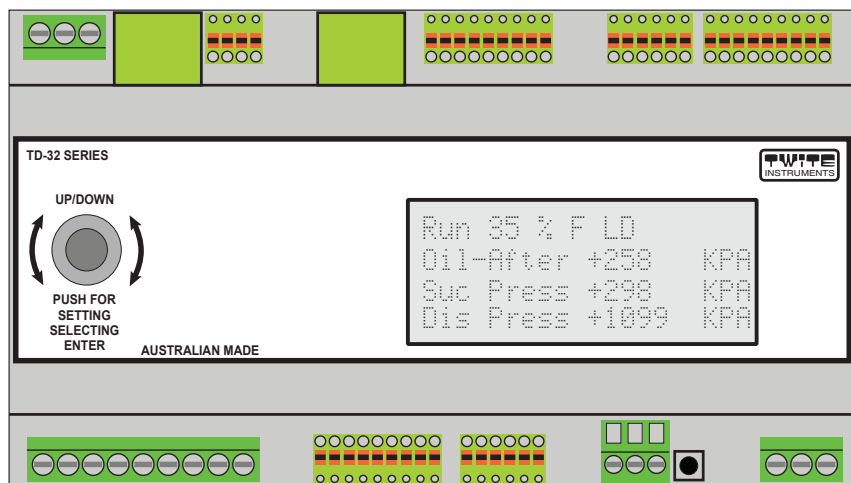


MultiScan

OPERATING MANUAL MODEL TD-32-S



SCREW COMPRESSOR CONTROLLER



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FUNCTIONS.

FUNCTIONS AND THE NO. OF EACH CONT:-

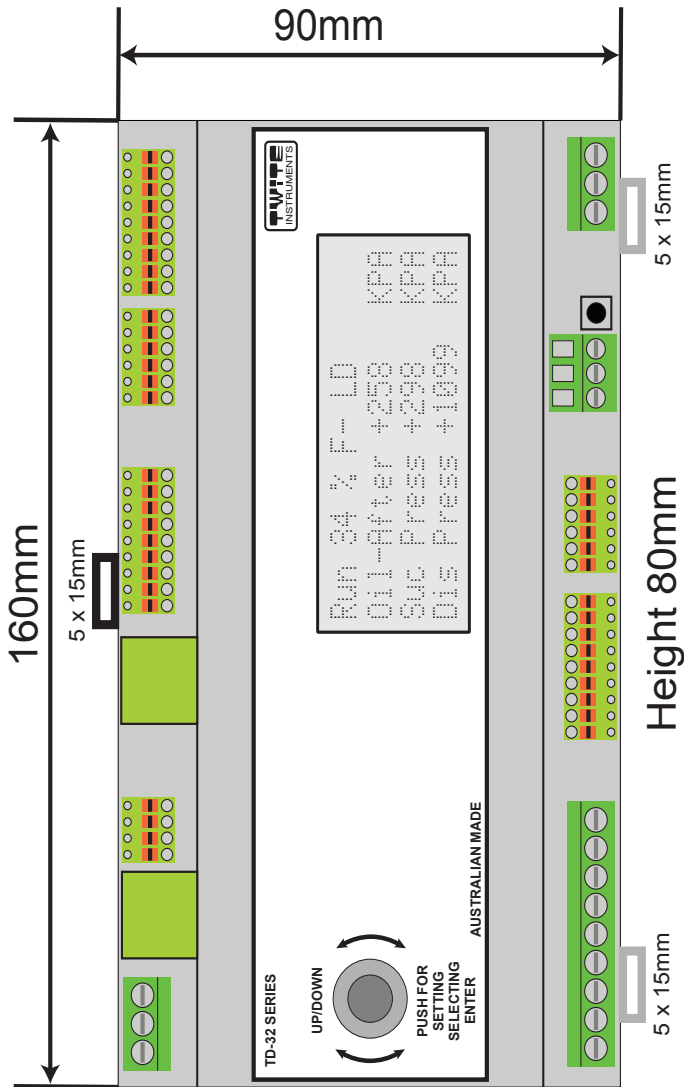
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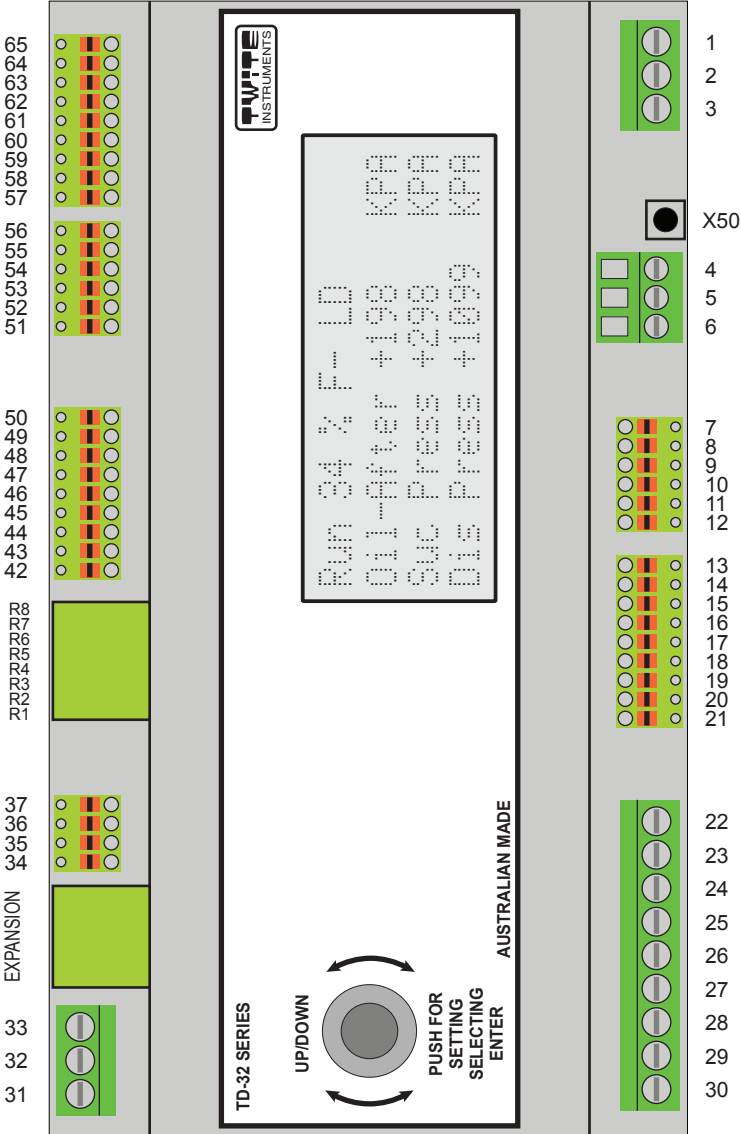
INSTALLATION :-

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).

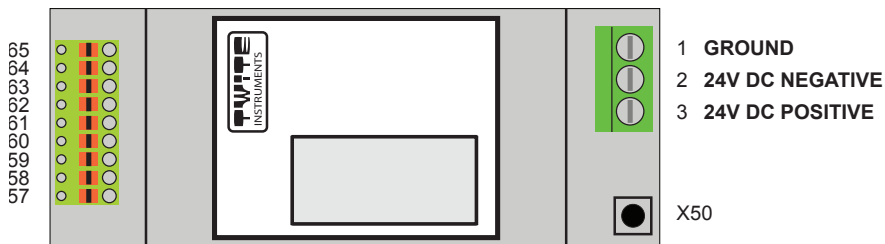
NOTE:- If more than one MultiScan is connected to the same 24v dc power supply, all terminals numbered 2 must be connected to the same side of the 24v dc (ground) and all terminals numbered 3 must be connected to the other side of the 24v dc (positive).

The power supply that is used must be used for the MultiScan only (not connected to any other units including a 24v DC TempScan) 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 :-

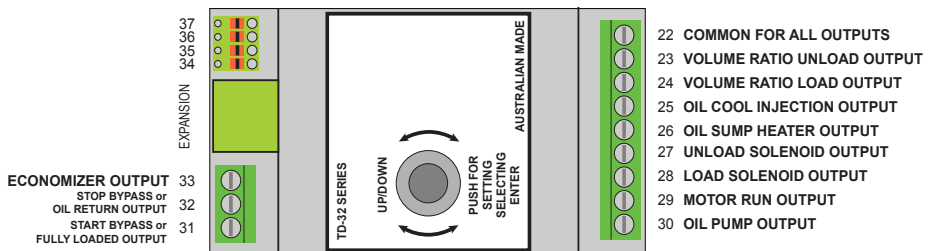
Power for compressor and condenser control can be up to 24 V ac. and connected to the terminal Block

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 - Volume Ratio Unload Solenoid output.
- 24 - Volume Ratio Load Solenoid output.
- 25 - Oil Cool Injection Solenoid output.
- 26 - Oil Sump Heater Contactor output.
- 27 - Unload Solenoid output.
- 28 - Load Solenoid output.
- 29 - Compressor Motor Run output.
- 30 - Oil Pump output.

- 31 - Start Bypass Solenoid output.
- 32 - Stop Bypass Solenoid output or Oil Return Solenoid. Bypass takes precedence.
- 33 - Economizer Solenoid 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 controls and if more than one sensor is used for control, the average of all sensors used will be used as the control temperature.

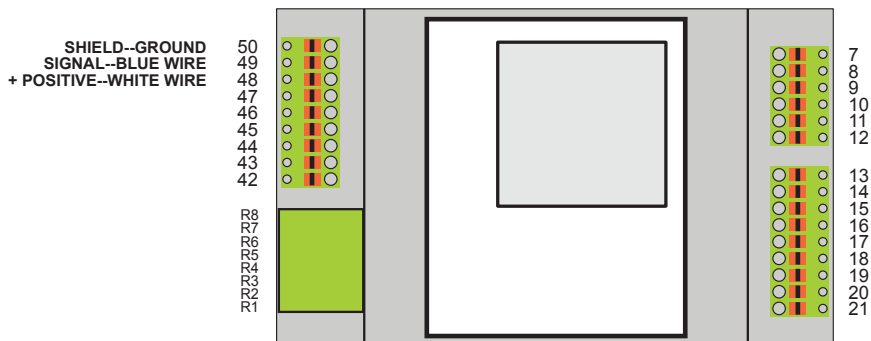
Any sensor may be used for control of the compressor (if controlled on temperature and not pressure) and if more than one sensor is used for control, the average of all sensors used will be used as the control temperature for the compressor.

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

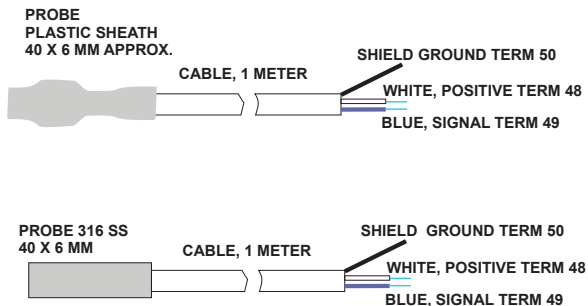
INSTALLATION CONT.

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 controls and if more than one sensor is used for control, the average of all sensors used will be used as the control temperature.

Any sensor may be used for control of the compressor (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.

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

INSTALLATION CONT.

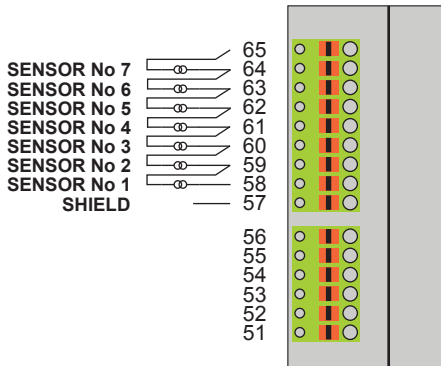
MULTISCAN ANALOG TEMPERATURE INPUT TERMINALS CONT:-

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

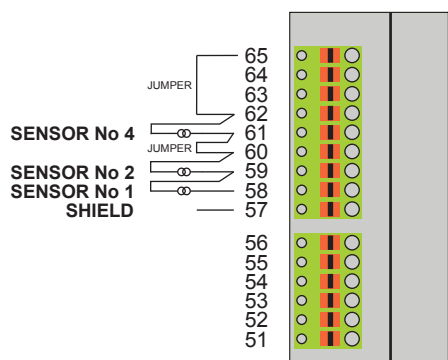
Terminal No.

- 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):-

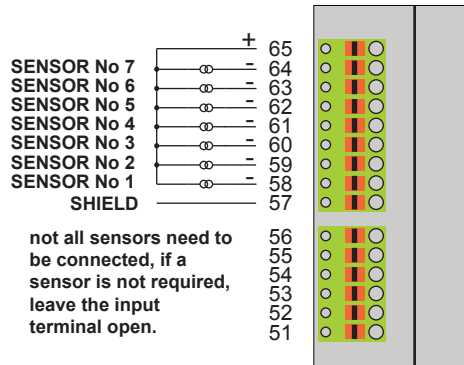
Terminal No.

- 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 :	Suction Temp. used for super heat calculation.
Digital Sensor Number 2 :	Oil Manifold Temperature.
Digital Sensor Number 3 :	Oil Sump Temperature, controls sump heater.
Digital Sensor Number 4 :	Compressor intermediate sensor.
Digital Sensor Number 5 :	Compressor control sensor (temperature control)
Digital Sensor Number 6 :	Spare.
Digital Sensor Number 7 :	Spare.
Digital Sensor Number 8 :	Spare.
Analog Sensor Number 1 :	Compressor discharge sensor.
Analog Sensor Number 2 to 7 :	Spares.

INSTALLATION CONT.

TEMPERATURE AND PRESSURE CHANNELS USED FOR CONTROL CONT:-

Compressor control:

Compressor Temperature Control Probe Sensor:

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.

Compressor Intermediate Probe Temperature:

Any temperature sensor can be used for the compressor intermediate 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.

Oil Sump Probe Temperature:

Any temperature sensor can be used for the oil sump 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.

The sump heater is controlled using this sensor's.

Oil Manifold 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.

INSTALLATION CONT.

TEMPERATURE AND PRESSURE CHANNELS USED FOR CONTROL CONT:-

Compressor Discharge Probe Temperature:

Any temperature sensor can be used for the compressor discharge 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.

MULTISCAN PRESSURE & 4-20MA INPUT TERMINALS :-

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 11v 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 Before the Filter Pressure.
- 11 - Negative for Compressor Oil After the Filter Pressure.

