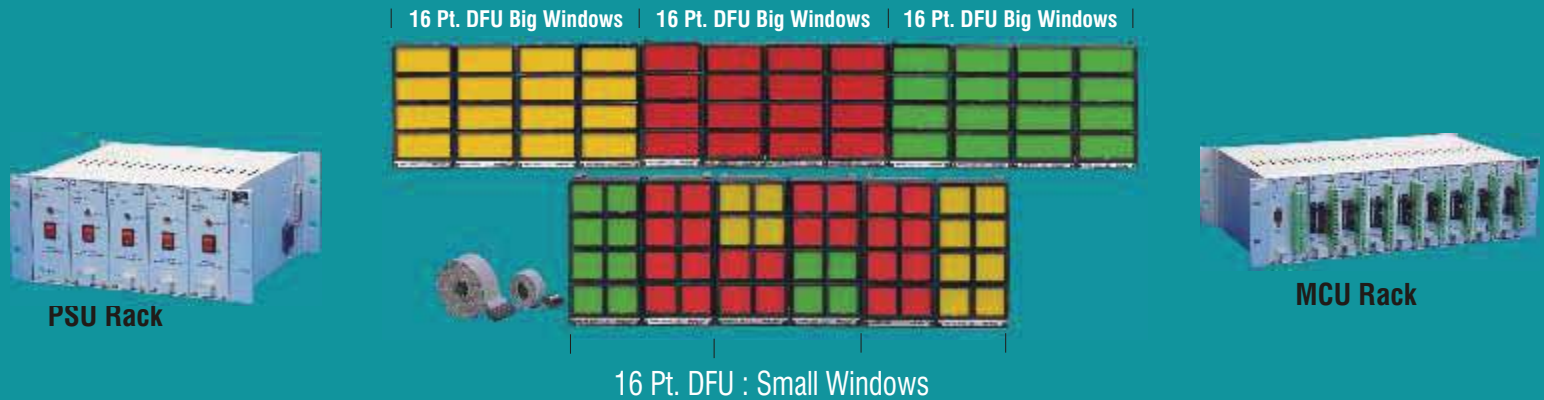
### OPTIONAL FEATURES

- Different colored LED's in each window for easy differentiation of critical faults.
- Customized preprogrammed operating sequence.
- Multi channel serial communication (8 Annunciators & single computer)

### THE DISPLAY FACIA UNIT (DFU)

The Facia block is accessible from front (in moulded enclosure) and constitutes of window capsules. The sandwiched photo film window inscriptions are press fitted on the window capsules. For 16 to 128 points system the DFUs are given separately, except 16 point (moulded Enclosure) where it is in built.

