OPERATING AND INSTALLATION INSTRUCTIONS FOR THE SERIES 1000WD – WATER DETECTION ALARM CONTROL PANELS

MANUAL/WATER/1000WD.issue C

CONTENTS

NOTE – Any details with reference to special modifications to the control panel
    Will be located at the end of this manual.

INTRODUCTION

The Series 1000WD range of Water Detection Alarm Control Panels have been designed to offer high integrity protection in premises requiring from two zones upwards. Available in multiples of 2 up to 24 zones (Standard) with internal power supply. Each panel has space for standby Sealed Lead Acid Batteries.
The fascia is equipped with high intensity LED's, System control push buttons and a Controls On key switch. Concise user Operation Instructions are screen printed onto the fascia. Each control panel can be surface or flush (via bezel) wall mounted.

CONSTRUCTION

The cabinet enclosure and front fascia are constructed from sheet steel and finished in Grey White (Standard). The main motherboards and the power supply are mounted at the rear of the enclosure. All Zone, Sounder and master cards are pluggable into the motherboards. The front panel fascia display PCB is connected to the main motherboards by pluggable IDT connection cables.
All external connections are by means of screw terminals fitted to the main motherboards capable of accepting cables up to 2.5mm². Knockout cable entries are provided at the top of the panel.

METHOD OF OPERATION

USER WARNING
The equipment operates from 240v AC Mains.
Only authorised and qualified personnel should have access to the internals of the panel.

PANEL OPERATION
NOTE –all panel push button controls are normally inoperative. Insert the key provided into the "Controls On" switch and turn clockwise (key is trapped in this position). All push button switches are now operative.

NORMAL CONDITION
The unit will normally be in its quiescent mode with the Green "Supply Healthy" LED illuminated

WATER ALARM CONDITION
In the event of any Water alarm signal - The Appropriate Alarm Zone Red LED's will illuminate, the internal And external (if fitted) alarm sounders will sound, the Alarm auxiliary contacts will operate, and the appropriate Alarm repeat output will switch +ve 24v

ALARM SILENCING
The alarm sounders can be silenced by operating the "Alarm Silence" button momentary, an internal buzzer will sound. Should a second zone go into Alarm condition whilst the panel is it's silenced mode the Alarm sounders will automatically resound. The internal buzzer will stop.
Note - The internal buzzer cannot be silenced in the Alarm silenced mode.

ALARM RESET
Once the cause of the alarm has been identified and the condition removed, the panel can be restored to its normal mode by operating the "Reset "button momentary.

FAULT CONDITION
In the event of a fault occurring within the Water alarm system – The appropriate Fault Yellow LED will illuminate, the internal Fault buzzer will sound, any appropriate internal LED will illuminate, the common fault auxiliary contacts will operate, and the common Fault output will switch +ve 24v

BUZZER SILENCING
The internal fault buzzer can be silenced by operating the "Fault Buzzer Mute "button momentary. Should another fault occur the buzzer will automatically resound.

FAULT RESET
The Fault condition will automatically reset when the fault has been cleared.

FRONT FASCIA INDICATIONS
The following front fascia indicators are provided to give the following functions:

ZONAL ALARM
This indicates which Zone is in Alarm condition (Dual Red)

ZONAL FAULT
This indicates that where is an external cable fault or a Cable has been disconnected in a zone (Yellow)

SUPPLY HEALTHY
Under normal conditions this indicator is normally illuminated (Green)

SUPPLY FAULT
In the event of the following supply faults – Mains failure, Charger failure, Battery disconnection and Auxiliary 24v DC output fuse failure the Supply Fault LED will illuminate (Yellow). The Supply Healthy indication will extinguish.

SOUNDER FAULT
Should a fault occur in any monitored External Sounder circuit the Sounder Fault Led will illuminate (Yellow)

AUXILIARY ISOLATED
The Auxiliary Isolated LED will illuminate to show that the Alarm Auxiliary contacts have been isolated during alarm conditions. Under this condition the internal buzzer will sound which cannot be silenced

FRONT PANEL CONTROLS

The following front fascia controls are provided to give the following functions:

ALARM SILENCE
Operating this push button will silence the Internal / External alarm sounders

LAMP TEST
Operating this push button will test all Front LED indications together with the internal Fault buzzer
The LED's and buzzer will operate until the button is returned to its normal condition

FAULT BUZZER MUTE
Operating this push button will silence the internal fault buzzer. The internal buzzer cannot be silenced during Alarm silenced or Auxiliary Isolated modes

AUXILIARY ISOLATE
To Isolate the Alarm Auxiliary contacts, operate the "Auxiliary Isolate "push button momentary.
To return the system to normal operate the "Auxiliary Isolate "push switch for about 5 seconds

RESET
To reset the control panel to normal after a Water Alarm press the "Reset "button

INTERNAL LED INDICATORS
There are a various LED's fitted to the internal PCB's to give the more detail of the status of the system

ZONE FAULT
LED's are provided for both Open & Short circuit for each zone.

SOUNDER FAULT
The Common External sounder circuits have LED's for Open & Short circuit.

