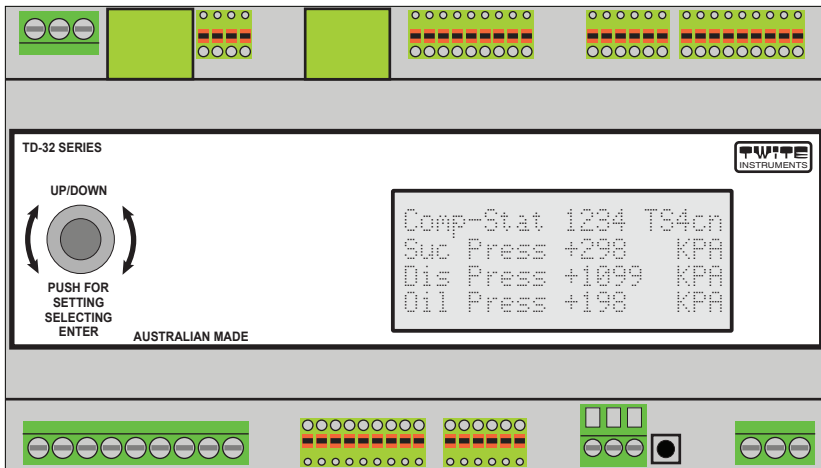


MultiScan

OPERATING MANUAL MODEL TD-32-MR



RECIPROCATING COMPRESSOR
AND STANDARD CONDENSER OR
3C COOLER/DRICON CONDENSER
CONTROLLER



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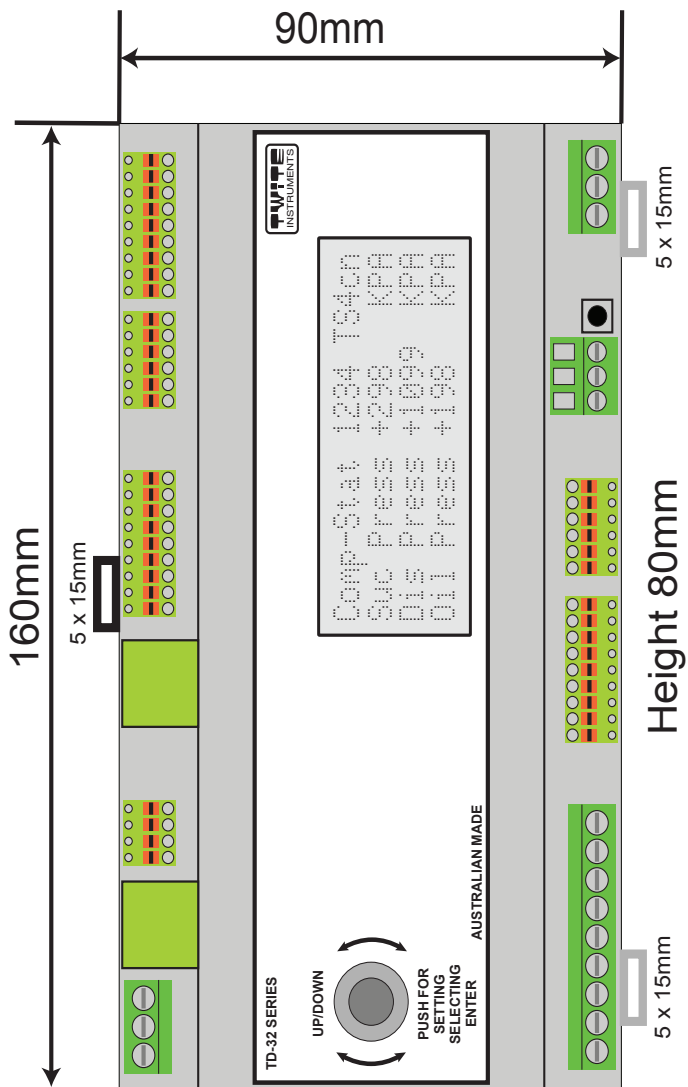
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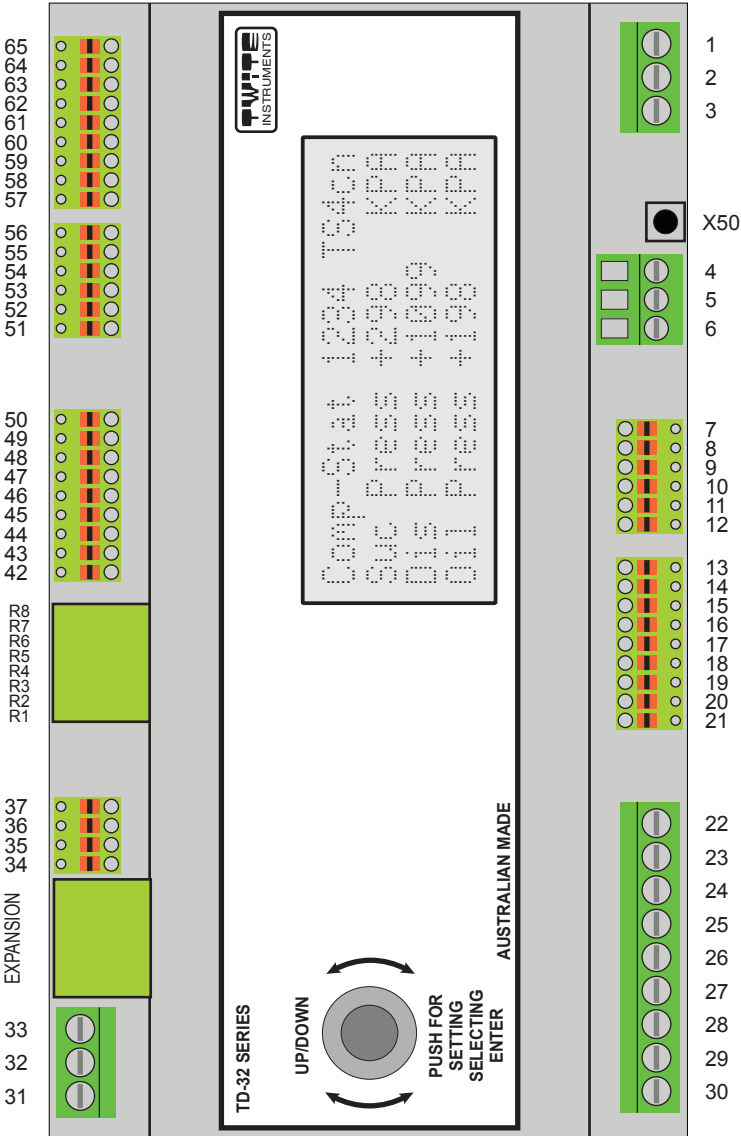
INSTALLATION :-

DIN RAIL MOUNT SIZE OF UNIT.



INSTALLATION :-

TERMINAL NUMBERS.



INSTALLATION :-

MULTISCAN POSITIONING AND MOUNTING.

The unit should be mounted at a level for easy viewing and access to setting knob, using the DIN rail mounting to mount to the DIN rail within the cabinet. Ensure it is in a dry area and not in direct sunlight and not subject to any vibration.

The unit must be mounted as far away from contactors, switching motors, solenoids etc. as possible and if possible mount the unit within its own cabinet.

MULTISCAN UNIT POWER CONNECTION.

Power to the unit must be 24 V dc. and connected to the terminal Block numbers 1 = Ground, 2 = the negative or ground side and 3 = the positive side).

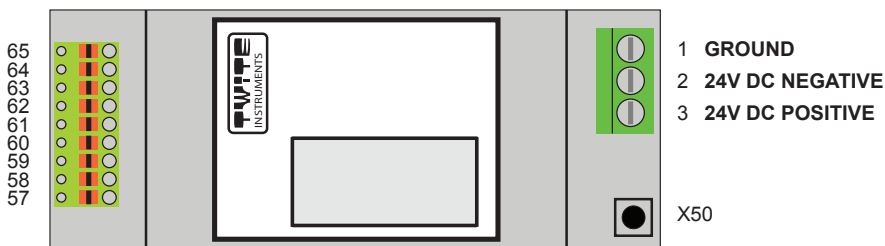
NOTE:- If more than one MultiScan is connected to the same 24v dc power supply, all terminals numbered 2 must be connected to the same side of the 24v dc (ground) and all terminals numbered 3 must be connected to the other side of the 24v dc (positive).

The power supply that is used must be used for the MultiScan only (not connected to any other units) and the cable must not run near or with any control cables.

The power supply cables must be kept away from any control cables that are connected to the relay control outputs, also sensor and transducer cables must be kept away from the control cables.

NOTE:- Terminal 1 and 2 are connected together on the circuit board.

NOTE:- The power supply for the unit should be left on at all times to conserve the battery power for the Real Time Clock and Set Points memory. See Battery Replacement later in this manual to change the battery.



INSTALLATION CONT.

CONTROL OUTPUT POWER CONNECTIONS :-

Power for compressor and condenser control can be up to 24 V ac. and connected to the terminal Block

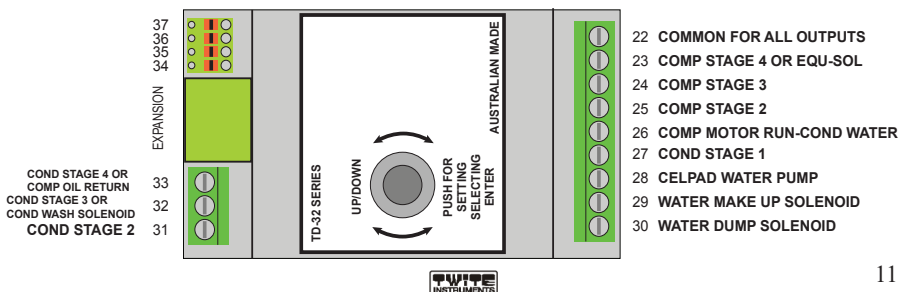
MULTISCAN CONTROL OUTPUT POWER CONNECTIONS. VOLTAGE ON ANY CONTROL OUTPUT AND COMMON MUST NOT EXCEED 24 VOLTS AC AND TOTAL CURRENT OF ALL OUTPUTS MUST NOT EXCEED 5 AMPS. ALL CONTROL CABLES MUST BE KEPT AWAY FROM THE SENSOR AND POWER CABLES THAT RUN THE UNIT.

Terminal No.

- 22 - **The Active common input.**
- 23 - Stage 4 compressor or compressor equalizer solenoid output.
- 24 - Stage 3 compressor output.
- 25 - Stage 2 compressor output.
- 26 - Stage 1 compressor (motor run) and condenser water pump if req. output.

- 27 - Condenser stage 1 (fan 1) output.
- 28 - Condenser celpad water pump output.
- 29 - Condenser water make up solenoid output.
- 30 - Condenser water dump valve output.

- 31 - Condenser stage 2 (fan 2) output.
- 32 - Condenser stage 3 (fan 3) or condenser wash solenoid output.
- 33 - Condenser Stage 4 (fan 4) on condenser or compressor oil return solenoid. compressor output.



INSTALLATION CONT.

MULTISCAN DIGITAL TEMPERATURE INPUT TERMINALS :-

DS18B20 Digital Type (up to 8 temperature sensors may be connected):-

Temperature probes are fitted with 1 meter of cable each (may be extended to a maximum distance of 100 meters using twisted pair shielded cable).

The shield must be connected to ground at the MultiScan terminal number 50 and the shield of the sensor cable, the positive, terminal number 48 must be connected to the white wire of the sensor and the signal, terminal number 49 must be connected to the blue wire of the sensor.

The joins for any extensions must be kept dry and clean and not subject to any voltage or damage will occur.

Each sensor is calibrated to ± 0.5 degrees Celsius (manufactures statement).

Sensors may be calibrated by the end user. See later for calibrating sensors.

Sensor cables must not run parallel or near voltage cables & must be kept well away from voltage and other control cables, at least 2 meters.

Terminal No.

- 50 - Shield of each cable (Ground).
- 49 - Signal all Blue wires to sensors.
- 48 - Positive White for each sensor.

Any sensor may be used for control of the ambient temperature and if more than one sensor is used for ambient (celpad pump) control, the average of all sensors used will be used as the control temperature.

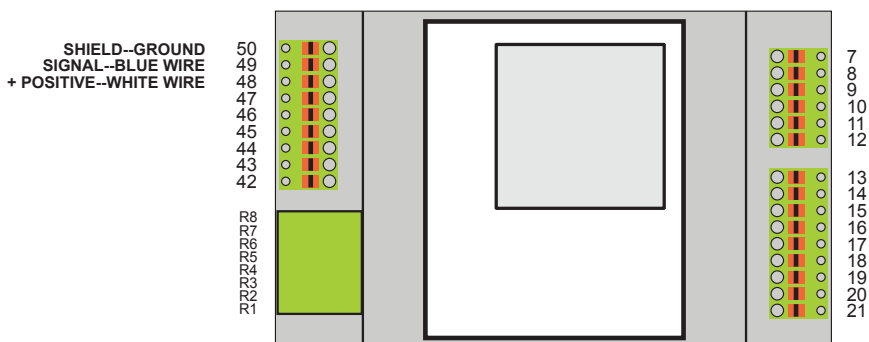
Any sensor may be used for control of the compressor and or condenser (if controlled on temperature and not pressure) and if more than one sensor is used for control, the average of all sensors used will be used as the control temperature for the compressor and or condenser.

Other sensors may be used for oil, suction, discharge etc.

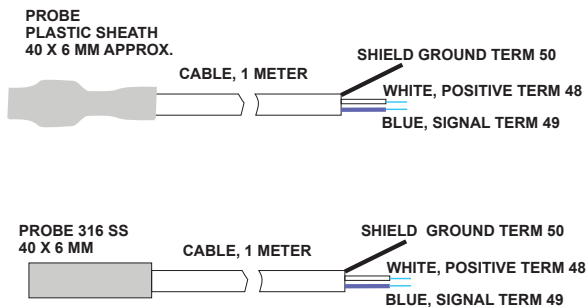
INSTALLATION CONT.

MULTISCAN DIGITAL TEMPERATURE INPUT TERMINALS CONT :-

DS18B20 Digital Type. Up to 8 temperature sensors may be connected



Types of sensors Available



INSTALLATION CONT.

MULTISCAN ANALOG TEMPERATURE INPUT TERMINALS :-

**PT100 Analog Type (up to 7 temperature sensors may be connected) or
AD590 Analog Type (up to 7 temperature sensors may be connected)
But not both types on the same MultiScan.**

When the MultiScan is ordered, the type of sensor to be used must be stipulated as the PCB must be configured by the manufacture.

Temperature probes that are of the type PT100 (platinum type with a resistance value of 100 OHMS at 0.0 oC) of various types can be fitted to the unit.

The PT100 type must be supplied by the end user and may use only the 2 wire type of sensor. Below is the wiring diagram and the internal jumpers that are required to allow for this type of sensor to be used.

AD590 types can be supplied by the manufacturer if required.

Sensors may be extended to a maximum distance of 100 meters using twisted pair shielded cable.

If extended, the shield must be connected to ground at the MultiScan end only and must be continuous for the full length.

The joins for any extensions must be kept dry and clean and not subject to any voltage or damage will occur.

Sensors may be calibrated by the end user. See later for calibrating sensors.

Sensor cables must not run parallel or near voltage cables & must be kept well away from voltage and other control cables, at least 2 meters

Any sensor may be used for control of the ambient temperature and if more than one sensor is used for ambient (cefpad pump) control, the average of all sensors used will be used as the control temperature.

Any sensor may be used for control of the compressor and or condenser (if controlled on temperature and not pressure) and if more than one sensor is used for control, the average of all sensors used will be used as the control temperature for the compressor and or condenser.

Other sensors may be used for oil, suction, discharge etc.

INSTALLATION CONT.

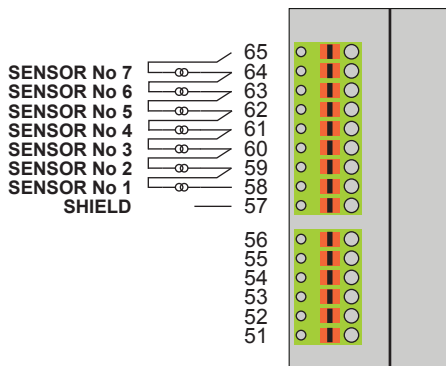
MULTISCAN ANALOG TEMPERATURE INPUT TERMINALS CONT:-

PT100 Analog Type (up to 7 temperature sensors may be connected):-

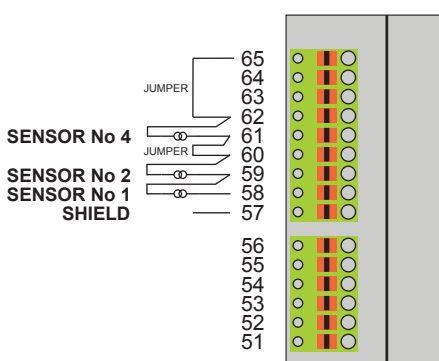
Terminal No.

- 57 - Shield of each cable.
- 58 - Sensor number 1 first wire.
- 59 - Sensor number 1 second wire and sensor number 2 first wire.
- 60 - Sensor number 2 second wire and sensor number 3 first wire.
- 61 - Sensor number 3 second wire and sensor number 4 first wire.
- 62 - Sensor number 4 second wire and sensor number 5 first wire.
- 63 - Sensor number 5 second wire and sensor number 6 first wire.
- 64 - Sensor number 6 second wire and sensor number 7 first wire.
- 65 - Sensor number 7 second wire.

ALL SENSORS CONNECTED PT100



NOT ALL SENSORS CONNECTED PT100



AD590 Analog Type (up to 7 temperature sensors may be connected):-

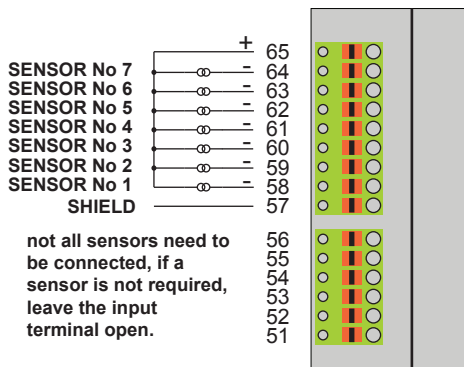
Terminal No.

- 57 - Shield of each cable.
- 58 - Sensor number 1 negative wire.
- 59 - Sensor number 2 negative wire.
- 60 - Sensor number 3 negative wire.
- 61 - Sensor number 4 negative wire.
- 62 - Sensor number 5 negative wire.
- 63 - Sensor number 6 negative wire.
- 64 - Sensor number 7 negative wire.
- 65 - Common for all sensors (Positive).

INSTALLATION CONT.

MULTISCAN ANALOG TEMPERATURE INPUT TERMINALS CONT:-

SENSORS CONNECTED AD590



TEMPERATURE AND PRESSURE CHANNELS USED FOR CONTROL:-

Default Temperature Sensors used for each Function:

| | |
|-------------------------------|---|
| Digital Sensor Number 1 : | Compressor control sensor (temperature control) |
| Digital Sensor Number 2 : | Compressor Suction sensor. |
| Digital Sensor Number 3 : | Condenser control sensor. (temperature control) |
| Digital Sensor Number 4 : | Ambient sensor, celpad pump control. |
| Digital Sensor Number 5 : | Compressor Oil control sensor. |
| Digital Sensor Number 6 : | Compressor discharge sensor. |
| Digital Sensor Number 7 : | Compressor intermediate sensor. |
| Digital Sensor Number 8 : | Spare. |
| Analog Sensor Number 1 to 7 : | Spares. |

Compressor control:

Suction pressure or temperature can be used for compressor control.

If pressure is used the pressure input used is Suction Pressure, 4-20ma input number 1.

If temperature is used, any temperature sensor can be used for control and can be set by the end user and is used.

If more than one sensor is selected, the average of all sensors that return a valid temperature are averaged and is the temperature used for control.

INSTALLATION CONT.

TEMPERATURE AND PRESSURE CHANNELS USED FOR CONTROL CONT:-

Condenser control:

Condenser Discharge pressure or temperature can be used for condenser control.

If pressure is used the pressure input used is the condenser discharge pressure, 4-20ma input number 4.

If temperature is used, any temperature sensor can be used for control and can be set by the end user. It should be the discharge temperature.

If more than one sensor is selected, the average of all sensors that return a valid temperature are averaged and is the temperature used for control.

The temperature used for the oil purge temperature is the same as for condenser control.

