TECHRITE TAIS IGNITION MODULE

DESCRIPTION

The TAIS ignition module is a microprocessor based burner controller that is designed for use in all types of gas-fired appliances. The module provides proper burner sequencing, ignition and flame monitoring that can be programmed for different applications. The module has capability of sending low and high voltages to PLC for advanced external sequencing. On-board diagnostics with LED output makes troubleshooting easy and ensures efficient operation.

UNIT SPECIFICATIONS

- Main Gas Valve, Pilot Gas Valve
- Ionisation, Ignition and Flame Monitoring with common Electrode or Remote sensor.
- Integrated Cyclic Spark Ignition
- Safety restart after loss of flame (optional)
- Room air fan On and Off contacts adjustable to customer requirements.
- Volatile or non-Volatile Lock out
- Fault indicator and Flame sense LED
- Reliable Molex connector
- Compact Size
- Auxiliary inputs
- System diagnostic LED

APPLICATIONS

- Depending on the model, the AIS automatic gas burner controller is designed for igniting and monitoring gas burners with or without fan.
- Commercial cooking
- Commercial Laundry
- Gas Heaters
- Water heaters
- For Application in extended temperature range (0°C to +60°C).

APPROVALS

CE bsi GSC 763031

CE DECLARATION OF CONFORMITY

We: ***TECHRITE CONTROLS AUSTRALIA PTY LTD***

Address: 12 Yiannis Court
Springvale
Victoria 3171
Australia

Declare that

Product Type[1]: Electronic flame safeguards and flame detectors
Techrite Part Model Number: TAIS & IGC – 1
Model Number/Description: Automatic Ignition System
Product Batch Number: MM/YY

Satisfies the essential requirements of the Gas appliances regulation 2016/426 & is manufactured in accordance with the harmonised European standards.

Satisfies the essential requirements of the Low voltage directive 2014/35 EU and is manufactured in accordance with the harmonised European standards.

Satisfies the essential requirements of the Electromagnetic Compatibility Directive 2014/30/EU and is manufactured in accordance with the harmonised European standards.

Standards Number(s): EN 298-2022
BSI has performed the following conformity assessment procedure(s) specified in the Regulation 2016/426 on gas appliances.

- Annex III Module B (Type Examination) and issued the Certificates below:
  CE Module B certificate: **(*Certificate No*.) CE 748834**
- Annex III Module E (Conformity to Type based on Product Quality Assurance) and issued the Certificates below:
  CE Module E certificate: **(Certificate No.) CE 748833**

Notified Body: **BSI Group The Netherlands B.V.** Notified Body number : 2797

Address: Say Building, John M. Keynesplein 9, 1066 EP, Amsterdam, Country : Netherlands

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Name: Isaac Gadde **Position:** Technical Sales Engineer **Place & date of issue:** Melbourne & 09/09/2025

Signature:

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CONTROLLER SPECIFICATIONS

Nominal Voltage	220 – 240 VAC -15% to +10%
Frequency	50 Hz
Reset	• By Power Off / On • Reset Button
Circuit Protection	Internal Fuse 5A
Switching Capacity	• Pilot Gas Valve 1A • Main Gas Valve 1A
Start-up Time	2 Seconds*
Safety Shut-Down	Less than 1 Second*
Blower Motor	240V AC / 2A
Spark and Sensor Rod	Off Main Connector
Ionisation Current	> 3µA
Ignition Voltage	15kV (Approximate)
Ignition Attempts	1 or 3*
Trial for Ignition	≤999.9 Seconds*
Ignition Wire Length	1 Metre Maximum
Spark Frequency	15 Per Second (Approximate)
Purge	Pre, post and inter purge functions *
Diagnostic LED Indicator	• Power On / Operation Mode • Pressure Switch / Combustion Fan Fault • Flame Sensor Fault • Hardware Fault
Pressure Switch Compatible	Yes
Combustion Fan Compatible	Yes
Room Air Fan Compatible	Yes
Connection Type	Molex
Degree of Protection	Not rated, protection provided by appliance in which it is installed
Ambient Temperature Range	0º - 60 ºC
Flame Sensor Wire Length	1 Metre Maximum
Standards	• EN298 • AS4625
Distance between electrodes	3mm to 4mm
Distance between module and Pressure switch	3 Metre Maximum
Spark Connection	6.3 mm x 0.8 mm^
Sense Connection	4.8 mm x 0.8 mm^
Software Version	V.018
Housing	Grey (Standard for few models and available upon request for other models)

