



USER'S MANUAL MICROWARN 0600

1.0 Introduction

A complex manufacturing plant without a centralized monitoring and control equipment is unimaginable. Similarly a centralized monitoring and control equipment without an audio visual fault alarm annunciator is a rare find.

MINILEC a well known name in the field of electronic motor protection and micro controller based annunciation systems, offers its unique alarm annunciator based on the micro-controller technology with a totally new face-lift and with considerable size reduction having moulded enclosure.

These highly reliable and compact systems offer multipoint annunciation with operation sequences as per prevailing standards and multicoloured windows for easy differentiation of trip and non-trip (or alarm)

Thus there is readily available option for the specific needs of every installation. **MINILEC** offers annunciators for all applications.

The **MICROWARN 0600** accepts potential free contacts as its inputs, with a selectable facility for 'Make to Alarm' (NO type) and 'Break to Alarm' (NC type).

Features

- MICROWARN 0600 has a moulded enclosure.
- Based on Micro-controller logic.
- Incorporates a group of Super Bright LEDs.
- Suitable for both NO/NC type fault contacts (site selectable)
- Specially Designed Power Supply for high noise immunity and wide input supply variation.
- Suitable for both AC/DC supply with suitable Power Supply.
- Tested for Noise Test/Impulse Test & Environment Tests as per standards
- Basic, standard module of 12 channels.

Construction:

Microwarn 0600 consists of three basic sections:

1. The power supply
2. The CPU
3. The Facia

The 'CPU', the 'LED' window facia as well as the Power Supply are housed in compact moulded enclosure.

The Power Supply

The Power Supply used for this product is SMPS.

This switchmode Power Supply specified AC or DC input supply 24/48 V DC, 90-270 V AC/DC and convert it into 3 different regulated and filtered noise free DC output which are fed to the CPU block +5V & 12V DC isolated for relay and to the facia block +12V DC.

The CPU

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

The heart of the CPU is the 'Single Chip' Micro-Controller IC which has substituted the conventional individual card system. It operates on regulated supply of +5V DC. It is not only faster in operation but also reliable and more efficient. It consumes low power and ensure a trouble free and maintenance free operation of the annunciator unit.

The Facia

This section consists of facia windows which are illuminated by 'Super Bright LED's', on occurrence of any fault. The LEDs have replaced the conventional 'Twin Filament Lamps' in each window.

Filament Lamps cause most of the trouble by their frequent fusing. The Super Bright LEDs ensures a long and trouble free window life along with good visibility. The legend plates are replaceable having access from the front. (Ref. Fig 3) Colour LED Green, Yellow & Red.

5 Years Warranty
(For free repairs & servicing from date of supply against manufacturing defects only.)

The Basic Module

MICROWARN 0600 is available in a standard module of 6, 8 & 12 channels.

Demand for higher number of channels can be entertained by stacking these basic modules to form a multiple window facia. In such cases the external push buttons can be connected in parallel for all the modules.

Operating Sequences

The operating sequences conform to prevailing standards and any sequence can be selected by mere changing of DIP switch position (Ref. Fig 2)

1. Manual Reset (S1)
2. Auto Reset (S2)
3. Ring Back (S3)
4. First Up (S4)

Fault Contacts

MICROWARN 0600 is designed to sense the actuation from various field contacts. The field contacts should necessarily be a potential free type but can be either NO type or NC type. At site any channel of MICROWARN 0600 unit can be made suitable to any of these type of fault contacts either NO or NC with the help of DIP type Micro switches. The interrogation voltage applied from within the unit for every fault contact is + 12 VDC.

Push Buttons

The (NO type) push buttons for operating the 12 channel module of MICROWARN 0600 are to be connected externally. The Built in push buttons are available in 6 & 8 channel, module of MICROWARN 0600. For multiple units, these push buttons can be made common for all the units.

Legends

MICROWARN 0600 facia incorporates legend plates which are accessible from the front of the unit for replacement purpose. Guidelines for selection of letter sizes & number of lines per window are viz.