## MBAS 9700

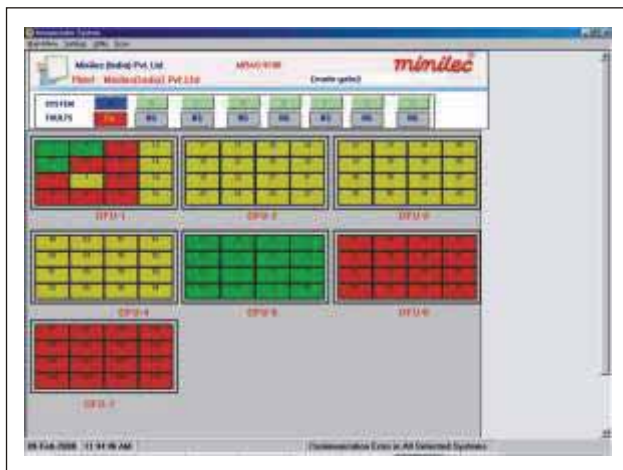


### COMPUTER INTERFACE

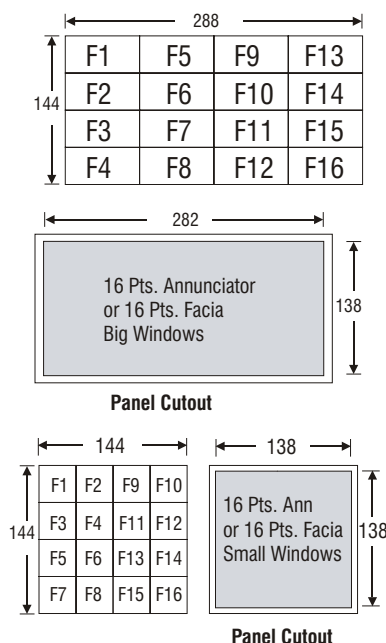
The MCU unit transmits fault information to computer serially. RS 232C/RS 485 standard is used for serial communication. Communication protocol modbus ASCII / RTU can be offered. In computer user-friendly software is written. This software offers on-line Date & Time setting, Legend setting, Display window & also it gives fault report with on demand printing facility.

### TECHNICAL SPECIFICATIONS:

<b>1.0</b>	<b>Supply voltage</b>	20 - 60VDC, 90 - 270VAC/DC
<b>2.0</b>	<b>Supply frequency</b>	50 / 60 Hz. (±3%) for AC
<b>3.0</b>	<b>Input</b>	
<b>3.1</b>	Fault Alarm Inputs.	Actuation Through Fault Contacts
<b>3.2</b>	Fault contacts.	Potential free (voltage free) type
<b>3.3</b>	Input interrogation voltage	+12V DC (ISO)
<b>3.4</b>	Input isolation	Opto isolating device. (2 KV)
<b>3.5</b>	Response Time	40 mS.
<b>3.6</b>	Site selectable DIP for	
	Fault type	NO/NC
	Grouping	Trip/Non Trip
	Sequence selection	Manual/Auto/Ringback/Firstup
<b>4.0</b>	<b>Output</b>	
<b>4.1</b>	Output contacts for grouping	1NO+ 1NO
<b>4.2</b>	Output contact for CPU & PSU fail	1NC (In 19" Rack Only)
<b>4.3</b>	Contact Rating	5 amp at 240 VCA (Resistive)
<b>5.0</b>	<b>No. of windows</b>	
	In 19" rack	16/24 Big/32/40 Big/48/64/80/96/112/128
	In 9400 enclosure	16 points
<b>5.1</b>	Windows dimensions	30 mm x 30 mm For small windows 65 mm x 30 mm For big windows
<b>5.2</b>	Colour	Red / (Yellow {Amber}) / Green
	Flash rates	
<b>5.3</b>		50-60 flashes / Min 25-30 flashes / Min. For Ring Back Sequence or other seq.
<b>5.4</b>	Power Consumption	1.5 W per Window. (Max)
<b>6.0</b>	<b>Sequence</b>	Manual Reset, Auto Reset, Ring back, Firstup (Any Other Sequences On Request)
<b>7.0</b>	<b>Serial communication</b>	RS232C / RS485 with modbus ASCII / RTU