*** DEPENDING ON MODEL** **^ INTRODUCED OCTOBER 2012**

MODULE SELECTION

	01	02		03	04	05		06	07		08	09	10	11
TAIS			-				-			-				

01- COMBUSTION FAN		02- PRESSURE SWITCH		03- FLAME SENSE	
With Combustion Fan	**C**	With Pressure switch	**P**	Remote Sense	**R**
Without Combustion Fan	**0**	Without Pressure switch	**0**	Local Sense	**L**

04- NUMBER OF IGNITION ATTEMPTS	05- TRIAL FOR IGNITION TIME	06- GAS OUTPUTS	
Valve is between 1 and 5	Less than 50s	Single Gas Valve	**S**
		Dual Gas Valve	**D**
07- TIME DELAY BETWEEN FIRST AND SECOND VALVE	**08- PRE PURGE TIME**	**09- INTER PURGE TIME**	
Value in seconds (5-999.9 s)	Value in seconds (0-500 s)	Value in seconds (0-500 s)	

10- POST PURGE TIME	11- LOCKOUT	
Value in seconds (0-500 s)	Volatile	**V**
	Non-Volatile	**NV**

Example:

TAIS CP-R315-D5-000V

TAIS	C	P	R	3	15	D	5	0	0	0	V
Combustion fan											
Pressure switch											
Remote sense											
3 ignition attempts											
Each ignition attempts 15 seconds											
Dual gas valve											
5 second delay between first and second valve											
No pre purge											
No inter purge,											
No post purge											
Volatile lock out											