POWER SUPPLY FAULT
LED's are provided to indicate the type of fault from the power supply

AUXILIARY 24V OUTPUT FAULT
LED to provide indication of 24v DC Output fuse failure

ALARM SOUNDER RELAY
LED to show that the Common sounder relay is operated

ALARM AUXILIARY RELAY
LED to show that the Common alarm auxiliary relay is operated

FAULT AUXILIARY RELAY
LED to show that the Fault auxiliary relay has de-energised

TECHNICAL SPECIFICATION

The following information applies only to a standard control panel

POWER SUPPLY
AC Supply input	……	240v AC 50/60 HZ 100VA maximum
Nominal supply voltage	……	24v DC
Battery float voltage	……	27.5v DC
Power supply type	……	Constant Voltage with current limit back and thermal shutdown
Low battery cut-off	……	18v +/- 5%

PANEL POWER CONSUMPTION
Quiescent condition	……	5ma per Zone, 40ma common functions
Alarm condition	……	50ma per Zone, 100ma common functions

ZONE CIRCUITS
Line output voltage	……	20v +/- 5% Stabilised
End of line device	……	4K7 – 6K8 ¼ Watt Resistor (4K7 supplied)
Alarm Detector current	……	1ma maximum
Alarm trip current	……	25ma
Maximum line current	……	85ma
Monitoring	……	Both open & short circuit with internal LED's per zone

ALARM OUTPUTS
Sounder monitoring	……	Reverse polarity type, fully monitored for open and short circuit with internal LED's
Maximum Load – Common	……	2.75 amps. Shared between 2 circuits each fused @ 3.15 amp

AUXILIARY OUTPUTS
Alarm	……	2 sets CHO rated @ 3 amps 240v AC
Fault	……	1 set CHO rated @ 1Amp 50v (normally energised)
Zonal Alarm	……	Solid state output, switched +ve rated 100ma @ 24v
Common Fault	……	Solid state output, switched +ve rated 100ma @ 24v

24v DC AUXILIARY OUTPUT
Maximum output	……	0.5amp fused and monitored with internal fault LED

REMOTE CONTROL INPUTS
Alarm silence	……	Switched +VE momentary
System Reset	……	Switched +VE momentary
Alarm Sound	……	Switched +VE

INSTALLATION

The unit is wall mounted with a lockable hinged front door. Connection from the Front Facia to the motherboards are via pluggable ribbon cables. The front door can be removed for ease of installation by removing the screws (LHS) fixing the hinged door to the back box.

FIXING OF ENCLOSURE

The back box is hinged to the front door on the left-hand side. The top of the box has 20mm diameter. knockouts (actual number and position is dependant upon enclosure size). The unit is fixed to the wall via 4 off dished fixing holes located in the corners. The mains supply entry is preferred to locate at the last knockout on the right-hand side.

TERMINATION TO THE CONTROL PANEL

The connections to the control panel are all via screwed terminals located on the motherboards. The terminals will accept up to 2.5mm² cables.

MAIN MOTHERBOARD CONNECTIONS (L to R)

Alarm Auxiliary output 1 ……………..	Volt-free CHO
Alarm Auxiliary output 2 ……………..	Volt-free CHO
Alarm Sounder Output 1 ……………	Monitored output – EOL 4K7
Alarm Sounder Output 2 ……………	Monitored output – EOL 4K7
Common remote Output ……………..	+VE 24v
Remote System Reset input ………..	Momentary Switched +VE input
Remote Alarm Silence ………………..	Momentary Switched +VE input
Remote Alarm Sound ………………..	Switched +VE input
Fault Auxiliary output …………………	Volt-free CHO (failsafe)
Fault Repeater output ……………….	Switched +VE 24v
Auxiliary 24v .………………………..	Monitored Fused 24v DC auxiliary output
Zone 1 Input .………………………….	Input 1: +VE & 0v
Zone 1 repeater ……………………..	Input 1 Repeat output, Switched +VE
Zone 2 Input .………………………….	Input 2: +VE & 0v
Zone 2 repeater ……………………..	Input 2 Repeat output, Switched +VE
Zone 3 Input .………………………….	Input 3: +VE & 0v
Zone 3 repeater ……………………..	Input 3 Repeat output, Switched +VE
Zone 4 Input .………………………….	Input 4: +VE & 0v
Zone 4 repeater ……………………..	Input 4 Repeat output, Switched +VE
Zone 5 Input .………………………….	Input 5: +VE & 0v
Zone 5 repeater ……………………..	Input 5 Repeat output, Switched +VE
Zone 6 Input .………………………….	Input 6: +VE & 0v
Zone 6 repeater ……………………..	Input 6 Repeat output, Switched +VE

EXTENSION MOTHERBOARD CONNECTIONS(L to R)

Zone 7 Input .………………………….	Input 7: +VE & 0v
Zone 7 repeater ……………………..	Input 7 Repeat output, Switched +VE
Zone 8 Input .………………………….	Input 8: +VE & 0v
Zone 8 repeater ……………………..	Input 8 Repeat output, Switched +VE
Zone 9 Input .………………………….	Input 9: +VE & 0v
Zone 9 repeater ……………………..	Input 9 Repeat output, Switched +VE
Zone 10 Input .……………………….	Input 10: +VE & 0v
Zone 10 repeater ……………………..	Input 10 Repeat output, Switched +VE
Zone 11 Input .……………………….	Input 11: +VE & 0v
Zone 11 repeater ……………………..	Input 11 Repeat output, Switched +VE
Zone 12 Input .……………………….	Input 12: +VE & 0v
Zone 12 repeater ……………………..	Input 12 Repeat output, Switched +VE

Each extension motherboard has connections for 6 zones. Additional extension motherboards will repeat the above table.