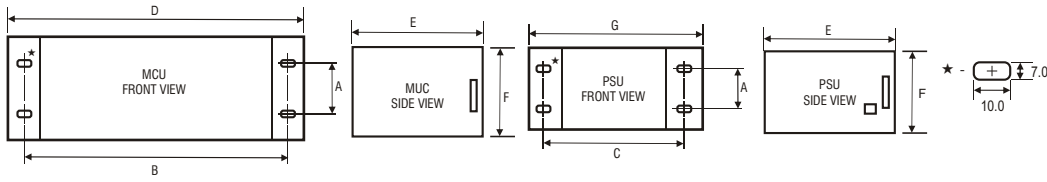


### Dimensional Details for Facia



# ALARM ANNUNCIATORS - MBAS 9700

## DIMENSIONAL DETAILS - MCU & PSU



MODELS	MOUNTING DIMENSIONS			OVERALL DIMENSIONS			
	A	B	C	D	E	F	G
128 POINTS	57.15	465.10	292.38	482.60	260.00	132.50	310.38
112 POINTS	57.15	419.38	292.38	436.88	260.00	132.50	310.38
96 POINTS	57.15	373.66	241.58	391.16	260.00	132.50	259.58
80 POINTS	57.15	327.94	241.58	345.44	260.00	132.50	259.58
64 POINTS	57.15	434.62	-----	452.12	260.00	132.50	-----
48 POINTS	57.15	388.90	-----	406.40	260.00	132.50	-----
32 POINTS	57.15	292.38	-----	309.88	260.00	132.50	-----

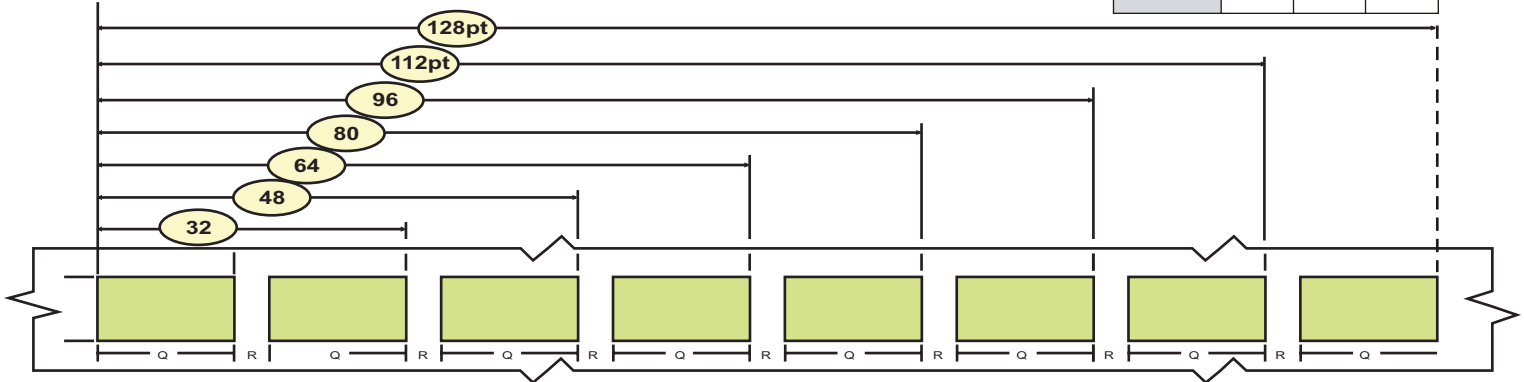
## Overall Dimensions ( DFU )

MODELS	Big Windows		
	W	L	D
128 POINT	144m.m.	2304m.m.	70m.m.
112 POINT	144m.m.	2016m.m.	70m.m.
96 POINT	144m.m.	1728m.m.	70m.m.
80 POINT	144m.m.	1440m.m.	70m.m.
64 POINT	144m.m.	1152m.m.	70m.m.
48 POINT	144m.m.	864m.m.	70m.m.
32 POINT	144m.m.	576m.m.	70m.m.