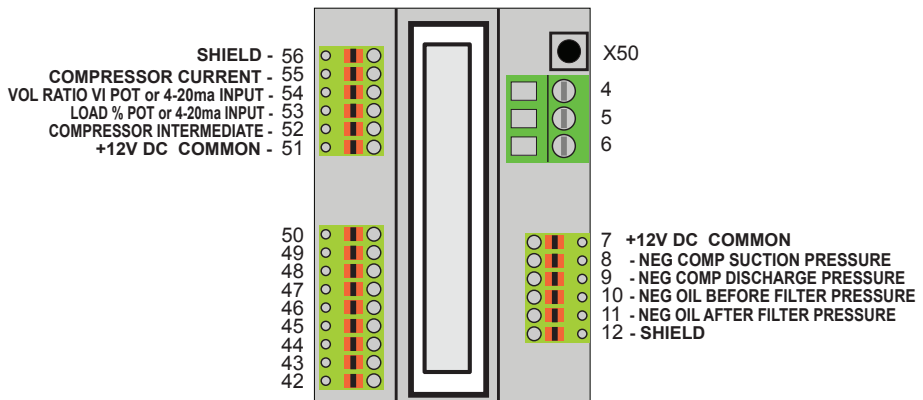
INSTALLATION CONT.

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

Terminal Inputs for channels 5-8

- 56 - Shield of each cable.
- 51 - Common +12 Volts (all Positive wires to transducers).
- 52 - Negative for Compressor Intermediate Pressure if used.
- 53 - Negative for Load Percentage Input 4-20ma or Pot
- 54 - Negative for Volume Ratio Percentage Input 4-20ma or Pot.
- 54 - Current Input.

The following are all the 4-20ma input connections.

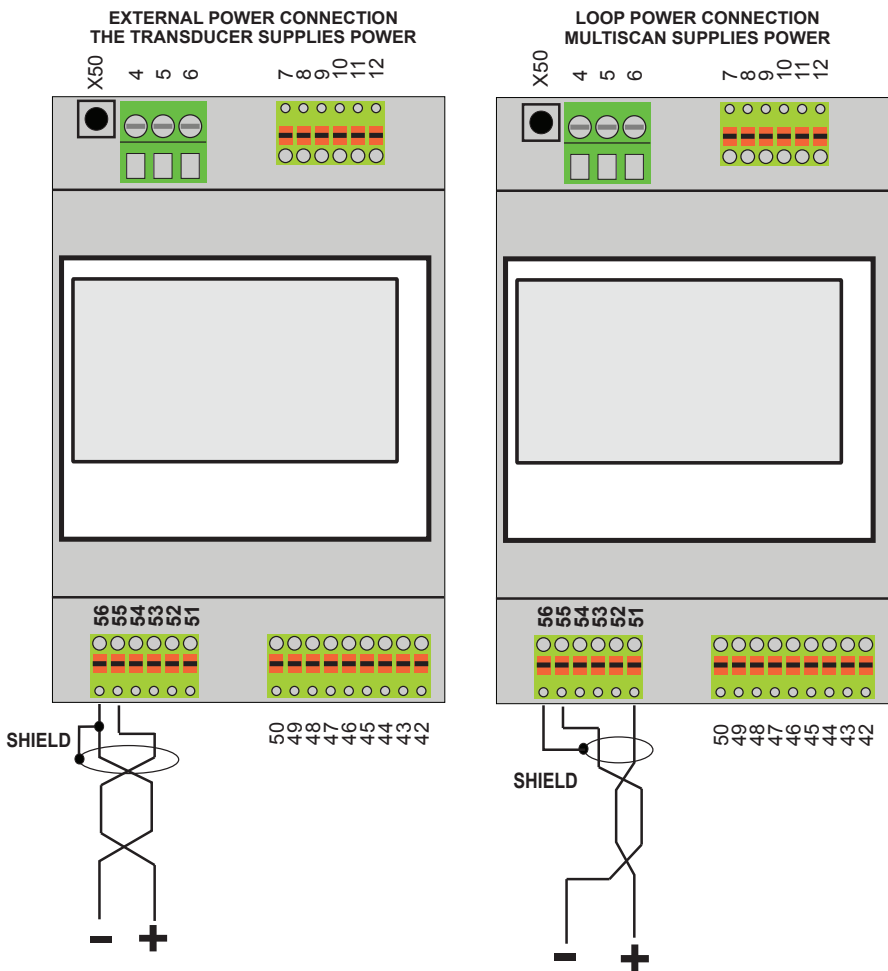


INSTALLATION CONT.

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

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.

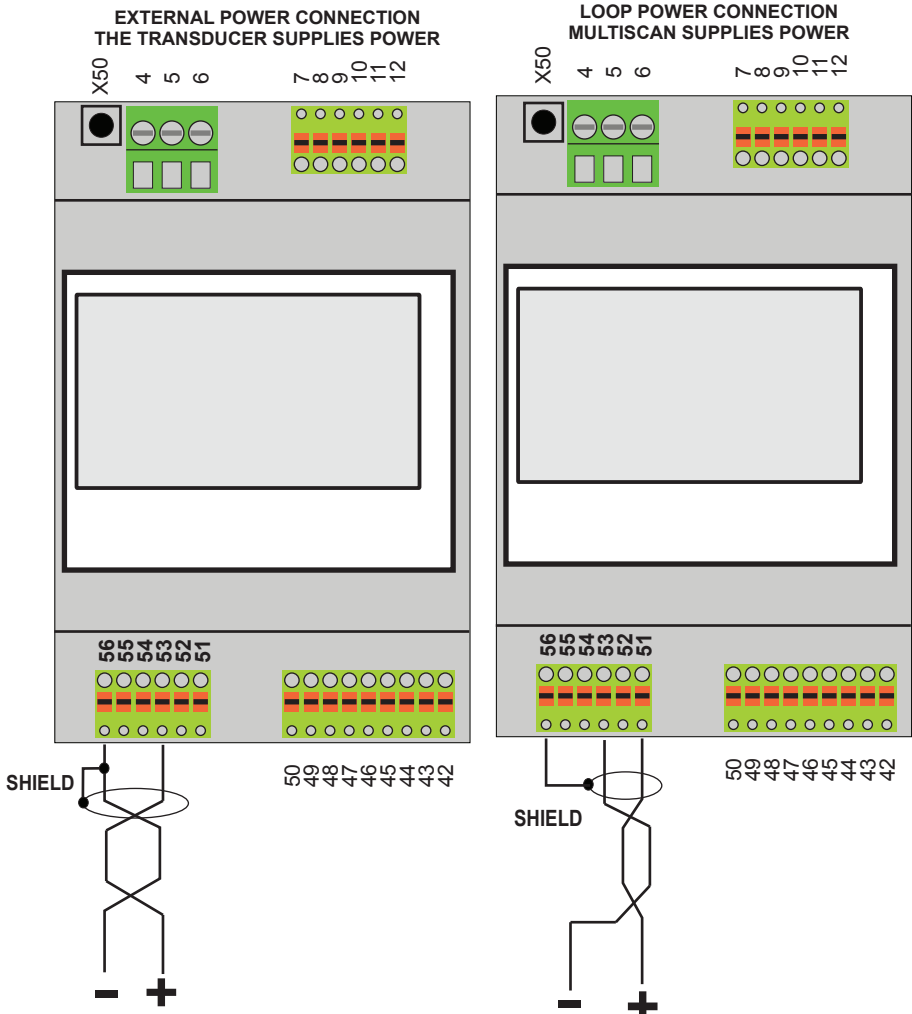


INSTALLATION CONT.

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

The Percentage Load input can be loop powered or self powered as shown below or a Potentiometer may be used and must be connected as shown on the next page.

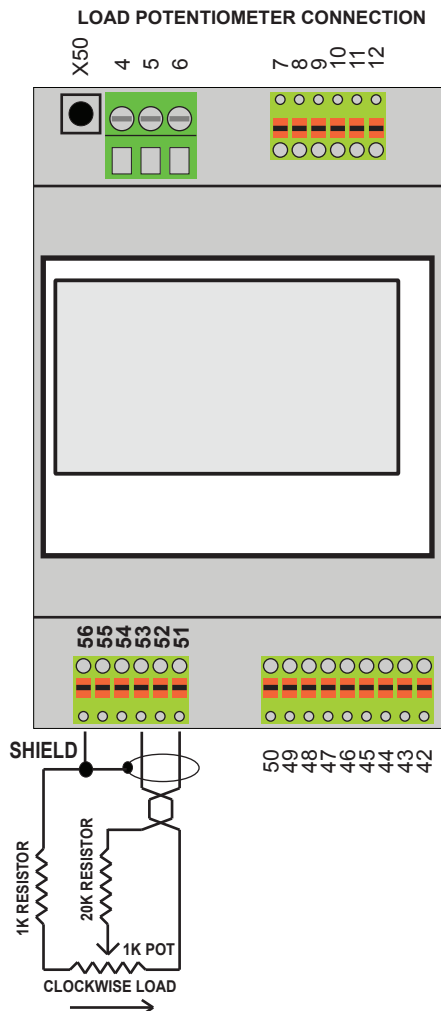
If a Pot is used the function "Type of Load Input" must be set to "Resist Potentiometer" and if a 4-20ma transmitter is used it must be set to "4-20ma Input".



INSTALLATION CONT.

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

Using a Potentiometer for the percentage load indication must be connected as follows.

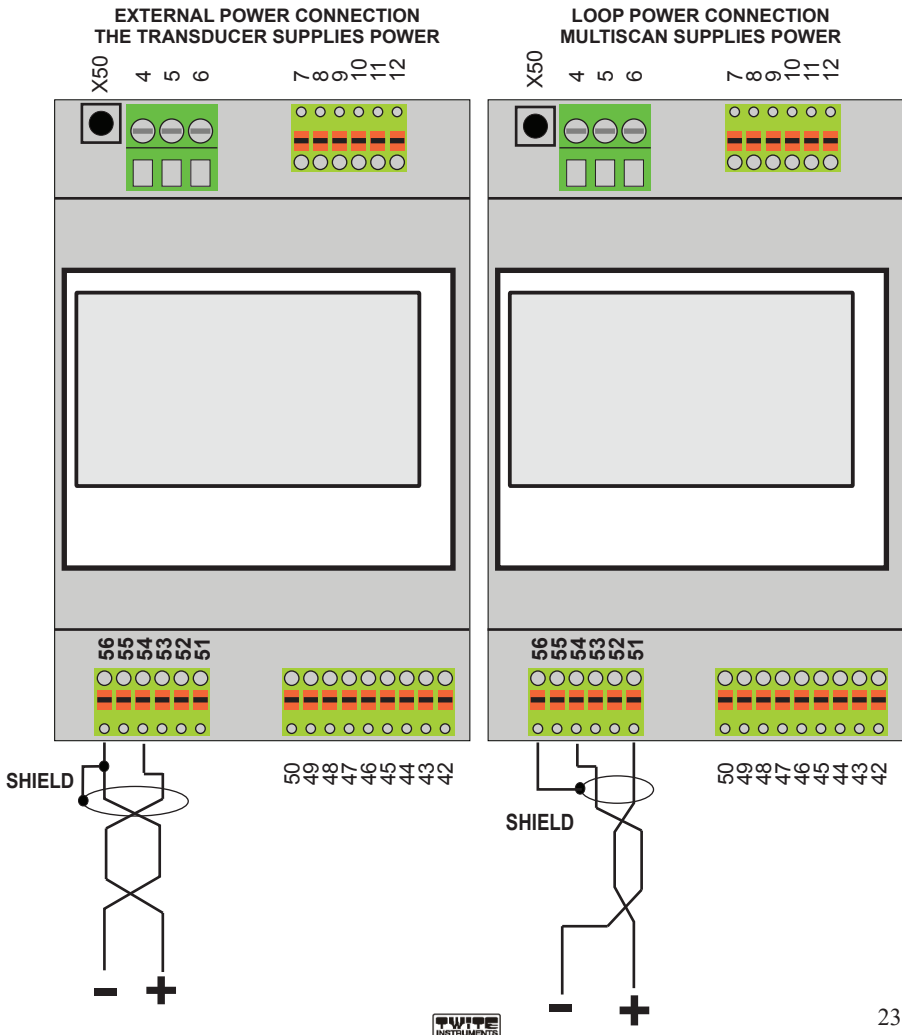


INSTALLATION CONT.

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

The Volume Ratio (VI) Load input can be loop powered or self powered as shown below or a Potentiometer may be used and must be connected as shown on the next page.

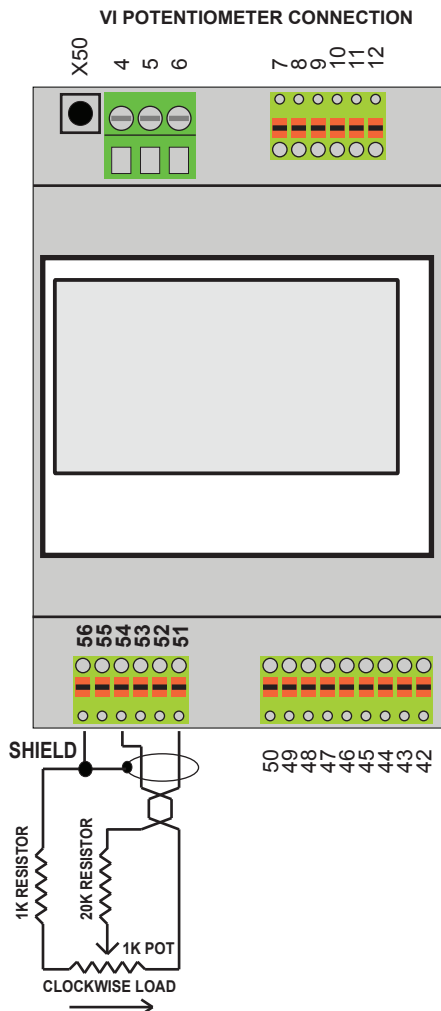
If a Pot is used the function "Type of VI Input" must be set to "Resist Potentiometer" and if a 4-20ma transmitter is used it must be set to "4-20ma Input".



INSTALLATION CONT.

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

Using a Potentiometer for the amount of Volume Ratio (VI) must be connected as follows.



INSTALLATION CONT.

MULTISCAN DIGITAL INPUT TERMINALS:-

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

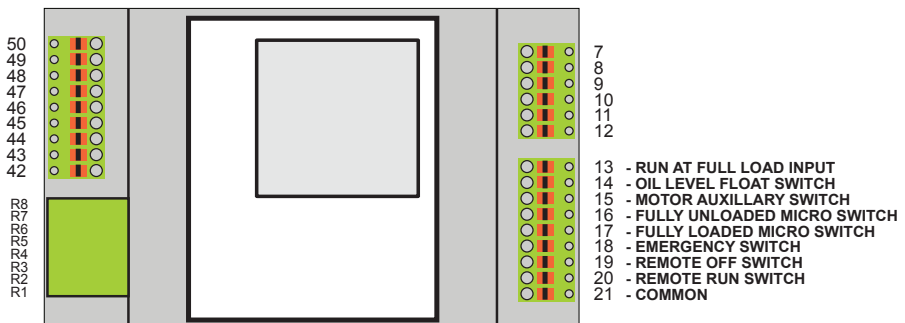
Each Digital input is ON if its input is connected (shortage) to the COM pin of the digital input terminal strip and OFF if not connected (open circuit) if the function "Digital IN Inverted" for each input is set to "NO" and the inverse is true for each input if the function "Digital IN Inverted" is 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 - Emergency Switch Input
- 17 - Fully Loaded Micro Switch Input.
- 16 - Fully Unloaded Micro Switch Input.
- 15 - Motor Auxiliary Input.
- 14 - Oil Level Float Switch Input.
- 13 - Run at Full Load Input.