Oil probe temperature:

Any temperature sensor can be used for the oil probe and can be set by the end user.

If more than one sensor is selected, the average of all sensors that return a valid temperature are averaged and is the temperature used.

Compressor Suction probe temperature:

Any temperature sensor can be used for the compressor suction probe and can be set by the end user.

If more than one sensor is selected, the average of all sensors that return a valid temperature are averaged and is the temperature used and used for the super heat calculation.

Celpad Water Pump control:

The ambient temperature is be used for the celpad water pump control.

Any temperature sensor can be used for control and can be set by the end user and is used.

If more than one sensor is selected, the average of all sensors that return a valid temperature are averaged and is the temperature used for control.

INSTALLATION CONT.

MULTISCAN PRESSURE & 4-20MA INPUT TERMINALS UP TO 8 POSSIBLE:-

Pressure transducers must be of the 4 to 20ma type and a recommended span of -1 Bar to +24 Bar.

Other spans may be used if required and the span may be programmed into the MultiScan.

The voltage supplied for the transducers is 12v DC. The transducer must be able work correctly on this voltage.

The cable from the MultiScan to the transducers must be twisted pair shielded type and can be up to a maximum distance of 300 meters.

The shield must be connected at the MultiScan end only and all connections must be kept dry and clean.

The positive of each transducer must be connected to the COM of the terminal block and each Negative must be connected to its particular input terminal.

The shield must be connected to the shield terminal.

Sensor cables must not run parallel or near high voltage cables & must be kept well away from high voltage and other control cables, at least 2 meters.

Terminal Inputs for channels 1-4

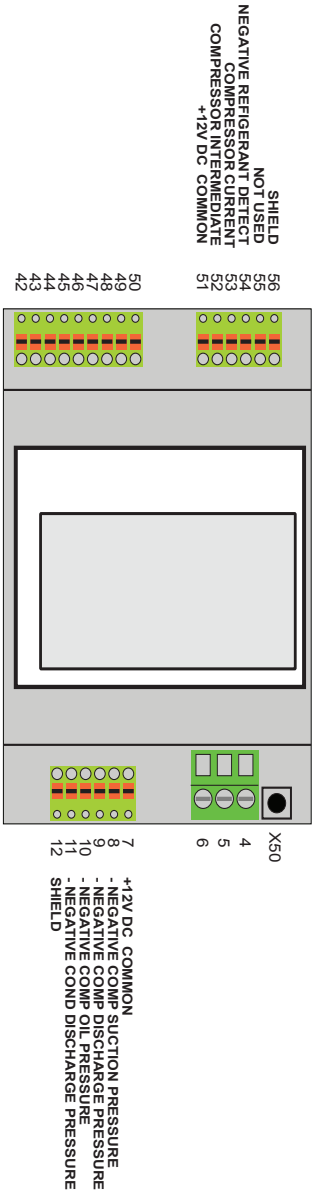
- 12 - Shield of each cable.
- 7 - Common +12 Volts (all Positive wires to transducers).
- 8 - Negative for Compressor Suction Pressure.
- 9 - Negative for Compressor Discharge Pressure.
- 10 - Negative for Compressor Oil Pressure.
- 11 - Negative for Condenser Discharge Pressure.

Terminal Inputs for channels 5-8

- 56 - Shield of each cable.
- 51 - Common +12 Volts (all Positive wires to transducers).
- 52 - Compressor Intermediate Pressure if used.
- 53 - Compressor motor current if used
- 54 - Negative for refrigerant detector if used.
- 55 - Humidity input.

INSTALLATION CONT.

MULTISCAN PRESSURE & 4-20MA INPUT TERMINALS CONT.:-



INSTALLATION CONT.

MULTISCAN DIGITAL INPUT TERMINALS:-

8 Digital inputs are supplied. All inputs are optically isolated.

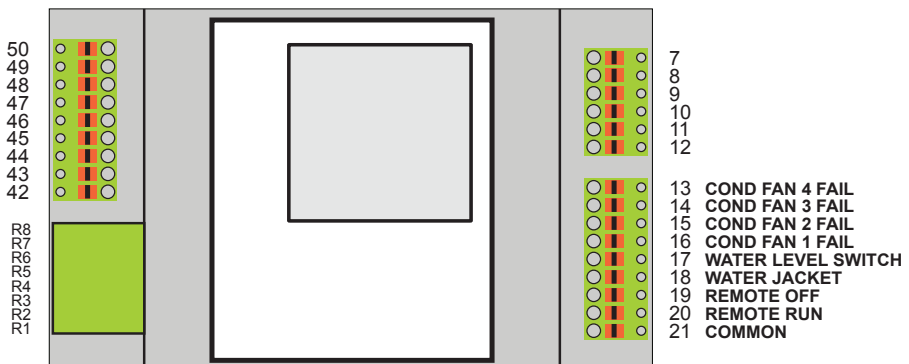
Each Digital input is ON if its input is connected (shortage) to the COM pin of the digital input terminal strip and OFF if not connected (open circuit) if the function "Digital IN Inverted" for each input is set to "NO" and the inverse is true for each input if the function "Digital IN Inverted" is set to "YES".

No voltage is to be applied to any input of the digital inputs.

The distance from the switch (voltage free relay contacts) to switch digital inputs must not exceed 10 meters and must not be run parallel or next to high voltage (240 and above) cables.

Terminal No.

- 21 - Common for all 8 digital inputs.
- 20 - Remote RUN input.
- 19 - Remote OFF input, overrides above input remote run
- 18 - Water Jacket input. Alarm input. Shuts all controls OFF
- 17 - Water level switch.
- 16 - Condenser Fan number 1 fail detect.
- 15 - Condenser Fan number 2 fail detect.
- 14 - Condenser Fan number 3 fail detect.
- 13 - Condenser Fan number 4 fail detect.



INSTALLATION CONT.

COMPSCAN DIGITAL INPUT TERMINALS CONT.:-

DESCRIPTIONS:-

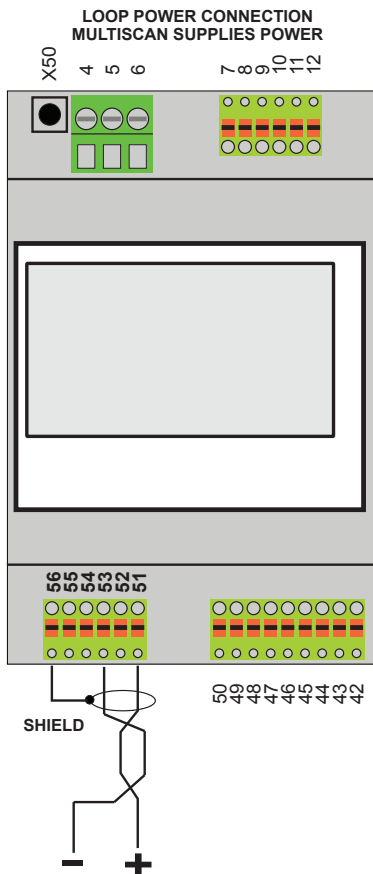
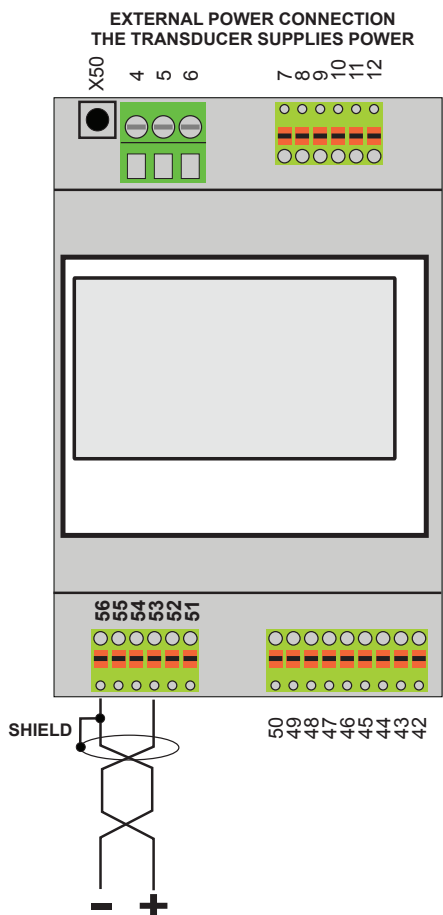
- 21 - Common for all 8 digital inputs.**
- 20 - Remote RUN Input. (IF NOT USED THE UNIT WILL RUN ON START UP IF FUNCTION 1 (CONTROL AUTO OR OFF) IS SET TO YES).**
Used to turn the system ON from a remote location. The system will run automatically to the set points set for temperature and pressure etc. The system will shut down if this input is turned off. All control will shut the system down immediately.
- 19 - Remote OFF Input.**
Used to turn the whole system OFF from a remote location immediately. This input also causes an alarm after a 10 second delay and if a TempScan is connected, the TempScan will also go into alarm.
- 18 - Compressor Water Jacket Input.**
Used to turn the compressor OFF after a 10 second delay if the water jacket flow switch is activated. Also an alarm is activated within the system.
- 17 - Water Level Input.**
Controls the water make up solenoid. If the water level is not made up for 30 minutes the celpad pump cannot be operated and if the water level is not made up for 35 minutes the unit will go into alarm. The compressor continues to operate as does the condenser fans as normal.
- 16 - Condenser Fan Number 1 Fail Input.**
Goes into alarm if the number 1 fan fails.
- 15 - Condenser Fan Number 2 Fail Input.**
Goes into alarm if the number 1 fan fails.
- 14 - Condenser Fan Number 3 Fail Input.**
Goes into alarm if the number 1 fan fails.
- 13 - Condenser Fan Number 4 Fail Input.**
Goes into alarm if the number 4 fan fails.

INSTALLATION CONT.

MULTISCAN 4-20mA CURRENT INPUT TERMINALS:-

The current input is via a 4-20ma transducer and can be loop powered or not. Shown below are the two ways of interfacing the transducer to the MultiScan.

NOTE:- There is a delay of 10 seconds on the current alarm before the compressor motor will be turned off.



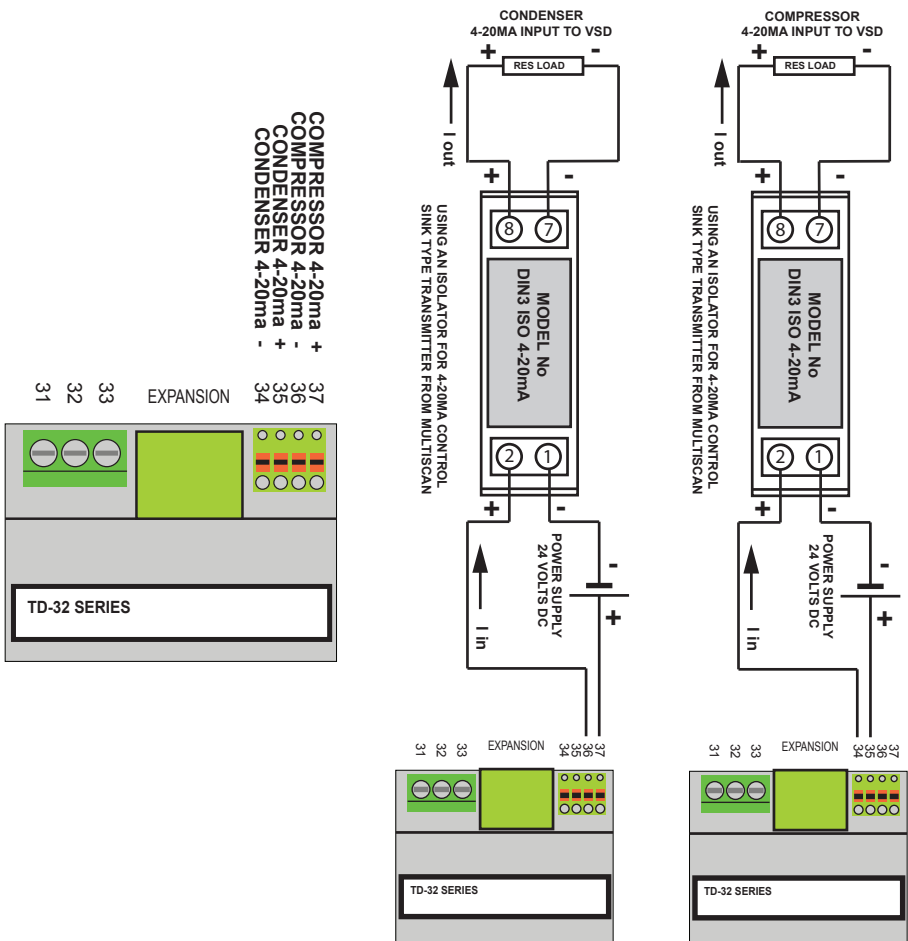
INSTALLATION CONT.

MULTISCAN 4 TO 20 mA OUTPUT TERMINALS:-

The 4 - 20ma outputs are for variable speed motor on the compressor and or variable speed condenser fan motors

It is recommended that a 4-20ma isolator is used. The components are available from the manufacturer and must be wired as shown below.

For variable motor speed control see later for operation parameters.



INSTALLATION CONT.

MULTISCAN ALARM AND OUTPUT TERMINALS:-

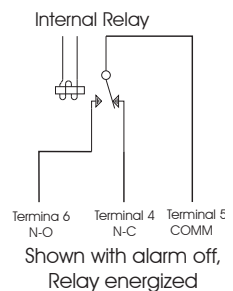
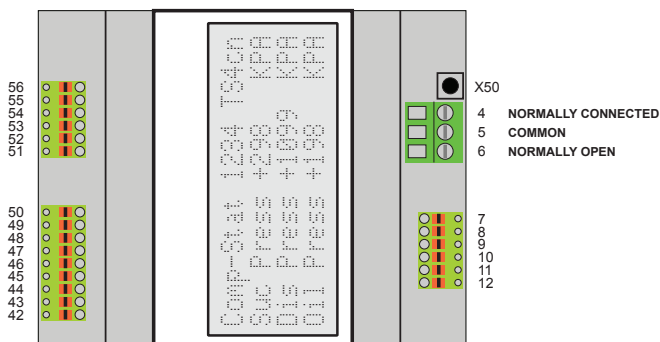
The Alarm Relay is of the voltage free type with a common, normally connected and normally not connected outputs.

The maximum voltage that can be applied to the alarm relay contacts is 24v AC/DC at 1AMP.

Terminals.

- 4 = Normally connected
- 5 = Common
- 6 = Normally open

The Relay is energized (powered on) when not in the alarm state and the normally connected terminal is active (connected). This allows for an alarm to be activated using a battery backup alarm system to trigger if the MultiScan unit losses power.



INSTALLATION CONT.

MULTISCAN RS485 TERMINALS:-

TempScan Connected for Compressor Control.

The RS485 (4 wire) and or the 2 wire serial terminals are used for communicating with a TempScan if connected.

NOTE:- If the 2 wire serial is not used for TempScan condenser control, the 2 wire serial can be used for compressor control in conjunction with the 4 wire RS485 serial or on its own. This allows for the compressor to be turned off when required from the TempScan within 1 second compared to the turn off time of up to 20 seconds using the 4 wire RS485 serial only. See later for compressor control.

The MultiScan compressor section is one of a number (1 to 27 set in setting functions) connected together through the RS485 Terminals as below.

All TX+ are connected, all TX- connected in series and all RX+ connected in series, all RX- connected in series using twisted pair shielded cable and not run near high voltage cables.

The first display ("Comp-Stat 123 TS4cn" or TS2cn" or "TS2cn4cn" on top line) will indicate whether the 4 and or 2 wire communications are successful, the right hand position will show "--" instead of "cn" if no communications are received from the TempScan after 60 seconds.

An alarm will sound after 10 minutes if no communications are received and the compressor will turn off.

The cable is connected to the TempScan via the below terminal numbers.

| TempScan Terminal Number | | MultiScan's Connections | |
|--------------------------|----|-------------------------|-------------|
| Terminal No. | 50 | TX+ | Term No. 43 |
| Terminal No. | 49 | TX- | Term No. 42 |
| Terminal No. | 70 | RX+ | Term No. 45 |
| Terminal No. | 69 | RX- | Term No. 44 |
| Terminal No. | 43 | SHIELD | |

The shield must be connected at the TempScan end only.

INSTALLATION CONT.

MULTISCAN RS485 TERMINALS:-

TempScan Connected for Compressor Control cont.

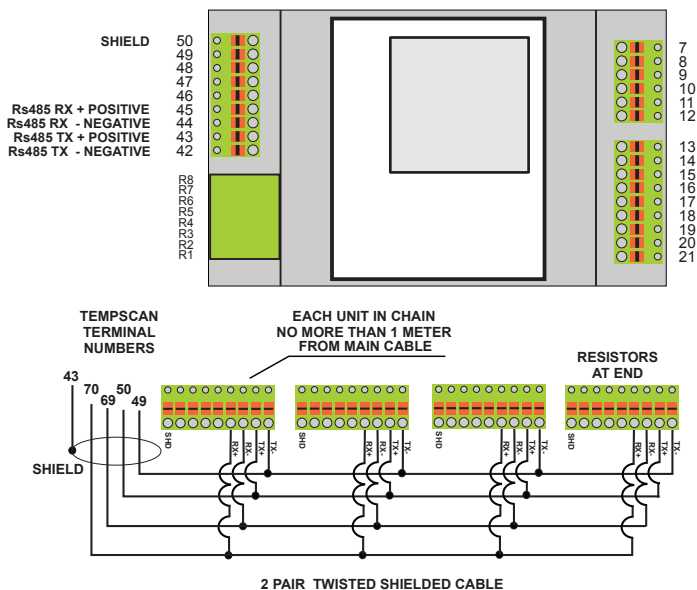
The connection to each unit must be continuous from the TempScan then one to the next then the next etc..

The units must be connected in a daisy chain configuration and not spider from one point.

A Computer is not allowed to be connected to units that are set to connect to a TempScan using the 4 wire RS485 communications.

The unit at the end of the line must have 2 x 120 OHM resistors placed across the TX terminals 42 & 43 and one across the RX terminals 44 & 45.

All MultiScans that are connected and the set point "TempScan Connected" set to "Comp Con - Cond Con" or "Comp Con-Cond St Aln" can supply compressor information to the Tempscan software and the compressor is controlled by the TempScan.



INSTALLATION CONT.

MULTISCAN RS485 TERMINALS:-

TempScan Connected for Condenser Control.

The MultiScan condenser control can be done using the following ways:-.

1. Stand alone (operates with its own set points),.
2. Controlled from a TempScan using RS485 (4 wire) communications in a stepped mode or variable speed mode. Set function "TempScan Ctl StepVar" is used to control using either RS485 or 2 wire communications.
3. Controlled from a TempScan using 2 wire communications in stepped mode only (see next for 2 wire setup). Set function "TempScan Ctl StepVar" is used to control using either RS485 or 2 wire communications.

All connections are the same used for compressor control and communications are supplied from the TempScan using the same connections.

The MultiScan condenser section is one of a number (1 to 12 set in setting functions) connected together through the RS485 Terminals as below.

The second display ("Cond-Stat 123 TS4cn" on top line) will indicate whether the 4 wire communications are successful, the right hand position will show "--" instead of "cn" if no communications are received from the TempScan after 60 seconds.

An alarm will sound after 10 minutes if no communications are received and the condenser will turn off.

The cable is connected to the TempScan as in the previous compressor connections.

All MultiScans that are connected and the set point "TempScan Connected" set to "Comp Con - Cond Con" or "Comp St Aln-Cond Con", the condenser is controlled by the TempScan.

INSTALLATION CONT.

MULTISCAN 2 WIRE SERIAL INPUTS :-

TempScan Connected for Condenser Control.

NOTE:-If the 2 wire serial is not used for TempScan condenser control, the 2 wire serial can be used for compressor control in conjunction with the 4 wire RS485 serial or on its own. This allows for the compressor to be turned off when required from the TempScan within 1 second compared to the turn off time of up to 20 seconds using the 4 wire RS485 serial only. See later for condenser control.

If a TempScan is connected to the MultiScan, the 2 wire serial connections is required for the TempScan to control the condenser of the MultiScan if the set function "TempScan Cont'l Type" is set to "Cond 2W Step-Comp 4W".

The MultiScan is one of a number (1 to 12 set on the DIP switch) connected together through the 2 wire serial the same as remote relay modules are connected to the TempScan.