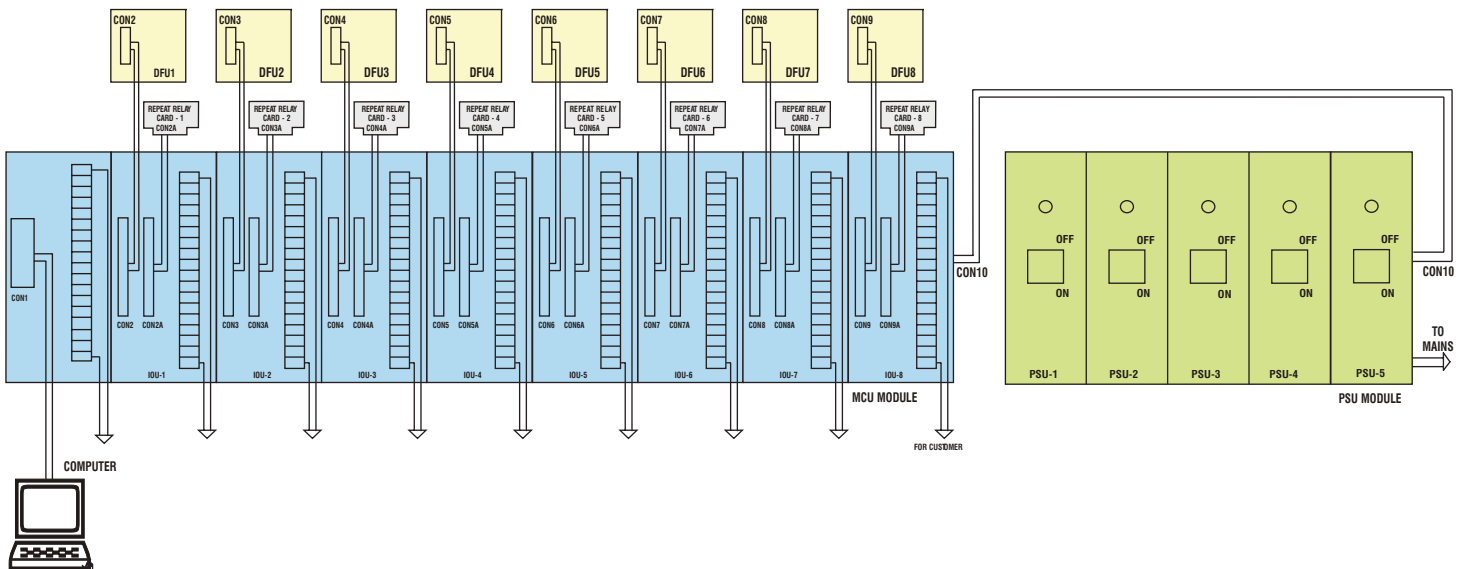
  

Small Windows			
128 POINT	144m.m.	1152m.m.	70m.m.
112 POINT	144m.m.	1008m.m.	70m.m.
96 POINT	144m.m.	864m.m.	70m.m.
80 POINT	144m.m.	720m.m.	70m.m.
64 POINT	144m.m.	576m.m.	70m.m.
48 POINT	144m.m.	432m.m.	70m.m.
32 POINT	144m.m.	288m.m.	70m.m.

## PANEL CUTOUT DETAILS - DFU



## EXTERNAL WIRING DIAGRAM WITH REPEAT RELAY



# ALARM ANNUNCIATORS

## MBAS 9900



1 OB 6S PB

1 OB 4S PB

MBAS 9900 screens Annunciator accepts 12 / 24 V DC potential input & also provides control relay output. Added built-in buzzer & push buttons makes it complete Annunciator with control output. This output is interlocked until all fault input resets. MBAS 9900 is presently available in 4 point & 6 point small window (30 x 30mm) configuration. Both 4 point & 6 point systems come with built-in push buttons.

### Technical Specifications :

PARAMETERS	
Supply Voltage	230 V AC / 110 V AC, 12 V / 24 V DC +10% -15%
Windows	4 / 6 / 8
Window Sizes	30 x 30 mm
Display Device	Super bright LED's
Facia Type	Individual Windows Front Replaceable
Window/LED Colour	RED, Yellow / Amber, Green
Flash Rate	Fast - 60 flashes/min. Slow - 30 flashes/min.
Response Time	25 msec. ± 10 msec.
Input Signal	+12 V or 24 V DC Contact
Output Contacts	1 CO + 1 CO
Architecture	Integrated
Operational Seq.	Sequence as mentioned in text
Operational Temp.	0-60°C
Power Consumption	1.5 Watts per Window