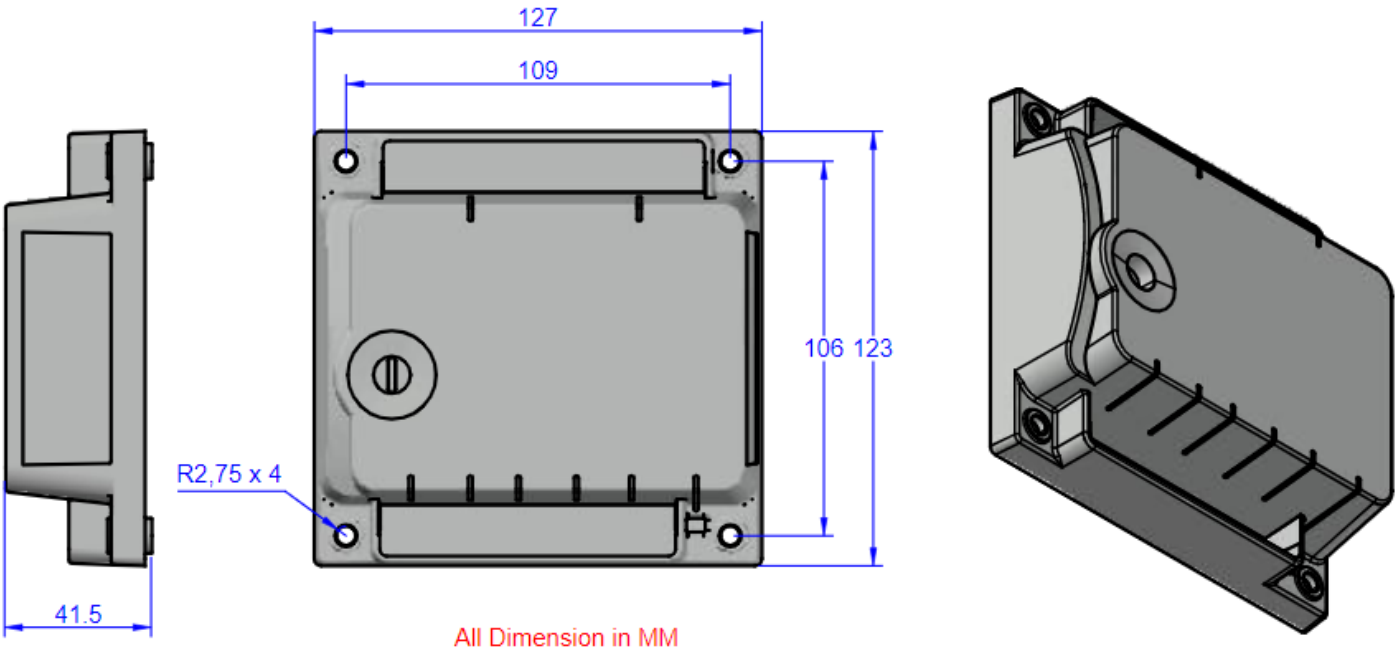
NOTES ON EACH PARAMETER

Model Type

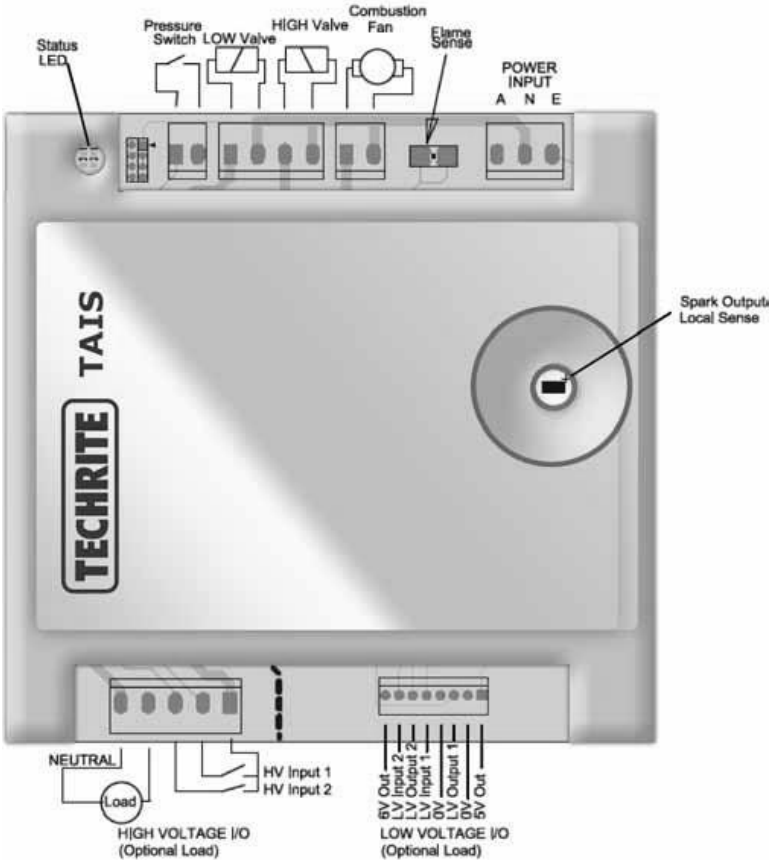
The designation TAIS refers to this family of EN298 approved controls.

	**Combustion Fan** Used when a combustion fan is required for burner operation.
	**Pressure Switch** The pressure switch input is used to confirm the operation of the combustion fan. This parameter is only relevant when a combustion fan is fitted. Module will attempt a re-ignition if the pressure switch opens during normal operation. Post and pre purge will be performed if these parameters are enabled.
	**Local / Remote Flame Sense** Local Flame sense utilizes a single probe for ignition and detection. Remote flame sense utilizes two probes – one for ignition and one for flame detection.
	**Single / Dual Gas Valve Outputs** Allows for one or two gas valve outputs.
	**Ignition Attempts** The maximum number of attempts which will be made by the module to establish a flame
	Trial for Ignition Time This time represents the duration of the sparking for each attempt of ignition. The spark shall stop during the Trial for ignition time whenever a flame is sensed.
	Low to High Gas Delay This delay allows the low gas output to be active for a predetermined period prior to the high gas output being activated. This parameter is only relevant for modules with a dual gas output.
	Pre Purge Time The time period the combustion fan will run, prior to turning on the gas and ignition.
	Inter Purge Time The time period the combustion fan will run between ignition attempts on multiple trial for ignition models.
	Post Purge Time The time period the combustion fan will run after the request for heat signal is removed. This option requires the heat request input function to be enabled.
	Non-Volatile Lockout When a non volatile lockout is used, high voltage (or low voltage) inputs/ outputs are used for lockout indication and reset.