LETTER SIZE IN mm Height	LETTER SIZE IN POINTS (TYPE SET)	NO. OF LINES	NO. OF LETTERS PER LINES
3	12	10	14
5	20	6	8
8	32	4	4
10	40	3	4
12	48	2	3

Audio Alarm

Every basic MICROWARN 0600 Unit consists of 1 NO type potential free relay contact, for actuating the external hooter. For units with Ring Back Sequence, an extra relay contact is provided for Ring Back Hooter.

Sequence Chart (S1, S2, S3)

Operating Sequence	Process Condition	N	ABN	R-N	R-ABN	N	ABN	N	ABN	R-N	N	ABN	
	Fault Contact Condition	NO NC	NC NO	NO NC	NC NO	NO NC	NC NO	NO NC	NO NC	NO NC	NO NC	NO NC	NC NO
Manual Action	TEST (All windows)	-	-	-	SILENCE			ACCEPT			RESET		
Manual Reset (S-1)	Visual Condition	FLASH	FLASH	FLASH	FLASH	FLASH			STEADY ON		STEADY ON	OFF	STEADY ON
	Hooter Condition	ON	ON	ON	ON	OFF			OFF		OFF	OFF	OFF
Auto Reset (S-2)	Visual Condition	FLASH	FLASH	FLASH	FLASH	FLASH			AUTO OFF	STEADY ON	AUTO OFF	-	-
	Hooter Condition	ON	ON	ON	ON	OFF			OFF		OFF	-	-
Ringback (S-3)	Visual Condition	SLOW FLASH	FAST FLASH	SLOW FLASH	FAST FLASH	SLOW FLASH	FAST FLASH	OFF	STEADY OFF	SLOW FLASH	-	-	
	Hooter Condition	OFF	ON	OFF	ON	OFF	ON	OFF	OFF	OFF	-	-	
	Ringback Hooter Condition	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	-	-	

First Up Sequence Chart (S4)

Process Condition	F N	S N	F ABN	-	F ABN	S ABN	R R-N	S R-N	F S-ABN	S S-ABN	F N	F ABN	S N	S ABN
Fault Contact Condition	NO	NO	NC	NC	NC	NC	NO	NO	NC	NC	NO	NC	NO	NC
	NC	NC	NO	NO	NO	NO	NC	NC	NO	NO	NC	NO	NC	NO
Manual Action	TEST		SILENCE				ACCEPT				RESET			
Visual Condition	FL	FL	FL	STD ON	FL	STD ON	FL	STD ON	STD ON	STD ON	OFF	STD ON	OFF	STD ON
Hooter Condition	ON		ON		OFF		OFF		OFF		OFF			

Note:

F=First FL= Flash S-ABN= Still Abnormal
 S=Subsequent ABN=Abnormal R-ABN= Return to Abnormal
 N= Normal R-N+ Return to Normal STD= Steady

Technical Specifications:

1. **Fault Alarm Inputs:**
 - 1.1 Actuation Through Fault Contacts :
Faults contacts may be NO/NC type, selectable by DIP Micro switches individually.
 - 1.2 Volt Free Contacts:
The fault contacts should necessarily be volt free (Potential free) type.
 - 1.3 Input Interrogation voltage: + 12V DC
 - 1.4 Input Circuit: Opto coupled by using suitable opto isolating devices.
2. **Output**
 - 2.1 Two opto isolated Electro-magnetic relay for hooter are provided.
 - 2.2 Third Relay contact (Optional): 3rd Optional relay can be used as
 - a) Ringback relay when RLY1 & RLY2 used for grouping.
 - b) Supervisory Relay.
 - 2.3 Contact Rating: 5 amp, 240 VAC.
3. **Transient Protection:**
As per IS 8686/77.
4. **Response Time: Minimum 40 ms.**
5. **Facia**
 - 5.1 Window dimensions: 45 mm x 45 mm
 - 5.2 Devices: Super Bright LEDs
 - 5.3 Colour: As per requirement (Normally red)
 - 5.4 Typical LED life: More than 10⁸ hours

6. Power Consumption:

- 6.1 Red Window 0.13 Watt/window
- Colour Window 0.15 Watt/window

7. Mounting:

- 7.1 Horizontal or vertical configuration.
- 7.2 The basic MICROWARN units housed in attractive and robust moulded enclosures are Flush Mounting type either horizontally or vertically.