POWER SUPPLY CONNECTIONS

The internal power supply requires the following connections-
1) 240v AC supply to the power supply mains terminals
2) 24v DC standby Sealed Lead Acid Batteries supply to the connection leads provided

FUSES AND RATINGS

The following fuses are fitted to the panel. All fuses are 20mm x 5mm Type

Main Sounder outputs 1 & 2 ……………3.15Amp A/S
Auxiliary 24v DC output …………………500mAmp A/S
Mains Input ………………………………… 1Amp HRC (1.25 – 3Amp PSU) or 2Amp HRC (5Amp PSU)
Battery Output……………………………… 2Amp (1.25 PSU), 3.15Amp (3 PSU), 6.30Amp (5 PSU)

COMMISSIONING

IMPORTANT NOTE – CABLES SHOULD BE MEGGERED BEFORE ANY ACTIVE DEVICES SUCH AS WATER PROBES, SOUNDERS, ETC ARE FITTED. IRREPARABLE DAMAGE WILL BE DONE TO THESE DEVICES

SUPPLY CONNECTIONS

1.1) With the Control Panel fixed in its location and all internal/facia cables reconnected, connect the 240v AC Supply to the power supply mains terminals. Ensure that other cables not yet connected are not allowed to touch the printed circuit boards inside the panel.

1.2) Switch on the mains supply and check the following-
- a) The Facia Supply Fault LED is illuminated
- b) The Internal buzzer sounds
- c) The Internal Battery Fault LED (Power Supply) is illuminated
- d) The Internal Supply Fault LED (Master Card) is illuminated
- e) The Internal Fault relay LED is illuminated

1.3) If any other conditions are indicated, check that all end of line items/devices are connected

1.4) Connect the 24v DC Standby battery and check the following –
- a) The Facia Supply Healthy LED is illuminated
- b) The Facia Supply Fault LED is extinguished
- c) All Internal Fault LED's are extinguished and the internal buzzer stops

1.5) Switch off the 240v Supply and check the following -
- a) The Facia Supply Fault LED is illuminated
- b) The Internal buzzer sounds
- c) The Internal Supply Fault LED (Power Supply) is illuminated
- d) The Internal Supply Fault LED (Master Card) illuminated
- e) The Internal Fault relay LED is illuminated

1.6) Depress the Fault Buzzer Mute button (Control Key On). The internal buzzer will stop

1.7) Reconnect the 240v Supply – The control panel will return to its Normal mode

ZONE CONNECTIONS

1.1) Disconnect Zone 1 End of Line and check the following –
- a) Zone 1 Facia Fault LED is illuminated
- b) The Internal buzzer sounds
- c) The Internal O/C Fault LED (Z1/Z2 Card) is illuminated
- d) The Internal Fault relay LED is illuminated

1.2) Reconnect Zone 1 End of Line – The control panel will return to its Normal mode

1.3) Short between Zone 1 +ve and –ve terminals and check the following –
- a) Zone 1 Facia Fault LED is illuminated
- b) The Internal buzzer sounds
- c) The Internal S/C Fault LED (Z1/Z2 Card) is illuminated
- d) The Internal Fault relay LED is illuminated

1.4) Remove the Short between Zone 1 Terminals – The control panel will return to its Normal mode

1.5) Connect all External Water Alarm devices to Zone 1 with the EOL located at the last device

1.6) Operate any device into Water Alarm condition, check the following –
- a) Zone 1 Facia Fire Twin LED's are illuminated
- b) The Sounder relay LED is illuminated – Internal Alarm Buzzer will sound
- c) The Common Auxiliary relay LED is illuminated

1.7) Depress the Alarm Silence button - the Sounder relay LED will extinguish and the internal Fault buzzer will sound

1.8) Depress the Reset button – the control panel will return to its normal mode

1.9) Repeat 1.1) to 1.8) for all devices

1.10) Repeat 1.1) to 1.9) for all other Zones

SOUNDER CONNECTIONS

1.1) Disconnect Sounder 1 End of Line and check the following –
- a) The Facia Sounder Fault LED is illuminated
- b) The Internal buzzer sounds
- c) The Internal O/C Sounder Fault LED (Master Card) is illuminated
- d) The Fault relay LED is illuminated

1.2) Depress the Fault Buzzer Mute button – the internal buzzer will stop

1.3) Reconnect Sounder 1 End of Line – The panel will return to its normal mode

1.4) Short between Sounder 1 +ve and –ve terminals and check the following –
- a) The Facia Sounder Fault LED is illuminated
- b) The Internal buzzer sounds
- c) The Internal S/C Sounder Fault LED (Master Card) is illuminated
- d) The Fault relay LED is illuminated

1.5) Remove the short between Sounder 1 terminals – The panel will return to its normal mode

1.6) Repeat 1.1) to 1.5) for all other Sounder outputs

1.7) Connect all external Sounders with the End of line fitted to the last Sounder