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 POWER UP).**
Used to turn the system ON from a remote location. The system will run automatically to the set points set for temperature or pressure etc. The system will shut down if this input is turned off. All control will shut the system down.
- 19 - Remote OFF Input.**
Used to turn the whole system OFF from a remote location.. 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 - Emergency Switch Input.**
Used to turn control of the compressor OFF after a 10 second delay.
NOTE:- This is only used to display that the emergency switch was activated. The physical emergency switch must stop all control voltage to the compressor. No alarm is activated, only the display will indicate that the switch was pressed.
- 17 - Fully Loaded Micro Switch Input.**
Indication that the compressor is fully loaded. No alarms.
- 16 - Fully Unloaded Micro Switch Input.**
Indication that the compressor is fully unloaded. No alarms.
- 15 - Motor Auxiliary Input.**
Turns the compressor off if active and only if the motor has been running for 30 seconds. Goes into alarm.
- 14 - Oil Float Level Switch Input.**
Turns the compressor off if active and only if the motor has been running for 30 seconds. Goes into alarm.
- 13 - Run at Full Load Input.**
If active, the compressor will run at full load. This is used if more than one compressor is used and compressor staging is required.

INSTALLATION CONT.

MULTISCAN 4 TO 20 MA OUTPUT TERMINALS:-

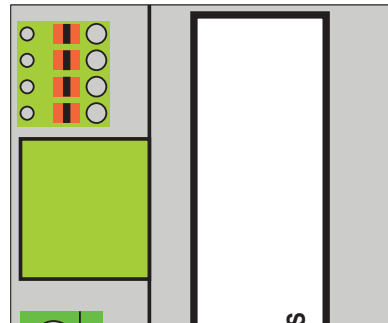
The 4 - 20ma outputs are for variable speed motor on the compressor and variable 4-20ma output for oil cooling.

The output must be loop powered from the variable speed controller from 12 to 24 volts DC.

For variable motor speed control see later for operation parameters.

COMPRESSOR 4-20ma +	—	37
COMPRESSOR 4-20ma -	—	36
OIL COOLING 4-20ma +	—	35
OIL COOLING 4-20ma -	—	34

EXPANSION



INSTALLATION CONT.

MULTISCAN ALARM AND OUTPUT TERMINALS:-

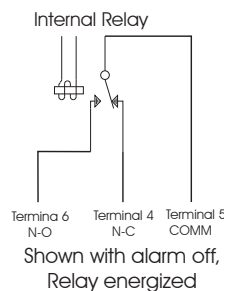
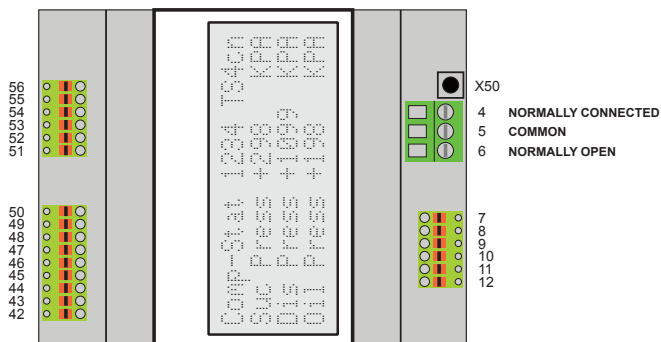
The Alarm Relay is of the voltage free type with a common, normally connected and normally not connected outputs.

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:-

Multiple MultiScans Connected.

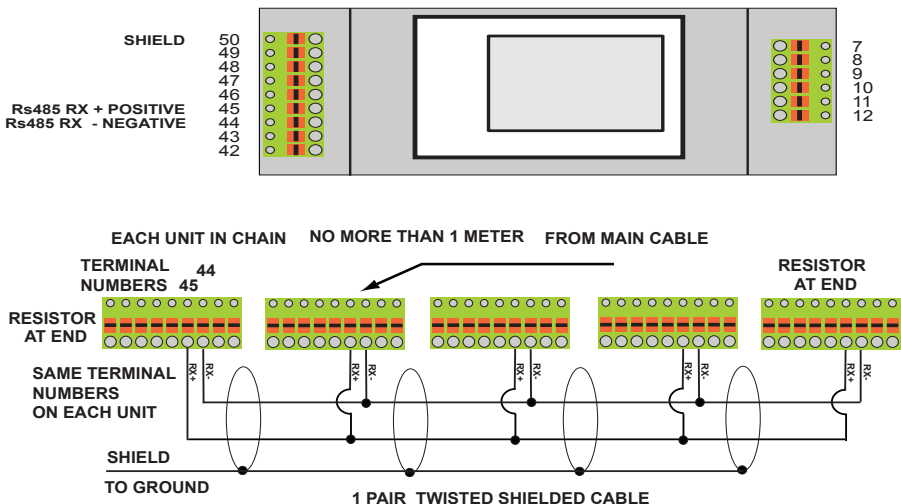
The MultiScan is one of a number (up to 27 TD-32-R and or TD-32-S) connected together through the RS485 Terminals as below. All RX+ are connected and all RX- connected in series using twisted pair shielded cable and not run near voltage cables.

The first display will indicate "MS-" if no communications are received from the number 1 MultiScan after 60 seconds and will display "MSc" if communications are successful. If the MultiScan is set to number 1, it will display "MSM". An alarm will sound after 10 minutes if no comms, and compressors with no comm's above number 1 will turn off.

The shield must be connected to one end only.

The connection to each unit must be continuous from one to the next then the next etc.. The units must be connected in a daisy chain configuration and not spider from one point.

The unit at each end of the line must have 1 x 120 OHM resistors placed across the RX+ to RX- terminals.



INSTALLATION CONT.

MULTISCAN RS485 TERMINALS CONT.:-

Multiple MultiScans Connected cont.

Each MultiScan must have a different number and one must be number 1.

The MultiScan that is set to number 1 will control all other units in the chain. MultiScans may be models A-32-R or A-32-S or a combination of either.

The order of turn on for each compressor is in the compressor numbers, i.e. compressor number 1 turns on first, when it has reached full load, compressor number 2 will turn on, when number 2 is fully loaded compressor number 3 will turn on etc.

Each compressor loads and unloads using its own set points and delays.

Each compressor that is **NOT** set to number 1 will turn off (after unloading, or its last stage off) at its own UNLOAD set point, when all other compressors have turned off that have a higher number than 1, the compressor that is set to number 1, will turn OFF (at minimum % load) at its PUMP DOWN set point.

The compressor that is set to number 1 will not allow the next compressor (number order) to turn on (regardless of its set points) until the compressor that precedes it is fully loaded.

The compressor that is set to number 1 will not allow a compressor to turn off or unload (regardless of its set points) until the compressor that is after it (number order) has been turned off (at its UNLOAD set point).

If any compressors control pressure/temperature reaches its pump down set point it will turn off immediately.

NOTE:- If there is no compressor set to number 1 or the communications fail between compressors after 10 minutes, all compressors other than number 1 will go into alarm and turn off. The number 1 compressor will continue to operate with its own set points unless an alarm occurs within itself.

INSTALLATION CONT.

MULTISCAN RS485 TERMINALS CONT.:

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 used for TempScan control in conjunction with the 4 wire RS485 serial. 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 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 ("Run 00 % FU T2c " or T 4c " or "T2c4c" on top line) will indicate whether the 4 and or 2 wire communications are successful, the right hand position will show "-" instead of "c" 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 Connection	
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 2 WIRE SERIAL INPUTS :-

TempScan Connected for Compressor Control.

NOTE:- If the 2 wire serial is used for TempScan control in conjunction with the 4 wire RS485 serial. 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.

If a TempScan is connected to the MultiScan using the 2 wire serial connections only, the MultiScan is controlled by the TempScan in an on and off control only. The MultiScan is then controlled using its own set points and control pressure/temperature as a single stand alone unit.

All MultiScans that are connected with 2 wire serial only use the set point "TempScan Connected" set to "TempScan 2 Wire Ctl " and cannot supply compressor information to the Tempscan software and the compressor is controlled by the TempScan in an ON and OFF control only.

The MultiScan is one of a number (1 to 27 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.

INSTALLATION CONT.

MULTISCAN 2 WIRE SERIAL INPUTS CONT:-

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).

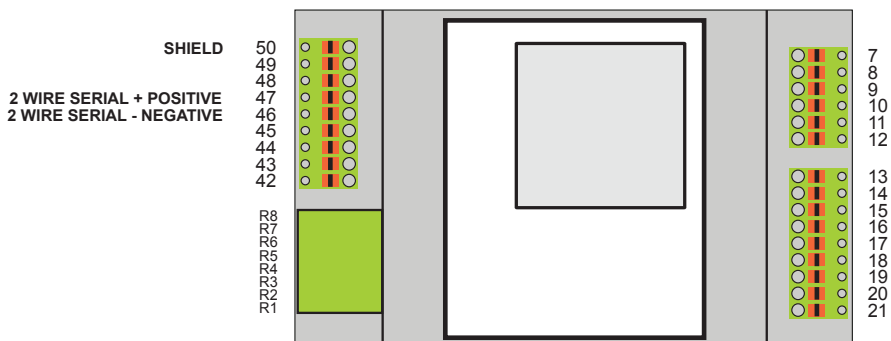
The first display ("Run 00 % FU T2c " on top line) will indicate whether the 2 wire communications are successful, the right hand position will show "-" instead of "c" if no communications are received from the TempScan after 60 seconds.

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 CONT:-

To set the DIP switch.

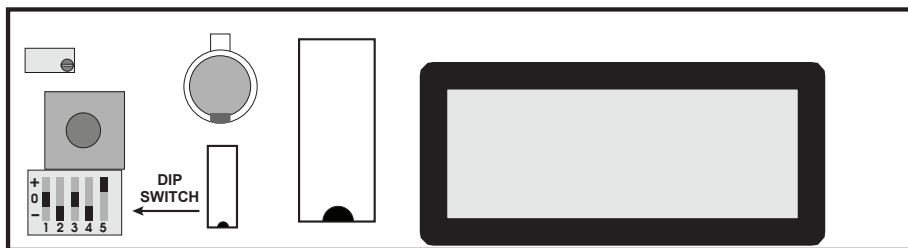
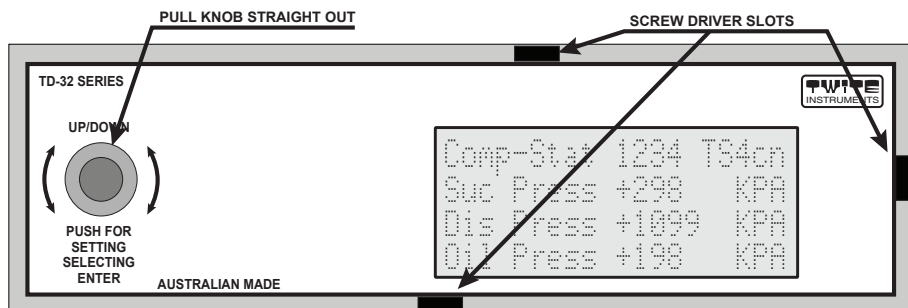
Remove the knob by pulling straight out.

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 27.

The settings for each compressor channel number are displayed later in this 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 "Single Stand Alone" or "TempScan 2 Wire Ctl" using set function "TempScan Connected" and "YES" for function "Computer 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.

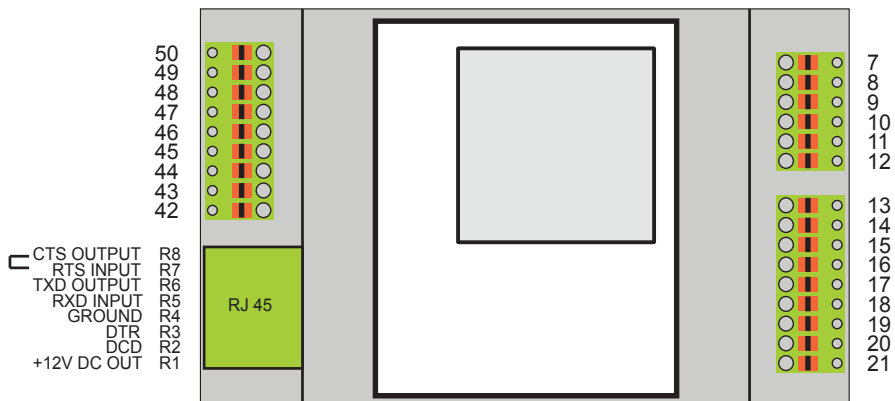
For GSM (wireless) modem connection a standard straight though RJ45 (8 way) cable is used and is available from the manufacture.

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.

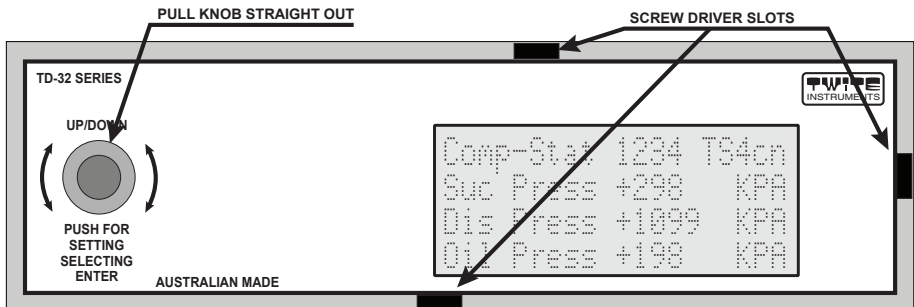
LCD DISPLAY CONTRAST ADJUST.

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.

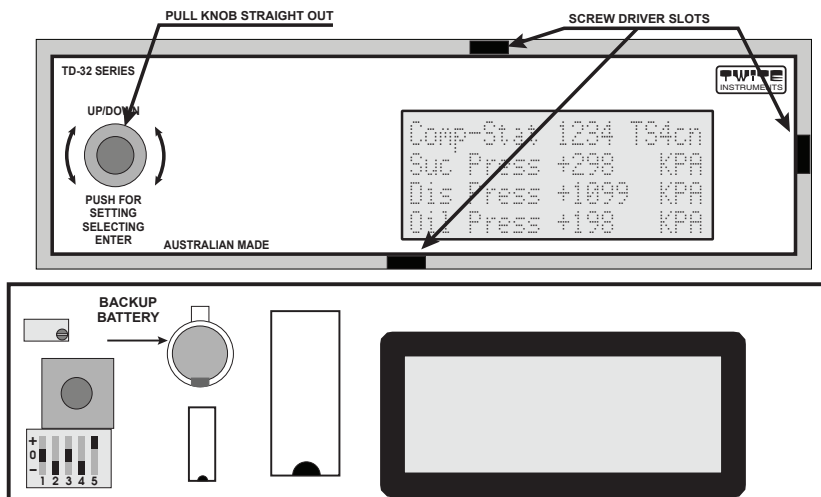
Turn off the power to the unit.

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 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.