Wherever not specified Contact Rating : 5A @ 230 V AC (resistive)

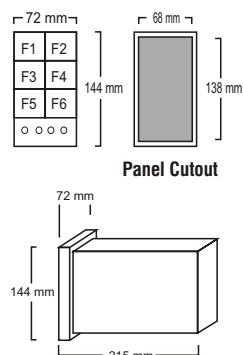
### Operating sequence table - MBAS 9900

MANUAL ACTION	N	ABN	RN	R-ABN	N	ABN	N	ABN	R-N	R-ABN	N	ABN
P.B. TEST												
DEP												
REL												
VISUAL AUDIO(N)	F ON	OFF OFF	F ON	OFF OFF	F ON	N. A. N. A.	F OFF	N. A. N. A.	S OFF	S OFF	S OFF	F OFF

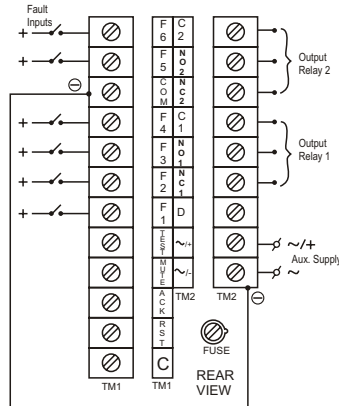
ABBREVIATIONS :

N	NORMAL	AUDIO(N)	S STEADY ON
ABN	ABNORMAL	DEP.	NORMAL BUZZER
RN.	RETURN TO NORMAL	REL.	DEPRESSED
RABNS	RETURN TO ABNORMAL	N.A.	RELEASED
		F	NOT APPLICABLE
			FLASH

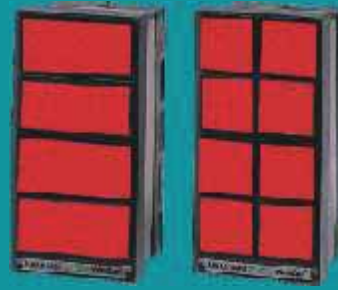
### Dimensional Details



### Connection Diagram



## MICROFACIA



MF951

MF955

These are LED Facia windows with Potential input or potential free input. Microfacia is available in either 4 Big or 8 Small windows size. Standard models available for 12V/24V DC and 110V/230V AC.

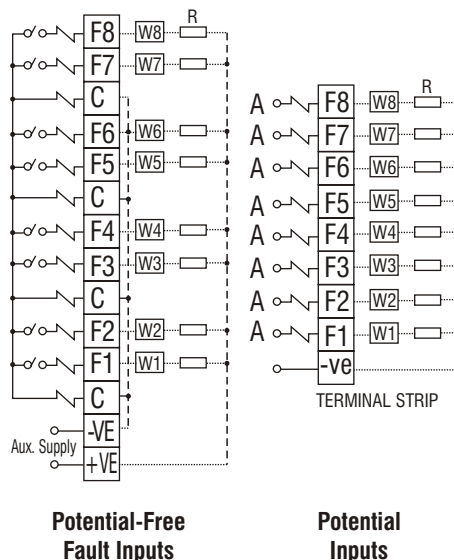
Microfacia are LED window assemblies for RUN, TRIP or FAULT indications. With microfacia windows the panel designers can improve aesthetic value to the panel indications in a Row / Column format. Microfacia is useful for direct operation with AC or DC voltage

### Technical Specifications :

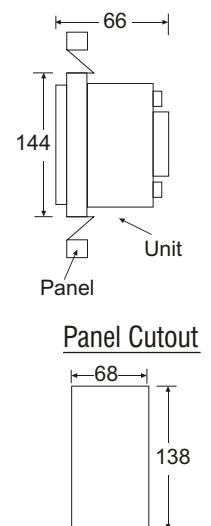
PARAMETERS	
Auxiliary Supply *	12 / 24 / 110 / 220 V AC / DC
Input	Potential Free Contacts or Potential Contact
Output	Window Facia LEDs on front
Window /LED Colour	RED, Amber / Yellow, Green
Power Consumption	1.5 Watts per Window
Dimensions (mm) Unit	Overall (L x W x D) (w/o PSU) 144 x 72 x 80 (With PSU) 144 x 72 x 215
Dimensions (mm)Window	for Small 30 x 30, for Big 62 x 30
Weight (Approx.)	700 gms. (With PSU) 250 gms. (W/o PSU)

\* Applicable only for Microfacia with potential free inputs.