One Single pair SHIELDED cable must be used to connect the remote control modules to the TEMPSCAN in a daisy chain type connection, not multiple outputs from the TempScan. The maximum distance from the TEMPSCAN must not exceed 500 meters to the furthestmost module and must not run near to high voltage cables, definitely not in the same ducting.

The shield must be connected to the SHIELD at the TEMPSCAN **Terminal No. 43** & connected to the SHIELD terminal on the remote relay boards but not connected to the shield (or ground) on MultiScans.

One wire is connected to SIGNAL - on the TEMPSCAN, **Terminal No. 62** and connected to the serial input - (*negative*) terminal 46 of the MultiScan modules.

One wire is connected to SIGNAL + on the TEMPSCAN, **Terminal No. 61** and connected to the serial input + (*positive*) terminal 47 of the MultiScan modules.

If more than one remote module is connected, they must be connected in series with each other, making sure that the Shield is unbroken at each module's position but not connected to any terminal on the MultiScan.

A terminating resistor of approximately 120 ohms must be placed between the + and

the - serial signal terminals at the further most module (last module on the cable.

INSTALLATION CONT.

MULTISCAN 2 WIRE SERIAL INPUTS :-

TempScan Connected for Condenser Control cont.

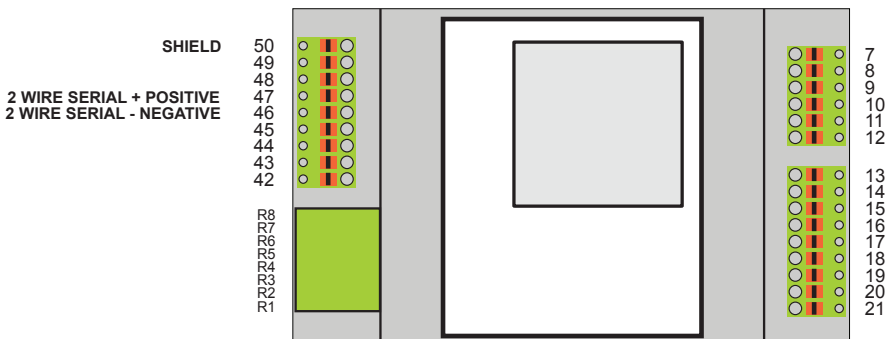
The second display ("Cond-Stat 123 TS2cn" on top line) will indicate whether the 2 wire communications are successful, the right hand position will show "--" instead of "cn" if no communications are received from the TempScan after 60 seconds.

An alarm will sound after 10 minutes if no communications are received and the condenser will turn off.

The cable is connected to the TempScan via the below terminal numbers.

| TempScan Terminal Number | | Connection |
|--------------------------|----|-------------|
| Terminal No. | 61 | + |
| Terminal No. | 62 | - |
| | | Term No. 47 |
| | | Term No. 46 |

The shield must be connected at the TempScan end only.



INSTALLATION CONT.

MULTISCAN 2 WIRE SERIAL INPUTS :-

TempScan Connected cont.

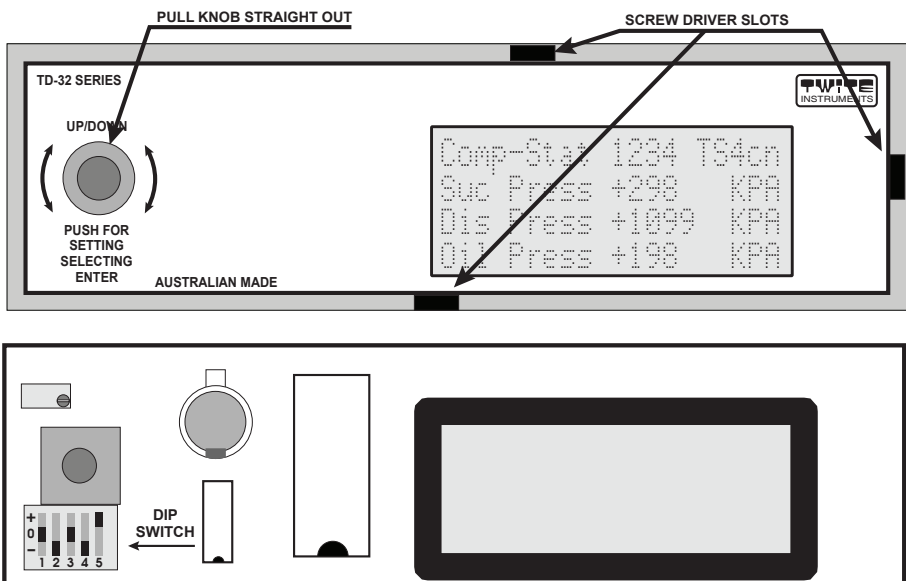
To set the DIP switch.

Remove the knob by pulling straight out.

Remove the front panel by levering it out from the display end and two sides (top and bottom) using a small screw driver being careful not to damage the front panel or the unit.

Switch each DIP switch (1 on the left to 5 on the right) to the correct channel number from 1 to 12.

The settings for each condenser channel number are displayed in the TempScan manual.



The DIP switches have three positions, up, middle and down for each switch.

INSTALLATION CONT.

MULTISCAN RS232 TERMINALS:-

All MultiScan units have a RS232 port.

Computer or Modem Connected:-

A Computer is allowed to be connected if The MultiScan unit is set to "CompCond Stand Alone" using set function "TempScan Connected".

For computer or standard modem the cable used is a 9 pin D connector (female) to the RJ45 connector (female 8 way) on the MultiScan available from the manufacture.

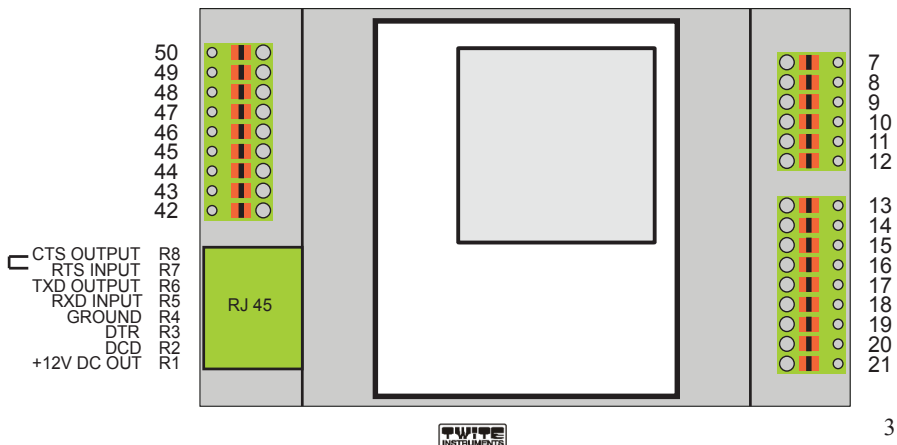
For GSM (wireless) modem connection a standard straight though RJ45 (8 way) cable is used and is available from the manufacture.

NOTE:- Do not connect pin 1 to a computer or dial up modem as this is used to power the SAM (stand alone modem) wireless GSM modem.

The maximum distance the cable can be is 5 meters.

The Baud rate must be 9600, the stop bit must be set to "1", the parity must be set to "NONE" and bit length must be set to "8".

The MultiScan can be communicated with the computer using MultiScan software



available separately.

INSTALLATION CONT.

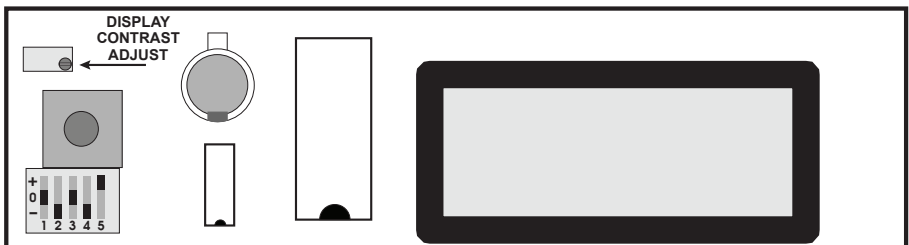
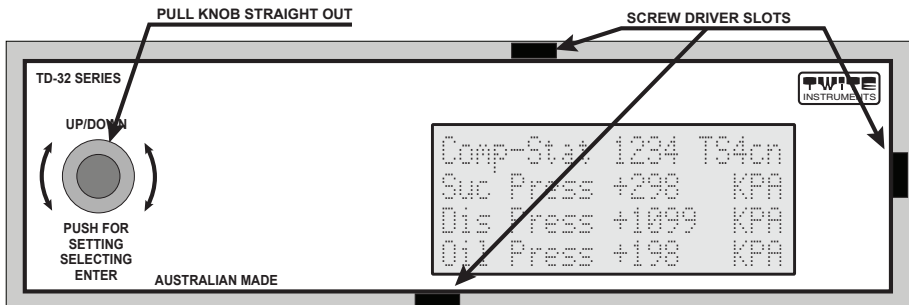
LCD DISPLAY CONTRAST ADJUST.

This trim pot adjusts the intensity of the LIQUID CRYSTAL DISPLAY. This should not normally need adjusting.

Remove the knob by pulling straight out.

Remove the front panel by levering it out from the display end and two sides (top and bottom) using a small screw driver being careful not to damage the front panel or the unit.

To adjust the contrast turn the screw on the pot shown below.



INSTALLATION CONT.

BATTERY REPLACEMENT.

If the backup battery needs replacing, the display will flash "Replace Battery" on the bottom line each second.

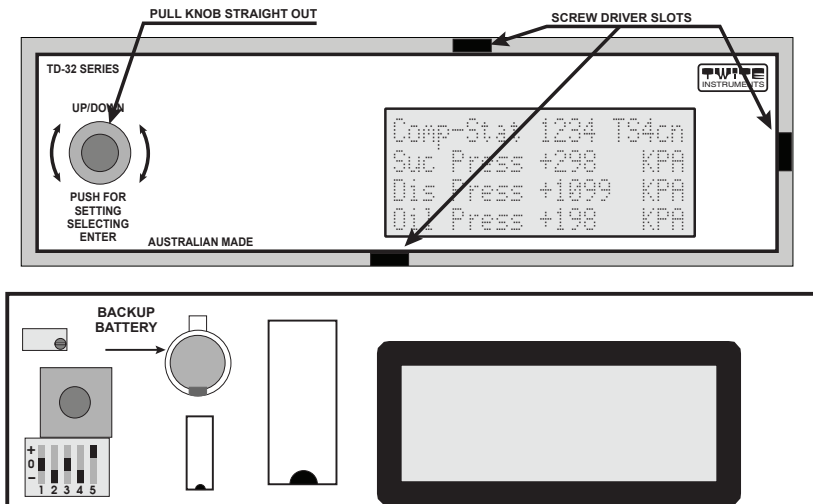
Turn off the power to the unit.

Remove the knob by pulling straight out.

Remove the front panel by levering it out from the display end and two sides (top and bottom) using a small screw driver being careful not to damage the front panel or the unit.

Replace the battery (+ to the top) and cover power on the unit. All set points will be loaded on the first minute change. The clock may need setting after a new battery is has been installed.

When replacing the battery, all data logged and alarms logged will be lost, save all data logged if required before turning off the power.



INSTALLATION CONT.

PROGRAM CHIP REPLACEMENT.

If the program chip needs replacing do the following.

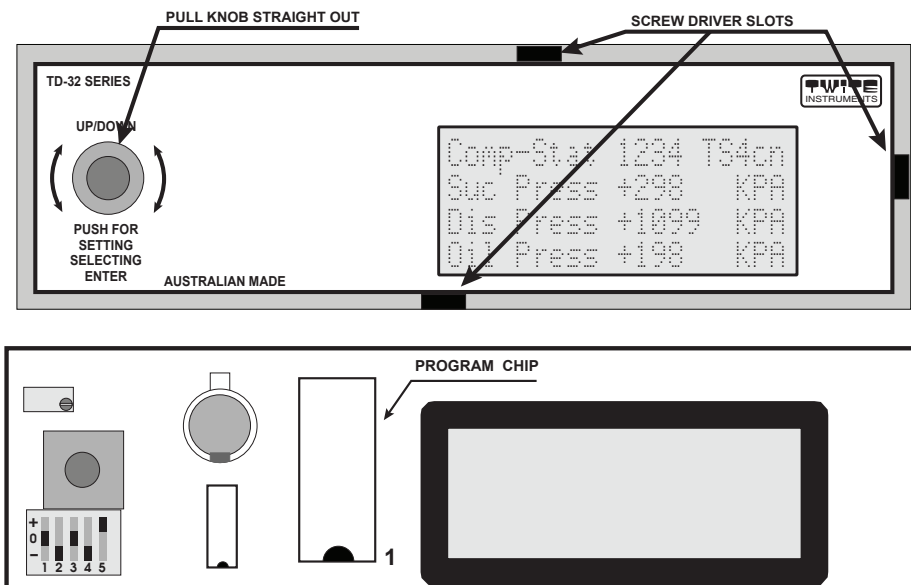
Turn the power off to the unit.

Remove the knob by pulling straight out.

Remove the front panel by levering it out from the display end and two sides (top and bottom) using a small screw driver being careful not to damage the front panel or the unit.

Pull out the program chip straight up and out of its socket.

Place the new program chip into the socket making sure that all pins are lined up to the socket and that the chip orientation is correct. The pin 1 next to the position indicated and the half moon cutout is to the bottom.



INSTALLATION CONT.

EXPANSION SOCKET.

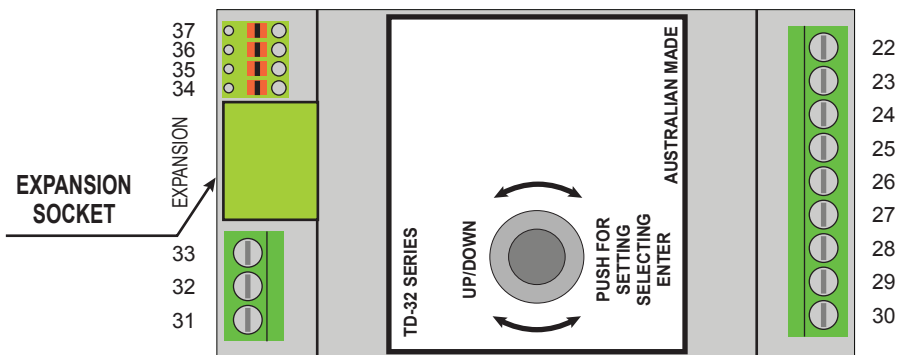
The Expansion socket is used for other modules to be added if required.

Additional LED panel display is available as an optional extra.

To install the LED panel display, follow the below diagrams and connect the cable from the TD-32-MR expansion socket (making sure the orientation is correct) to the INPUT socket of the TD-32-D board (making sure the orientation is correct).

The LED display will indicate the compressors suction pressure or temperature (depending on the control type of the compressor) and the control of the relays for room control on the Bar LED's.

| | | |
|----------|---|----------------------------|
| Top LED | = | Compressor is on. |
| 2nd. LED | = | Condenser Fan 1 is on. |
| 3rd. LED | = | Condenser Fan 2 is on. |
| 4th. LED | = | Condenser Fan 3 is on. |
| 5th. LED | = | Condenser Fan 4 is on. |
| 6th. LED | = | Celpad water pump is on. |
| 7th. LED | = | Water Dump is active (on). |
| 8th. LED | = | Alarm is active (Flashes). |

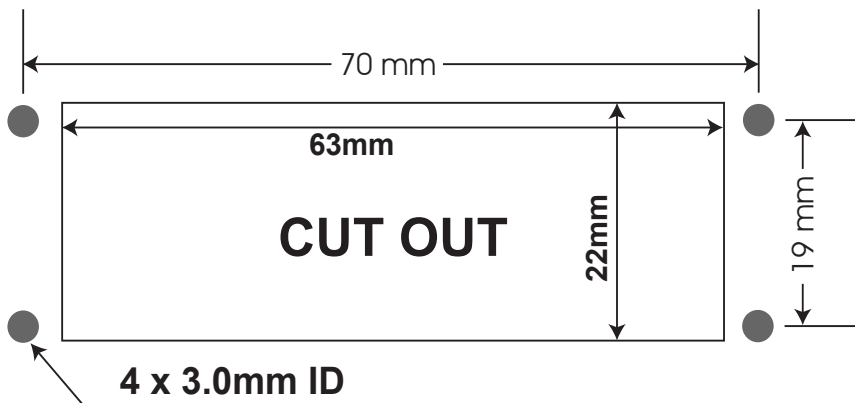


INSTALLATION CONT.

EXPANSION SOCKET CONT.

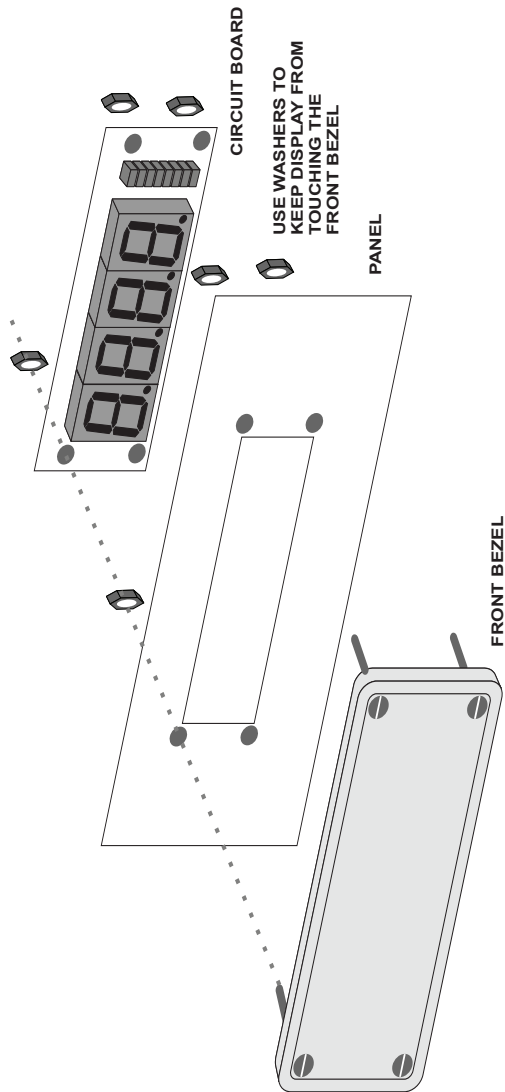
The LED display can be mounted onto a front panel. If the LED display touches the front bezel before the unit is secure, use the washers to set the circuit board back so that the display does not touch the bezel.

Cut the panel as in the diagram with 4 x 3mm holes at each corner to the diagram. place the bezel to the front of the panel and fix it with 4 x 3mm nuts (do not over tighten, otherwise damage to the bezel will occur). Place the circuit board to the rear of the panel (making sure the correct orientation, point UP arrow the UP) and place 4 x 3mm nuts to fix the circuit board in place making sure that the LED does not touch the front bezel.



INSTALLATION CONT.

EXPANSION SOCKET CONT



INSTALLATION CONT.

SENSOR POSITIONING (TEMPERATURE AND PRESSURE) :-

Temperature probes and Pressure transducers must be placed in the appropriate positions in give accurate readings of the process required.

The digital temperature sensors must not be exposed to temperatures below -50.0 °C or above +125.0 °C and the analog sensor span is -50.0 °C to 200.0 °C.

Sensors and cables should not be fully immersed in any liquid for long periods of time. They may be immersed for short periods for calibration purposes only. The stainless steel sheath may be immersed in a liquid that will not corrode AISI 304 Stainless Steel.

Pressure transducers must not exceed there pressure maximums and minimums.

OPERATION.

COMPRESSOR CONTROL:-

STAND ALONE CONTROL:-

The compressor may be controlled using the compressor suction pressure (4-20ma input number 1) or temperature. If temperature control is used, the sensor or sensors may be selected from any one or multiple sensors. If multiple sensors are selected, it uses the average of selected sensors for control. The default (if none selected) is Digital number 1.

The start to start time on power up is always 30 seconds.

The control type can be any one of the following.

1 stage stepped with or without equalizer solenoid on start up.

2 stage stepped with or without equalizer solenoid on start up.

3 stage stepped with or without equalizer solenoid on start up.

4 stage stepped without equalizer solenoid.

1 stage stepped and variable with or without equalizer solenoid on start up.

2 stage stepped and variable with or without equalizer solenoid on start up.

3 stage stepped and variable with or without equalizer solenoid on start up.

4 stage stepped and variable without equalizer solenoid.

The variable is a 4-20ma output to control a variable speed drive.