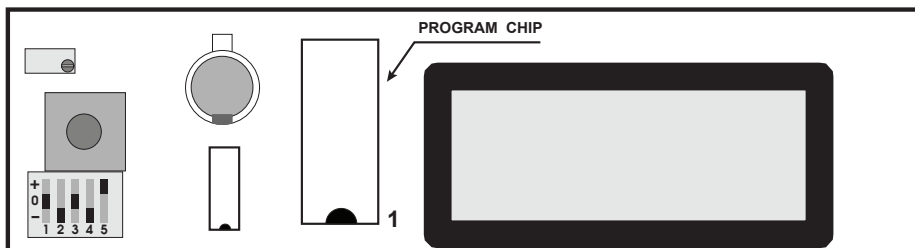
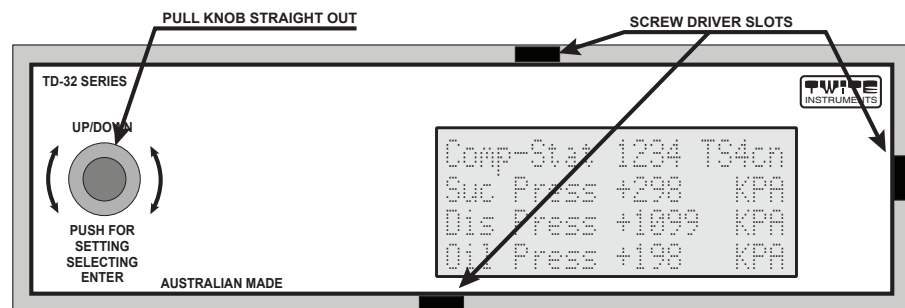
Turn the power off to the unit.

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.

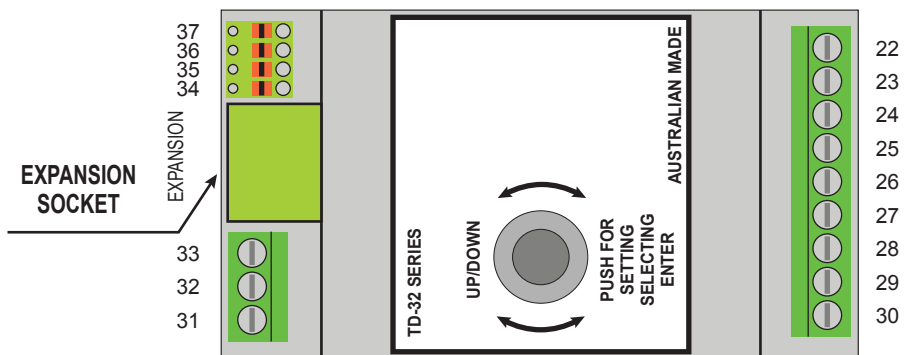
The Expansion socket is used for other modules to be added if required.

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-S 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 other functions as follows on the Bar LED's.

Top LED	=	Oil pump is on.
2nd. LED	=	Compressor motor is on.
3rd. LED	=	Load solenoid is on.
4th. LED	=	Unload solenoid is on.
5th. LED	=	Sump heater is on.
6th. LED	=	Oil cooling is on.
7th. LED	=	Warning alarm (flashing) is active.
8th. LED	=	Alarm is active (Flashes) is active.

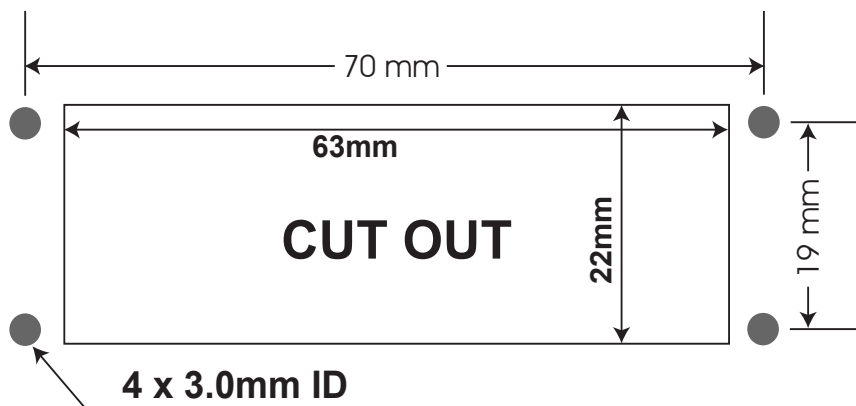


INSTALLATION CONT.

EXPANSION SOCKET CONT.

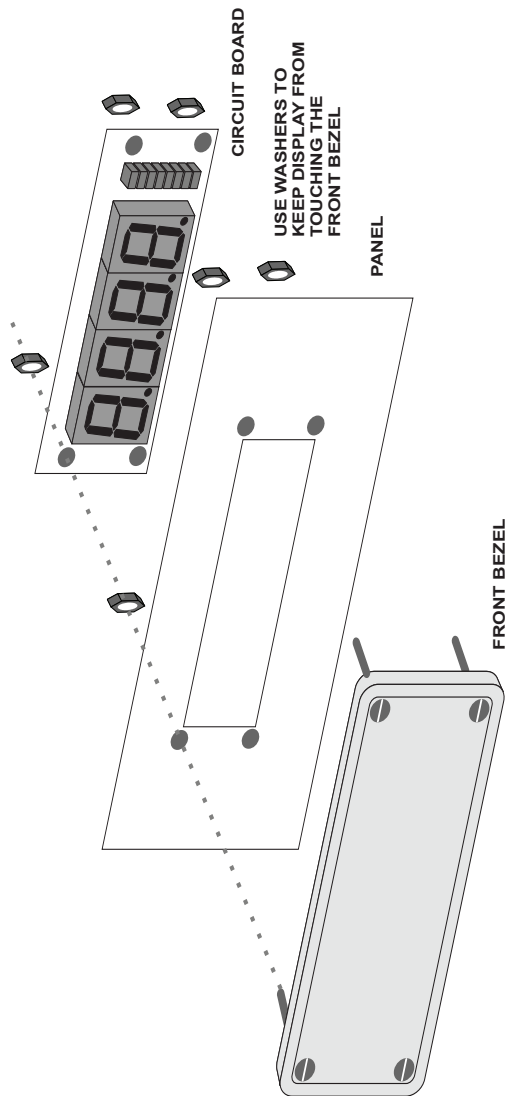
The LED display can be mounted onto a front panel. If the LED display touches the front bezel before the unit is secure, use the washers to set the circuit board back so that the display does not touch the bezel.

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 oC to 200.0 oC.

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 if used, 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:-

MULTISCAN 4 TO 20 MA OUTPUT TERMINALS:-

The 4 - 20ma No. 1 output is for variable speed motors.

The output must be loop powered from the variable speed controller from 12 to 30 volts DC. The positive line from the variable speed controller must be connected to terminal No. 37 and the Ground line from the variable speed controller must be connected to the terminal No. 36. The Shield must be used to protect the signal and must be connected at the variable speed drive unit only.

Terminal number 36 = - (GND), terminal number 37 = +11v to 30v DC.

The 4 - 20ma output increases from 4 - 20ma in 255 steps.

The compressor goes through a normal start-up routine (unloading etc.).

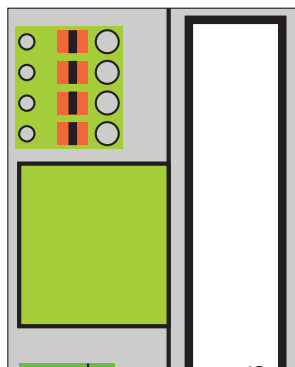
When the motor starts, the 4-20ma output will be at the minimum run percentage (function "Min Slide Valve Pos%").

The compressor will then continue to load up the slide valve to fully loaded and the 4-20ma output control will be adjusted according to the required percentage depending on the pressure/temperature or at the percentage required from the TempScan if connected.

COMPRESSOR 4-20ma + ——— 37
COMPRESSOR 4-20ma - ——— 36

EXPANSION

35
34



OPERATION CONT.

COMPRESSOR CONTROL CONT:-

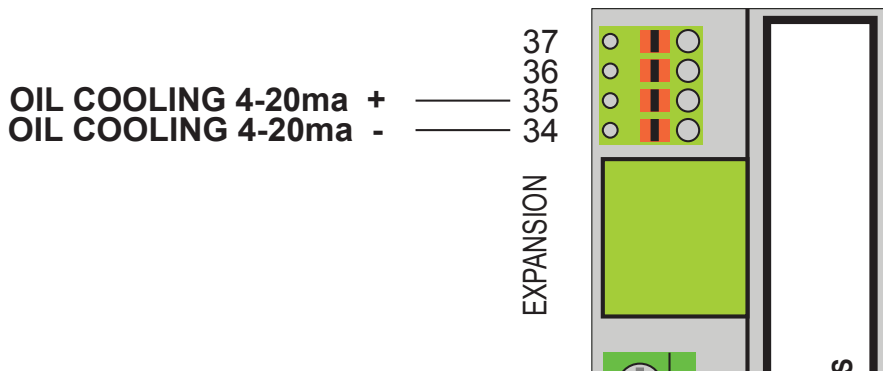
MULTISCAN 4 TO 20 MA OUTPUT TERMINALS CONT:-

The 4 - 20ma No. 2 output is for oil cooling output if liquid injection or water pump is not used.

The output must be loop powered from the cooling controller from 12 to 30 volts DC. The positive line from the variable valve controller must be connected to terminal number 35 and the Ground line from the cooling controller must be connected to terminal number 34. The Shield must be used to protect the signal and must be connected at the variable valve controller unit only.

Terminal number 34 = - (GND). Terminal number 35 = +11v to 30v DC.

The 4 - 20ma output varies from 4 - 20ma in 255 steps to maintain the desired oil temperature.



OPERATION CONT.

COMPRESSOR CONTROL CONT:-

Oil Heating:

The oil heater is used to keep the oil at an ideal temperature when the compressor is off or in stand-by mode and turned off if the motor is running. The temperature is set with set functions and the differential. The temperature used is the separator temperature probe.

Note:-

If the separator temperature probe is set to not connected (ER-C displayed) the heater is turned on and the compressor is allowed to start, regardless of the actual temperature of the separator oil while the motor is off.

If the separator temperature probe is in over range (ER-O displayed) the heater is turned off and compressor is not allowed to start.

If the separator temperature probe is reading a temperature and is higher or equal to the minimum oil temperature start temperature (*user programmable*) the compressor is allowed to start and the oil heater will turn on and off with its set point with its differential set point while the motor is off.

Oil Cooling:

The oil may be cooled in either of three ways (set in set points). The manifold temperature probe is used to control the temperature and must be connected and operating properly for the compressor to run.

1. Water pump:

If this is used the oil cooling relay is turned on while the motor is running.

2. Liquid injection:

If this is used, the liquid injection solenoid is pulsed at a rate determined by the oil cooling set point temperature and the amount of difference from the current oil temperature using a 3 to 6 second cycle. The amount of cooling pulse is displayed on one of the display pages.

OPERATION CONT.

COMPRESSOR CONTROL CONT. :-

Oil Cooling cont:

3. 4-20ma Output:

If this is used, the first 4-20ma output will set its 4-20ma output to a value to maintain the correct oil temperature. The amount of cooling the 4-20ma output is displayed as a percentage on the LCD.

Oil Filter Differential Warning:

If the pressure of the oil after the filter falls below the pressure of the oil before the filter by a set amount (*set in set points*) for 60 seconds or more a warning will be issued to indicate that the oil filter may need changing. This is only compared while the motor is running.

Oil Return Solenoid:

NOTE:- If the stop bypass solenoid time is not 0, the oil return is used. If the stop bypass solenoid is any number above 0, the oil return will not function. The stop bypass solenoid output takes precedence.

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

Fully Loaded Output Relay:

NOTE:- If the start bypass solenoid time is not 0, the fully loaded output is used. If the start bypass solenoid is any number above 0, the fully loaded output will not function. The start bypass output takes precedence.

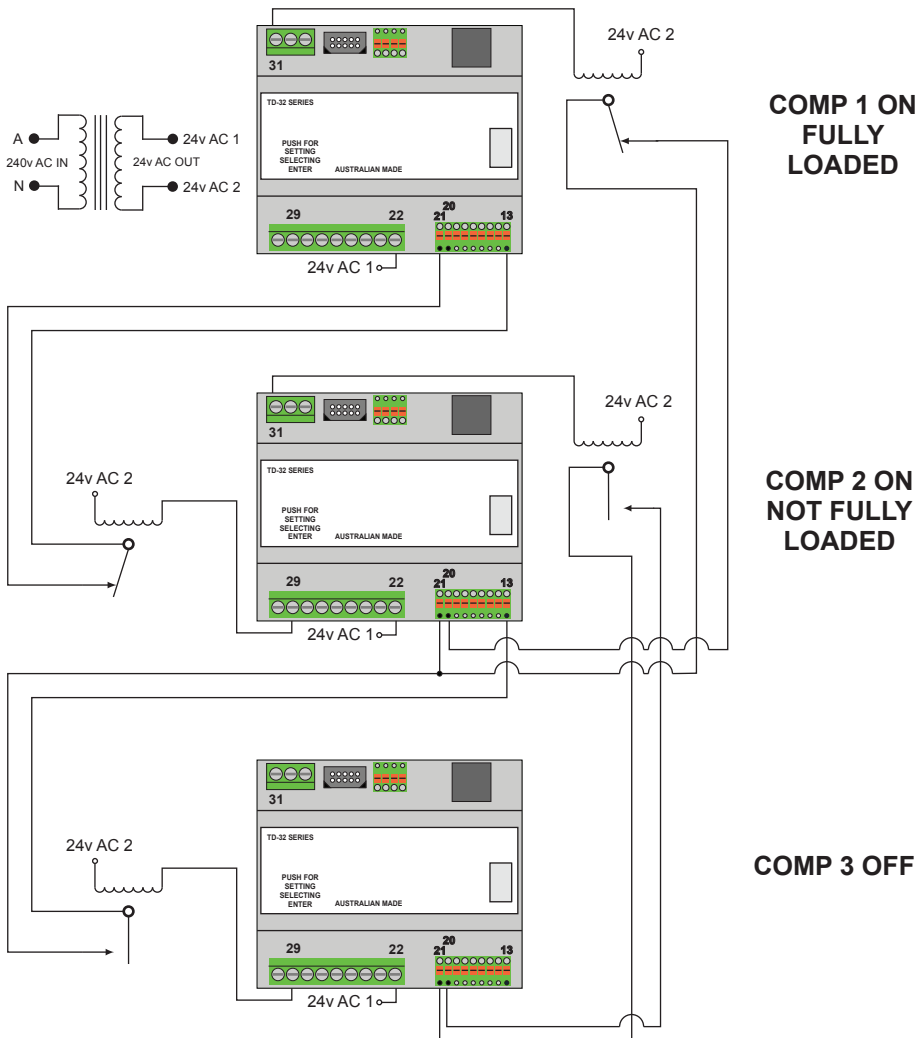
The fully loaded output is turned on only if the load 4-20ma or pot is at 100% and or the fully loaded micro switch is on (active) or if variable, the motor run 4-20ma output is at 100%. This output can be used to turn the next compressor in a bank of compressors.