### Connection Diagram



### Dimensions



# ALARM ANNUNCIATORS

## ANNUNCIATOR PANELS



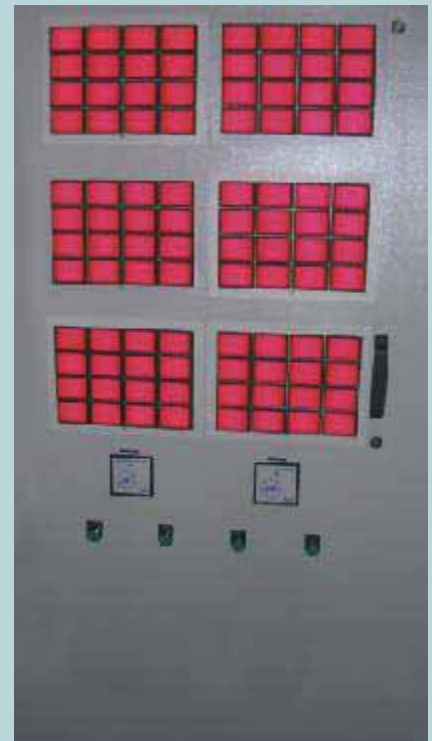
Often Alarm Annunciators are required assembled housed in a suitable control cubical. The control panel consists of only Alarm Annunciators.

Minilec offers Alarm Annunciators along with control panels. This includes design of control panel, fabrication, painting, assembly of Alarm Annunciators and assistance during installation and commissioning.

Retrofitting work by replacing old annunciation system with latest design and for expansion in power stations, substations, process plants as also standard Annunciation Panels for plants and equipments can be catered to.

### The Minilec Panel Advantages

- Complete in-house design, assembly of Annunciator Panels.
- Software capability for automisation to meet project specifications.
- Component layout as per standards & safety requirements.
- Powder coated MS or Aluminum Rack Panels with quality panel wiring.

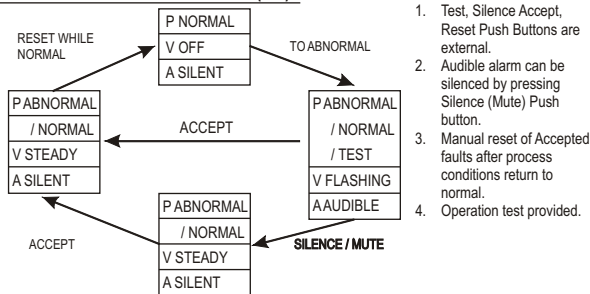


## STANDARD OPERATING SEQUENCES

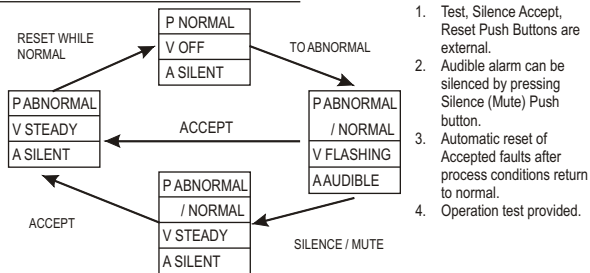
The MINILEC Annunciation systems are programmed to operate as per following operating sequences conforming to ISA standards. Other sequences / non standard sequences are given as per customer's requirement.