8. Connections:

Screw terminals are suitable for cables upto 2.5 mm²

9. External Control Switches:

- 9.1 The system is to be used with external NO type Push Buttons for Test, Silence, Accept and Reset functions.

10. Environmental Conditions:

		operational
10.1	Operating temperature	0°C TO 60°C
10.2	Humidity	Upto 95% RH

11 Sequences:

Operating Sequences are as per ISA standards

- S1 : MANUAL RESET
 - S2 : AUTO RESET
 - S3 : RING BACK (OPTIONAL)
 - S4 : FIRST UP
- (refer Sequence Chart)

12 Dimesions (in mm)

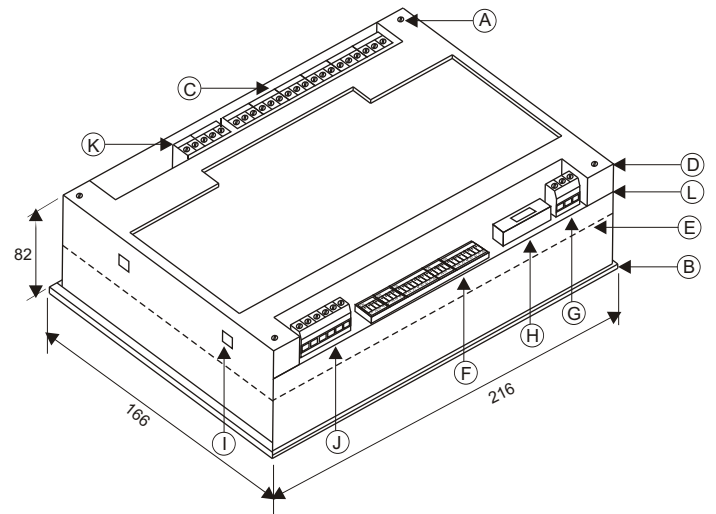
	OVERALL (HxWxD)	CUTOUT (HxW)
HORIZONTAL TYPE	166 x 216 x 82	153 x 203
VERTICAL TYPE	216 x 166 x 82	203 x 153

13 Weight: 1000 grams.

Installation Instructions

1. Ensure that packing of unit is not damaged, no physical damage to the MICROWARN 0600 unit. The unit received is as your purchase order.
2. Switch on the supply to the unit after ensuring its connection initially, if fault inputs are selected for NC type contacts then corresponding windows will start flashing and hooter contact will close as power supply to the unit is switched ON. If the fault input are selected for NO type contact then the pressing TEST push button will start windows flashing and hooter contact will be closed (Check the same by continuity test or by connecting external hooter.)
3. Select the required sequence by putting the corresponding switch of 'SEQUENCE SELECTION' in ON position. Note that only one switch should be in ON position.
4. Select the type of fault (NO/NC) by putting corresponding switch in NO or NC position for each fault input.
5. Select the group for each fault input by putting corresponding switch in G1 or G2 position.
6. Give the individual fault input by either shorting the fault input terminals or by removing the short link (Connected for NC type fault contacts) on doing so, every corresponding window should flash and hooter should get ON. Proceed further as per sequence selected.
7. For changing the legend plates, remove the screw on front acrylic. The legend plates secured at back side of the front acrylic plate can be removed easily for interchanging / replacing window legend plates.
8. Fit the unit on control panel with the help of supplied mounting bracket. Now your MICROWARN is ready for operation.