OPERATION CONT.

COMPRESSOR CONTROL CONT. :-

Fully Loaded Output Relay cont:

Below is an example for how to use the fully loaded output/input in a bank of compressors. To use RS485 control see earlier in this manual.



OPERATION CONT.

COMPRESSOR CONTROL CONT. :-

Fully Loaded Output Relay cont:

To use multiple compressors, the digital inputs, Remote Run (digital input number 1) and Run at Full Load (digital input number 8) must be set to connected.

When the first compressor (must be set to number 1 in Compressor Number ID set point) has reached full load (if the % pot is at 100% and/or the digital input fully loaded is active or if a variable speed motor is used, the motor is running at 100%) the fully loaded relay will turn on allowing the next compressor in the chain to turn on.

When the next compressor turns on (the motor has started) the output (through a relay) can activate the Run at Full Load input on the first or previous compressors digital input. This will make the first or previous compressor run at full load.

When the last compressor in the sequence turns off , the compressor before it will then be allowed to unload.

All compressors use there own set points for loading and unloading.

All compressors in the chain after the first compressor must be numbered 2 or more in Compressor Number ID.

The first compressor in the chain (number 1) will not turn off until its pump down set point has been reached.

All other compressors (number 2 or more) will turn off when the minimum run % has been reached using the unload set point.

If the pump down set point is reached by any compressor it will turn off immediately.

OPERATION CONT.

COMPRESSOR CONTROL CONT. :-

Bypass Solenoids:

Bypass solenoids can be used for starting the compressor and stopping the compressor.

If the set point for bypass start is set to 0, the output is used for fully loaded output. The bypass solenoid takes precedence.

If the set point for bypass stop is set to 0, the output is used for oil return output. The bypass solenoid takes precedence.

Terminal number 31 will turn on at the same time the motor is turned on and remain on for the time in seconds of set point "Bypass Sol Start Time".

Relay output number 32 will turn on at the same time the motor is turned off and remain on for the time in seconds of set point "Bypass Sol Stop Time".

Progressive Load and Unload:

If progressive load/unload is used the length of the load and unload pulses are increased above the set points (*for load and unload pulses*) by a value depending on the difference between the load pressure set point or the unload pressure set point.

The amount of the increase cannot be more than 3 seconds regardless of the difference.

The value is equal to 0.1 of a second for every 10 KPA of pressure difference.

Motor Current Forced Unload:

If the current of the motor goes to equal or higher than a preset amount (set in set points) the compressor will unload for 1 pulse every 10 seconds until the current falls below the set point.

The load pulse will not be allowed to operate regardless of the pressure/temperature for 3 minutes. The forced unload condition is displayed as an "F" on the LCD.

OPERATION CONT.

COMPRESSOR CONTROL CONT. :-

Motor Current Stop Load:

If the current of the motor goes to equal or higher than a preset amount (set in set points) the compressor will not be allowed to load until the current goes below the set point.

Maximum Percentage Stop Load:

If the maximum percentage (set in set points) is reached or higher than a preset percentage (set in set points) the compressor will not be allowed to load any further.

VOLUME INDEX :-

If the volume index set function "Volume Ind. Auto/Man" is set to "Manual VI Set Used" and uses set function "Volume Index Set Pnt" to set the required value to be obtained. The load and unload solenoids will operate until the position of the valve is within a reasonable position to the set point.

If the volume index set function "Volume Ind. Auto/Man" is set to "Automatic VI Used" .The load and unload solenoids will operate until the position of the valve is within a reasonable position to the calculated value.

OPERATION CONT.

COMPRESSOR CONTROL CONT. :-

OIL PUMP VARIATIONS :-

There are 4 ways for the oil pump depending on the compressor.

The oil pressure indicators are as follows.

For Full Lube compressors:

The "Before Flt" is the (Oil pressure before the filter - Discharge pressure).

The "After Flt" is the (Oil pressure after the filter - Discharge pressure).

For all other types of compressors:

If the oil pump (if fitted) is on.

The "Before Flt" is the (Oil pressure before the filter - Discharge pressure).

The "After Flt" is the (Oil pressure after the filter - Discharge pressure).

If the oil pump (if fitted) is off or no oil pump.

The "Before Flt" is the (Oil pressure before the filter - Suction pressure).

The "After Flt" is the (Oil pressure after the filter - Suction pressure).

1 Full Lube

The oil pump on this system is on (running) continuously while the motor is on (running).

When the compressor needs to start (turn on pressure set point), the oil pump will start and the motor will not start until the required pressure (set in set points) is reached and the compressor is unloaded to its set point. If the required pressure is not reached within the time out (set in set points) the unit will turn off and an alarm will be active and the compressor cannot turn on.

The oil pump will remain on while the motor is running.

OPERATION CONT.

COMPRESSOR CONTROL CONT. :-

OIL PUMP VARIATIONS CONT:-

2 Cycle Pump

The oil pump on this system is on (running) while the motor is on (running) only if the pressure (Discharge pressure - Suction pressure) drops below a set point.

When the pressure (Discharge pressure - Suction pressure) goes above the set point the pump will turn off.

If oil pressures drop below their alarm set points the unit will go into alarm and the compressor will turn off.

When the compressor needs to start (turn on pressure set point), the oil pump will start and the motor will not start until the required pressure (set in set points) is reached. If the required pressure is not reached within the time out (set in set points) the unit will turn off and an alarm will be active and the compressor cannot turn on.

3 Pre Lube Pump

The oil pump on this system is off while the motor is on (running).

When the compressor needs to start (turn on pressure set point), the oil pump will start and the motor will not start until the required pressure (set in set points) is reached. If the required pressure is not reached within the time out (set in set points) the unit will turn off and an alarm will be active and the compressor cannot turn on.

If oil pressures drop below there alarm set points the unit will go into alarm and the compressor will turn off.

4 No Oil Pump

The oil pump on this system is supplied from the discharge pressure while the motor is on (running).

If the pressure falls below its set point (set in set points) an alarm will activate and the compressor will turn off and not be able to come on until the alarm is reset.

OPERATION CONT.

COMPRESSOR CONTROL CONT:-

Function "TempScan Connected" is set to "Single Stand Alone"

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 5.

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

The compressor control type can be any one of the following set in function "Type of Compressor".

1 stage compressor.

2 stage compressor.

1 stage compressor with economizer.

If the Remote run digital input is set to connected and switched on (active) the compressor will turn on automatically when the pressure/temperature reaches the turn on value (*fast load/start value*) else the compressor will be in stand by mode.

If the Remote run digital input is set to connected and switched off (active) the compressor will turn off. The motor, oil pump, bypass solenoid and unload solenoids may be left on for a number of seconds to unload the compressor before turning off (*user programmable*).

If the Remote run digital input is set to not connected the compressor will turn on automatically when the pressure/temperature reaches the turn on value (*fast load/start value*) else the compressor will be in stand by mode.

The oil pump (*if required*) will turn on with the unload solenoid to unload the compressor. If the compressor does not unload to the required % amount (*if a 4-20ma or pot fitted*) (*user programmable*) or the fully unloaded switch if fitted is not active the unit will go into alarm and turn off after a 5 minute delay.

If the oil pressure does not reach the required pressure for the number of try times (*user programmable*) the unit will go into alarm and turn off after a delay.

OPERATION CONT.

COMPRESSOR CONTROL CONT:-

Function "TempScan Connected" is set to "Single Stand Alone" cont:-

If the compressor unloads and the oil pressure is correct the motor will start and the start bypass solenoid (*if used*) will turn on for the required time (*user programmable*).

The compressor uses fast load (*also start pressure/temperature*), slow load and unload times (*user programmable*) for loading and unloading the compressor. Also the compressor has a user programmable Start to Start timer in minutes. See set functions for compressors for all set points regarding compressor control set points.

All control is done with its own set points using its own pressure/temperature input.

The oil pump and oil cooling is done as described in the following pages.

When the pressure/temperature reaches the pump down set point the unit will turn off.

The motor, oil pump, bypass solenoid and unload solenoids may be left on for a number of seconds to unload the compressor before turning off (*user programmable*).

The oil return will come on when required but not unless the discharge temperature reaches 55.0 oc or above. If the discharge temperature is set to not connected the oil return will still operate at it required times.

Also the compressor has a user programmable Start to Start timer in minutes and cannot restart until the timer has finished.

If progressive load and unload is set to "YES" the time the solenoids are on will vary depending on how far the suction pressure is from the load and unload set points.

When the compressor is running automatically, the load solenoid will turn on (for the length set in "Load Pulse Time" in seconds and tenths of seconds) when the load pressure is reached (the pressure/temperature set point plus half of the differential set point) after the time delay (set in Comp Slow Load Time) providing that the maximum % (set point) or the maximum current (set point) has not been reached.

OPERATION CONT.

COMPRESSOR CONTROL CONT:-

Function "TempScan Connected" is set to "Single Stand Alone" cont:-

If the suction pressure reaches the Compressor Start Pressure (set point) while running the load solenoid will turn on (for the above time) after each time delay set with Comp Fast Load Time.

When the compressor reaches full load with the slide valve pot reading 100% or the fully loaded micro switch is on if used, the compressor will not attempt to load the compressor any more unless it was unloaded first.

When the compressor is running automatically, the unload solenoid will turn on (for the length set in "Un Load Pulse Time" in seconds and tenths of seconds) when the unload pressure is reached (the pressure/temperature set point minus half of the differential set point) after the time delay (set in Comp Unload Time).

The Unload solenoid will not be turned on if the "Min Slide Valve Pos" (the minimum slide valve position in %) percentage set point is equal to or above the current percentage of the slide valve.

If the current percentage of the slide valve is above the minimum slide valve percentage the compressor is able to unload.

The compressor will turn off when the suction pressure reaches the "Pump Down Set Point".

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.

COMPRESSOR CONTROL CONT:-

Function "TempScan Connected" is set to "Single Stand Alone" cont:-

If function "Variable Speed Drive" is set to "NO"

The load and unload solenoids will control the required load of the slide valve to the required set point of the pressure or temperature depending on the control value in.

If function "Variable Speed Drive" is set to "YES"

The compressor will keep loading the load slide valve until fully loaded and the variable 4-20ma output will increase and decrease to control a variable speed drive to maintain the correct set point pressure/temperature.

Variable Speed 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.

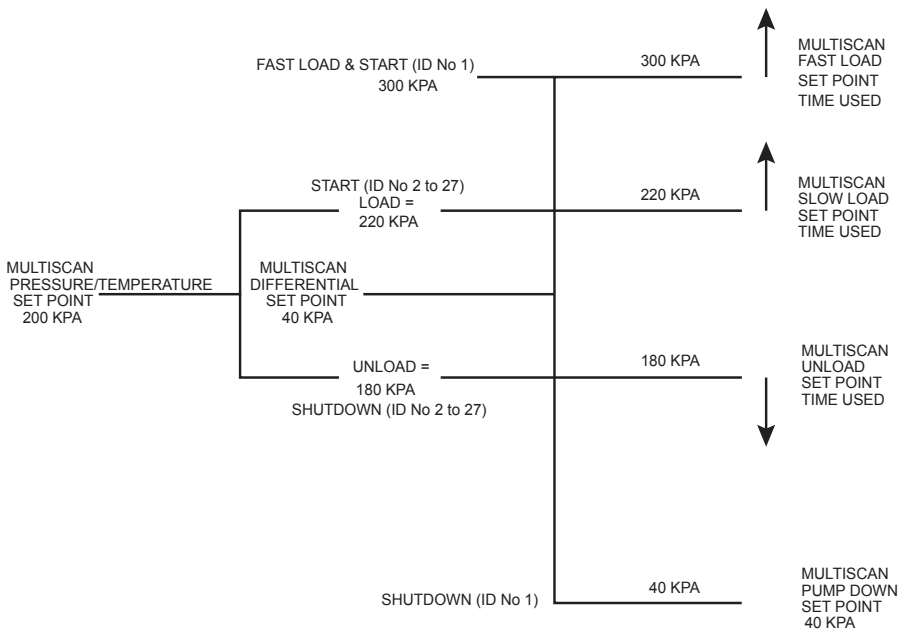
Compressor maximum run.

When using variable speed drives, the maximum run percentage may be set.

OPERATION CONT.

COMPRESSOR CONTROL CONT:-

Function "TempScan Connected" is set to "Single Stand Alone" cont:-



OPERATION CONT.

COMPRESSOR CONTROL CONT:-

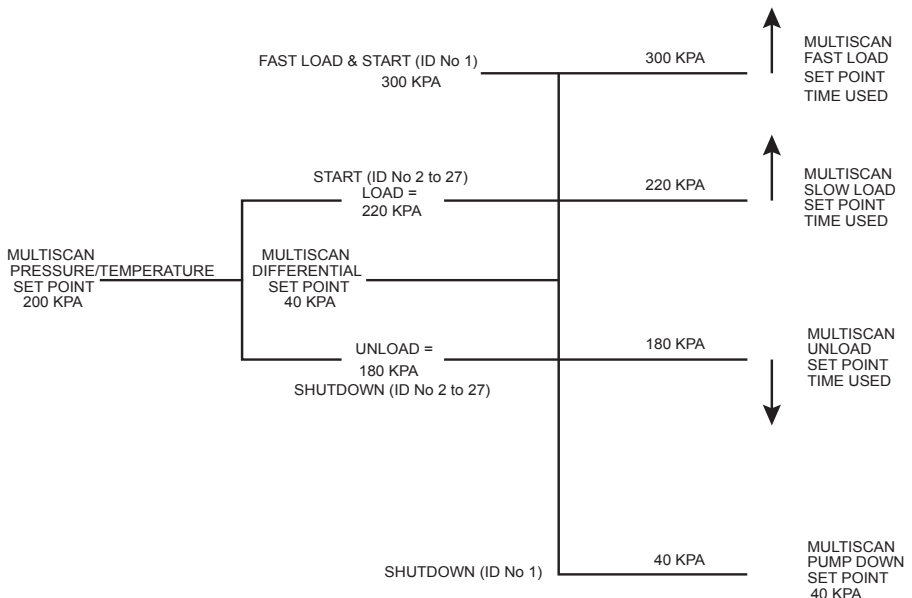
Function "TempScan Connected" is set to "TempScan 2 Wire Ctl"
:-

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 TempScan will control the compressor in an ON and OFF mode (with its pressure/temperature input) only and all other controls are done within the MultiScan including unload start, load, un load and stop with its own pressure/temperature input.

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



OPERATION CONT.

COMPRESSOR CONTROL CONT:-

Function "TempScan Connected" is set to "TempScan 2 Wire Ctl" cont:-

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

NOTE:- For 2 wire communications only, the TempScan set point for this compressor must be set to "Screw SA"

TEMPSCAN SET AT SCREW SA

TEMPSCAN USES ITS START TO START TIME AND SO DOES THE MULTISCAN USE ITS OWN
TEMPSCAN CONTROLS ON/OFF ONLY EVEN IF IT HAS 4 WIRE COMMS AS WELL
TEMPSCAN ASSUMES IT IS FULLY LOADED AS IT MAY NOT HAVE 4 WIRE COMMS
2 WIRE COMMS ONLY, CAN HAVE 4 WIRE AS WELL FOR VALUES SENT BACK ONLY

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.