Minilec Sequence Code	Operating Sequence Title	ISA Std. Code
S1	Manual Reset	M1
S2	Auto Reset	A1
S3	Ringback	R1-12
S4	First UP	F2M-1

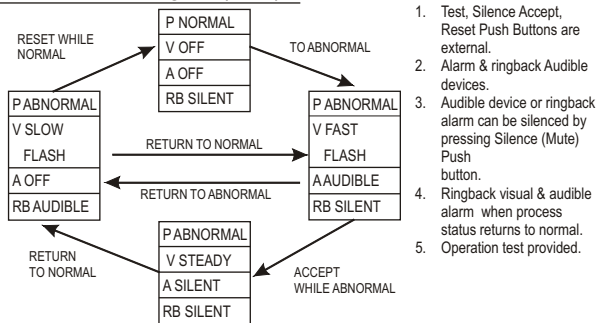
### SEQUENCE S1 : Manual Reset (M1)



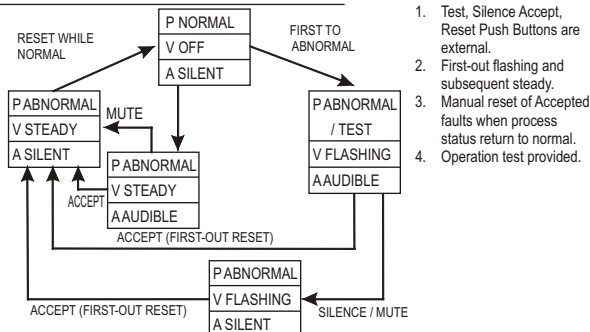
### SEQUENCE S2 : Auto Reset (A1)



### SEQUENCE S3 : Ringback (R1-12)



### SEQUENCE S4 : First Out Manual Reset



**Note:**  
**P** : Process Status, **V** : Visual Alarm Status, **A** : Audible Alarm Status, **RB** : Ringback audible alarm status.

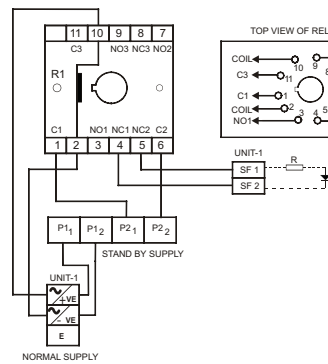
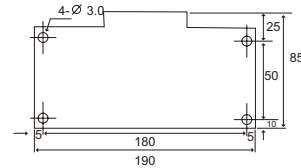
## OPTIONAL ACCESSORIES

### Repeat Relay Card

External Repeat Relay Cards can be connected for remote annunciation or interfacing with SCADA or DCS hardware. These cards are connected by plug-in type pre-fab cables.



Mounting & overall Dimensions of External Repeat Relay Card (8/16 Relays)

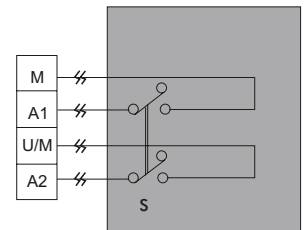


### Supply Fail Annunciation

This feature enables the annunciator to operate on alternate stand-by power supply in case of mains supply failure. External relays with separate power supply module is supplied. If mains supply and stand-by supply are of same voltage level the power supply module is not required.

### Manned / Unmanned Facility

This feature allows disabling the audio & visual indication on fault occurrence if the station is unmanned. The annunciator registers & records all faults occurring during unmanned mode and displays again manned mode.



### RS 232 / 485 Converter

This is a universal converter for converting RS 232 serial port to RS 485 serial port or vice versa. It operates on 230 AC supply and is to be used with Minilec make interconnecting cables for Minilec annunciators & for PC.



### d) Electronic / Industrial Hooter

Electronic Hooters with tone & volume control are supplied. Suitable for AC or DC supply Standard 96 x 96 enclosure.