Stages 2 to 4 may be inverted (energized for unloaded) or not (energized to load).

The Compressor uses fast load, slow load and unload times and pump down set point (*user programmable*) for loading and unloading a compressor.

Also the compressor has a user programmable Start to Start timer in minutes.

The oil return (oil return relay) also is timed and dependent on discharge temperature (if used), oil temperature (if used) and motor on run time.

An equalizer solenoid may be used to bypass the suction to discharge lines on motor start on compressors with less than 4 stages of loading. The equalizer solenoid is turned on by half the set point (time set in seconds) before the motor starts and remains on for half the set point (time in seconds) after the motor starts.

OPERATION CONT.

COMPRESSOR CONTROL CONT:-

STAND ALONE CONTROL CONT:-

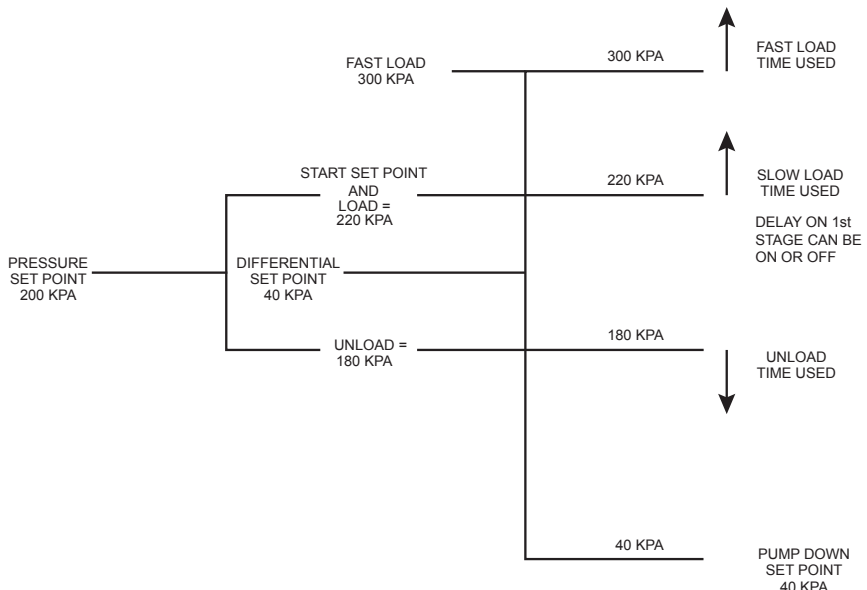
Number of hard piped stages can be entered to allow for correct indication of stages loaded. This is the number of stages that are active (on) when the motor starts.

Step Amount.

The step amount when using variable speed drives can be set between 1 and 10 percent for each step for each time the compressor needs to be loaded or unloaded.

Compressor minimum run.

When using variable speed drives, the minimum run percentage may be set between 0 to 100 percent for each stage of turn on. This is the percentage of speed at the time each stage is loaded and the minimum speed when the stage is to be unloaded. The last stage (stage 1) is left at 100% until the pump down set point is reached.



OPERATION CONT.

COMPRESSOR CONTROL CONT:-

STAND ALONE CONTROL CONT:-

Compressor proportional control.

The proportional control can be used to decrease the time between loading and unload the compressor stages and or the percentage of speed.

If 0 is selected, no proportional control is used.

If set to 1 to 10 proportional control is used as a proportion of the selected amount. The higher the number, the more time is taken off the load and unload times in seconds.

When the pressure/temperature is in the loading stage and counting down to load the compressor and if the pressure/temperature decreases, the count down for loading holds until the pressure/temperature increases again.

When the pressure/temperature is in the unloading stage and counting down to unload the compressor and if the pressure/temperature increases, the count down for unloading holds until the pressure/temperature decreases again.

OPERATION CONT.

TEMPSCAN COMPRESSOR CONTROL:-

TEMPSCAN COMPRESSOR CONTROL USING 2 WIRE COMMUNICATIONS ONLY:-

The 2 wire serial link must be connected and is used for compressor control.

The DIP switch must be set to the required compressor number (**SHOWN IN THE NEXT PAGE**) and the function "Compressor Number ID" should be set to the same number.

The functions "TempScan Connected" must be set to either "Comp Con-Cond St Aln" or "Comp Con - Cond Con".

The function "TempScan Cont'l Type" must be set to "Cond 4W Var -Comp 2W".

The function "Type of Compressor" must be set to the same compressor number as in the TempScan to allow correct loading % on the SCADA software.

The TempScan will control all functions of the compressor except the oil return solenoid (if used) including loading, unloading, start to start timing and the pressure or temperature inputs to the TempScan.

The information from the MultiScans compressor status can be displayed on the TempScan SCADA software via the TempScan if the TempScan is connected to a computer using the 4 wire serial communications if connected and the function "Compressor Number ID" is set to the required number.

The MultiScan compressor alarm functions will still operate and turn the compressor off if required.

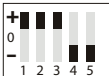
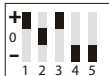
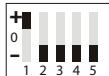
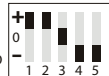
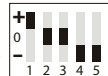
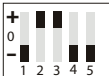
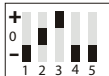
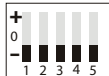

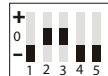
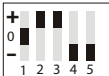
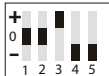
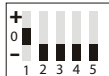

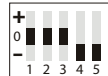

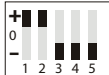


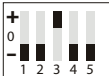

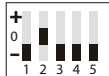
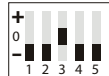
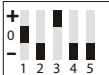
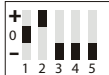
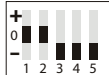
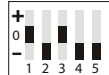
The equalizer solenoid is used for this control type and is set and operated by the TempScan.

OPERATION CONT.

TEMPSCAN COMPRESSOR CONTROL:-

TEMPSCAN COMPRESSOR CONTROL USING 2 WIRE COMMUNICATIONS ONLY CONT:-

Compressor number DIP switch settings for MultiScan compressor control using 2 wire serial comms (stepped).

| CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION |
|----------|---|----------|---|----------|---|----------|---|-------------------|---|
| 1 |  | 7 |  | 13 |  | 19 |  | 25 |  |
| 2 |  | 8 |  | 14 |  | 20 |  | 26 |  |
| 3 |  | 9 |  | 15 |  | 21 |  | 27 |  |
| 4 |  | 10 |  | 16 |  | 22 |  | COND 12 LIQ LEV 1 | |
| 5 |  | 11 |  | 17 |  | 23 |  | | |
| 6 |  | 12 |  | 18 |  | 24 |  | | |

OPERATION CONT.

TEMPSCAN COMPRESSOR CONTROL CONT:

TempScan Compressor Control using 4 Wire (RS485) Communications:-

The TempScan will control all functions of the compressor except the oil return solenoid (if used) including loading, unloading, start to start timing and the pressure or temperature inputs to the TempScan.

The function "Compressor Number ID" must be set to the required number.

The function "TempScan Connected" must be set to either "Comp Con-Cond St Aln" or "Comp Con - Cond Con".

The function "TempScan Cont'l Type" must be set to "Cond 4W Var -Comp 4W" or "Cond 2W Step -Comp 4W".

The information from the MultiScans compressor status can be displayed on the TempScan SCADA software via the TempScan if the TempScan is connected to a computer.

The MultiScan compressor alarm functions will still operate and turn the compressor off if required.

The compressor may be controlled in step mode or variable speed mode from the TempScan.

The function "Type of Compressor" is not used and can be set to any type.

The TempScan sets the type of compressor control. If the TempScan is set to 1 to 4 stages stepped the MultiScan compressor control will load and unload on the stages set by the TempScan. If the TempScan is set to variable the MultiScan will turn on stage 1 when required and after the motor has started for 15 seconds all other stages will be turned on and the 4-20ma output will vary the speed of the motor that has been received from the TempScan and use the suction pressure/temperature input to the TempScan.

NOTE:- The equalizer solenoid is not available when a TempScan is controlling the compressor in this mode.

OPERATION CONT.

TEMPSCAN COMPRESSOR CONTROL CONT:

TempScan Compressor Control using 4 Wire (RS485) & 2 Wire Communications:-

The TempScan will control all functions of the compressor except the oil return solenoid (if used) including loading, unloading, start to start timing and the pressure or temperature inputs to the TempScan.

The DIP switch must be set to the required compressor number (**SHOWN IN THE NEXT PAGE**) and the function "Compressor Number ID" must be set to the same number.

The function "TempScan Connected" must be set to either "Comp Con-Cond St Aln" or "Comp Con - Cond Con".

The function "TempScan Cont'l Type" must be set to "Cond 4W Var -Comp2&4W".

The information from the MultiScans compressor status can be displayed on the TempScan SCADA software via the TempScan if the TempScan is connected to a computer.

The MultiScan compressor alarm functions will still operate and turn the compressor off if required.

The function "Type of Compressor" must be set to the same compressor number as in the TempScan to allow correct loading % on the SCADA software.

The TempScan sets the type of compressor control. If the TempScan is set to 1 to 4 stages stepped the MultiScan compressor control will load and unload on the stages set by the TempScan. If the TempScan is set to variable the MultiScan will turn on stage 1 when required and after the motor has started for 15 seconds all other stages will be turned on and the 4-20ma output will vary the speed of the motor that has been received from the TempScan and use the suction pressure/temperature input to the TempScan.

With the 2 wire serial connected, this allows for the compressor to be turned off when required from the TempScan within 1 second compared to the turn off time of up to 20 seconds using the 4 wire RS485 serial only.

OPERATION CONT.

TEMPSCAN COMPRESSOR CONTROL:

TempScan Compressor Control using 4 Wire (RS485) & 2 Wire Communications cont:-

NOTE:- The equalizer solenoid is not available when a TempScan is controlling the compressor in this mode.

Compressor number DIP switch settings for MultiScan compressor control using 2 wire and 4 wire serial comms (variable).

| CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION |
|----------|-------------------|----------|-------------------|----------|-------------------|----------|-------------------|----------|-------------------|
| 1 | | 7 | | 13 | | 19 | | 25 | |
| 2 | | 8 | | 14 | | 20 | | 26 | |
| 3 | | 9 | | 15 | | 21 | | 27 | |
| 4 | | 10 | | 16 | | 22 | | 28 | |
| 5 | | 11 | | 17 | | 23 | | 29 | |
| 6 | | 12 | | 18 | | 24 | | 30 | |

OPERATION CONT.

CONDENSER CONTROL:-

The MultiScan condenser control can be either a standard water and fans or 3C cooler or dricon type and controlled in the following ways:-

1. Stand alone (operates with its own set points),.
2. Controlled from a TempScan using RS485 (4 wire) communications in a stepped mode or variable speed mode. Set function "TempScan Cont'l Type" is used to control using either RS485 (4 wire) or 2 wire communications.
3. Controlled from a TempScan using 2 wire communications in stepped mode only (see next for 2 wire setup). Set function "TempScan Cont'l Type" is used to control using either RS485 (4 wire) or 2 wire communications.

Stand Alone Condenser Control:-

The condenser may be controlled using the discharge (fluid out) pressure or temperature (fluid out). If temperature control is used, the sensor or sensors may be selected from any one or multiple sensors. If multiple sensors are selected, it uses the average of selected sensors for control. The default (if none selected) is Digital number 3.

The condenser will run independently from the compressor.

The control type can be any one of the following.

- 1 stage stepped.**
- 2 stage stepped.**
- 3 stage stepped.**
- 4 stage stepped.**
- 1 stage stepped and variable.**
- 2 stage stepped and variable.**
- 3 stage stepped and variable.**
- 4 stage stepped and variable.**

NOTE:-

If 3 stage is used, the wash function (3c cooler & dricon only) is not available.

If 4 stage is used, the oil return on the compressor is not available.

OPERATION CONT.

CONDENSER CONTROL:-

Stand Alone Condenser Control cont:-

The variable is a 4-20ma output to control a variable speed drive for all or each stage as required.

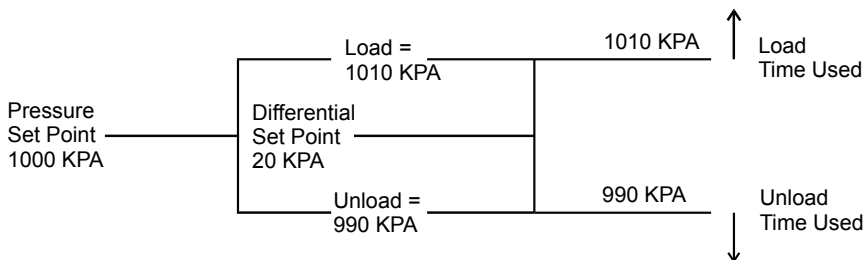
Condensers use load and unload time set points (*user programmable*) for loading and unloading a condenser.

Step Amount.

The step amount when using variable speed drives can be set between 1 and 10 percent for each step for each time the condenser needs to be loaded or unloaded.

Condenser minimum run.

When using variable speed drives, the minimum run percentage may be set between 0 to 100 percent for each stage of turn on. This is the percentage of speed at the time each stage is loaded and the minimum speed when the stage is to be unloaded.



OPERATION CONT.

CONDENSER CONTROL CONT:-

Stand Alone Condenser Control cont:-

Condenser proportional control.

The proportional control can be used to decrease the time between loading and unload the condenser stages and or the percentage of speed.

If 0 is selected, no proportional control is used.

If set to 1 to 10 proportional control is used as a proportion of the selected amount. The higher the number, the more time is taken off the load & unload times in seconds.

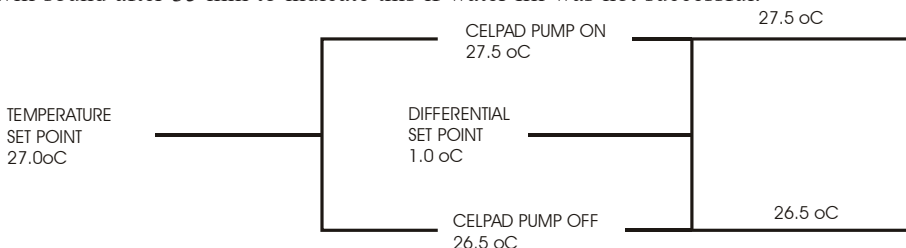
When the pressure/temperature is in the loading stage and counting down to load the condenser and if the pressure/temperature decreases, the count down for loading holds until the pressure/temperature increases again.

When the pressure/temperature is in the unloading stage and counting down to unload the condenser and if the pressure/temperature increases, the count down for unloading holds until the pressure/temperature decreases again.

Celpad Water Control (3c cooler and dricon only).

The Celpad water pump is controlled by the AMBIENT temperature (default digital number 4) according to the set point and the differential or can be run when all fans are on (full speed) after a time out.

NOTE:- The celpad pump will turn off if no fans are on regardless of the ambient temperature. Also the celpad pump will turn off if the water filling solenoid is on for 30 minutes or more (continuously with the celpad pump running, the time display will show "Pump OFF - Water Low" on the bottom line of the LCD) and an alarm will sound after 35 min to indicate this if water fill was not successful.



OPERATION CONT.

CONDENSER CONTROL CONT:-

Stand Alone Condenser Control cont:

Wash Control (optional) (3c cooler and dricon only).

The wash solenoid relay will turn on at the "Condenser Set Point" temperature/pressure plus the "Wash ON Set Point" and off at the "Condenser Set Point" plus (minus value added) the "Wash OFF Set Point" with the fluid out temperature/pressure (default digital temp number 4, pressure 4) but will not turn on unless all fan stages are on (and 100% if variable is used) and will turn off as soon as the last stage of fans turn off (or less than 100% if required).

If both the "Wash ON Set Point" and the "Wash OFF Set Point" are set to 0, the wash solenoid will never turn on.

Otherwise if the fans are fully loaded (and the celpad pump is off) the celpad pump will turn on regardless of the ambient temperature for 120 seconds, if after 120 seconds the temperature is not within the required temperature the wash solenoid will turn on and off with the set points, also the celpad pump will not stay on if it is not required using the ambient temperature.

If the celpad pump cannot turn on because of dumping and waiting for make up temperature etc. the wash solenoid will turn on immediately.

Water Level Float Switch Control (3c cooler and dricon only).

The water levels can be controlled using float level (reed relay) switches. Connection from the float switches must be connected as above for each unit The switches must be voltage free.

If the inputs are set to "Not Connected" the solenoids will operate as normal using mechanical float valves or other such device to fill the unit.

The switches must be in a stable condition i.e.:- open for at least 10 seconds before the unit will turn the solenoids on to allow for fluctuations in the water levels within the tanks. There is a 2 second delay for water level full.

If after a dump or reset (power up) the float switches become active and the water float switches indicate that the water level is full, each celpad turn on delay will be set to 5 (if it was higher) and allow the celpad pump to come on if required.

OPERATION CONT.

CONDENSER CONTROL CONT:-

Stand Alone Condenser Control cont:

Dump Control (3c cooler and dricon only).

The water will be dumped at the time specified in the function set point. If no dump time is set or the dump time is too small a forced dump will be performed at the day set in functions.

A flush will be performed only if the celpad pump needs to come on after the dump has been done else no flush is performed and the filling will wait for the make up temperature to be reached or time out of celpad pump on if all fans full on is used.

The water tray can be filled or not filled using the water make up output (to allow drying of the system) after a dump is performed it is not filled until a temperature (set in functions, "Water Makeup Temp ON") reaches the correct temperature which is the celpad pump set point temperature ("Celpad Pump Set Pnt") plus this set point ("Water Makeup Temp ON"). A minus value will fill the tray before the celpad pump turns on. A recommended value is 2.0 oC with the celpad pump differential set at 1.0 oC, this will start filling the tray 1.5 oC less than the celpad set point.

When the unit starts to dump and if the level switch (if connected) does not open within half the time of the dump (draining) period indicating that the drain solenoid is faulty or the drain is blocked, it will cause an alarm but allow the unit to run as normal.

The unit will not do a dump sequence if a dump was done and the unit has been waiting for the make up temperature since the last dump period.

Auto Dry Control (3c cooler and dricon only).

Auto dry is to dry the celpad and water tray. This can be done on any day of the week.

If the set point "Auto Dry Min Time" is set to 0 there is no auto dry performed.

There is no flush performed after an auto dry function.

OPERATION CONT.

CONDENSER CONTROL CONT:-

TEMPSCAN CONDENSER CONTROL 2 WIRE SERIAL:-

NOTE:-

Set function "TempScan Cont'l Type" must be set to "Cond 2W Step-Comp 4W".

Set function "Condenser Number ID" does not need to be set as it is not used for this type of control.

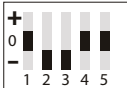
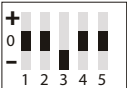
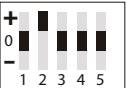
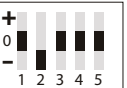
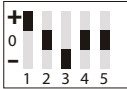
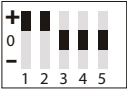
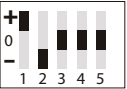
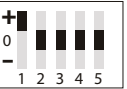


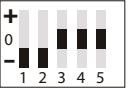
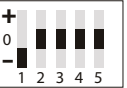
The DIP switch must be set to the condenser ID and is used for control of the condenser from the TempScan. The 4 wire RS485 serial is not used.

The function "Type of Condenser" must be set to the same number of stages (not variable) as the number of stages on the TempScan.

In this mode the stage 1 to 4 are turned on and off from the TempScan discharge pressure from the TempScan input.

All other functions if the unit is a 3c cooler or dricon are the same as in stand alone operation.

Condenser number DIP switch settings for MultiScan condenser control using 2 wire serial.

| CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION | CHAN No. | SWITCHES POSITION |
|----------|---|----------|---|----------|---|----------|---|
| 1 |  | 4 |  | 7 |  | 10 |  |
| 2 |  | 5 |  | 8 |  | 11 |  |
| 3 |  | 6 |  | 9 |  | 12 |  |

OPERATION CONT.

CONDENSER CONTROL CONT:-

TEMPSCAN CONDENSER CONTROL RS485 4 WIRE SERIAL:-

NOTE:-

Set function "TempScan Cont'l Type" must be set to "Cond 4W Var-Comp 4W" or Cond 4W Var-Comp 2W" or Cond 4W Var-Comp2&4W".

Set function "Condenser Number ID" must be set to the number required.

The DIP switch does not set the condenser ID and is not used for control of the condenser from the TempScan. The 4 wire RS485 serial is used only to control the condenser.

The function "Type of Condenser" must be set to "2 Stage Condens'r Var".