COMPRESSOR CONTROL CONT:-

Function "TempScan Connected" is set to "TempScan 4 Wire Ctl" :-

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 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.

If the MultiScan is set for "YES" in the "Variable Speed Drive" set point:-

The MultiScan slide valve will keep loading until the slide valve is fully loaded.

The 4-20ma output for the variable speed of the motor will follow the load percentage that the TempScan supplies unless the percentage from the TempScan is less than the required minimum percentage run and if so, the variable speed drive output will be at the minimum percentage run value set in set points.

If the MultiScan is set for "NO" in the "Variable Speed Drive" set point:-

The MultiScan will keep loading the compressor until the percentage loaded matches the load percentage that the TempScan supplies unless the percentage from the TempScan is less than the required minimum percentage run and if so, the MultiScan will load the compressor until the minimum percentage run value set in set points.

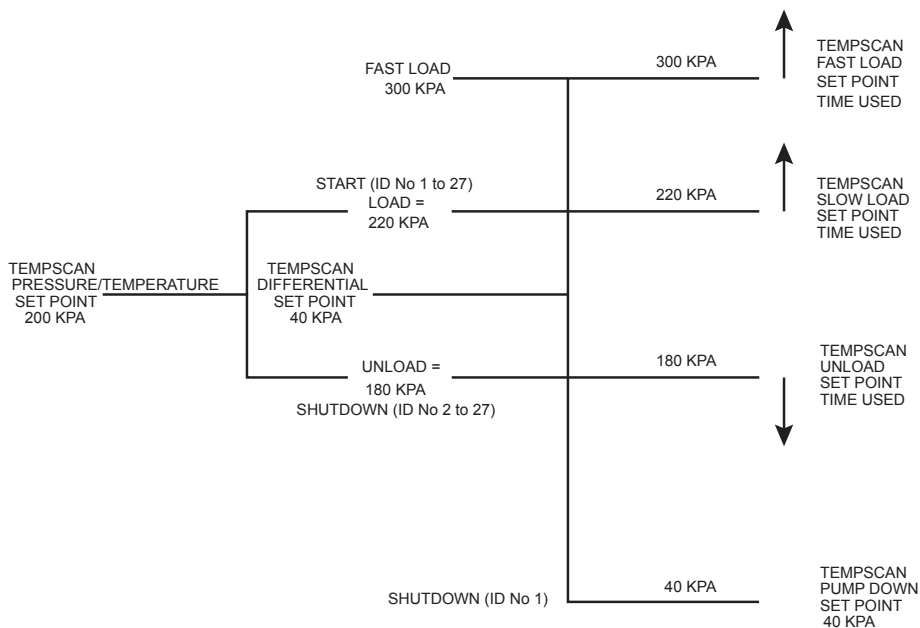
The load and unload percentage of the MultiScan will match the TempScans required value within a set percentage that can be set in set points.

OPERATION CONT.

COMPRESSOR CONTROL CONT:-

Function "TempScan Connected" is set to "TempScan 4 Wire Ctl"
:-

NOTE:- For 4 wire communications only, the TempScan set point for this compressor must be set to "Screw CS"



OPERATION CONT.

COMPRESSOR CONTROL CONT:-

Function "TempScan Connected" is set to "TempScan 2&4 Wire Ctl" :-

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 control of the compressor is the same as the previous control (TempScan 4 Wire Ctl) except that when the compressor is to be turned off the delay is only 1 second compared to up to 20 seconds in the previous type of control.

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 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.

If the MultiScan is set for "YES" in the "Variable Speed Drive" set point:-

The MultiScan slide valve will keep loading until the slide valve is fully loaded.

The 4-20ma output for the variable speed of the motor will follow the load percentage that the TempScan supplies unless the percentage from the TempScan is less than the required minimum percentage run and if so, the variable speed drive output will be at the minimum percentage run value set in set points.

OPERATION CONT.

COMPRESSOR CONTROL CONT:-

Function "TempScan Connected" is set to "TempScan 2&4 Wire Ctl" :-

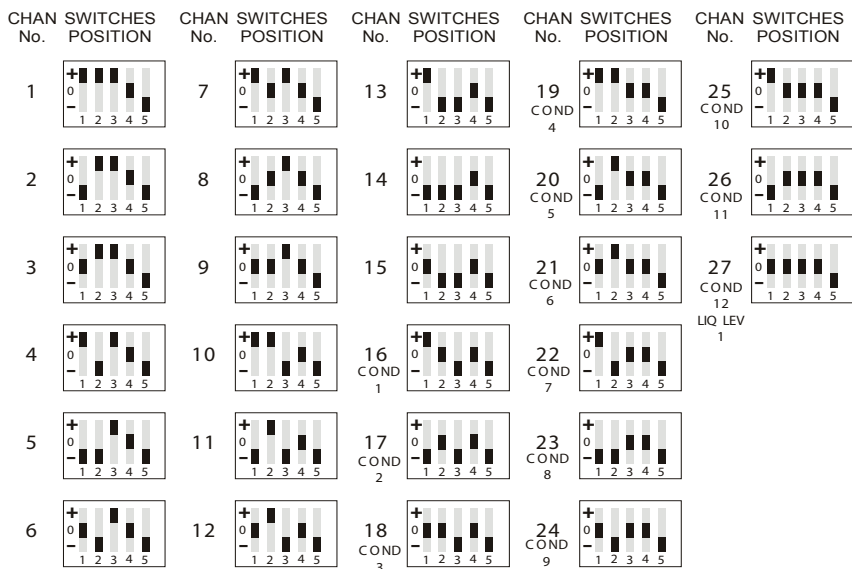
If the MultiScan is set for "NO" in the "Variable Speed Drive" set point:-

The MultiScan will keep loading the compressor until the percentage loaded matches the load percentage that the TempScan supplies unless the percentage from the TempScan is less than the required minimum percentage run and if so, the MultiScan will load the compressor until the minimum percentage run value set in set points.

The load and unload percentage of the MultiScan will match the TempScans required value within a set percentage that can be set in set points.

NOTE:- For 2 and 4 wire communications, the TempScan set point for this compressor must be set to "Screw CS"

TEMPSCAN SET AT SCREW CS
FOR 4 WIRE AND 2 WIRE COMMS 4 WIRE ONLY HAS NO DIP SETTINGS



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 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 Suction Pres
17:46 04 Jan Er-Ovr
```

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 C = the compressor will shut down if this goes into alarm, 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"	C	The suction pressure transducer is in alarm.
18	"Discharge P"	C	The discharge pressure transducer is in alarm.
19	"Oil Before "	C	The oil pressure transducer before the filter is in alarm.
20	"Oil After F"	C	The oil pressure transducer after the filter is in alarm.
21	"Interm Pres"	C	The compressor intermediate pressure is in alarm.
22	"Load Inpt %"	C	The load pot is in alarm..
23	"VI Input Id"	C	The volume ratio index pot is in alarm.
24	"Motor Cur't"	C	The motor current input is in alarm.
25	"Comp Suct'n"	A	The compressor suction temperature sensor is in alarm.
26	"Cond Disch"	A	The compressor discharge temperature sensor is in alarm.
27	"Man'f Oil T"	C	The manifold oil temperature sensor is in alarm.
28	"Sump Oil Tp"	C	The sump oil temperature sensor is in alarm.
29	"Comp Int'md"	A	The intermediate temperature sensor is in alarm.
30	"Comp Cont'l"	C	The compressor control temperature sensor is in alarm.
31	"Remote ON"	N	The remote on digital input is active (on).

OPERATION CONT.

ALARM ACTION CONT.:-

32 "Remote OFF"	C	Digital input to shut the system down. (10 sec delay).
33 "Water Jack"	M	Digital input for no water jacket flow. (10 sec delay).
34 "Full Load S"	N	Digital input from fully loaded switch.
35 "Full Unload"	N	Digital input from fully unloaded switch.
36 "Motor Aux"	C	Digital input from motor auxiliary switch.
37 "Oil Level S"	C	Digital input from the oil level switch.
38 "Run Full Ld"	N	Digital input to run fully loaded switch..
39 "Super Heat"	C	Super heat = 0 or less on compressors suction (see below).
40 "Super Sat T"	A	Compressor super saturated Temperature.
41 "TempScan 2"	C	TempScan 2 wire room only control failed.
42 "TempScan 4"	C	TempScan 4 wire communications failed.
43 "Unload Start"	C	The compressor failed to unload to start.
44 "Oil Pre Srt"	C	The oil pressure failed to reach pressure for start.
45 "Low Cur Alm"	C	The low current alarm is active.
46 "Press Diff"	N	The pressure differential is in warning.
47 "Oil Filter"	N	The oil filter alarm.
48 "Oil Pr Trys"	C	The oil pressure failed the number of tries on start.

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  
SUCTION PRS  
20:45 04 JAN ER-OVR
```

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 log every minute on the minute change. |
| 3: | Every 5 Minutes | Does a log every 5 minutes at 5, 10 15 etc. |
| 4: | Every 10 Minutes | Does a log every 10 minutes at 10, 20, 30 etc. |
| 5: | Every 30 Minutes | Does a log every 00, 30 minutes. |
| 6: | Every 1 Hour | Does a log every hour on the hour change. |
| 7: | Every 2 Hours | Does a log 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
Dig Temp 1    28.7
11:14 14 Jan 0C
```

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, percentage loaded and T2c or T 4c or T2c4c. (see TempScan connected previously) on the top line.

The oil pressure on the second line, if if variable speed drive, the percentage of the variable speed drive output.

The suction pressure or temperature on the third line.

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

If Stand Alone:- The status of the compressor, percentage loaded on the first line.

The other lines are as above.

```
Run 100% FL      T2c4c
Oil-After +300    KPA
Suc Press +227    KPA
Dis Press +1057   KPA
```

DISPLAY PAGES CONT.**PAGE 2:**

The actual oil pressures.

```
Actual Oil Pressures
Before Flt +500 KPA
After Flt +495 KPA
Press Diff +5 KPA
```

PAGE 3:

The motor current on the top line.

The variable speed drive % on the second line.

The intermediate temperature on the third line.

The intermediate pressure on the fourth line.

```
Motor Cur No-ConAMPS
Variable Speed 00%
Intmed Tmp +26.0 oC
Intmed Pres +174 KPA
```

PAGE 4:

The oil cooling % pulse or 4-20ma output on the top line.

The Volume Ratio calculated on the second line.

The Volume Ratio slide valve position on the third line.

The suction temperature on the fourth line.

```
Oil Cool 56% of 3sec
VI Calculated 2.6
VI Slide Pos 2.8
Suct'n Tmp -10.5 oC
```


DISPLAY PAGES CONT.

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
```

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  °C
Dig Temp 6 +26.5  °C
Dig Temp 7 +26.5  °C
Dig Temp 8 +26.5  °C
```

DISPLAY PAGES CONT.

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  °C
Ang Temp 2 +26.5  °C
Ang Temp 3 +26.5  °C
Ang Temp 4 +26.5  °C
```

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  °C
Ang Temp 6 +26.5  °C
Ang Temp 7 +26.5  °C
```

DISPLAY PAGES CONT.

PAGE 9:

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

O=Off I=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 I=ON N=Not-Con
 1 2 3 4 5 6 7 8
1 0 0 0 1 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
Dig Temp 1 +25.7
11:14 14 Jan 0C
```

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 Discharge F
17:46 04 Jan 1500 KPA
```

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  
DISCHARGE P  
20:45 04 JAN +1500
```

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 led 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 led back light 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 suction temperature on the top line.
The discharge temperature on the second line.
The oil sump temperature on the third line.
The oil manifold temperature on the fourth line

```
Suct Temp  +10.5  oC
Disch Temp +57.6  oC
Oil S Tmp  +42.3  oC
Oil M Tmp  +52.6  oC
```

PAGE 16:

The compressor control pressure or temperature on the top line.
The number of hours the compressor has run on the second line.
The next 2 lines blank.

```
Cntl Press +200    KPA
Comp No 01= 46    Hrs
```


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

```
10:34-26  26/02/2000  
Copyright Twite Inst  
MultiScan Model No.  
TD-32-S 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 2  
Compressor Set Point
```

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"	Turns the compressor control to auto 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	"Comp Fast Load Time"	Time in seconds for fast compressor loading.
6	"Fast Load/Start SPnt"	Fast load set point in pressure/temperature.
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	"High Alarm Temp'ture"	The high alarms for temperature sensors.
11	"Warn Temp From High"	Warning from high alarm temperature sensors.
12	"Low Alarm Temp'ture"	The low alarms for temperature sensors.
13	"Warn Temp Above Low"	Warning above low alarm temperature sensors.
14	"Hi Temp Alarm Delay"	The high alarm delays for temperature sensors.
15	"Low Temp Alarm Delay"	The low alarm delays for temperature sensors.
16	"High Alarm 4-20ma Inpt"	The high alarms for pressure/40-20ma sensors.
17	"Warn 4-20ma From Hi"	Warning from hi alarm pressure/4-20ma sensors.
18	"Lo Alarm 4-20ma Inpt"	The low alarms for pressure/40-20ma sensors.
19	"Warn 4-20ma Above Lo"	Warning above lo alarm pressure/4-20ma sensors.
20	"Hi 4-20ma Alm Delay"	The high alarm delays pressure/40-20ma sensors.
21	"Low 4-20ma Alm Delay"	The low alarm delays pressure/40-20ma sensors.
22	"Load Pulse Time"	Sets time the load pulse is on to 1/10 second.
23	"Unload Pulse Time"	Sets time the unload pulse is on to 1/10 second.
24	"Min Slide Valve St %"	The minimum % value that the comp can start at.
25	"Min Load Position %"	The minimum % value that the comp can run at.
26	"Maximum % Stop Load"	Maximum percentage the compressor can load to.
27	"Variable Speed Drive"	Whether variable speed drive is used or not.
28	"Variable Speed Step%"	The step in % for each load/unload for Var drive.
29	"Economizer Start % "	The start load % for when the economizer is on.
30	"Offset % to TempScan"	The req. load % with respect to the TempScan
31	"Sump Heat Set Point"	The set point for the oil sump temperature heater.
32	"Sump Heat Diff'tial"	The differential for oil sump heater temperature
33	"Min Oil Tmp Motor St"	The minimum temperature of the oil in the separator at which the compressor can start.
34	"Type of Oil Cooling"	Whether liquid injection, water pump or 4-20ma.

FUNCTIONS.