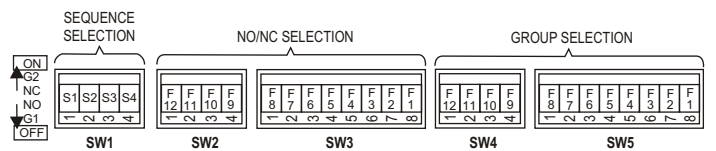
Fig 1: 12 Point Microwarn assembly



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

Fig 2: Dip Switch position chart



SEQUENCE S1 DIP SWITCH POSITION



SEQUENCE S2 DIP SWITCH POSITION



SEQUENCE S3 DIP SWITCH POSITION



SEQUENCE S4 DIP SWITCH POSITION



DIP SWITCH	FAULT CONTACT	OUT PUT CONTACT	GROUP
OFF	NO	RELAY - 1	1
ON	NC	RELAY - 2	2

NOTE: 1) FOR 8 POINT ANNUNCIATOR – FAULT F9 TO F12 DUMMY.
2) FOR 6 POINT ANNUNCIATOR – FAULT F7 TO F12 DUMMY.

Fig 3A: Window Facia & Panel cutout details (Horizontal type)

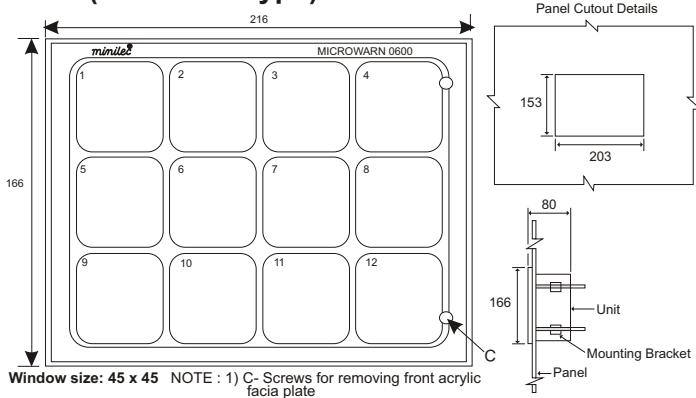


Fig 3B: Window Facia & Panel cutout details (Vertical type)

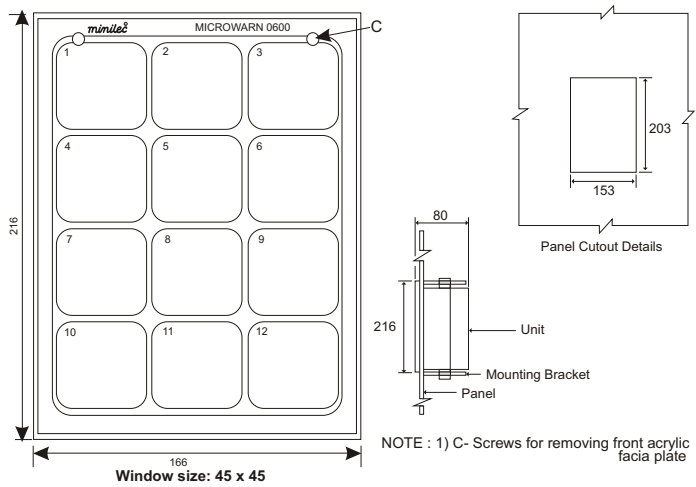


Fig 4: External terminal connection diagram.

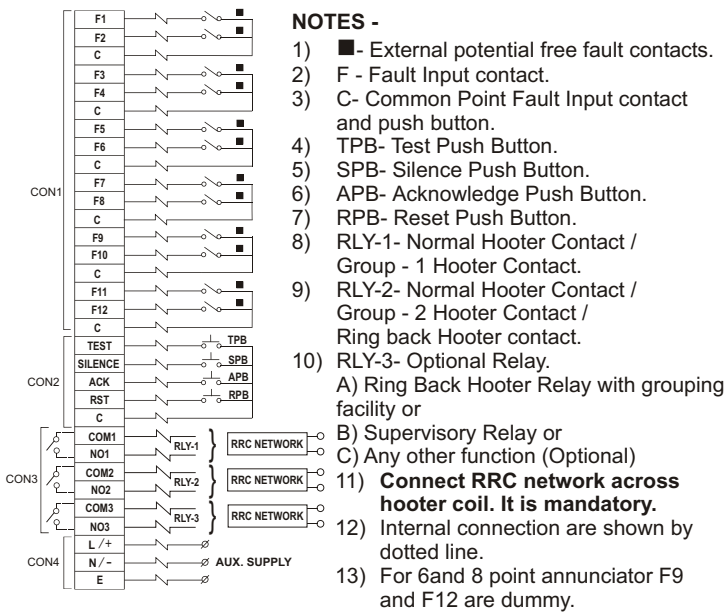


Fig. 5 Parallel Connections for more than one Annunciation Units.