In this mode the stage 1 of the condenser output is turned on and the 4-20ma output is set to the value that the TempScan supplies and is controlled by the discharge pressure from the TempScan input.

If the percentage is set to 0% the condenser stage 2 output is off and for any other percentage the stage 2 output is turned on.

All other functions if the unit is a 3c cooler or dricon are the same as in stand alone operation.

OPERATION CONT.

ALARM ACTION:-

Some alarms will turn the system off and some will indicate the alarm but the system will still run. If any sensor used in a control temperature/pressure goes into alarm, that control temperature/pressure will alarm and the system will shut down.

All alarms are indicated on the alarm display page in the order and time they were activated.

To scroll through the alarms, turn the knob to the alarm page and press the knob once then turn the knob clockwise or anticlockwise to display each alarm.

To reset the alarms, Press the knob again, if any alarm is still active the alarm will sound and each new alarm is displayed. If no new alarms are still active the display reverts to normal running mode.

While the alarms are displayed, pressing the knob and holding it down for 3 seconds the display will revert to the normal run displays and different pages can be displayed by turning the knob clockwise and anticlockwise.

All alarms have a minimum delay of 10 seconds. Over range sensors have a delay of 20 seconds and no sensor (on digital temperature sensors only) alarms have a delay of 20 seconds.

The following is a sample of the alarms displayed. The buzzer will sound and the alarm relay will turn off. To disable the buzzer press the x50 button or the spin knob.

```
ALARMS LOGGED STATUS
TOTAL No. ALARMS 01
order 01 Disch Pres
17:46 04 Jan +1200
```

If no alarms are active the display will show:-

```
ALARMS LOGGED STATUS
NO ALARMS LOGGED
```

OPERATION CONT.

ALARM ACTION CONT.:-

The following is the display for each alarm and its meaning. The N = No alarm on this input. The S = the system will shut down if this goes into alarm, C = the celdek pump will turn off, M = the compressor will turn off, D = the condenser will turn off and A = Only an alarm will sound on this input but the system will continue to run. If a channel is set to "not connected" no alarm will activate on that input:-

| | | | |
|----|---------------|---|--|
| 1 | "Dig Temp 1" | A | The digital temperature No 1 is in alarm. |
| 2 | "Dig Temp 2" | A | The digital temperature No 2 is in alarm. |
| 3 | "Dig Temp 3" | A | The digital temperature No 3 is in alarm. |
| 4 | "Dig Temp 4" | A | The digital temperature No 4 is in alarm. |
| 5 | "Dig Temp 5" | A | The digital temperature No 5 is in alarm. |
| 6 | "Dig Temp 6" | A | The digital temperature No 6 is in alarm. |
| 7 | "Dig Temp 7" | A | The digital temperature No 7 is in alarm. |
| 8 | "Dig Temp 8" | A | The digital temperature No 8 is in alarm. |
| 9 | "Analog Tmp1" | A | The Analog temperature No 1 is in alarm. |
| 10 | "Analog Tmp2" | A | The Analog temperature No 2 is in alarm. |
| 11 | "Analog Tmp3" | A | The Analog temperature No 3 is in alarm. |
| 12 | "Analog Tmp4" | A | The Analog temperature No 4 is in alarm. |
| 13 | "Analog Tmp5" | A | The Analog temperature No 5 is in alarm. |
| 14 | "Analog Tmp6" | A | The Analog temperature No 6 is in alarm. |
| 15 | "Analog Tmp7" | A | The Analog temperature No 7 is in alarm. |
| 16 | "Not Used" | N | No alarm in this position. |
| 17 | "Suction Prs" | M | The suction pressure transducer is in alarm. |
| 18 | "Discharge P" | M | The discharge pressure transducer is in alarm. |
| 19 | "Oil Press " | M | The oil pressure transducer is in alarm. |
| 20 | "Cond Disch" | D | The condenser discharge transducer is in alarm. |
| 21 | "Cmp Interm" | M | The compressor intermediate pressure is in alarm. |
| 22 | "Cmp Current" | M | The motor current transducer is in alarm.. |
| 23 | "Refrig Det " | A | The refrigerant detector is in alarm. |
| 24 | "Humidity %" | A | The humidity percentage input is in alarm. |
| 25 | "Comp Cont'l" | M | Any compressor control temperature sensor is in alarm. |
| 26 | "Cond Cont'l" | D | Any condenser control temperature sensor is in alarm. |
| 27 | "Comp Oil Tm" | M | Any oil temperature sensor is in alarm. |
| 28 | "Comp Suct'n" | M | Any compressor suction temperature sensor is in alarm. |
| 29 | "Disch Temp" | A | Any discharge temperature sensor is in alarm. |
| 30 | "Ambient Tmp" | C | Any ambient temperature sensor is in alarm. |
| 31 | "Comp Int'md" | A | Any compressor intermediate temperature sensor in alarm. |

OPERATION CONT.

ALARM ACTION CONT.:-

| | | |
|--------------------|---|--|
| 32 "Spare Alarm 1" | N | Not used |
| 33 "Remote ON " | N | Not used |
| 34 "Remote OFF" | S | Digital input to shut the system down. (10 sec delay). |
| 35 "Water Jack" | M | Digital input for no water jacket flow. (10 sec delay). |
| 36 "Water Level" | C | Digital input from condenser water sump. (10 sec delay). |
| 37 "Cond Fan 1" | A | Digital input condenser fan number 1 failed. (10 sec delay). |
| 38 "Cond Fan 2" | A | Digital input condenser fan number 2 failed. (10 sec delay). |
| 39 "Cond Fan 3" | A | Digital input condenser fan number 3 failed. (10 sec delay). |
| 40 "Cond Fan 4" | A | Digital input condenser fan number 4 failed. (10 sec delay). |
| 41 "Super Heat" | M | Super heat = 0 or less on compressors suction (see below). |
| 42 "Super Sat T" | A | Compressor super saturated Temperature. |
| 43 "TempScan 2" | S | TempScan 2 wire room only control failed. |
| 44 "TempScan 4" | S | TempScan 4 wire communications failed. |
| 45 "Drain Block" | A | The drain solenoid is faulty or the drain is blocked. |

The super heat is only activated if the compressor motor is on and has been on for at least 30 minutes from start. Can be deactivated by selecting no refrigerant used.

ALARM HISTORY:-

The alarm history displays the last 40 alarms that were active. After 40 alarms have been logged the next alarm is placed over the first alarm that was saved and each successive alarm placed over the next earliest alarm etc..

To display each alarm history, rotate the "UP/DOWN" knob until the alarm history page is displayed, press the knob briefly, then rotate the knob to display other alarm history information.

To revert to normal run display press the knob for 3 seconds.

The display will revert to the time display (page 1) after 240 seconds if nothing is pressed or turned.

OPERATION CONT.

ALARM HISTORY CONT:-

THE FOLLOWING IS A TYPICAL ALARM HISTORY DISPLAY.

```
ALARM HISTORY; SHOWS  
THE LAST 40 ALARMS  
HOT WATER  
20:45 04 JAN +44.0 oC
```

IF NO ALARM IS IN A POSITION, THE FOLLOWING WILL BE DISPLAYED.

```
ALARM HISTORY; SHOWS  
THE LAST 40 ALARMS  
  
NO ALARM IN THIS POS
```

DATA LOGGING.

Data logging is done on the times set in the functions setting and can log at the below times.

Data logging may be done at timed intervals as follows:-

- | | | |
|----|------------------|---|
| 1: | NONE (don't do) | Does not do timed logging. |
| 2: | Every 1 Minute | Does a logg every minute on the minute change. |
| 3: | Every 5 Minutes | Does a logg every 5 minutes at 5, 10 15 etc. |
| 4: | Every 10 Minutes | Does a logg every 10 minutes at 10, 20, 30 etc. |
| 5: | Every 30 Minutes | Does a logg every 00, 30 minutes. |
| 6: | Every 1 Hour | Does a logg every hour on the hour change. |
| 7: | Every 2 Hours | Does a logg every 2 hours at 2, 4, 6 etc. |

To display data logged, rotate the knob until the data log display page is displayed, displays "Data Logged Display" on the top line.

DATA LOGGING CONT.

Press the knob briefly to hold the display. Rotating the knob will go to the next/previous time to be displayed.

When the displayed time reaches the end/start the display will roll over to the first/last displayed log.

To change the parameter to be displayed at each displayed data log push the "KNOB" and it will display each parameter in turn and roll over to the first parameter after the last parameter is displayed.

Holding the x50 switch while pressing the KNOB changes the displayed parameter to the previous one, converse to the previous which changes the parameter to the next one to be displayed.

Press the knob for 3 seconds to revert to the normal run display pages.

The display will revert to the time display (page 1) after 240 seconds if nothing is pressed or turned.

The third line displays the parameter and its value.

The fourth line displays the time and date of the log and the following:-

The following is a sample of data logged page:-

```
Data Logged Display
  <=>Time Push =Value
Water Tmp      28.7   oC
11:14 14 Jan Pick UP
```

If no their is data logs to display the display will show the following.

```
Data Logged Display
No Data Logged
```

UP/DOWN KNOB AND SWITCH FUNCTIONS :-

OVERVIEW

The following switches are available for setting of functions etc.

- 1: The ROTARY/PUSH knob - for displaying different pages, data logged, alarms and setting/entering values of functions.

- 2: The X50 Switch -for incriminating or detrainment by 50 (5.0 oC) values while setting of values when the rotary switch is turned.

DISPLAY PAGES.

The following displays are available by rotating the "ROTARY/PUSH" knob clockwise and anticlockwise while no setting of functions is being done.

NOTE: If after 240 seconds the knob was not used, the display will revert to page 1.

If a value displayed is in error, the following may be displayed the meaning is as follows:

Er-Ovr The sensor or transducer is in an open circuit or shortage out or the sensor has failed.

No-Sen The temperature sensor is not responding, check cable and sensor.

No-Con The sensor or transducer has been set to "Not Connected".

If sensors, transducers or digital inputs have been set to "Not Connected", the value may not be displayed.

If all inputs within the one page are set to "Not Connected", the page may be skipped to the next/previous page automatically,

PAGE 1:

If TempScan connected:- The status of the compressor, stages on or percentage loaded and TS4cn or TS2cn or TS2cn4cn. (see TempScan connected previously) on the top line.

The suction pressure or temperature on the second line.

The discharge pressure on the third line.

The oil pressure on the fourth line, also oil return interval left and also the start to start time left on the fourth line.

If Stand Alone:- The 1234 = each stage that is on, the E = equalizer solenoid is on and the 50% is the percentage of the variable speed drive output if used.

The control temperature/pressure for the compressor second line.

The last 2 lines as above.

```

Comp-Stat 12    TS4cn
Suc Press +300   KPA
Dis Press +1100  KPA
Oil Press +245   KPA
  
```

DISPLAY PAGES CONT.

PAGE 2:

If TempScan connected:- The status of the condenser, stages on or percentage loaded and TS4cn or TS2cn (see TempScan connected previously) on the top line.
The condenser temperature or pressure on the second line.
The suction pressure on the third line.
The time and date on the fourth line.

If Stand Alone:- The 1234 = each stage that is on, and the percentage of the variable speed drive output if used.
The control temperature/pressure for the condenser second line.
The last 2 lines as above.

```
Cond-Stat OFF   TS4cn
Cond Press +1100 KPA
Suc Press +300   KPA
16:24-43  09/05/2007
```

PAGE 3:

The ambient temperature on the top line.
The celpad pump on or off or time out to turn on, on the second line.
The water make up solenoid on or off on the third line.
The water dump valve on or off on the fourth line.

```
Amb't Temp +27.2  oC
Celpad Pump      OFF
Water Make Up    OFF
Water Dump       OFF
```

DISPLAY PAGES CONT.

PAGE 4:

The ambient temperature on the top line.

The dumping and auto dry information or blank on the second line.

The water level either filling or full on the third line.

The time and date on the fourth line.

Amb't Temp +27.2 °C

Water Level Full
16:24-43 09/05/2007

PAGE 5:

The temperature of the digital sensor number 1 on the top line.

The temperature of the digital sensor number 2 on the second line.

The temperature of the digital sensor number 3 on the third line.

The temperature of the digital sensor number 4 on the fourth line.

NOTE:- Annunciations depending on set function "Display Annunciations" can be displayed instead of "Dig Temp 1" etc.

Dig Temp 1 +26.5 °C
Dig Temp 2 +26.5 °C
Dig Temp 3 +26.5 °C
Dig Temp 4 +26.5 °C

DISPLAY PAGES CONT.

PAGE 6:

The temperature of the digital sensor number 5 on the second line.

The temperature of the digital sensor number 6 on the second line.

The temperature of the digital sensor number 7 on the third line.

The temperature of the digital sensor number 8 on the fourth line.

NOTE:- Annunciations depending on set function "Display Annunciations" can be displayed instead of "Dig Temp 1" etc.

| | | |
|------------|-------|----|
| Dig Temp 5 | +26.5 | oC |
| Dig Temp 6 | +26.5 | oC |
| Dig Temp 7 | +26.5 | oC |
| Dig Temp 8 | +26.5 | oC |

PAGE 7:

The temperature of the Analog sensor number 1 on the second line.

The temperature of the Analog sensor number 2 on the third line.

The temperature of the Analog sensor number 3 on the fourth line.

The temperature of the Analog sensor number 4 on the fourth line.

NOTE:- Annunciations depending on set function "Display Annunciations" can be displayed instead of "Dig Temp 1" etc.

| | | |
|------------|-------|----|
| Dig Temp 1 | +26.5 | oC |
| Ang Temp 2 | +26.5 | oC |
| Ang Temp 3 | +26.5 | oC |
| Ang Temp 4 | +26.5 | oC |

DISPLAY PAGES CONT.

PAGE 8:

The temperature of the Analog sensor number 5 on the second line.

The temperature of the Analog sensor number 6 on the second line.

The temperature of the Analog sensor number 7 on the third line.

The fourth line blank.

NOTE:- Annunciations depending on set function "Display Annunciations" can be displayed instead of "Dig Temp 1" etc.

```

Ang Temp 5 +26.5  oC
Ang Temp 6 +26.5  oC
Ang Temp 7 +26.5  oC

```

PAGE 9:

The status of all 8 digital inputs on the top line.

O=Off |=ON N=Not-Con on the second line.

Each digital input number on the third line.

The status of each digital input on the fourth line

```

Digital Inputs
O=Off |=ON N=Not-Con
1 2 3 4 5 6 7 8
| 0 0 0 | 0 N 0

```

DISPLAY PAGES CONT.

PAGE 10: DATA LOGGED PAGE.

To display data logged, rotate the knob until the data logg display page is displayed, displays "Data Logged Display" on the top line.

Press the knob briefly to hold the display. Rotating the knob will go to the next/previous time to be displayed.

When the displayed time reaches the end/start the display will roll over to the first/last displayed log.

To change the parameter to be displayed at each timed data log push the "KNOB" and it will display the next parameter in turn and roll over to the first parameter after the last parameter is displayed. To change back one parameter press and hold the x50 button while the "KNOB" is pushed

Press the knob for 3 seconds to revert to the normal run display pages.

The display will revert to the time display (page 1) after 240 seconds if nothing is pressed or turned.

The third line displays the parameter and its value.

The fourth line displays the time and date of the log and the following:-

The following is a sample of data logged page:-

```
Data Logged Display
<>=Time Push =Value
Comp % out 50
11:14 14 Jan percent
```

If no their is data logs to display the display will show the following.

```
Data Logged Display
No Data Logged
```

DISPLAY PAGES CONT.

PAGE 11: ALARMS PAGE.

To scroll through alarms, turn the knob to the alarm page and press the knob once then turn the knob clockwise or anticlockwise to display each alarm.

To reset the alarms, Press the knob again, if any alarm is still active the alarm will sound and each new alarm is displayed. If no new alarms are still active the display reverts to normal running mode.

While the alarms are displayed, pressing the knob and holding it down for 3 seconds the display will revert to the normal run displays and different pages can be displayed by turning the knob clockwise and anticlockwise.

All alarms have a minimum delay of 10 seconds. Over range sensors have a delay of 20 seconds and no sensor (on digital temperature sensors only) alarms have a delay of 10 seconds.

The following is a sample of the alarms displayed. The buzzer will sound and the alarm relay will turn off. To disable the buzzer press the x50 button or the spin knob.

```
ALARMS LOGGED STATUS
TOTAL No. ALARMS   01
order 01   Disch Pres
17:46 04 Jan
```

If no alarms are active the display will show:-

```
ALARMS LOGGED STATUS
NO ALARMS LOGGED
```

DISPLAY PAGES CONT.

PAGE 12: ALARM HISTORY PAGE.

The alarm history displays the last 40 alarms that were active. After 40 alarms have been logged the next alarm is placed over the first alarm that was saved and each successive alarm placed over the next earliest alarm etc..

To display each alarm history, rotate the "UP/DOWN" knob until the alarm history page is displayed, press the knob briefly, then rotate the knob to display other alarm history information.

To revert to normal run display press the knob for 3 seconds.

The display will revert to the time display (page 1) after 240 seconds if nothing is pressed or turned.

The following is a typical alarm history display.

```
ALARM HISTORY, SHOWS  
THE LAST 40 ALARMS  
WATER  
20:45 04 JAN +44.0 oC
```

IF NO ALARM IS IN A POSITION, THE FOLLOWING WILL BE DISPLAYED.

```
ALARM HISTORY, SHOWS  
THE LAST 40 ALARMS  
  
NO ALARM IN THIS POS
```

DISPLAY PAGES CONT.

PAGE 13: WARNINGS PAGE.

To scroll through warnings, turn the knob to the warn logged page and press the knob once then turn the knob clockwise or anticlockwise to display each warning.

To reset the warnings, Press the knob again, if any warning is still active the lcd backlight will flash and each new warning is displayed. If no new warnings are still active the display reverts to normal running mode.

While the warnings are displayed, pressing the knob and holding it down for 3 seconds the display will revert to the normal run displays and different pages can be displayed by turning the knob clockwise and anticlockwise.

All warnings have a minimum delay of 20 seconds. Only temperatures and 4-20ma inputs can have warning alarms.

The following is a sample of the warnings displayed. The lcd backlight will flash but no buzzer alarm and the alarm relay will not activate. Any warning will not shut down any control function.

```
WARN LOGGED STATUS
TOTAL No. Warns 01
order 01 Disch Pres
17:46 04 Jan KPA
```

If no warnings are active the display will show:-

```
WARN LOGGED STATUS
NO WARNINGS LOGGED
```

DISPLAY PAGES CONT.**PAGE 14:**

The compressor suction temperature on the top line.
 The compressor suction pressure on the second line.
 The compressor saturated temperature on the third line.
 The compressor super heat on the fourth line

```

Comp Suctn +27.2  oC
Suc Press  +300  KPA
Satur'd tm -1.8   oC
Super Heat +28.7  oC
  
```

PAGE 15:

The number of hours the compressor has run on the top line.
 The number of hours the condenser fans have run on the second line.
 The number of hours the celpad pump has run on the third line.
 The compressor amps on the fourth line

```

Comp'r Run  544    Hrs
Cond'r Run  430    Hrs
Cel Pump R  312    Hrs
Compressor  00     AMPS
  
```

PAGE 16:

The compressor suction pressure on the top line.
 The compressor intermediate pressure on the second line.
 The refrigeration gas detector on the third line.
 The humidity input on the fourth line

```

Comp'r Suc  250    KPA
Comp'r Int  430    KPA
Refrig Det  10     PPM
Humidity     %
  
```

DISPLAY PAGES CONT.**PAGE 17: THIS DISPLAY IS SHOWN FOR 5 SECONDS ON START UP.**

The time and date on the top line.

The copyright on the second line.

MultiScan Model No. on the third line.

The model number and version on the fourth line

```
13:19-26  16/05/2007
Copyright Twite Inst
MultiScan Model No.
TD-32-MR Ver No. 01
```

PASSWORD:-

USERS PASSWORD :-

When the password is required (*can be turned on or off*) the display will request the password when "SET" knob is pressed then "ENTER" knob is pressed to select that function to change/check with the following message.

```
Enter Users
          Password
0000
```

NOTE:- flashing cursor.

The PASSWORD consists of A NUMBER BETWEEN 0000 AND 5999 inclusive.

To enter the password rotate the knob to the first value required then press "ENTER" knob for the next number etc. until the correct number is displayed, press "ENTER", knob again to finish entering the password number. If the password number was correct the unit will go to the next step for setting functions.