1.8) Depress Alarm Sound button – Check operation of all Sounders

1.9) Depress Reset/Lamp Test button to return panel to its normal mode

AUXILIARY CONNECTIONS

1.1) Connect all External auxiliary outputs and check for correct operation

1.2) To Isolate external auxiliary outputs (Alarm only) during routine testing, depress the Auxiliary Isolate button and check the following-

    a) The Facia Auxiliary Isolated LED is illuminated

    b) The internal buzzer sounds (cannot be silenced in this condition)

    c) The Internal Auxiliary Relay LED is not illuminated

1.3) Depressing the Auxiliary Isolate button again for approx 5 sec with return the panel to its normal mode (Auxiliary Isolated LED will extinguish)

LAMP TEST

To test all facia LED's and the internal buzzer, Depress the Lamp Test button, all external LED's will illuminate and the buzzer will sound. Release the button – the panel will return to its normal mode

ENGINEER'S FACILITES

The following facilities should only be used by Commission and Service Engineer's

FAULT BUZZER ISOLATE SWITCH

The internal Fault buzzer can be disconnected by moving the DIL switch position 1 to the OFF position. The switch is located on the main motherboard

AUTO RESET SWITCH

The control panel can be set to automatically RESET after an alarm (used for commission and service) by moving the DIL switch position 2 to the OFF position. When the switch is in this position the following functions will occur -

    The internal buzzer will sound

    The internal Test mode Red LED will illuminate

    The Sounder Fault LED will illuminate

When an alarm is received all standard functions will occur but the panel will automatically reset after approx. 1 second.

The following facilities are located on the Plug-in Zone Cards

ZONAL ISOLATE

Each zone card has a Two position Isolate Slide Switch

Move Slide switch to OFF position to isolate the Zone

The Zone fault LED will illuminate , O/C internal fault LED will illuminate and the internal Fault Buzzer will sound (Can be silenced by depressing the " Fault Buzzer Mute switch ")

NON LATCHING ZONE

ODD ZONE – Remove Jumper JP3

EVEN ZONE – Remove Jumper JP4

NOTE – in this mode the control panel will automatically return to its normal mode when the cause Of the water alarm has been cleared

NO COMMON AUXILIARY OPERATION

ODD ZONE – Delete D23

EVAN ZONE – Delete D29

NOTE – Location of switches / Jumpers are shown on the Typical wiring schematic And Plug-in Card detail drawings

WATER DETECTION CABLE

INSTALLATION
1) Lengths of Water Detection cable should be laid on the Floor in the protected area such that the distance between any Two Cables is no more than 2 metres
2) For localised protection of sources of potential water leakage, such as air conditioning systems water filled Radiators, the distance between the Water Detection Cables may be Greater
3) The Cable should be installed such that it remains in contact with the floor along as much of its length as possible. This may require the use of "P Clips ", particularly in areas where the cable may be disturbed
4) Although the construction is quite sturdy, the cable may be damaged by crushing or excessive bending. A bend radius of 150mm is recommended as a minimum
5) Water Detection cables are supplied in Standard Lengths of 5 and 10 metres.
   Each cable has a Plug / Socket at each end thus allowing longer runs simply by plugging lengths Of Water Detection cable together.
   At the last length of water detection cable terminate with the End of Line Plug (WD/EOL)
6) The Terminating Connection Box (WD/CB) should be secured to the Wall of Floor so that Water detection cable does not have to be stretched or pulled to reach it. Connect the Plug end Of the First Water Detection cable into the Connection Box Socket.
7) The installed Water Detection Cable system consists of a WD/CB (connection Box), Length(s) of Water Detection Cable and a WD/EOL (End of Line Plug).
8) Lengths of Water Detection Cable should not exceed 50 metres
9) Water Detection Cable should not come into contact with surface temperatures greater than 70^0/C

CONNECTION TO CONTROL PANEL
1) When Triggered the Water detection circuit presents a Low impedance (approx. 500ohms) to the Zone terminals in the Control panel
2) Connect the Z+ & Z- terminals in the Control panel to the + & - Zone terminals in the connection Box. The End of line resistor at the control panel should be discarded.