FUNCTIONS AND THE NO. OF EACH CONT:-

35	"Oil Cool Temperature"	The Oil cooling temperature set point.
36	"4-20ma Oil Cool Diff"	The 4-20ma oil cooling differential temperature.
37	"Oil Cool Period Time"	The time in seconds for liq. Inj. cooling pulses.
38	"Oil Pump Type Used"	Sets the type of oil pump used.
39	"Unload Oil Pump Strt"	Whether the oil pump is on to unload compressor before the compressor is allowed to start.
40	"Oil ON aft Motor Stp"	Time in sec the oil pump is on after motor stops.
41	"Oil Pressure ON Trys"	No of tryes for oil pressure to rise for comp start.
42	"Unload Turn OFF Cnt"	Time in seconds for comp to unload to turn off.
43	"Oil Pre Start Time"	The time out for oil press. to each before alarm.
44	"Oil Pressure Pre Run"	The oil pressure to reach before comp can start.
45	"Oil Return Interval"	Time between the oil return turns on in minutes.
46	"Disch Oil Return Tmp"	Discharge minimum temperature for oil return.
47	"Cycle Oil Pump ON Pr"	The turn on pressure for the cycle oil pump.
48	"Cycle Oil Pump OFF P"	The turn off pressure for the cycle oil pump.
49	"Oil Filter Difl Wrn"	The warning set point for the filter pressure drop.
50	"Motor ON Unld Count"	Time of motor to be on after pump down reached
51	"Current Limit Unload"	The current limit for forced unload of comp.
52	"Stop Load at Current"	Maximum current the compressor can load to.
53	"Low Mt Current Alarm"	The low current value for alarm, (shaft break).
54	"High Current Alarm"	Sets the high motor current alarm.
55	"Progressive Ld/Unld"	Sets if progressive load and unload is used.
56	"Comp Start Dly YesNo"	Wether to use the delay when motor starts.
57	"4-20 Weight Average"	The average of the 4-20ma inputs to use.
58	"Bypass Sol Start Tme"	The time in seconds the start solenoid is on.
59	"Bypass Sol Stop Time"	The time in seconds the stop solenoid is on.
60	"Super Heat Low Alarm"	The Low alarm set point for the super heat.
61	"Comp cntl PRESS-TEMP"	Compressor controlled on pressure or temperature
62	"Type of Compressor"	Sets the type of compressor this unit is for.
63	"Volume Ind. Auto/Man"	Whether volume ratio is automatic or manual
64	"Volume Index Set Pnt"	The set point required for volume ratio if manual
65	"Dig Temp's Connected"	Which digital temperature channels are connected
66	"Analog Tmp Connected"	Which analog temperature channel is connected
67	"4-20ma Inp Connected"	Set which 4-20ma inputs channels are connected.
68	"Set 4-20ma Input Span "	Set 4-20ma trans. input span (select channels)

FUNCTIONS.

FUNCTIONS AND THE NO. OF EACH CONT:-

69	"Type of Load % Input"	Whether 4-20ma or resistive pop for input.
70	"Type of VI Ind Input"	Whether 4-20ma or resistive pop for input.
71	"Digital IN Connected"	Set which digital inputs are connected.
72	"Digital IN Inverted"	Whether a digital inputs are inverted or not..
73	"Temp Sen's Comp Suc"	Temperature sensors used for compressor suction.
74	"Comp Tmp Sen for Dis"	Temp'ture sensors used for compressor discharge.
75	"Temp Sen for Oil Man"	Temperature sensors used for oil manifold temp.
76	"Temp Sen for Oil Sump"	Temperature sensors used for oil sump temp.
77	"Temp Sen for Intermd"	Temperature sensors used for intermediate temp.
78	"Temp Sen's Comp Ctrl"	Temperature sensors used for compressor control.
79	"Set Data Logging"	The time between data logging and printing.
80	"Set Time & Date"	Set the real time clock.
81	"Password YES/NO"	Set whether the users password is required.
82	"Change Password"	Change users password (requires users password)
83	"Ram Memory Check"	Checks all memory.
84	"Test Display/Rst Log"	Tests displays & data logged to "no data logged"
85	"Set Dig Temp Offset"	Sets the digital temperature sensors offsets.
86	"Set Analog Tm Offset"	Sets the Analog temperature sensors offsets.
87	"Add Dig Temp Sensor"	For adding a digital temperature sensor.
88	"Set 0 % Load Pot"	Setting the 0% position of the slide valve pot
89	"Set 100 % Load Pot"	Setting the 100% position of the slide valve pot
90	"Set Low Vol/Ind Pot"	Setting the Low position of the volume ratio pot.
91	"Set High Vol/Ind Pot"	Setting the High position of volume ratio pot.
92	"Set RS485/232 Baud"	Set the RS485 and RS232 Baud rate.
93	"Display Brightness"	The brightness of the displays back light.
94	"Number of Resets S/N"	The number of resets performed and serial No.
95	"TempScan Connected"	TempScan connected or not for control.
96	"No of Comps in Multi"	The number of compressors in multi comps.
97	"Reset Comp'or Hours"	Resets the compressor run hours to 0.
98	"Compressor Number ID"	Sets the compressors ID number.
99	"Type of refrigerant"	Type refrigerant used for super heat calculation.
100	"Computer Connected"	Wether a Computer is connected or not.
101	"LED Display Intens'y"	The brightness of the LED display.
102	"Reset Password"	Resets the password to 888.
103	"Display Annunciation"	Display annunciation yes or no for temperatures
104	"Analog PT100 / AD590"	Wether the analog sensors are PT100 or AD590.

FUNCTIONS CONT.

1 “Control Auto or OFF”

Sets whether the compressor 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 [Control Auto] or NO [Control OFF].

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 “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.

6 “Fast Load/Start SPnt”

Sets the value at which the compressor starts and 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/Start SPnt” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR -100 (-10.0) to +1000 (+100.0) [KPA or oC]

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.

FUNCTIONS CONT.

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.

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 “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.

11 “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.

12 “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.

13 “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.

14 “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.

15 “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.

16 “High Alarm 4-20ma Inpt”

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 4-20ma Inpt" 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 or Other values].

PRESS "KNOB"

SELECTION COMPLETE.

FUNCTIONS CONT.

17 “Warm 4-20ma From Hi”

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 4-20ma From Hi" 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.

18 “Low Alarm 4-20ma Inpt”

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 4-20ma Inpt" 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.

19 “Warm 4-20ma Above Lo”

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 4-20ma Above Lo" 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.

20 “Hi 4-20ma Alm 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 4-20ma Alm 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.

21 “Low 4-20ma Alm 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 "Low 4-20ma Alm 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.

22 “Load Pulse Time”

Sets the time in seconds and tenths of seconds that the load solenoid is on for each load pulse (without progressive Ld/Unld used) from 0.1 to 6.0 seconds.

PRESS "KNOB"

ROTATE KNOB ▲ ▼ TO SELECT "Load Pulse Time" on bottom line.

PRESS "KNOB"

ENTER PASSWORD IF REQUIRED

PRESS "KNOB"

ROTATE KNOB ▲ ▼ FOR 0.1 to 6.0 [Seconds].

PRESS "KNOB"

SELECTION COMPLETE.

FUNCTIONS CONT.

23 “Unload Pulse Time”

Sets the time in seconds and tenths of seconds that the unload solenoid is on for each load pulse (without progressive Ld/Unld used) from 0.1 to 6.0 seconds.

PRESS “KNOB”

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

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR 0.1 to 6.0 [Seconds].

PRESS “KNOB”

SELECTION COMPLETE.

24 “Min Slide Valve St %”

Sets the minimum percentage of the slide valve (load pot) at which the compressor is allowed to start running.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Min Slide Valve St %” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR 0 to 10 % Loaded.

PRESS “KNOB”

SELECTION COMPLETE.

25 “Min Load Position %”

Sets the minimum percentage of the slide valve (load pot) at which the compressor is allowed to unload. The minimum percentage that the compressor will unload to before it turns off due to its pump down set point.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Min Slide Valve St %” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR 0 to 100 % Loaded.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

26 “Maximum % Stop Load”

Sets the maximum percentage that the compressor can be loaded to. If it reaches or is above this set point, the compressor will not load any more. If in this mode (no more loading) the information sent to the TempScan or other CompScans will send that it is fully loaded to allow the next compressor in the chain to start..

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Maximum % Stop Load” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR 0 to 100 % Loaded.

PRESS “KNOB”

SELECTION COMPLETE.

27 “Variable Speed Drive”

Sets whether the motor uses a variable speed drive on the motor or not.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Variable Speed Drive” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR YES or NO.

PRESS “KNOB”

SELECTION COMPLETE.

28 “Variable Speed Step%”

Sets the step amount in percentage that the variable speed drive is stepped on each load of the compressor.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Variable Speed Step%” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

ROTATE KNOB ▲ ▼ FOR YES or NO.

PRESS “KNOB”

SELECTION COMPLETE.

29 “Economizer Start %”

Sets the load percentage at which the economizer relay is turned on,

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Economizer Start %” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 100 %

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

30 “Offset % to TempScan”

Sets the amount of difference in percentage that the load percentage of the compressor is adjusted to match the TempScan requirement. If variable speed is used, the percentage required from the TempScan is the speed percentage (the compressor is fully loaded when using variable speed drives).

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Offset % to TempScan” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 5 to 20 %

PRESS “KNOB”

SELECTION COMPLETE.

31 “Sump Heat Set Point”

Sets the temperature set point for the oil sump heater.

PRESS “KNOB”

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

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0.0 to 50.0 oC

PRESS “KNOB”

SELECTION COMPLETE.

32 “Sump Heat Diff’tial”

Sets the temperature differential set point for the oil sump heater.

PRESS “KNOB”

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

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0.2 to 10.0 oC

PRESS “KNOB”

SELECTION COMPLETE.

33 “Min Oil Tmp Motor St”

Sets the temperature set point of the oil before the compressor can start. If the oil separator probe is not connected the oil temperature probe on the manifold will be used.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Min Oil Tmp Motor St” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0.0 to 150.0 oC

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

34 “Type of Oil Cooling”

Sets the type of oil cooling between Liquid Injection, Water Pump and 4-20ma output.

PRESS “KNOB”

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

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR Water Pump ON, 4-20ma Output and Liquid Injection.

PRESS “KNOB”

SELECTION COMPLETE.

35 “Oil Cool Temperature”

Sets the temperature set point of the oil cooling function.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Oil Cool Temperature” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0.0 to 80.0 oC

PRESS “KNOB”

SELECTION COMPLETE.

36 “4-20ma Oil Cool Diff”

Sets the temperature differential set point of the 4-20ma output oil cooling function.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “4-20ma Oil Cool Diff” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 1.0 to 10.0 oC

PRESS “KNOB”

SELECTION COMPLETE.

37 “Oil Cool Period Time”

Sets the oil cooling maximum pulse time (if liquid injection used).

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Oil Cool Period Time” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 3 to 6 Seconds

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

38 “Oil Pump Type Used”

Sets the type of oil pump used on the compressor.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Oil Pump Type Used” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR Full Lube Pump, Cycle Pump, Pre Lube Pump and No Oil Pump.

PRESS “KNOB”

SELECTION COMPLETE.

39 “Unload Oil Pump Start”

Sets whether the oil pump is turned on to unload the compressor before the compressor is allowed to start.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Unload Oil Pump start” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES or NO

PRESS “KNOB”

SELECTION COMPLETE.

40 “Oil ON aft Motor Stp”

Sets the time that the oil pump is kept on after the motor stops to allow the compressor to unload if required.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Oil ON aft Motor Stp” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 60 Seconds

PRESS “KNOB”

SELECTION COMPLETE.

41 “Oil Pressure ON Trys”

Sets the number of times the oil pump is turned on and off to reach operating pressure for the motor to be allowed to start.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Oil Pressure ON Trys” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 1 to 5 Try Times

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

42 “Unload Turn OFF Cnt”

Sets the time in seconds that the unload solenoid is on for the compressor to unload when stopping.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Unload Turn OFF Cnt” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR 0 To 30 Seconds
PRESS “KNOB”
SELECTION COMPLETE.

43 “Oil Pre Start Time”

Sets the time in seconds for the oil to reach pressure before the compressor can start.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Oil Pre Start Time” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR 0 To 120 Seconds
PRESS “KNOB”
SELECTION COMPLETE.

44 “Oil Pressure Pre Run”

Sets the pressure in KPA that oil has to reach before the compressor can start.

PRESS “KNOB”
ROTATE KNOB ▲ ▼ TO SELECT “Oil Pressure Pre Run” on bottom line.
PRESS “KNOB”
ENTER PASSWORD IF REQUIRED
ROTATE KNOB ▲ ▼ FOR 0 To 500 KPA
PRESS “KNOB”
SELECTION COMPLETE.

45 “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 the set point “Disc Oil Return Tmp”. The first time it is allowed to 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.

46 “Disc Oil Return Tmp”

Sets the discharge temperature required to be reached before the oil return solenoid can be turned on.

PRESS “KNOB”

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

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0.0 to 80.0 °C

PRESS “KNOB”

SELECTION COMPLETE.

47 “Cycle Oil Pump ON Pr”

Sets the pressure at which the cycle oil pump turns on. The pressure used is the Discharge pressure - (minus) the Suction pressure.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Cycle Oil Pump ON Pr” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 TO 400 KPA

PRESS “KNOB”

SELECTION COMPLETE.

48 “Cycle Oil Pump OFF Pr”

Sets the pressure at which the cycle oil pump turns off. The pressure used is the Discharge pressure - (minus) the Suction pressure. The oil pump is only turned on if the motor is running.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Cycle Oil Pump OFF Pr” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0.0 TO 400 KPA

PRESS “KNOB”

SELECTION COMPLETE.

49 “Oil Filter Dif'l Wrn”

Sets the pressure difference set point between the oil pressure before the filter and the oil pressure after the filter. If the pressure is equal to or greater than this set point a warning will be activated. The oil filter must be changed or cleaned if this warning occurs.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Oil Filter Dif'l Wrn” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 TO 500 KPA

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

50 “Motor ON Unld Count”

Sets the time in seconds that the motor remains on after the compressor has unloaded after the compressor stop sequence.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Motor ON Unld Count” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 TO 60 SECONDS

PRESS “KNOB”

SELECTION COMPLETE.

51 “Current Limit Unload”

Sets the maximum current in AMPS at which the compressor can run at. If the current reaches or is greater than this set point, the compressor will automatically unload every 2 seconds until the current is reduced below the set point. The compressor will not be able to load again for a minimum of 3 minutes before the compressor can load again.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Current Limit Unload” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 TO 1000 AMPS

PRESS “KNOB”

SELECTION COMPLETE.

52 “Stop Load at Current”

Sets the maximum current where no more loading of the compressor can be done. If the current reaches or is above this set point, the compressor will not load any more. If in this mode (no more loading) the information sent to the TempScan or other CompScans will send that it is fully loaded to allow the next compressor in the chain to start..

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Stop Load at Current” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 TO 2000 AMPS

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

53 “Low Mt Current Alarm”

Sets the low current alarm. If the low current alarm is activated, the compressor will turn off and not turn on until the alarm is reset. If this alarm occurs, it may mean that the coupling between the compressor and the compressor has broken. There is a delay of 30 seconds before the alarm will be activated.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Low Mt Current Alarm” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 TO 50 AMPS

PRESS “KNOB”

SELECTION COMPLETE.