If the number was incorrect the unit will display the following.

```
Wrong Password
Press X50
or Try Again
0000
```

If X50 is pressed the display will revert to its normal running display with the displayed data that was displayed before the "SET" knob was pressed.

PASSWORD CONT.:-

CHANGE PASSWORD

(use "SET" knob, "ENTER" knob, rotate UP/DOWN knob.)

Allows the Password to be changed. If the Password is inactive (*i.e.. is set to OFF*) this function will automatically require the users password before you can change it.

This is done using the "Password YES/NO" function

DISABLE PASSWORD

(use "SET" knob , "ENTER" knob, rotate UP/DOWN knob).

This is done using the "Password YES/NO" function

Changes the PASSWORD function to ACTIVE or NON ACTIVE.

PASSWORD UNKNOWN

If the pass word has been lost it is possible to reset the pass word to **"0888"** by using the function "Reset Password" and pressing and holding the X50 switch while the "KNOB" is pressed.

SETTING FUNCTIONS.

OVERVIEW:

To set any function, the following switches are used:-

If the password is required, then it must be entered before any function can be changed.

The large knob is used for "SET FUNCTIONS" key on the first press and then becomes the "ENTER" key there after.

After pressing the Knob for the first time. Rotating this knob clockwise by one click increases the value by 1 function and rotating anticlockwise by one click decreases the value by 1 function.

When the correct function is displayed for changing or checking press the knob to go to that function to change or check.

If channels are required for the function the display will indicate this.

Turn the knob to select each channel and press the knob to select or deselect each channel as required or not required.

When all channels that require changing turn the knob to display "----> Continue Next" and press the knob. This will now go to the next section and the value of the last channel that was selected will be displayed for changing.

If no channels were selected (*and were required*) the function will not proceed and the display will revert to there normal functions.

Rotate the knob to increase or decrease the value by 1 count each click.

If the "X50" button is pressed when rotating the knob the value will increase or decrease by 50 each click.

If the "ENTER" knob is pressed without the value being changed all channels that were selected will be updated with the value displayed on the LCD.

SETTING FUNCTIONS.

OVERVIEW CONT.:

When a flashing cursor is displayed on the Liquid Crystal Display the Value or Function may be changed to another by rotating the knob ("UP/DOWN").

After the correct value has been entered press the "ENTER" knob and the value will be entered into memory for all the channels selected if required and will not be affected by a power failure.

If the following is displayed after the last "ENTER" knob press, redo the function. The "ENTER" knob was not pressed for the required time for the value to be saved. This only applies to values that must be saved to the EEPROM.

```
The Enter Switch was  
not pressed for the  
required time.  
Press X50 and Re-Do
```

If more than one value is required (*i.e. set real time clock*) the unit will request each value in turn to be altered. After each value has been entered press the "ENTER" knob. After all required values have been altered (*or checked*), the displays will revert to normal run mode.

When the "SET" knob is first pressed the last function that was altered will appear on the display The FUNCTIONS and there meaning are described in the following pages in short form then in detail.

```
SETTING FUNCTIONS  
Turn Dial < or > for  
Required Function 9  
Set Data Logging
```

To change from one function to another, turn the "DIAL" (*up/down arrow*) knob to display each function in numerical order.

FUNCTIONS.

FUNCTIONS AND THE NO. OF EACH:-

| | | |
|----|------------------------|--|
| 1 | "Control Auto or OFF" | Sets all control to automatic or OFF. |
| 2 | "Compressor Set Point" | The compressor set point pressure/temperature. |
| 3 | "Compressor Diff'tial" | The compressor differential pressure/temperature. |
| 4 | "Comp Slow Load Time" | Ramp up time in seconds for compressor load. |
| 5 | "Fast Load Set Point" | Fast load set point in pressure/temperature. |
| 6 | "Comp Fast Load Time" | Time in seconds for fast compressor loading. |
| 7 | "Comp'or Unload Time" | Time in seconds for compressor unload stage. |
| 8 | "Pump Down Set Point" | The pump down set point for the compressor. |
| 9 | "Cmp Start/Start Time" | The start to start time in minutes for compressor. |
| 10 | "Comp Equalizer Sol'd" | Time in seconds for the comp equalizer solenoid. |
| 11 | "Oil Return Interval" | Time in minutes between comp oil return. |
| 12 | "Comp Stages Inverted" | Whether comp stages 2,3 & 4 are inverted or not. |
| 13 | "Hard Piped Stages Nu" | Number of compressor hard piped stages. |
| 14 | "Comp cntl PRESS-TEMP" | Compressor control on pressure or temperature. |
| 15 | "Comp Stg 1 Dly YesNo" | Compressor stage 1 use delay yes or no. |
| 16 | "Compre'r Step Amount" | Step % amount for each load step for compressor. |
| 17 | "Compressor Min % Run" | Minimum % for each compressor stage to run at. |
| 18 | "Comp Proportional Ct" | Amount of proportional control on compressor. |
| 19 | "Type of Compressor" | The type of compressor used. |
| 20 | "Compressor Number ID" | The compressor id number used for TempScan. |
| 21 | "High Alarm Temp're" | The high alarms for temperature sensors. |
| 22 | "Warn Temp From High" | Warning from high alarm temperature sensors. |
| 23 | "Low Alarm Temp're" | The low alarms for temperature sensors. |
| 24 | "Warn Temp Above Low" | Warning above low alarm temperature sensors. |
| 25 | "Hi Temp Alarm Delay" | The high alarm delays for temperature sensors. |
| 26 | "Low Temp Alarm Delay" | The low alarm delays for temperature sensors. |
| 27 | "High Alarm 4-20 Inp" | The high alarms for pressure/40-20ma sensors. |
| 28 | "Warn 4-20 From High" | Warning from high alarm pressure sensors. |
| 29 | "Low Alarm 4-20 Inp" | The low alarms for pressure/40-20ma sensors. |
| 30 | "Warn 4-20 Above Low" | Warning above low alarm pressure sensors. |
| 31 | "Hi 4-20 Alarm Delay" | The high alarm delays pressure/40-20ma sensors. |
| 32 | "Lo 4-20 Alarm Delay" | The low alarm delays pressure/40-20ma sensors. |

FUNCTIONS.

FUNCTIONS AND THE NO. OF EACH CONT:-

| | | |
|----|------------------------|--|
| 33 | "Dig Temp's Connected" | The 8 digital temp sensors that are connected. |
| 34 | "Analog Tmp Connected" | The 7 Analog temp sensors that are connected. |
| 35 | "4-20ma Inp Connected" | The pressure and 4-20ma inputs connected. |
| 36 | "Set 4-20 Input Span" | The span of pressure transducers & 4-20ma. |
| 37 | "Digital IN Connected" | The Digital inputs connected or not connected. |
| 38 | "Digital IN Inverted" | Whether a digital input is inverted or not. |
| 39 | "Temp Sen's Comp Ctrl" | Temperature sensors used for compressor control. |
| 40 | "Temp Sen's Comp Suc" | Temperature sensors used for compressor suction. |
| 41 | "Comp Tmp Sen for Dis" | Temp'ture sensors used for compressor discharge. |
| 42 | "Temp Sensors for Oil" | Temperature sensors used for comp oil temp. |
| 43 | "Temp Sen's Cond Ctrl" | Temperature sensors used for condenser control. |
| 44 | "Temp Sen for Ambient" | Ambient temp sensors used for celpad pump. |
| 45 | "Condenser Set Point" | The condenser set point pressure/temperature. |
| 46 | "Condenser Diff'tial" | The condenser differential pressure/temperature. |
| 47 | "Condenser Load Time" | Ramp up time in seconds for condenser load. |
| 48 | "Condenser Unload Tme" | Unload load set point in pressure/temperature. |
| 49 | "Conden'r Step Amount" | Step % amount for each load step for condenser. |
| 50 | "Condenser Min % Run" | Minimum % for each condenser stage to run at. |
| 51 | "Cond cntl PRESS-TEMP" | Condenser control on pressure or temperature. |
| 52 | "Cond Proportional Ct" | Amount of proportional control on condenser. |
| 53 | "Type of Condenser" | The type of condenser used. |
| 54 | "Condenser Number ID" | The condenser id number used for TempScan. |
| 55 | "Condenser Model Type" | The condenser model, standard or 3c-dricon. |

FUNCTIONS.

FUNCTIONS AND THE NO. OF EACH CONT:-

| | | |
|----|------------------------|---|
| 56 | "Start Water Dump Tme" | Time of day to start the water dump. |
| 57 | "Water Dump Duration" | Time in seconds for the water dump Duration. |
| 58 | "Celpad Pump Set Pnt " | Celpad water pump turn on set point. |
| 59 | "Celpad Pump Diff'tal" | Celpad water pump turn on/off differential. |
| 60 | "Celpad Pump Delay" | Water make-up time out before Celpad pump on |
| 61 | "Force Celpad AutoDry" | Which day of the week the Celpad water dries. |
| 62 | "Auto Dry Min'm Time" | The minimum time for the auto dry to be active. |
| 63 | "Water Makeup Temp ON" | The temp to be reached before water is filled. |
| 64 | "Celpad Wtr Flush Tme" | Time in seconds for the water tray to be flushed. |
| 65 | "Wt/Dump/V Operation" | Power to the water dump valve on shut yes or no. |
| 66 | "Wash ON Set Point" | The turn on temp/pressure of the wash solenoid. |
| 67 | "Wash OFF Set Point" | The turn off temp/pressure of the wash solenoid. |
| 68 | "1st Stage ON/OFF Dly" | Whether first stage on & off uses the delay. |
| 69 | "Fans Order Rotate" | Whether fan sequence turn on rotates or not. |
| 70 | "Dump Open When Stop" | Whether dump valve is opened if Stop Pressed |
| 71 | "Night Set Back St Pt" | The Temp/Press added to the set point if req. |
| 72 | "Set Back Time Start" | The start time for night set back to start. |
| 73 | "Set Back Time Finish" | The finish time for night set back to stop. |
| 74 | "Set Data Logging" | The data logged times or none don't do. |
| 75 | "Set Time & Date" | Sets the real time clock. |
| 76 | "Password YES/NO" | Use the password or not for setting functions. |
| 77 | "Change Password" | Change the password. Password must be used. |
| 78 | "Ram Memory Check" | Checks all memory for any faults. |
| 79 | "Test Display/Rst log" | Displays model number & resets all data logged. |
| 80 | "Set Dig Temp Offset" | Set the digital temperature sensors offset. |
| 81 | "Set Analog Tm Offset" | Set the Analog temperature sensors offset. |
| 82 | "Add Dig Temp Sensor" | Add a new digital temperature sensor. |
| 83 | "Set RS485/232 Baud" | Set the baud rate for serial communications. |
| 84 | "Display Brightness" | The brightness of the displays back light. |
| 85 | "Number of Resets S/N" | The number of resets performed and serial No. |
| 86 | "TempScan Connected" | TempScan connected or not for comp and cond. |
| 87 | "TempScan Cont'l Type" | TempScan control type for comp and cond. |

FUNCTIONS.

FUNCTIONS AND THE NO. OF EACH CONT:-

| | | |
|-----|------------------------|---|
| 88 | "Reset Celpad Run Hrs" | Reset the celpad pump run hours. |
| 89 | "Reset Comp'sor Hours" | Reset the compressor run hours. |
| 90 | "Reset Cond'ser Hours" | Reset the condenser run hours. |
| 91 | "4-20 Weight Average" | The 4-20ma inputs averaging value. |
| 92 | "Type of refrigerant" | Type refrigerant used for super heat calculation. |
| 93 | "Computer Connected" | Whether a Computer is connected or not. |
| 94 | "LED Display Intens'y" | The brightness of the LED display. |
| 95 | "Reset Password" | Resets the password to 888. |
| 96 | "Display Annunciation" | Display annunciation yes or no for temperatures. |
| 97 | "Oil Pres Calculation" | Calculate the oil pressure - suction or interm. |
| 98 | "Cel Pad Control Type" | Control of Celpad is on ambient or fans full on. |
| 99 | "CelPad Turn ON Delay" | Celpad pump turn on delay if control on fans on. |
| 100 | "Temp Sen for Intermd" | The temp sensor used for the intermediate temp. |
| 101 | "Water Level Swch Dly" | The delay for the water level switch activation. |
| 102 | "Analog PT100 / AD590" | Wether the analog sensors are PT100 or AD590. |

FUNCTIONS CONT.

1 “Control Auto or OFF”

Sets whether the compressor and condenser is on automatic or off.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Control Auto or OFF” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES or NO [Control Auto].

PRESS “KNOB”

SELECTION COMPLETE.

2 “Compressor Set point”

Sets the set point in suction pressure or temperature (depends on which required) for the compressor to operate at.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Compressor Set Point” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR -100 (-10.0) to +500 (+50.0) [KPA or oC]

PRESS “KNOB”

SELECTION COMPLETE.

3 “Compressor Diff’tial”

Sets the differential in suction pressure or temperature (depends on which required) for the compressor to operate at.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Compressor Diff’tial” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR +10 (+1.0) to +100 (+10.0) [KPA or oC]

PRESS “KNOB”

SELECTION COMPLETE.

4 “Comp Slow Load Time”

Sets the slow load time in seconds that the compressor is loaded to the next stage using the control value divided by 2. If the proportional setting is more than 0, this time is automatically adjusted down as the set point increases to the actual control value.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Comp Slow Load Time” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 1800 [Seconds]

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

5 “Fast Load Set Point”

Sets the value at which the compressor loads using the fast load set point. If the proportional setting is more than 0, this time is automatically adjusted down as the set point increases to the actual control value.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Fast Load Set Point” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR -100 (-10.0) to +1000 (+10.0) [KPA or oC]

PRESS “KNOB”

SELECTION COMPLETE.

6 “Comp Fast Load Time”

Sets the fast load time in seconds that the compressor is loaded to the next stage. If the proportional setting is more than 0, this time is automatically adjusted down as the set point increases to the actual control value.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Comp Fast Load Time” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 1800 [Seconds]

PRESS “KNOB”

SELECTION COMPLETE.

7 “Compr’or Unload Time”

Sets the unload time in seconds that the compressor is unloaded to the previous stage using the control value divided by 2. If the proportional setting is more than 0, this time is automatically adjusted down as the set point increases to the actual control value.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Compr’or Unload Time” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 1800 [Seconds]

PRESS “KNOB”

SELECTION COMPLETE.

8 “Pump Down Set Point”

Sets the value at which the compressor turns off.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Pump Down Set Point” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR -200 (-20.0) to +500 (+50.0) [KPA or oC]

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

9 “Cmp Start/Start Time”

Sets the start to start time that the compressor is allowed to start again from the last time it started in minutes.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Cmp Start/Start Time” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 60 [Minutes]

PRESS “KNOB”

SELECTION COMPLETE.

10 “Comp Equalizer Sol'd”

Sets the time that the equalizer solenoid is on before and after the compressor starts. If the compressor type is set to have 4 stages, an equalizer solenoid can not be used. The value entered is divided by 2 for the both times ie. if set to 10, the equalizer solenoid is turned on for 5 seconds before the compressor starts and remains on for 5 seconds after the compressor starts.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Comp Equalizer Sol'd” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 100 [Seconds]

PRESS “KNOB”

SELECTION COMPLETE.

11 “Oil Return Interval”

Sets the time between the oil return solenoid is turned on in minutes. The time the solenoid is on for is set at 5 minutes. The solenoid will not turn on if the discharge temperature is below 55.0 degrees Celsius. The first allowed turn on after motor start is 30 minutes if the compressor has been off for 5 hours or more other wise the minimum time for the purge to turn on is set at 1 minute after motor start and from then on the “Oil Return Interval” set point is the time between oil return times while the motor is on.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Oil Return Interval” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 1 to 240 [Minutes]

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

12 “Comp Stages Inverted”

For inverting compressor stages. If set to NO, all stages (1 to 4) will energize to load. If set to YES all stages (2 to 4) will energize to unload, stage 1 is used for motor start. If the compressor is off all stages will not be energized. If an equalizer solenoid is used it will not be inverted.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Comp Stages Inverted” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES or NO [Stgs Inverted]

PRESS “KNOB”

SELECTION COMPLETE.

13 “Hard Piped Stages Nu”

Sets the number of compressor load stages are permanently on.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Hard Piped Stages Nu” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 1, 2, 3, or 4 [Hard Piped]

PRESS “KNOB”

SELECTION COMPLETE.

14 “Comp cntl PRESS-TEMP”

Selects whether the compressor is controlled using suction pressure or temperature.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Comp cntl PRESS-TEMP” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR Control on Pressure or Ctrl on Temperature.

PRESS “KNOB”

SELECTION COMPLETE.

15 “Comp Stg 1 Dly YesNo”

Selects whether the compressor stage 1 uses the delay for loading or the compressor starts as soon as the set point is reached.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Comp Stg 1 Dly YesNo” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES or NO to use delay on stage 1.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

16 “Compe'r Step Amount”

Sets the step amount in percentage that the compressor will load and unload each time if a variable speed drive is used.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Compe'r Step Amount” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR 1 to 10 [% Per Step]
PRESS “KNOB”
SELECTION COMPLETE.

17 “Compressor Min % Run”

Sets the minimum percentage that each stage will start at when turned on if a variable speed drive is used.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Compressor Min % Run” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR 0 to 100 [% at Stage 1]
PRESS “KNOB”
ROTATE KNOB ▲ ▼ FOR 0 to 100 [% at Stage 2]
PRESS “KNOB”
ROTATE KNOB ▲ ▼ FOR 0 to 100 [% at Stage 3]
PRESS “KNOB”
ROTATE KNOB ▲ ▼ FOR 0 to 100 [% at Stage 4]
PRESS “KNOB”
SELECTION COMPLETE.

18 “Comp Proportional Ct”

Sets the amount of PID that is used to control the load and unload times depending on how much difference there is between the set point and the actual value.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Comp Proportional Ct” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR 0 to 10 [Prop 0 = none]
PRESS “KNOB”
SELECTION COMPLETE.

FUNCTIONS CONT.

19 “Type of Compressor”

Sets the type of compressor that is connected to the unit.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Type of Compressor” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 1 Stage Stepped, 2 Stage Stepped, 3 Stage Stepped, 4 Stage Stepped,
1 Stage Stepped Var, 2 Stage Stepped Var, 3 Stage Stepped Var or 4
Stage Stepped Var,

PRESS “KNOB”

SELECTION COMPLETE.

20 “Compressor Number ID”

Sets the number of the compressor to be used for connection to a TempScan.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Compressor Number ID” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 1 TO 27

PRESS “KNOB”

SELECTION COMPLETE.

21 “High Alarm Temp'ture”

Sets the high alarm temperature for temperature sensors. Only sensors that are set to
“Connected” will be available for selection.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “High Alarm Temp'ture” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]

PRESS “KNOB” TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR -50.0 to +150.0 [Degrees C].

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

22 “Warm Temp From High”

Sets the warning alarm temperature for temperature sensors that are from the high alarm set point. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Warm Temp From High" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 ROTATE KNOB ▲ ▼ FOR 0.0 to +30.0 [Degrees C].
 PRESS "KNOB"
 SELECTION COMPLETE.

23 “Low Alarm Temp'ture”

Sets the low alarm temperature for temperature sensors. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Low Alarm Temp'ture" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 ROTATE KNOB ▲ ▼ FOR -50.0 to +150.0 [Degrees C].
 PRESS "KNOB"
 SELECTION COMPLETE.

24 “Warm Temp Above Low”

Sets the warning alarm temperature for temperature sensors that are above the low alarm set point. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Warm Temp Above Low" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 ROTATE KNOB ▲ ▼ FOR 0.0 to +30.0 [Degrees C].
 PRESS "KNOB"
 SELECTION COMPLETE.

FUNCTIONS CONT.

25 “Hi Temp Alarm Delay”

Sets the high alarm temperature delay for temperature sensors. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Hi Temp Alarm Delay" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 ROTATE KNOB ▲ ▼ FOR 0 to 1800 [Seconds].
 PRESS "KNOB"
 SELECTION COMPLETE.

26 “Lo Temp Alarm Delay”

Sets the low alarm temperature delay for temperature sensors. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Lo Temp alarm Delay" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 ROTATE KNOB ▲ ▼ FOR 0 to 1800 [Seconds].
 PRESS "KNOB"
 SELECTION COMPLETE.