TESTING
1) Once all terminations have been made and the system powered, the Water Detection cable is ready for testing.
2) Testing is best done by Wetting the Thumb and forefinger, shaking of the excess trips and then gripping the Water Detection cable firmly whilst rolling it slowly. The Control panel should produce a alarm condition. Any Remote Indication together with the Connection Box Indicator will illuminate.
3) Over wetting the Cable should be avoided as a great deal of time can be wasted for the cable to dry out.
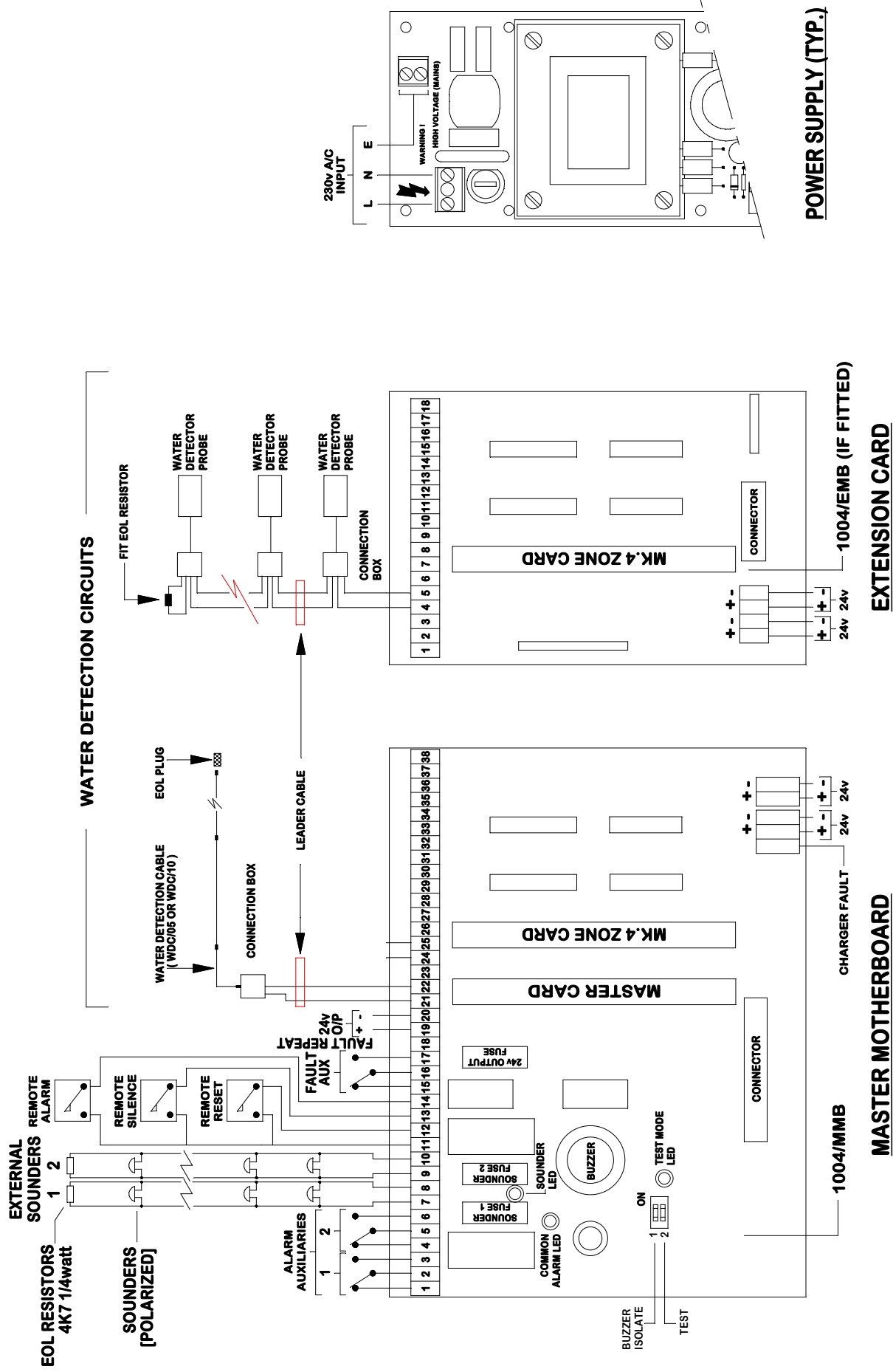
FLOOR PROBE

INSTALLATION
1) The floor probe assemble comes complete with a floor mounting bracket (adjustable) and a pre Wired connection plug (lead length 3 metres) for connection into a WD/CB (connection box)
2) Remove the 2 wings nuts from the probe assemble and remove Bracket
3) Fix bracket to the floor – 4 fixing holes are proved
4) Re-fix bracket to the floor probe (Note : Bracket floor fixings visible)
5) Loosen Wings nuts and adjusted distance between probe pins and floor as required
6) Plug-in the probe lead into the WD/CB (which has already been installed)
7) The above should be repeated for all probes connected
8) On the last WD/CB fit the end of line resistor supplied with the panel