54 “High Current Alarm”

Sets the high current alarm for the compressor motor. The alarm is not used if the motor is off and there is a 10 second delay before the alarm can be activated.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “High Current alarm” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 2000 [AMPS]

PRESS “KNOB”

SELECTION COMPLETE.

55 “Progressive Ld/Unld”

Sets whether progressive load and unload is used or not. If used the amount of time in tenths of seconds is added to the set time of the load and unload pulses. For every 10 KPA pressure difference from the load, fast load and unload values 1 tenth of a second is added to the set on times (set in another set point). The maximum amount of time allowed to be added is 3.0 seconds.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Progressive Ld/Unld” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES OR NO

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

56 “Comp Start Dly YesNo”

THIS FUNCTION IS NOT USED

Sets whether the compressor uses the start delay or not when the compressor first starts or the first unload function.

PRESS “KNOB”

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

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR YES OR NO

PRESS “KNOB”

SELECTION COMPLETE.

57 “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 AVERAGE

PRESS “KNOB”

SELECTION COMPLETE.

58 “Bypass Sol Start Tme”

Sets the time that the start bypass solenoid is on for. The solenoid is turned on at the same time the motor is started and turns off after this time in seconds.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Bypass Sol Start Tme” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 50 SECONDS

PRESS “KNOB”

SELECTION COMPLETE.

59 “Bypass Sol Stop Time”

Sets the time that the stop bypass solenoid is on for. The solenoid is turned on at the same time the motor is turned off and turns off after this time in seconds.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Bypass Sol Start Tme” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 0 to 50 SECONDS

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

60 “Super Heat Low Alarm”

Sets the Low Alarm Temperature set point for the super heat. The super heat is calculated from the actual suction temperature minus the saturation suction temperature calculated using the suction pressure.

The super heat alarm is checked 45 minutes after the compressor starts and if in alarm after this delay, a further 120 second delay is performed before the alarm is activated.

This 45 minute delay is to allow for the increase of suction pressure while the compressor is off, which in turn will lower the super heat because of the actual suction temperature remains low because of the sensor location within the suction line is in a cold sink.

The 120 second delay is provided to cater for false triggering.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Super Heat Low Alarm” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR -20.0 TO +50.0 oC

PRESS “KNOB”

SELECTION COMPLETE.

61 “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.

62 “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 Compressor, 2 Stage Compressor or 1 Stage Comp & Econ.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

63 “Volume Ind. Auto/Man”

Sets whether the volume ratio index is controlled automatically or to a manually to the required set point set in "Volume Index Set Pnt".

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Volume Ind. Auto/Man" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR Manual VI Set Used and Automatic VI Used.
 PRESS "KNOB"
 SELECTION COMPLETE.

64 “Volume Index Set Pnt”

Sets the volume ratio index set point to as near as possible to the required set point.

PRESS "KNOB"
 ROTATE KNOB ▲ ▼ TO SELECT "Volume Index Set Pnt" on bottom line.
 PRESS "KNOB"
 ENTER PASSWORD IF REQUIRED
 ROTATE KNOB ▲ ▼ FOR 2.2 TO 6.0 VOLUME INDEX
 PRESS "KNOB"
 SELECTION COMPLETE.

65 “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.

66 “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.

FUNCTIONS CONT.

67 “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.

68 “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.

69 “Type of Load % Input”

Sets the type of load pot if fitted to the load slide valve.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Type of Load % Input” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR Resist Potentiometer OR 4-20ma Transducer

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

70 “Type of VI Ind Input”

Sets the type of load pot if fitted to the load slide valve.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Type of VI Ind Input” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR Resist Potentiometer OR 4-20ma Transducer

PRESS “KNOB”

SELECTION COMPLETE.

71 “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.

72 “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.

FUNCTIONS CONT.

73 “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.

74 “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.

75 “Temp Sen for Oil Man”

Sets the temperature sensors that are used for the compressor oil manifold 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 Sen for Oil Man” 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.

76 “Temp Sen for Oil Sump”

Sets the temperature sensors that are used for the compressor oil sump 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 Sen for Oil Sump" 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.

77 “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 oil 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.

78 “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.

79 “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.

80 “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.

81 “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.

82 “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.

83 “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.

84 “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.

85 “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.

86 “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.

87 “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.

88 “Set 0 % Load Pot”

Sets the value that the unit reads when the load pot (slide valve pot) is at 0%. When this function is selected and the first enter press is pressed, the value read from the pot will be displayed on the display in the bottom right corner. Press the x50 button to turn the oil pump (if required) and the unload solenoid. When the compressor is fully unloaded and the value is stable, press the knob to enter the value into the memory.

NOTE:- If a 4-20ma slide valve signal is used the above does not apply. The 4-20ma slide valve signal is fixed at 4ma = 0% and 20.0ma =100% and is set in the 4-20ma input span for the slide valve and should be set to 0 to 100. It can be adjusted to allow for discrepancies for the 4-20ma signal as for pressures.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Set 0 % Load Pot” on bottom line.

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

PRESS THE X50 BUTTON

To turn on oil pump (if required) and the unload solenoid.
Wait until the compressor is fully unloaded.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

89 “Set 100 % Load Pot”

Sets the value that the unit reads when the load pot (slide valve pot) is at 100%. When this function is selected and the first enter press is pressed, the value read from the pot will be displayed on the display in the bottom right corner. Press the x50 button to turn the oil pump (if required) and the load solenoid. When the compressor is fully loaded and the value is stable, press the knob to enter the value into the memory.

NOTE:- If a 4-20ma slide valve signal is used the above does not apply. The 4-20ma slide valve signal is fixed at 4ma = 0% and 20.0ma =100% and is set in the 4-20ma input span for the slide valve and should be set to 0 to 100. It can be adjusted to allow for discrepancies for the 4-20ma signal as for pressures.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Set 100 % Load Pot” on bottom line.

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

PRESS THE X50 BUTTON

To turn on oil pump (if required) and the load solenoid.

Wait until the compressor is fully loaded.

PRESS “KNOB”

SELECTION COMPLETE.

90 “Set Low Vol/Ind Pot”

Sets the value that the unit reads when the VI pot (volume ratio pot) is at 2.2. When this function is selected and the first enter press is pressed, the value read from the pot will be displayed on the display in the bottom right corner. Press the x50 button to turn the oil pump (if required) and the VI unload solenoid. When the compressor is fully unloaded VI and the value is stable, press the knob to enter the value into the memory.

NOTE:- If a 4-20ma volume ratio valve signal is used the above does not apply. The 4-20ma volume ratio valve signal is fixed at 4ma = 0% and 20.0ma =100% and is set in the 4-20ma input span for the volume ratio valve and should be set to 2.2 to 6.0. It can be adjusted to allow for discrepancies for the 4-20ma signal as for pressures.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Set Low Vol/Ind Pot” on bottom line.

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

PRESS THE X50 BUTTON

To turn on oil pump (if required) & volume ratio load solenoid.

Wait until the compressor is fully loaded.

PRESS “KNOB”

SELECTION COMPLETE.

FUNCTIONS CONT.

91 “Set High Vol/Ind Pot”

Sets the value that the unit reads when the VI pot (volume ratio pot) is at 6.0. When this function is selected and the first enter press is pressed, the value read from the pot will be displayed on the display in the bottom right corner. Press the x50 button to turn the oil pump (if required) and the VI load solenoid. When the compressor is fully loaded VI and the value is stable, press the knob to enter the value into the memory.

NOTE:- If a 4-20ma volume ratio valve signal is used the above does not apply. The 4-20ma volume ratio valve signal is fixed at 4ma = 0% and 20.0ma =100% and is set in the 4-20ma input span for the volume ratio valve and should be set to 2.2 to 6.0. It can be adjusted to allow for discrepancies for the 4-20ma signal as for pressures.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “Set High Vol/Ind Pot” on bottom line.

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

PRESS THE X50 BUTTON

To turn on oil pump (if required) & volume ratio unload solenoid.
Wait until the compressor is fully loaded.

PRESS “KNOB”

SELECTION COMPLETE.

92 “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 or TempScan.

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.

93 “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.

94 “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.

95 “TempScan Connected”

Sets whether a TempScan is connected or control. The compressor 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.

PRESS “KNOB”

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

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

PRESS “KNOB”

FOR

Single Stand Alone, TempScan 2 Wire Ctl, TempScan 4 Wire Ctl
OR TempScan 2&4 WireCtl.

PRESS “KNOB”

SELECTION COMPLETE.

96 “No of Comps in Multi”

Sets the total number of compressors in a multi compressor setup using compressor number 1 as the control compressor.

PRESS “KNOB”

ROTATE KNOB ▲ ▼ TO SELECT “No of Comps in Multi” on bottom line.

PRESS “KNOB”

ENTER PASSWORD IF REQUIRED

ROTATE KNOB ▲ ▼ FOR 1 TO 27 COMPRESSORS (1 = MASTER)

PRESS “KNOB”

SELECTION COMPLETE.

97 “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.

FUNCTIONS CONT.

98 “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 (1 = MASTER IN MULTI CompScans Connected Together).

PRESS “KNOB”

SELECTION COMPLETE.

99 “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.

100 “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 or multi compscans 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.

101 “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.

102 “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.

103 “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. "Comp 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.

104 “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	"High Alarm Temp're"	ALL +150.0	oC
11	"Warn Temp From High"	ALL +5.0	oC.
12	"Low Alarm Temp're"	ALL -50.0	oC
13	"Warn Temp Above Low"	ALL +5.0	oC.
14	"Hi Temp Alarm Delay"	ALL 1800	
15	"Low Temp Alarm Delay"	ALL 1800	
16	"High Alarm 4-20ma Inpt"	ALL 3000	KPA
17	"Warn 4-20ma From Hi"	ALL 30	KPA
18	"Lo Alarm 4-20ma Inpt"	ALL -100	KPA
19	"Warn 4-20ma Above Lo"	ALL 30	KPA
20	"Hi 4-20ma Alm Delay"	ALL 1800	SECONDS
21	"Low 4-20ma Alm Delay"	ALL 1800	SECONDS
22	"Load Pulse Time"	1.0	SECONDS
23	"Unload Pulse Time"	1.0	SECONDS
24	"Min Slide Valve St %"	10	%
25	"Min Load Position %"	25	%
26	"Maximum % Stop Load"	100	%
27	"Variable Speed Drive"	NO	
28	"Variable Speed Step%"	10	
29	"Economizer Start %"	90	%
30	"Offset % to tempScan"	10	%
31	"Sump Heat Set Point"	40.0	oC
32	"Sump Heat Diff'tial"	1.0	oC
33	"Min Oil Tmp Motor St"	25.0	oC
34	"Type of Oil Cooling"	Liquid Injection	
35	"Oil Cool Temperature"	60.0	oC
36	"4-20ma Oil Cool Diff"	2.0	oC

DEFAULT VALUES.

37	"Oil Cool Period Time"	3	SECONDS
38	"Oil Pump Type Used"	Full Lube Pump	
39	"Unload Oil Pump Strt"	NO	
40	"Oil ON aft Motor Stp"	0	SECONDS
41	"Oil Pressure ON Trys"	3	
42	"Unload Turn OFF Cnt"	30	SECONDS
43	"Oil Pre Start Time"	10	SECONDS
44	"Oil Pressure Pre Run"	200	KPA
45	"Oil Return Interval"	60	MINUTES
46	"Disch Oil Return Tmp"	50.0	oC
47	"Cycle Oil Pump ON Pr"	100	KPA
48	"Cycle Oil Pump OFF Pr"	200	KPA
49	"Oil Filter Dif'l Wrn"	50	KPA
50	"Motor ON Unld Count"	10	SECONDS
51	"Current Limit Unload"	300	AMPS
52	"Stop Load at Current"	300	AMPS
53	"Low Mt Current Alarm"	10	AMPS
54	"High Current Alarm"	500	AMPS
55	"Progressive Ld/Unld"	NO	
56	"Comp Start Dly YesNo"	NO	(NOT USED)
57	"4-20 Weight Average"	1	
58	"Bypass Sol Start Tme"	0	SECONDS
59	"Bypass Sol Stop Time"	0	SECONDS
60	"Super Heat Low Alarm"	0.0	oC
61	"Comp cntl PRESS-TEMP"	PRESSURE	
62	"Type of Compressor"	1 Stage	
63	"Volume Ind. Auto/Man"	Automatic	
64	"Volume Index Set Pnt"	4.0	INDEX
65	"Dig Temp's Connected"	1,2,3,4 & 6	CONNECTED, REST NOT CONNECTED
66	"PT100 Temp Connected"	1	CONNECTED, REST NOT CONNECTED
67	"4-20ma Inp Connected"	1,2,3,4 & 6	CONNECTED, REST NOT CONNECTED
68	"Set 4-20 Input Span"	1,2,3,4 = 0 to 3000, 5 = 0 to 100 6 = 22 to 60, 7 = 0 to 500	

69 "Type of Load % Input" 4-20ma

DEFAULT VALUES.

70 "Type of VI Ind Input"	4-20ma
71 "Digital IN Connected"	1,4,5 CONNECTED, REST NOT CONNECTED.
72 "Digital IN Inverted"	NONE
73 "Temp Sen's Comp Suc"	Dig Temp Number 1
74 "Comp Tmp Sen for Dis"	PT100 Temp Number 1
75 "Temp Sen for Oil Man"	Dig Temp Number 2
76 "Temp Sen for Oil Sump"	Dig Temp Number 3
77 "Temp Sen for Intermd"	Dig Temp Number 4
78 "Temp Sen's Comp Ctrl"	Dig Temp Number 5
79 "Set Data Logging"	EVERY 1 MINUTE
80 "Set Time & Date"	VALID TIME AND DATE
81 "Password YES/NO"	NO
82 "Change Password"	
83 "Ram Memory Check"	
84 "Test Display/Rst log"	
85 "Set Dig Temp Offset"	ALL 0.0 oC
86 "Set PT100 Tmp Offset"	ALL 0.0 oC
87 "Add Dig Temp Sensor"	
88 "Set 0 % Load Pot"	
89 "Set 100 % Load Pot"	
90 "Set Low Vol/Ind Pot"	
91 "Set Hiigh Vol/Ind Pot"	
92 "Set RS485/232 Baud"	9600
93 "Display Brightness"	255
94 "Number of Resets S/N"	
95 "TempScan Connected"	Single Stand Alone
96 "No of Comps in Multi"	1
97 "Reset Comp'or Hours"	0
98 "Compressor Number ID"	1
99 "Type of refrigerant"	NONE (NOT USED)
100 "Computer Connected"	NO
101 "LED Display Intens'y"	15
102 "Reset Password"	0888
103 "Display Annunciation"	NO
104 "Analog PT100 / AD590"	PT100

SPECIFICATIONS A-32-S

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/% to +3000 KPA/%
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	:-	2 Months 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-S 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 loggs.
PASSWORD	:-	0000-5999 (<i>may be active or not active</i>).
Compressor Number ID.	:-	set between 1 and 27 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.