27 “High Alarm 4-20 Inp”

Sets the high alarm pressure inputs and 4-20ma inputs. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "High Alarm 4-20 Inp" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Suction Press etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 ROTATE KNOB ▲ ▼ FOR -100.0 to +4000 [Pressure KPA].
 PRESS "KNOB"
 SELECTION COMPLETE.

FUNCTIONS CONT.

28 “Warm 4-20 From High”

Sets the warning alarm pressure for pressure sensors that are from the high alarm set point. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Warm 4-20 From High" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 ROTATE KNOB ▲ ▼ FOR 0 to 300 [KPA, PPM %].
 PRESS "KNOB"
 SELECTION COMPLETE.

29 “Low Alarm 4-20 Inp”

Sets the low alarm pressure inputs and 4-20ma inputs. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Low Alarm 4-20 Inp" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Suction Press etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 ROTATE KNOB ▲ ▼ FOR -100.0 to +4000 [Pressure KPA].
 PRESS "KNOB"
 SELECTION COMPLETE.

30 “Warm 4-20 Above Low”

Sets the warning alarm pressure for pressure sensors that are above the low alarm set point. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Warm 4-20 Above Low" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 ROTATE KNOB ▲ ▼ FOR 0 to 300 [KPA, PPM %].
 PRESS "KNOB"
 SELECTION COMPLETE.

FUNCTIONS CONT.

31 “Hi 4-20 Alarm Delay”

Sets the high alarm delay for pressure inputs and 4-20ma inputs. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Hi 4-20 Alarm Delay" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Suction Press etc.]

PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS "KNOB"

ROTATE KNOB ▲ ▼ FOR 0 to 1800 [Seconds].

PRESS "KNOB"

SELECTION COMPLETE.

32 “Lo 4-20 Alarm Delay”

Sets the low alarm delay for pressure inputs and 4-20ma inputs. Only sensors that are set to "Connected" will be available for selection.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Lo 4-20 Alarm Delay" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Suction Press etc.]

PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS "KNOB"

ROTATE KNOB ▲ ▼ FOR 0 to 1800 [Seconds].

PRESS "KNOB"

SELECTION COMPLETE.

33 “Dig Temp's Connected”

Sets whether each digital type temperature sensor is connected or not. All digital sensors may be selected in this function.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Dig Temp's Connected" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]

PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS "KNOB"

SELECTION COMPLETE.

FUNCTIONS CONT.

34 “PT100 Temp Connected”

Sets whether each PT100 type temperature sensor is connected or not. All PT100 sensors may be selected in this function.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “PT100 Temp Connected” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [PT100 Temp 1 etc.]

PRESS “KNOB” TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]

CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS “KNOB”

SELECTION COMPLETE.

35 “4-20ma Inp Connected”

Sets whether each pressure transducer (or any 4-20ma input) is connected or not. All 8 channels may be selected in this function.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “4-20ma Inp Connected” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Suction Press etc.]

PRESS “KNOB” TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]

CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS “KNOB”

SELECTION COMPLETE.

36 “Set 4-20 Input Span”

Sets the Low and High input span for pressure transducers and or the Refrigerant Transducer input and other 4-20ma inputs. Only sensors that are set to “Connected” will be available for selection.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Set 4-20 Input span” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Suction Press etc.]

PRESS “KNOB” TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]

CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR -200 to 20000 [4-20ma Low].

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR -200 to 20000 [4-20ma High].

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

37 “Digital IN Connected”

Sets whether each digital input is connected or not. All 8 channels may be selected in this function.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Digital IN Connected” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Room Run Inpt etc.]

PRESS “KNOB” TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]

CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS “KNOB”

SELECTION COMPLETE.

38 “Digital IN Inverted”

Sets whether each digital input is inverted or not. The default is that a digital input is open off if not connected to ground and on if connected to ground. This function can reverse one or more to be the case. All 8 channels may be selected in this function.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Digital IN Inverted” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Remote Run etc.]

PRESS “KNOB” TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]

CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS “KNOB”

SELECTION COMPLETE.

39 “Temp Sen's Comp Ctrl”

Sets the temperature sensors that are used for compressor control if it is to be controlled on temperature. All sensors (both digital and PT100) that are set to “Connected” will be available for selection. If more than one sensor is selected, the average of the selected sensors will be used for the control temperature.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Temp Sen's Comp Ctrl” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]

PRESS “KNOB” TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]

CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

40 “Temp Sen's Comp Suc”

Sets the temperature sensors that are used for the compressor suction line to calculate the super heat. All sensors (both digital and PT100) that are set to "Connected" will be available for selection. If more than one sensor is selected, the average of the selected sensors will be used for the compressors suction line temperature.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Temp Sen's Comp Suc" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 SELECTION COMPLETE.

41 “Comp Tmp Sen Dis”

Sets the temperature sensors that are used for the compressor discharge line. All sensors (both digital and PT100) that are set to "Connected" will be available for selection. If more than one sensor is selected, the average of the selected sensors will be used for the compressors suction line temperature.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Comp Tmp Sen Dis" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 SELECTION COMPLETE.

42 “Temp Sensors for Oil”

Sets the temperature sensors that are used for the compressor oil probe. All sensors (both digital and PT100) that are set to "Connected" will be available for selection. If more than one sensor is selected, the average of the selected sensors will be used for the oil temperature.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Temp Sensors for Oil" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 SELECTION COMPLETE.

FUNCTIONS CONT.

43 “Temp Sen's Cond Ctrl”

Sets the temperature sensors that are used for condenser control if it is to be controlled on temperature. All sensors (both digital and PT100) that are set to "Connected" will be available for selection. If more than one sensor is selected, the average of the selected sensors will be used for the control temperature.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Temp Sen's Cond Ctrl" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 SELECTION COMPLETE.

44 “Temp Sen for Ambient”

Sets the temperature sensors that are used for ambient temperature. These sensors are used for the control of the celpad pump. All sensors (both digital and PT100) that are set to "Connected" will be available for selection. If more than one sensor is selected, the average of the selected sensors will be used for the control temperature.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Temp Sen for Ambient" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS "KNOB"
 SELECTION COMPLETE.

45 “Condenser Set point”

Sets the set point in discharge pressure or temperature (depends on which required) for the condenser fans stages to turn on at.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Condenser Set Point" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR 0 (0.0) to +2000 (+200.0) [KPA or oC]
 PRESS "KNOB"
 SELECTION COMPLETE.

FUNCTIONS CONT.

46 “Condenser Diff’tial”

Sets the differential in discharge pressure or temperature (depends on which required) for the compressor to operate at.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Condenser Diff’tial” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR +10 (+1.0) to +200 (+20.0) [KPA or oC]

PRESS “KNOB”

SELECTION COMPLETE.

47 “Condenser Load Time”

Sets the load time in seconds that the condenser is loaded to the next fan stage using the control value divided by 2. If the proportional setting is more than 0, this time is automatically adjusted down as the set point increases to the actual control value.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Condenser Load Time” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 900 [Seconds]

PRESS “KNOB”

SELECTION COMPLETE.

48 “Condenser Unload Tme”

Sets the unload time in seconds that the condenser is unloaded to the previous fan stage using the control value divided by 2. If the proportional setting is more than 0, this time is automatically adjusted down as the set point increases to the actual control value.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Condenser Unload Tme” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 1800 [Seconds]

PRESS “KNOB”

SELECTION COMPLETE.

49 “Conden'r Step Amount”

Sets the step amount in percentage that the condenser will load and unload each time if a variable speed drive is used.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Conden'r Step Amount” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 1 to 10 [% Per Step]

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

50 “Condenser Min % Run”

Sets the minimum percentage that each stage will start at when turned on if a variable speed drive is used.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Condenser Min % Run” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR 0 to 100 [% at Stage 1]
PRESS “KNOB”
ROTATE KNOB ▲ ▼ FOR 0 to 100 [% at Stage 2]
PRESS “KNOB”
SELECTION COMPLETE.

51 “Cond cntl PRESS-TEMP”

Selects whether the condenser is controlled using discharge pressure or temperature.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Cond cntl PRESS-TEMP” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR Control on Pressure or Ctrl on Temperature.
PRESS “KNOB”
SELECTION COMPLETE.

52 “Cond Proportional Ct”

Sets the amount of PID that is used to control the load and unload times depending on how much difference there is between the set point and the actual value.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Cond Proportional Ct” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR 0 to 10 [Prop 0 = none]
PRESS “KNOB”
SELECTION COMPLETE.

53 “Type of Condenser”

Sets the type of condenser that is connected to the unit. The first stage, normally the water pump is connected to the stage one of the compressor (motor run) and stages 2 and 3 are fan sages on the condenser.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Type of Condenser” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR 1 Stage Condenser, 2 Stage Condenser, 1 Stage Conden'r Var or 2 Stage Conden's Var
PRESS “KNOB”
SELECTION COMPLETE.

FUNCTIONS CONT.

54 “Condenser Number ID”

Sets the number of the condenser to be used for connection to a TempScan using the 4 wire (RS485) serial link.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Condenser Number ID” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 1 TO 27

PRESS “KNOB”

SELECTION COMPLETE.

55 “Condenser Model Type”

Sets the type of condenser to control, either a standard water/fan control or 3c cooler/dricon control. If 3c cooler/dricon control is not selected, the alarms for celpad pump and water filling are not used.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Condenser Model Type” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR “3C Cooler or Dricon” or “Standard Water Fans”

PRESS “KNOB”

SELECTION COMPLETE.

56 “Start Water Dump Tme”

Sets when the water dump solenoid turns on to dump the Celpad water.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Start Water Dump Tme” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 00:00 to 23:59 TIME OF DAY (24 HOUR TIME FORMAT)

PRESS “KNOB”

SELECTION COMPLETE.

57 “Water Dump Duration”

Sets the time in seconds for the water dump solenoid to be on. **NOTE:-** If the dump time is set to 210 (3.5 minutes) or less or the unit has not performed a dump, the unit will force a dump of 6 minutes at the allocated time.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Water Dump Duration” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 - 1800 SECONDS.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

58 “Celpad Pump Set Pnt”

Sets the temperature plus half the differential value (next set point) and the temperature set point less half the differential for when the Celpad water pump turns ON and OFF respectfully. If the water dump is in progress and the water makeup (and water makeup time out) is active the Celpad water pump will not turn on. If no fans are ON the Celpad water pump will not turn on.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Celpad Pump Set Pnt” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 10.0 to +50.0 oC.

PRESS “KNOB”

SELECTION COMPLETE.

59 “Celpad Pump Diff’tial”

Sets the Celpad water pump differential for the above set point to use.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Celpad Pump Diff’tial” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR +0.2 oC to +10.0 oC.

PRESS “KNOB”

SELECTION COMPLETE.

60 “Celpad Pump Delay”

Sets the time out to stop the Celpad water pump from turning on after a water dump and the makeup solenoid is on to replace the Celpad pump water.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Celpad Pump Delay” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR 0 TO 1800 SECONDS

PRESS “KNOB”

SELECTION COMPLETE.

61 “Force Celpad AutoDry”

Sets the day of the week to delay the minimum time (next function) that the water make up for the Celpad is turned on in minutes. This allows the Celpad water to dry out at least once a week.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Force Celpad AutoDry” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SUNDAY TO SATURDAY

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

62 “Auto Dry Min'm Time”

Sets the minimum time in minutes that the Celpad water is not filled to allow the Celpad water to dry from the container.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Auto Dry Min'm Time” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 TO 300 MINUTES

PRESS “KNOB”

SELECTION COMPLETE.

63 “Water Makeup Temp ON”

Sets the temperature which is added to the Celpad pump set point. The water makeup valve will not trun on (and the water dump valve remains open) until the ambient temperature reaches the temperature. This allows for the Celpad water to dry out if the Celpad pump is not required because of the ambient temperature being low.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Water Makeup Temp ON” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR -10.0 TO 0 oC

PRESS “KNOB”

SELECTION COMPLETE.

64 “Celpad Wtr Flush Tme”

Sets the type of condenser to control, either a standard water/fan control or 3c cooler/dricon control. If 3c cooler/dricon control is not selected, the alarms for celpad pump and water filling are not used.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Celpad Wtr Flush Tme” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 TO 300 SECONDS

PRESS “KNOB”

SELECTION COMPLETE.

65 “Wt/Dump/V Operation”

Sets whether the water dump valve has power to it when the valve is opened or not..

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Wt/Dump/V Operation” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES OR NO FOR POWER TO WATER DUMP VALVE WHEN OPEN.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

66 “Wash ON Set Point”

Sets the 3C-Cooler/dricon Temperature/Pressure of fluid out at which the wash solenoid is turned ON. The solenoid will not turn on regardless of the temperature/pressure if no fans are on.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Wash ON Set Point” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0.0 to +300.0 oC or 0 to 3000 KPA

PRESS “KNOB”

SELECTION COMPLETE.

67 “Wash OFF Set Point”

Sets the 3C-Cooler/dricon Temperature/Pressure of fluid out at which the wash solenoid is turned OFF. The solenoid will not turn on regardless of the temperature/pressure if no fans are on

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Wash OFF Set Point” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0.0 to +300.0 oC or 0 to 3000 KPA

PRESS “KNOB”

SELECTION COMPLETE.

68 “1st Stage ON/OFF Dly”

Sets whether the load delay for the first fan to come on and the first fan to be turned off is used or not.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “1st Stage ON/OFF Dly” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES OR NO Use 1st Delay.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

69 “Fans Order Rotate”

Sets whether the fan sequence rotates when turning on. If Fans are set to rotate the first fan to turn on is not always number 1. The fan sequence is rotated each time all fans have turned off. On reset, setting functions "Type of Condenser" and this function or power failure the sequence is set to 1,2,3,4

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Fans Order Rotate" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES OR NO Rotate Fans

PRESS "KNOB"

SELECTION COMPLETE.

70 “Dump Open When Stop”

Sets whether the water dump valve is opened when the condenser is turned off. This can only be done if the digital input number 1 (Remote ON) is set to connected and is off. Turning the input to off turns off all condenser functions even if connected to a TempScan. If the digital input 1 is set to "not connected", the condenser is always in the on condition unless the digital input number 2 (Remote OFF) is set to connected and is active, i.e. set to turn off. This input (2) does not turn the dump valve on if active.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Dump Open When Stop" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES OR NO

PRESS "KNOB"

SELECTION COMPLETE.

71 “Night Set Back St Pt”

Sets the temperature/pressure to be added to the set point (function number 1) between a start time and finish time (next 2 functions). This allows the unit to run at a higher/lower set point at any time of the day/night. The celpad pump is on during night set back if the water is present in the celpad system.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Night Set Back St Pt" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR -10.0 oC to 10.0 oC OR -100 TO 100 KPA

PRESS "KNOB"

SELECTION COMPLETE.

FUNCTIONS CONT.

72 “Set Back Time Start”

Sets the start time when the set back temperature/pressure is added to the set point (function "Condenser Set Point").

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Set Back Time Start" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 00:00 to 23:59 TIME OF DAY (24 HOUR TIME FORMAT)

PRESS "KNOB"

SELECTION COMPLETE.

73 “Set Back Time Finish”

Sets the finish time when the set back temperature/pressure is added to the set point (function "Condenser Set Point").

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Set Back Time Finish" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 00:00 to 23:59 TIME OF DAY (24 HOUR TIME FORMAT)

PRESS "KNOB"

SELECTION COMPLETE.

74 “Set Data Logging”

Sets the data logging times (*puts information values and time*) into memory for retrieval latter via the display, printer or computer.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Set Data Logging" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR None (don't do), Every 1 Minute, Every 5 Minutes, Every 10 Minutes,
Every 30 Minutes, Every 1 Hour or Every 2 Hours.

PRESS "KNOB"

SELECTION COMPLETE.

FUNCTIONS CONT.

75 “Set Time & Date”

Sets the Real Time Clock

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Set Time & Date” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR THE HOURS (24 HOUR) [Hours]

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR THE MINUTES [Minutes]

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR THE SECONDS [Seconds]

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR THE DAY [Day SUN = 1]

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR THE DATE [Date]

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR THE MONTH [Month]

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR THE YEAR [Year]

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR THE CENTURY [Century]

PRESS “KNOB”

SELECTION COMPLETE.

76 “Password YES/NO”

Selects whether the Password is required for setting functions or not.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Password YES/NO” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES or NO [Password].

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

77 “Change Password”

Sets the Password of a number from 0000 to 5999. If the password was not active when this function is selected, the password will be required. If the wrong password is entered, the display will indicate this. You can try again or press the x50 button to revert to normal running.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Change Password” on bottom line.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR 1 to 5 [Password].

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR 1 to 9 [Password].

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR 1 to 9 [Password].

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR 1 to 9 [Password].

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR 0 to 5999 [Password].

PRESS “KNOB”

SELECTION COMPLETE.

78 “Ram Memory Check”

For Testing the RAM and EEPROM memory. This function will not remove the contents of memory. If any error messages display on the LCD call your nearest service agent for service. This function can take up to 20 seconds. This function should not be used unless by an authorized technician.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Ram Memory Check” on bottom line.

ENTER PASSWORD IF REQUIRED

PRESS AND HOLD “KNOB” UNTIL “Done Press ENTER” is displayed on the bottom line.

RELEASE “KNOB”

PRESS “KNOB”

SELECTION COMPLETE.

79 “Test Display/Rst Log”

Displays the model number and version number and resets the data logged to nothing logged.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Test Display/Rst Log” on bottom line.

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

“Done Press ENTER” is displayed on the bottom line.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

80 “Set Dig Temp Offset”

Sets an offset into non volatile ram for any or all digital temperature sensors. This is required if the temperature reading is wrong. To check the accuracy of the sensors, place them into an ice bath (0.0 oC) and check the reading. If the sensor does not read 0.0 oC, the amount of discrepancy can be entered so that the sensor will read accurately at 0.0 oC. Only sensors that are set to "Connected" will be available for selection

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Set Dig Temp Offset" on bottom line.

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]

PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS "KNOB"

ROTATE KNOB ▲ ▼ FOR -20.0 TO +20.0 oC [Degrees C]

SELECTION COMPLETE.

81 “Set PT100 Tmp Offset”

Sets an offset into non volatile ram for any or all PT100 temperature sensors. This is required if the temperature reading is wrong. To check the accuracy of the sensors, place them into an ice bath (0.0 oC) and check the reading. If the sensor does not read 0.0 oC, the amount of discrepancy can be entered so that the sensor will read accurately at 0.0 oC. Only sensors that are set to "Connected" will be available for selection

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Set Dig Temp Offset" on bottom line.

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [PT100 Temp 1 etc.]

PRESS "KNOB" TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS "KNOB"

ROTATE KNOB ▲ ▼ FOR -20.0 TO +20.0 oC [Degrees C]

SELECTION COMPLETE.

FUNCTIONS CONT.

82 “Add Dig Temp Sensor”

All digital temperature sensors have a unique serial number embedded within the sensor. To add a sensor or replace an existing sensor, do the following. Remove all currently connected sensors (hard wired). Place the new sensor into the correct terminals and do the following. If more than one sensor channel is selected the display will indicate this and jump out of the function. All sensor numbers are available to select from in this function.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Add Dig Temp Sensor” on bottom line.

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR SELECTING CHANNEL TO ADD SENSOR ON TO [Dig Temp 1 etc.]

PRESS “KNOB” TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]

CONTINUE TO SELECT REQUIRED CHANNELS

ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]

PRESS “KNOB” MAKE SURE SENSOR IS CONNECTED CORRECTLY.

PRESS “KNOB” THE SENSORS SERIAL NUMBER WILL BE DISPLAYED ON THE BOTTOM LINE.

IF THE ACCESS TO THE SENSOR FAILED THE DISPLAY WILL INDICATE THIS. CHECK CONNECTIONS AND REPLACE THE SENSOR AND TRY AGAIN.

PRESS “KNOB” ENTERS THE SERIAL NUMBER INTO NON VOLATILE RAM

PRESS “KNOB”

SELECTION COMPLETE.

83 “Set RS485/232 Baud”

Sets the Baud Rate of the RS485 and RS232 Ports. The Stop bit is set to 1 and the Parity is set OFF automatically. This should be 9600 if connected to a computer.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Set RS485/232 Baud” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 110, 300, 1200, 2400, 4800 or 9600 [Baud Rate].

PRESS “KNOB”

SELECTION COMPLETE.

84 “Display Brightness”

Sets the brightness of the displays back light. 0 = off and 255 = full on.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Display Brightness” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 255.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

85 “Number of Resets S/N”

Displays the number of times the unit was reset (power failures) and the serial number of the unit. After this function the number of resets counter is set to 0.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Number of Resets S/N” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

Done Press ENTER on the bottom line

PRESS “KNOB”

SELECTION COMPLETE.