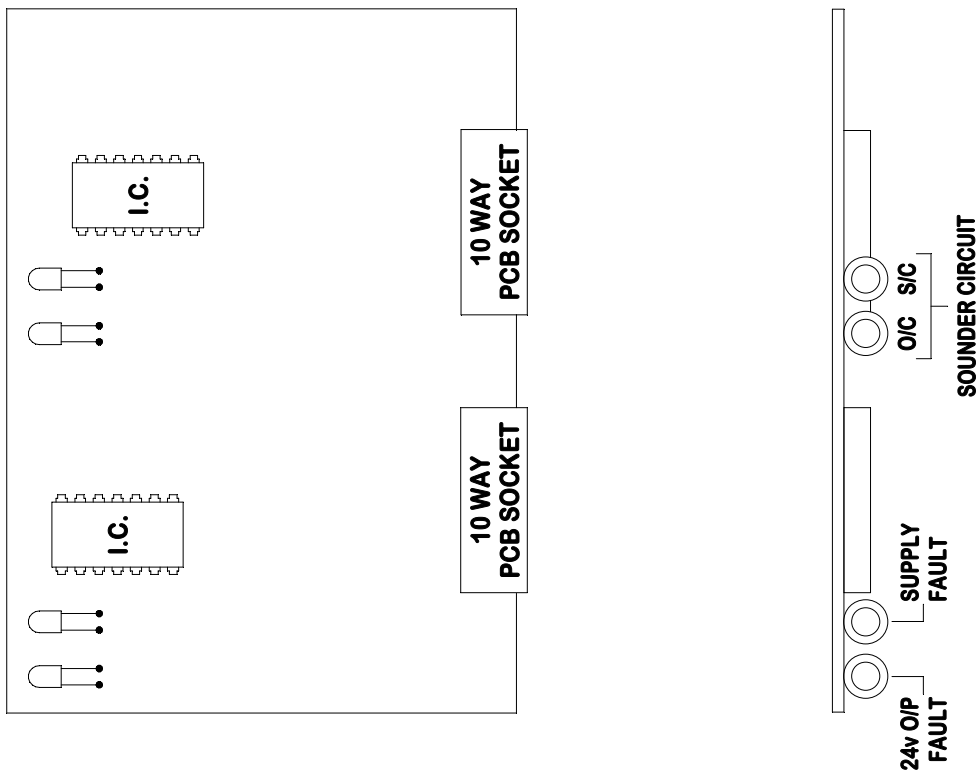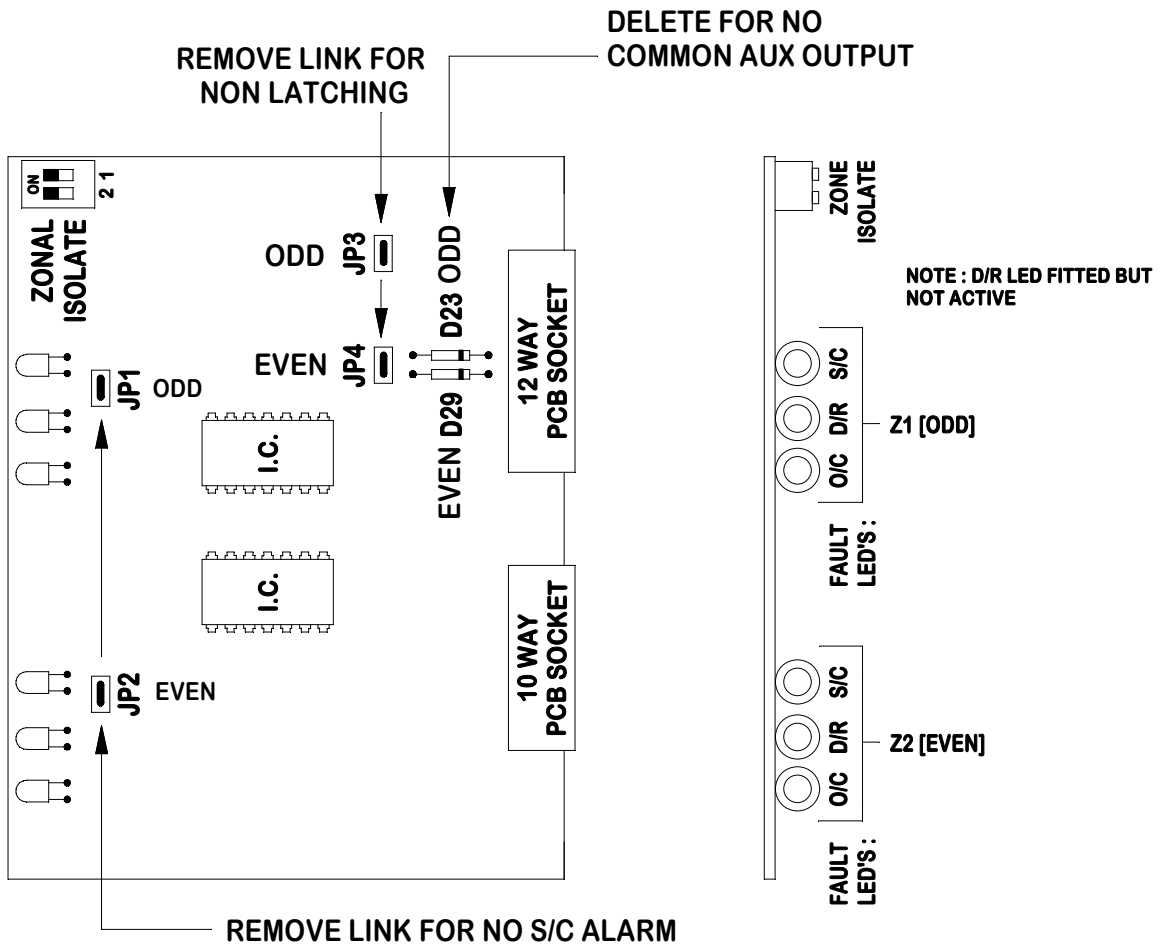### TESTING
1) Once all terminations have been made and the system powered, the Water Probe(s) are ready for testing.
2) Testing is best done with a wet sponge - shorting out between the two probe pins
3) The Control panel should produce an alarm condition. The Local Probe indicator will illuminate.
4) Remove sponge and dry between probe pins before Resetting the control panel

TYPICAL 1000WD SERIES WATER DETECTION PANEL WIRING SCHEMATIC

POWER SUPPLY (TYP.)