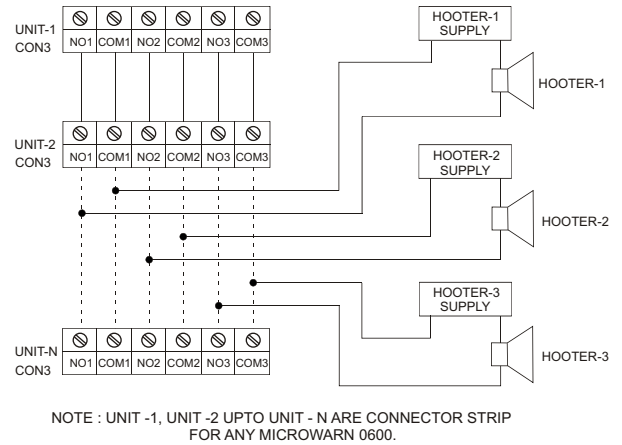


Fig 6: Connection diagram for supply fail indication.

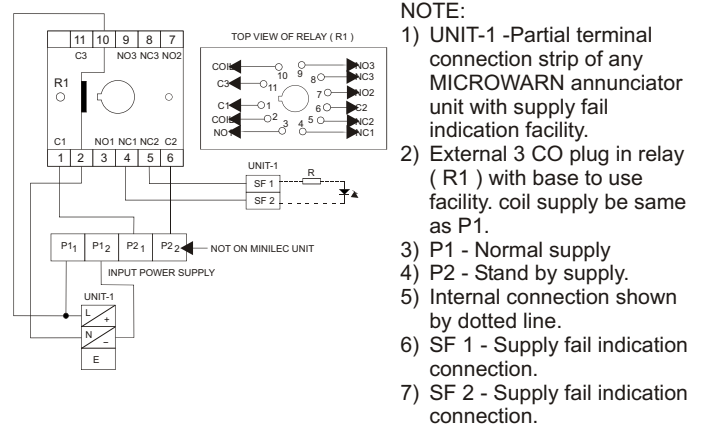
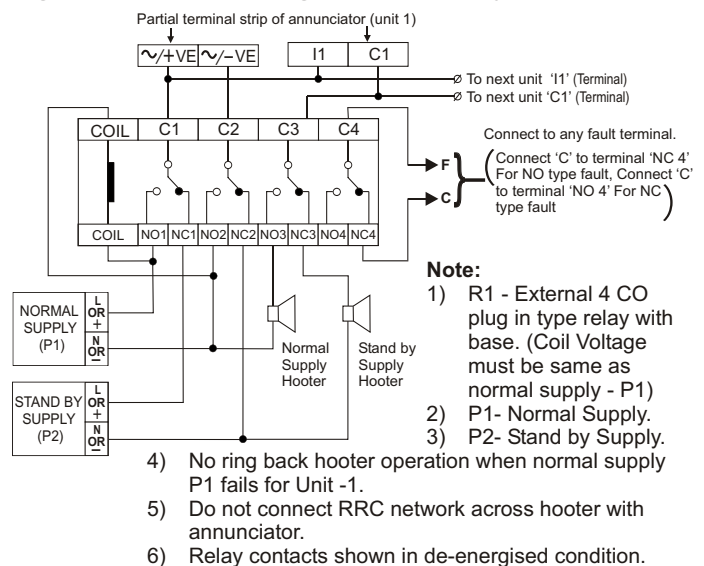


Fig 7: Connection diagram for supply fail annunciation.



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