86 “TempScan Connected”

Sets whether a TempScan is connected or each control (compressor and or condenser) or not. Both compressor and condenser can be connected to a TempScan or not. If the compressor is connected to a TempScan, all controls for the compressor except oil return are controlled by the TempScan. If the condenser is connected to a TempScan, all fan stages are controlled by the TempScan, the celpad pump and wash solenoid are controlled by the TD-32-MR.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “TempScan Connected” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

FOR “CompCond Stand Alone”, “Comp Con-Cond St Aln”,
“Comp St Aln-Cond Con” or “Comp Con - Cond Con”

PRESS “KNOB”

SELECTION COMPLETE.

87 “TempScan Cont'l Type”

Sets the type of TempScan control for the compressor and or the condenser.

Either 2 wire serial or 4 wire serial can be used to control both compressor and or the condenser. Only one can be controlled by the 2 wire serial link and the DIP switch must be set for 2 wire control. If 4 wire control is used for either or both, the compressor and or condenser number ID (functions) must be set to the correct number for the TempScan to send the correct control for the numbered compressor and or condenser.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “TempScan Cont'l Type” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

FOR “Cond 2W Step-Comp 4W”, “Cond 4W Var -Comp 4W”,
“Cond 4W Var -Comp 2W” or “Cond 4W Var-Comp2&4W”

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

88 “Reset Celpad Run Hrs”

Sets the celpad pump run hours to 0.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Reset Celpad Run Hrs” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
PRESS “KNOB” Done Press ENTER on the bottom line
PRESS “KNOB”
SELECTION COMPLETE.

89 “Reset Comp'sor Hours”

Sets the compressor run hours to 0.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Reset Comp'sor Hours” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
PRESS “KNOB” Done Press ENTER on the bottom line
PRESS “KNOB”
SELECTION COMPLETE.

90 “Reset Cond'ser Hours”

Sets the condenser run hours to 0.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Reset Cond'ser Hours” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
PRESS “KNOB” Done Press ENTER on the bottom line
PRESS “KNOB”
SELECTION COMPLETE.

91 “4-20 Weight Average”

Sets the amount of averaging to do on the 4-20ma input channels. The higher the number the smoother the value displayed.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “4-20 Weight Average” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR 0 to 10 [Pressure KPA].
PRESS “KNOB”
SELECTION COMPLETE.

FUNCTIONS CONT.

92 “Type of Refrigerant”

Sets the type of refrigerant used. The following refrigerants available are NOT USED (no alarm will be activated if this is selected and no display), R717, R 507, R 12, R 22, R 134a, R 404A, R 407B, R 407C.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Type of Refrigerant” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR THE TYPE OF REFRIGERANT OR Not Used

PRESS “KNOB”

SELECTION COMPLETE.

93 “Computer Connected”

Sets whether a computer is connected to the unit. If a computer is connected and 4 wire communications to a TempScan is also connected with other modules (CompScans etc.) are also connected, the 4 wire communications from the TempScan cannot be done while this unit is set to “Yes” for computer connected.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Computer Connected” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR Yes or No.

PRESS “KNOB”

SELECTION COMPLETE.

94 “LED Display Intens'y”

Sets the brightness of the LED display from 0 = Dull and 15 = full on. This is an optional extra module that can be fitted to the unit.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “LED Display Intens'y” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 15.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

95 “Reset Password”

Resets the password to 888. The x 50 must be pressed while this is done for the last "KNOB" push. If the x50 switch is not pressed the display will indicate that resetting the password is not allowed. If the x50 switch is pressed the display will indicate that the password was reset to 888.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Reset Password" on bottom line.

PRESS "KNOB" **WITH THE X50 SWITCH PRESSED.**

PRESS "KNOB"

SELECTION COMPLETE.

96 “Display Annunciation”

Sets whether to display the temperature annunciations when displaying the temperatures. Instead of displaying "Dig Temp 1" it will display the control or indication of that temperature sensor i.e. "Room Cntl". If more than 1 sensor is allocated to a control or indication, it will show that by displaying the control or indication for all sensors allocated to that control or indication.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Display Annunciation" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES or NO.

PRESS "KNOB"

SELECTION COMPLETE.

97 “Oil Pres Calculation”

Sets whether to display the actual oil press using the formula of the oil press minus (-) the first stage suction pressure or the oil pressure minus (-) the intermediate stage pressure.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Oil Pres Calculation" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR Oil - 1st Stage Suc or Oil - Interm't Stage.

PRESS "KNOB"

SELECTION COMPLETE.

98 “Cel Pad Control Type”

Sets the type of control for the celpad pump from control on ambient temperature or turn on after a delay when all fans are full on.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Cel Pad Control Type" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR Control Ambient Temp or Control All Fans ON

PRESS "KNOB"

SELECTION COMPLETE.

FUNCTIONS CONT.

99 “CelPad Turn ON Delay”

Sets the time out for the celpad pump to turn on when all fans are full on and the control of the celpad pump is controlled on all fans full on.

PRESS “KNOB”
 ROTATE KNOB ▲ ▼ TO SELECT "CelPad Turn ON Delay" on bottom line.
 PRESS “KNOB”
 ENTER PASSWORD IF REQUIRED
 PRESS “KNOB”
 ROTATE KNOB ▲ ▼ FOR 0 TO 900 SECONDS
 PRESS “KNOB”
 SELECTION COMPLETE.

100 “Temp Sen for Intermd”

Sets the temperature sensors that are used for the compressor intermediate probe. All sensors (both digital and PT100) that are set to "Connected" will be available for selection. If more than one sensor is selected, the average of the selected sensors will be used for the intermediate temperature.

PRESS “KNOB”
 ROTATE KNOB ▲ ▼ TO SELECT "Temp Sen for Intermd" on bottom line.
 PRESS “KNOB”
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING CHANNELS TO CHECK/CHANGE [Dig Temp 1 etc.]
 PRESS “KNOB” TO SELECT OR NOT TO SELECT SELECTED CHANNEL [YES NO]
 CONTINUE TO SELECT REQUIRED CHANNELS
 ROTATE KNOB ▲ ▼ TO DISPLAY -----> [Continue Next]
 PRESS “KNOB”
 SELECTION COMPLETE.

101 “Water Level Swch Dly”

Sets the delay before the water level switch is activated (recognized to be on or off) in seconds.

PRESS “KNOB”
 ROTATE KNOB ▲ ▼ TO SELECT "Water Level Swch Dly" on bottom line.
 PRESS “KNOB”
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR 0 to 30 [Seconds]
 PRESS “KNOB”
 SELECTION COMPLETE.

102 “Analog PT100 / AD590”

Sets the temperature sensors that are used for the analog (1 to 7) to be either PT100 or AD590 temperature sensors.

PRESS “KNOB”
 ROTATE KNOB ▲ ▼ TO SELECT "Analog PT100 / AD590" on bottom line.
 PRESS “KNOB”
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR SELECTING PT100 or AD590 Temperature sensors
 PRESS “KNOB”
 SELECTION COMPLETE.

STARTUP DEFAULT SET POINTS & COMPLETE RESET.

If for any reason the unit locks up, the unit may be reset and the real time clock restarted and all set points set to the first set of default values by doing the following.

Remove the power from the unit. Press and hold the x50 button and with the knob pressed, apply power to the unit and all set points will be set to a default value and the real time clock will be started with a valid time. The display will indicate that a reset was preformed.

The temperature offset values will not be changed. The temperature offset values can be changed to 0 using there set points. This should not be required unless the temperature offset values were lost. If they were lost, re calibration of the temperature sensors will have to be done or if the temperature offset values were saved (written down manually) they can be re entered using there set points.

After this has been done all set points will need to be set for the users requirements.

SET POINTS CRC:- CYCLIC REDUNDANCY CHECK & LIMP HOME.

A CRC check is done on all set points each 5 seconds and if the set points become corrupt for any reason the saved set points will be loaded into all set points for the system to use these set points.

Set points are automatically saved each time any set point is changed.

If the CRC check is not correct and the saved set values have been loaded into the set points to use, The Display will indicate this with the "-" between the minutes and seconds on the real time clock showing "->" (right pointing arrow). The unit will continue to run as normal.

Press the "x50" button to revert to normal displays noting that the set points have been re loaded and should be checked to make sure all set points are the required values.

VERSION NUMBER.

THIS IS DISPLAYED WHEN "TEST DISPLAY/RST LOG" FUNCTION IS EXECUTED. THE LCD WILL DISPLAY THE COPY RIGHT INFORMATION AND THE MODEL NUMBER AND SOFTWARE VERSION. ALSO THE MODEL NUMBER AND VERSION NUMBER IS DISPLAYED ON THE LAST PAGE OF THE NORMAL RUN DISPLAY PAGES.

DEFAULT VALUES.

| | | | |
|----|------------------------|-------------------------------------|-------------------------|
| 1 | "Control Auto or OFF" | AUTO | |
| 2 | "Compressor Set Point" | 200 | KPA |
| 3 | "Compressor Diff'tial" | 40 | KPA |
| 4 | "Comp Slow Load Time" | 60 | SECONDS |
| 5 | "Fast Load Set Point" | 300 | KPA |
| 6 | "Comp Fast Load Time" | 20 | SECONDS |
| 7 | "Comp'or Unload Time" | 30 | SECONDS |
| 8 | "Pump Down set Point" | 120 | KPA |
| 9 | "Cmp Start/Start Time" | 15 | MINUTES |
| 10 | "Comp Equalizer Sol'd" | 0 | SECONDS |
| 11 | "Oil Return Interval" | 60 | MINUTES |
| 12 | "Comp Stages Inverted" | NO | |
| 13 | "Hard Piped Stages Nu" | 1 | |
| 14 | "Comp cntl PRESS-TEMP" | PRESSURE | |
| 15 | "Comp Stg 1 Dly YesNo" | YES | |
| 16 | "Compre'r Step Amount" | 5 | % |
| 17 | "Compressor Min % Run" | 20, 50, 60, 75 | % |
| 18 | "Comp Proportional Ct" | 0 | |
| 19 | "Type of Compressor" | 1 | STAGE STEPPED |
| 20 | "Compressor Number ID" | 1 | |
| 21 | "High Alarm Temp're" | ALL +150.0 | oC |
| 22 | "Warn Temp From High" | ALL +5.0 | oC. |
| 23 | "Low Alarm Temp're" | ALL -50.0 | oC |
| 24 | "Warn Temp Above Low" | ALL +5.0 | oC. |
| 25 | "Hi Temp Alarm Delay" | ALL 1800 | |
| 26 | "Low Temp Alarm Delay" | ALL 1800 | |
| 27 | "High Alarm 4-20 In" | ALL 3000 | |
| 28 | "Warn 4-20 From High" | ALL 30 | |
| 29 | "Low Alarm 4-20 In" | ALL -100 | |
| 30 | "Warn 4-20 Above Low" | ALL 30 | |
| 31 | "Hi 4-20 Alarm Delay" | ALL 1800 | SECONDS |
| 32 | "Lo 4-20 Alarm Delay" | ALL 1800 | SECONDS |
| 33 | "Dig Temp's Connected" | ALL CONNECTED | |
| 34 | "PT100 Temp Connected" | ALL NOT CONNECTED | |
| 35 | "4-20ma Inp Connected" | FIRST 4 CONNECTED, REST NOT | |
| 36 | "Set 4-20 Input Span" | AMPS 0 TO 500, HUMIDITY 0 TO 100 | % REST ALL 0 TO 3000 |

DEFAULT VALUES.**DEFAULT VALUES CONT:-**

| | | |
|----|------------------------|--|
| 37 | "Digital IN Connected" | REMOTE RUN CONNECTED COND WATER LEVEL CONNECTED REST NOT CONNECTED |
| 38 | "Digital IN Inverted" | NONE |
| 39 | "Temp Sen's Comp Ctrl" | Dig Temp Number 1 |
| 40 | "Temp Sen's Comp Suc" | Dig Temp Number 2 |
| 41 | "Comp Tmp Sen for Dis" | Dig Temp Number 6 |
| 42 | "Temp Sensors for Oil" | Dig Temp Number 5 |
| 43 | "Temp Sen's Cond Ctrl" | Dig Temp Number 3 |
| 44 | "Temp Sen for Ambient" | Dig Temp Number 4 |
| 45 | "Condenser Set Point" | 1000 KPA |
| 46 | "Condenser Diff'tial" | 40 KPA |
| 47 | "Condenser Load Time" | 20 SECONDS |
| 48 | "Condenser Unload Tme" | 20 SECONDS |
| 49 | "Conden'r Step Amount" | 5 % |
| 50 | "Condenser Min % Run" | 20, 50, 60,75 % |
| 51 | "Cond cntl PRESS-TEMP" | PRESSURE |
| 52 | "Cond Proportional Ct" | 0 |
| 53 | "Type of Condenser" | 1 STAGE STEPPED |
| 54 | "Condenser Number ID" | 1 |
| 55 | "Condenser Model Type" | STANDARD WATER FANS |

DEFAULT VALUES.**DEFAULT VALUES CONT:-**

| | | | |
|----|------------------------|------------------------|-----------------|
| 56 | "Start Water Dump Tme" | 06:00 | HOURS : MINUTES |
| 57 | "Water Dump Duration" | 30 | SECONDS |
| 58 | "Celpad Pump Set Pnt" | 25.0 | oC |
| 59 | "Celpad Pump Diff'tal" | 1.0 | oC |
| 60 | "Celpad Pump Delay" | 600 | SECONDS |
| 61 | "Force Celpad AutoDry" | SUNDAY | |
| 62 | "Auto Dry Minim Time" | 120 | MINUTES |
| 63 | "Water Makeup Temp ON" | +1.0 oC FROM SET POINT | |
| 64 | "Celpad Wtr Flush Tme" | 300 | SECONDS |
| 65 | "Wt/Dump/V Operation" | NO POWER IS SHUT | |
| 66 | "Wash ON Set Point" | +300 | KPA |
| 67 | "Wash OFF Set Point" | +290 | KPA |
| 68 | "1st Stage ON/OFF Dly" | NO | |
| 69 | "Fans Order Rotate" | NO | |
| 70 | "Dump Open When Stop" | NO | |
| 71 | "Night Set Back St Pt" | 20 | KPA |
| 72 | "Set Back Time Start" | 20:00 | HOURS : MINUTES |
| 73 | "Set Back Time Finish" | 07:00 | HOURS : MINUTES |
| 74 | "Set Data Logging" | EVERY 1 MIUTE | |
| 75 | "Set Time & Date" | VALID TIME AND DATE | |
| 76 | "Password YES/NO" | NO | |
| 77 | "Change Password" | | |
| 78 | "Ram Memory Check" | | |
| 79 | "Test Display/Rst log" | | |
| 80 | "Set Dig Temp Offset" | ALL 0.0 oC | |
| 81 | "Set PT100 Tmp Offset" | ALL 0.0 oC | |
| 82 | "Add Dig Temp Sensor" | | |
| 83 | "Set RS485/232 Baud" | 9600 | |
| 84 | "Display Brightness" | 255 | |
| 85 | "Number of Resets S/N" | | |

DEFAULT VALUES.**DEFAULT VALUES CONT:-**

| | | |
|-----|------------------------|--------------------------|
| 86 | "TempScan Connected" | COMP & COND STAND ALONE |
| 87 | "TempScan Cont'l Type" | COND 2W STEP-COMP 4W |
| 88 | "Reset Celpad Run Hrs" | 0 |
| 89 | "Reset Comp'sor Hours" | 0 |
| 90 | "Reset Cond'ser Hours" | 0 |
| 91 | "4-20 Weight Average" | 1 |
| 92 | "Type of refrigerant" | NONE (NOT USED) |
| 93 | "Computer Connected" | NO |
| 94 | "LED Display Intens'y" | 15 |
| 95 | "Reset Password" | 0888 |
| 96 | "Display Annunciation" | NO |
| 97 | "Oil Pres Calculation" | Oil - 1st Stage Suc |
| 98 | "Cel Pad Control Type" | Control on Ambient Temp. |
| 99 | "CelPad Turn ON Delay" | 0 Seconds |
| 100 | "Temp Sen for Intermd" | Dig Temp Number 7 |
| 101 | "Water Level Swch Dly" | 10 Seconds |
| 102 | "Analog PT100 / AD590" | PT100 |

SPECIFICATIONS A-32-R

ALL SET POINTS ARE FOR INDIVIDUAL CHAN'S WHERE APPLICABLE.

TEMPERATURE INPUTS

| | | |
|------------------------------------|----|---|
| <i>(Digital)</i> | :- | 18B20 temperature sensor |
| <i>(Analog)</i> | :- | PT100 temperature sensor. |
| MAX TEMPERATURE INPUTS | :- | 17 |
| 4-20ma INPUTS SUPPLY | :- | 12V DC |
| MAX 4-20ma INPUTS | :- | 8 |
| 4-20ma RANGE | :- | -200 KPA/PPM to +3000 KPA/PPM |
| 4-20ma OUTPUTS | :- | 2 |
| 4-20ma OUTPUTS POWER | :- | Loop powered 12 - 36 V dc. |
| DIGITAL INPUTS | :- | 8 |
| LCD DISPLAY | :- | 4 line x 20 character super twist. |
| KEYBOARD SETTING | :- | Spin up/down and push and x50 button |
| RESOLUTION <i>(temperature)</i> | :- | 0.1 oC. |
| REPEATABILITY <i>(temperature)</i> | :- | 0.2 oC. |
| RANGE | | |
| <i>(Digital)</i> | :- | -25.0 - +125.0 Degrees C |
| <i>(Analog)</i> | :- | -50.0 - + 150.0 Degrees C |
| ACCURACY AD590 oC | :- | +/-0.5% -30.0 - +130.0 |
| <i>(Digital)</i> | :- | + - 0.5 Degrees C |
| <i>(Analog)</i> | :- | User select |
| ALL MEMORY BACKUP | :- | 1 year minimum. |
| ALARM SET POINT RANGE | | |
| <i>(HIGH & LOW)</i> | :- | -50.0 oC to +150.0 oC. |
| ALARMS SET POINT | | |
| RESOLUTION | :- | 0.1 oC. |
| ALARM DELAY SET RANGE | | |
| <i>(HI & LO)</i> | :- | 0 - 1800 seconds. <i>(1 on each channel).</i> |
| ALARMS DELAY SET | | |
| RESOLUTION | :- | 1 second. |
| ALARM <i>(INTERNAL)</i> | :- | pulsed visual and audio. |
| ALARM OUTPUT | :- | dry relay output, rated 24 V d.c. 1 A. |

SPECIFICATIONS A-32 CON'T

| | | |
|-----------------------------------|----|---|
| ALARM INPUT (DIGITAL ACTIVATE) | :- | short to signal common for instant audible alarm. |
| DATA LOGGING TIME BETWEEN | :- | 1, 5, 10, 30, 60, 120 minutes or none. |
| DATA LOGGING MAXIMUM | :- | 220 logs. |
| PASSWORD | :- | 0000-5999 (<i>may be active or not active</i>). |
| Compressor Number ID. | :- | set between 1 and 27 inclusive. |
| Condenser Number ID. | :- | set between 1 and 12 inclusive. |
| RS 232 PORT (FULL DUPLEX) | :- | 4 pin push in connector, maximum distance allowed, 6 meters. |
| RS 485 PORT (FULL DUPLEX) | :- | 4 x, terminals. Maximum distance allowed, 500 meters |
| BAUD RATE | :- | 110, 300, 1200, 2400, 4800, 9600. |
| STOP BITS | :- | 1. (<i>fixed</i>), |
| PARITY | :- | none (<i>fixed</i>). |
| COMPUTER COMMUNICATIONS | :- | Most functions are available via computer & RS232. |
| CONTROL SERIAL (TO TempScan) | :- | 2 wire. maximum distance 500 metres. (<i>coax twisted pair</i>). |
| CONTROL SERIAL (TO TempScan) | :- | 4 wire. maximum distance 500 metres. (<i>RS485 coax twisted 2 pair</i>). |
| CONTROL OUTPUTS | :- | 11 Rating, 24v AC 5AMP total over the 11 Outputs voltage free. |
| POWER SUPPLY | :- | 24 V dc +/- 10%. |
| MOUNTING | :- | DIN Rail Mount |
| SIZE | :- | L 160mm x W 100mm x 80mm. |