WATER DETECTION CIRCUITS

EXTENSION CARD

1004/EMB (IF FITTED)

MK.4 ZONE CARD

CONNECTOR

WATER DETECTOR PROBE

FIT EOL RESISTOR

CONNECTION BOX

MASTER MOTHERBOARD

1004/MMB

MASTER CARD

MK.4 ZONE CARD

CONNECTOR

CHARGER FAULT

WATER DETECTION CABLE (WDC/05 OR WDC/10)

CONNECTION BOX

EOL PLUG

LEADER CABLE

EXTERNAL SOUNDERS

REMOTE ALARM

REMOTE SILENCE

REMOTE RESET

EOL RESISTORS 4K7 1/4watt

SOUNDERS [POLARIZED]

ALARM AUXILIARIES

FAULT REPEAT

FAULT AUX

24v O/P

24v OUTPUT FUSE

SOUNDER FUSE 2

SOUNDER FUSE 1

SOUNDER LED

BUZZER

TEST MODE LED

COMMON ALARM LED

BUZZER ISOLATE

TEST

230v A/C INPUT

WARNING ! HIGH VOLTAGE (MAINS)

DRG REF : MANUAL/1000WATER/WS/C

MK4 TWIN ZONE CARD (1004/TZC)

REMOVE LINK FOR NON LATCHING

DELETE FOR NO COMMON AUX OUTPUT

ZONAL ISOLATE

ON
2 1

ODD JP3

EVEN JP4

D23 ODD

EVEN D29

12 WAY PCB SOCKET

JP1 ODD

I.C.

I.C.

10 WAY PCB SOCKET

JP2 EVEN

REMOVE LINK FOR NO S/C ALARM

ZONE ISOLATE

NOTE : D/R LED FITTED BUT NOT ACTIVE

S/C
D/R
O/C

Z1 [ODD]

FAULT LED'S :

S/C
D/R
O/C

Z2 [EVEN]

FAULT LED'S :

MASTER FUNCTION CARD (1000/MC)

I.C.

10 WAY PCB SOCKET

10 WAY PCB SOCKET

I.C.

S/C
O/C

SOUNDER CIRCUIT

SUPPLY FAULT

24v O/P FAULT

PLUG-IN CARD DETAILS

EOL SOCKET
DIN PLUG

DIN
SOCKET

CONNECTION
BOX

DIN PLUG

WATER DETECTION
CABLE

TB1

1 2 3 4 + -

+ -

ZONE IN

DIN
CONN.

+ - R

ZONE

CONTROL PANEL
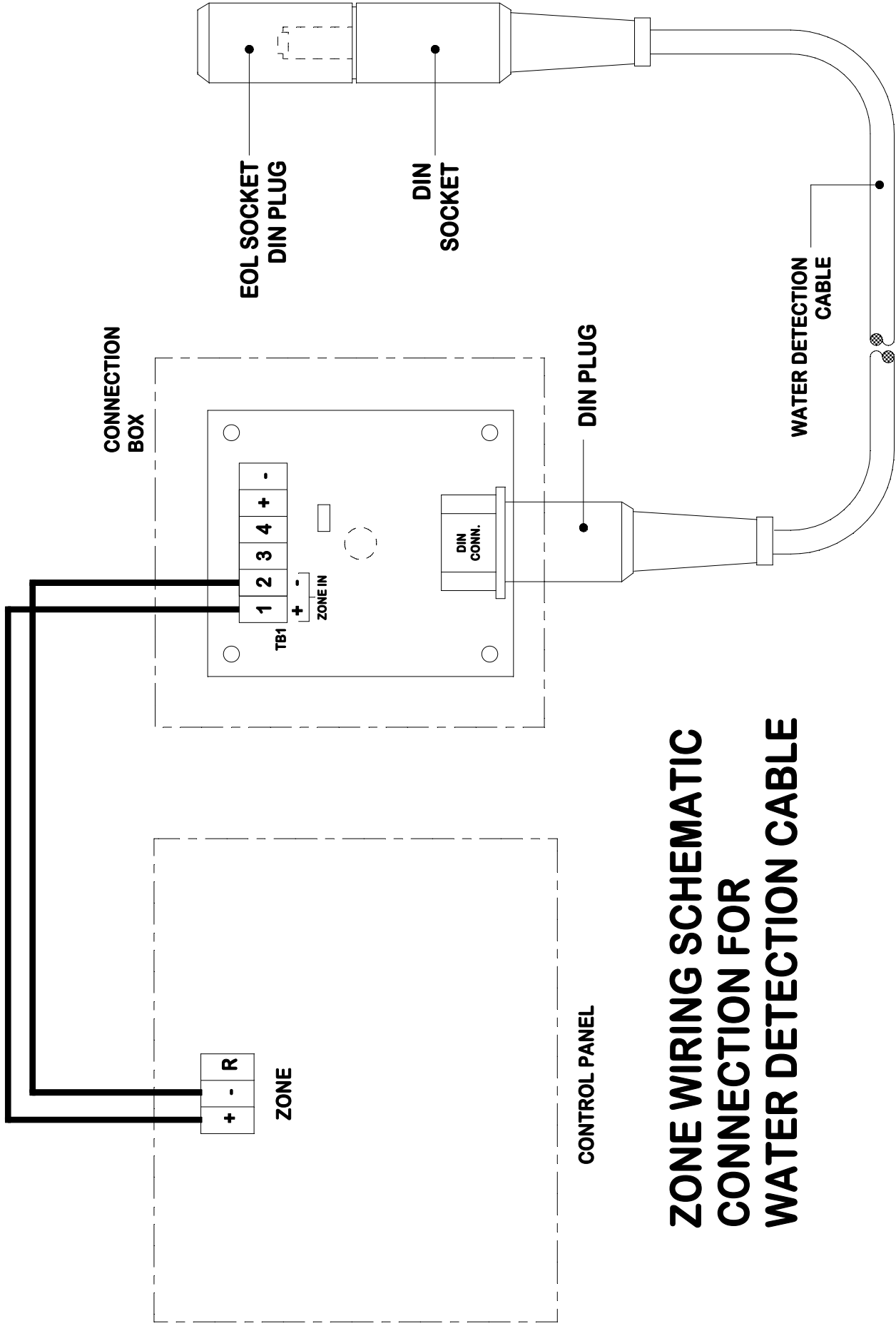
ZONE WIRING SCHEMATIC
CONNECTION FOR
WATER DETECTION CABLE

EOL RESISTOR 4K7

JUMPER TO BE FITTED ON LAST CONNECTION BOX

DIN PLUG

CONNECTION BOX

J1

DIN CONN.

TB1 1 2 3 4 + -
     IN OUT REP LED
        ZONE

OPERATED LED

WATER DETECTION PROBE

PRE - ASSEMBLED CONNECTING LEAD 1.5M LONG

CONTROL PANEL

ZONE

R
+ -
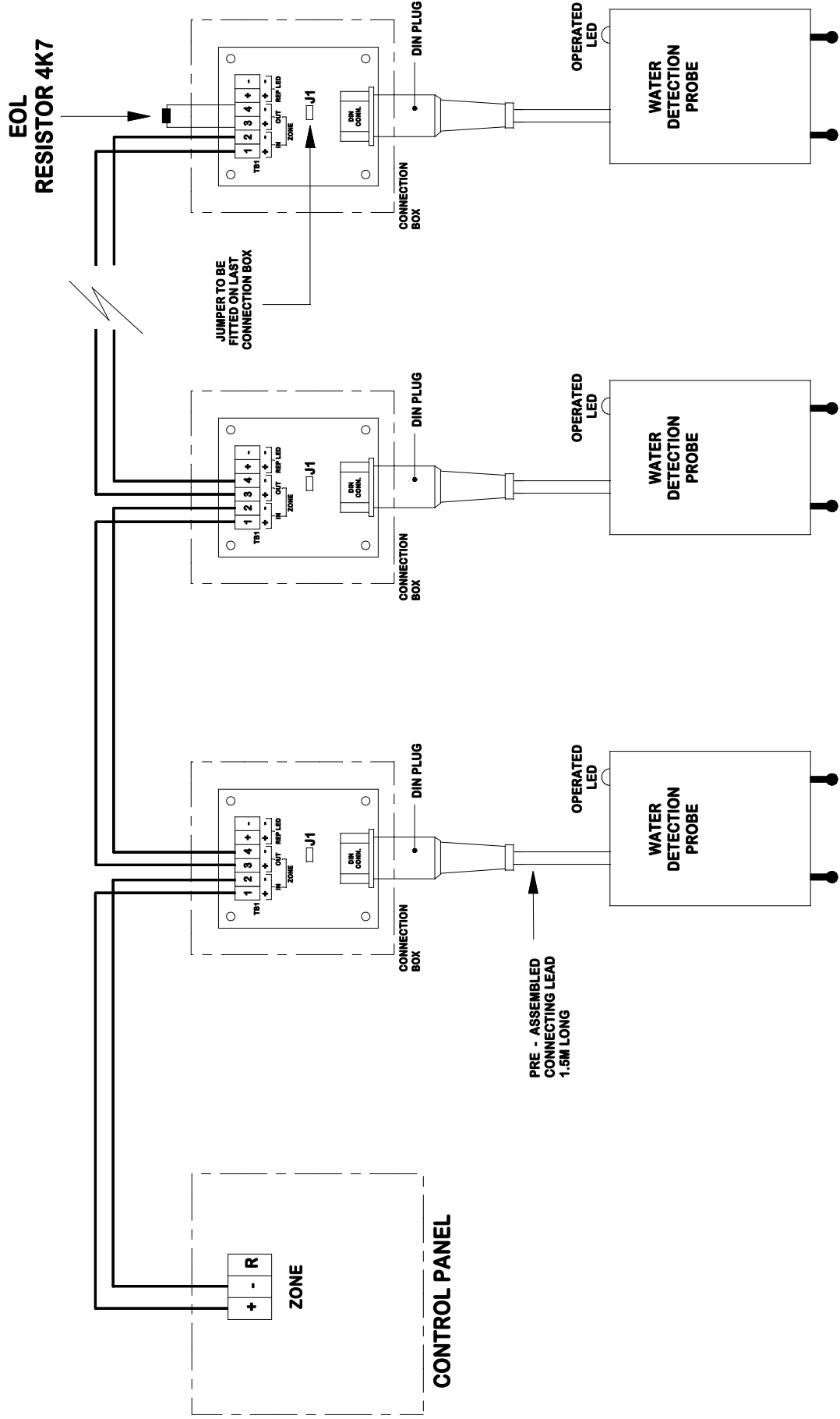
ZONE WIRING SCHEMATIC FOR CONNECTION TO WATER DETECTION PROBE ('s)