DIMENSIONS

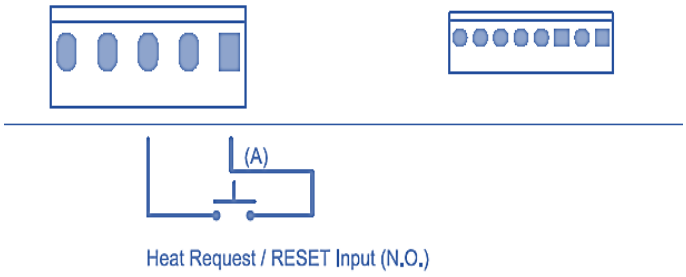


WIRING CONNECTIONS

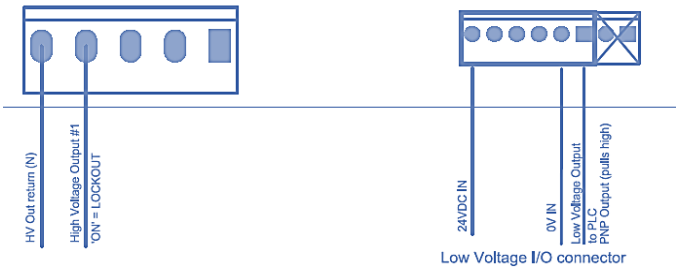


Componenets	Molex Connector Type	No.of Poles
Pressure Switch	2 Pin	2
Low Valve	4 Pin	2
High Valve	4 Pin	2
Combustion Fan	2 Pin	2
Local Sense	1 Pin	1
Flame Sense	1 Pin	1
Power Input	3 Pin	3

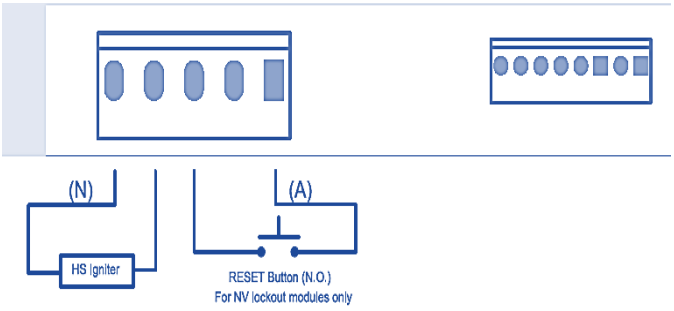
Wiring Detail – Heat Request Input:



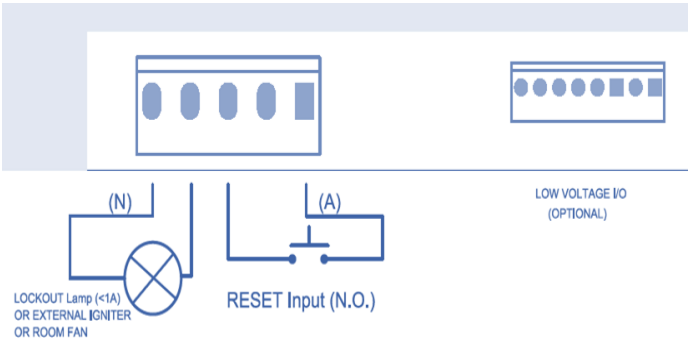
HV and LV PLC Outputs:



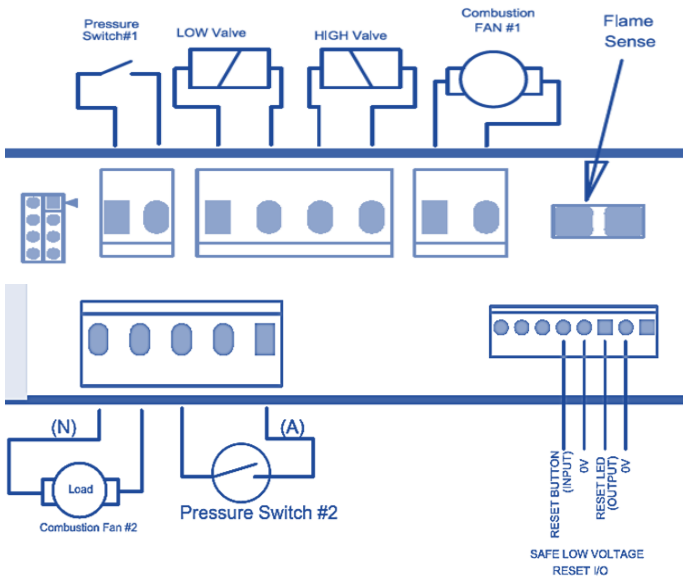
Hot Surface Igniter, Non Volatile TAIS module:



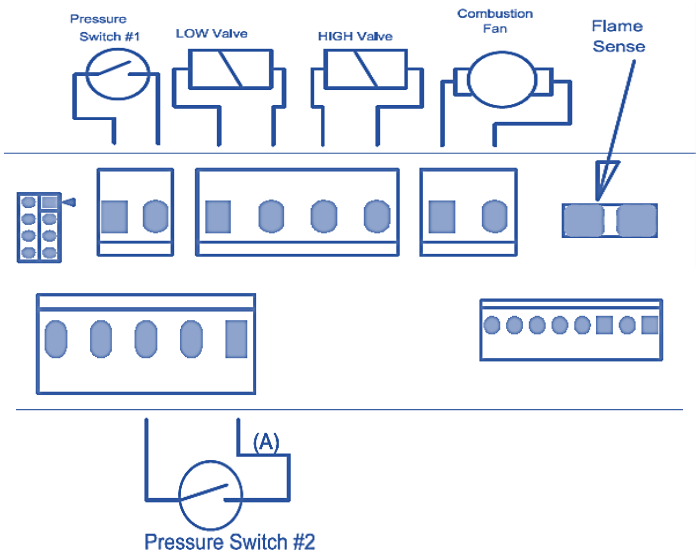
Non Volatile Module:



Dual Combustion Fan, Dual Pressure switch Non Volatile Lockout Module:

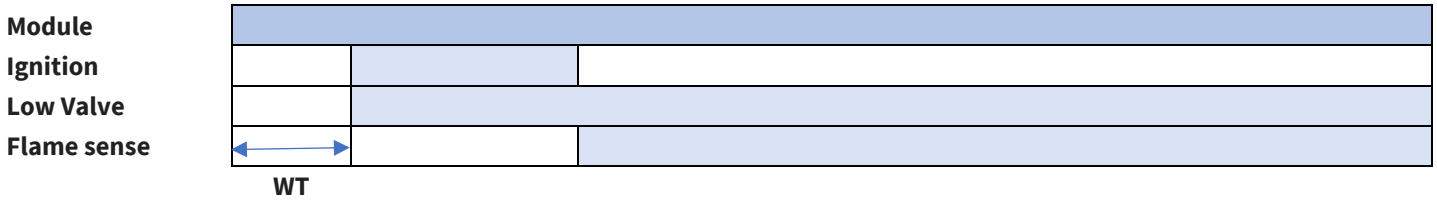


Dual Pressure Switch:

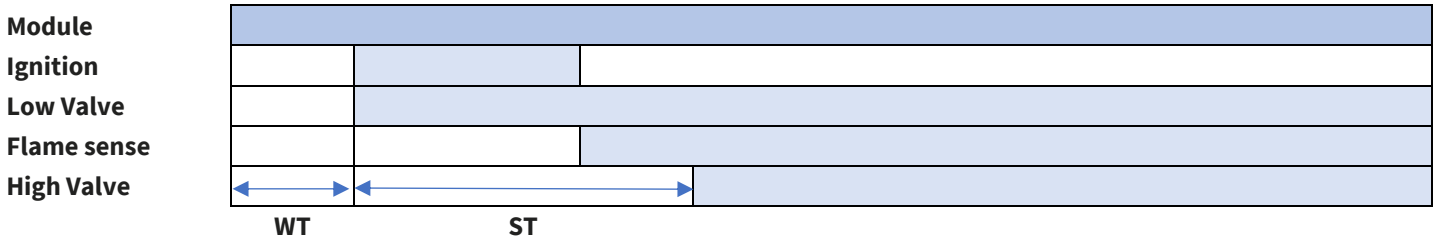


PROGRAM SEQUENCE FOR DIFFERENT MODELS

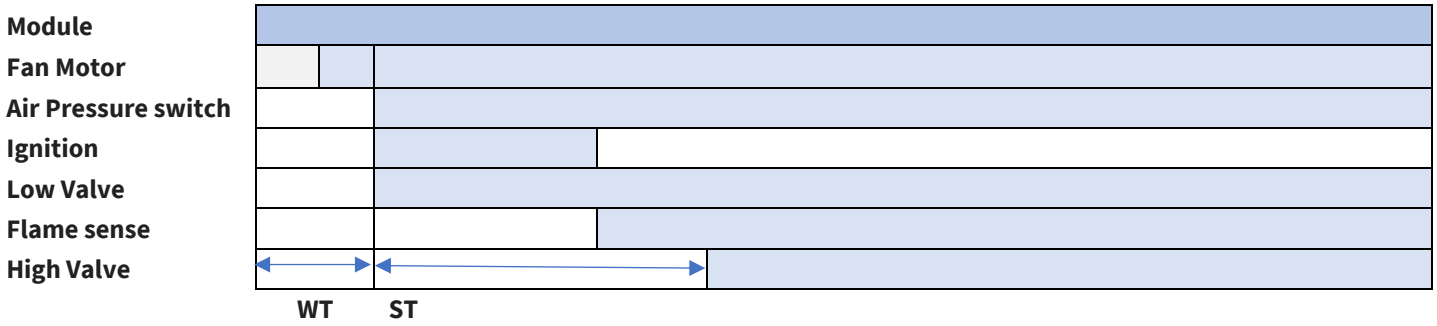
Program sequence for Continuous Operation without Air Monitoring (Single Valve - Pilot):



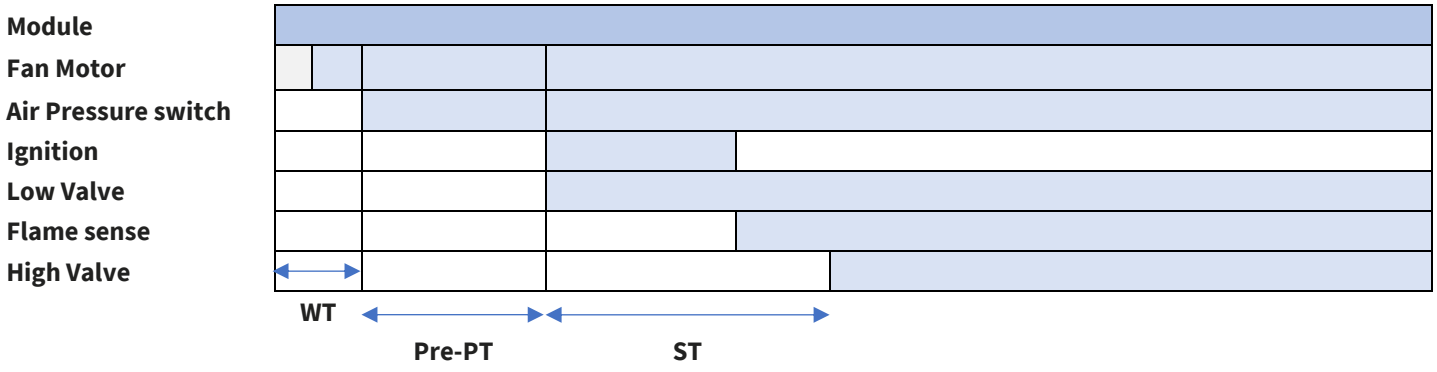
Program sequence for Continuous Operation without Air Monitoring (Dual Valve):



Program sequence for Continuous Operation with Air Monitoring (Dual Valve):



Program sequence for Continuous Operation with Air Monitoring (Dual Valve) along with Pre- purge time:



WT- waiting time **ST**- Safety time **Pre-PT** – Pre purge time

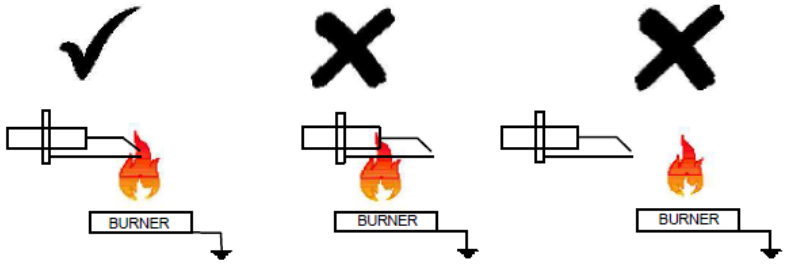
DISPOSAL NOTES

	Ignition Module is considered as E-waste therefore this should not be disposed of with domestic waste. To dispose E-waste, Local and currently valid legislation must be observed.

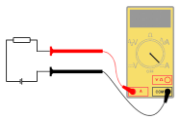
INSTALLATION NOTES

	The ignition Module can installed in any position for an ambient temperature of 0- 60° C
	The Ignition Module is to be installed to the requirements of all local gas authorities
	On start up, once the unit has passed the self test (and pressure switch is closed on fan forced models) you should be able to hear a clunk from the gas valve as it opens. If no sound from the gas valve, check connections. If the valve clunks but no ignition, check gas supply and spark electrode.
	Label all wires for reference/servicing because wiring errors may cause improper and dangerous operation. A functional checkout of a replacement control should always be performed.
	Operation outside specifications could result in failure of the product and other equipment with potential for injury to people and property.

PROPER ELECTRODE LOCATION

The electrode must be well within the flame (i.e half inch above the base of the flame). Also, make sure the ceramic insulators should not be in the flame or closer to it. **Note:** The electrodes should not be exposed during normal operation.	

MEASURING FLAME CURRENT

	The ammeter (digital or Analog) or multimeter is connected between the two terminals of the electrode.

Note: The burner is connected to ground/earth for effective flame sensing. Check 240V mains polarity is correct.

COMMISSIONING NOTES

	The controller and monitoring devices should be switched off.
	Check all the terminals are properly connected and tightened.
	Switching points of gas pressure switch – Normally Open contacts.

INCLUDE COMMISSIONING NOTES FROM THE TEST PROCEDURE

LED FLASH CODES

	The flashing Red LED light indicates the module state.
	The flashing Green LED light indicates the ignition module is sensing the flame.

TROUBLE SHOOTING GUIDE

	Warning: This is a 240VAC module. All connections to the module are 240V (except ignition cable and flame sense). Ensure power is switched off before checking any connection or replacing any components.
	The ignition unit is polarity sensitive. If the active and neutral cables are not wired correctly, the unit will not sense a flame, the green LED will not come on. The heater will light but will turn off almost immediately as a result.
	Before carrying out repairs, turn off the power, visually inspect all cables and connections for damage or corrosion
	Be certain to turn off the power before disconnecting or checking supply switch.

If a fault occurs, the sequence of LED flashes giving the description about the nature of the fault. It makes troubleshooting much easier. Some of the more common codes are listed below.

LED Flash code (Long Flashes – Short Flashes)	Description	Possible Causes
🔴	**The following codes may occur during startup**	
0-2	**Normal Operation – Start Up Delay**	-
1-0	**Normal Operation**	Appliances running correctly (Green LED will be ON)
1-1	**Flame failure detected**	Loss of Flame. Check Flame sensor and spark electrode. Check gas Supply.
1-2	**Waiting for main pressure switch**	• Pressure switch is closed on start-up/ Check terminal Connection. • fan is not starting/ Check connection on Fan terminal. • producing enough pressure for pressure switch to close/ Check whether fan is running at higher speed.
1-3	**Waiting for second pressure switch**	Same reasons as above but for second pressure switch (if used/available)
1-4	**Waiting for flame sense to go OFF**	A flame is detected on start-up. Check flame sense circuit.
1-5	**Purge operation in progress (pre purge, inter purge or post purge)**	Waiting for any purge times to expire.
1-6	**Waiting for Vent Switch contacts before continuing**	Waiting for vent switch contacts to be open at start-up or close after vent switch time has expired. Check vent motor is being powered and is moving. Check vent switch.
1-7	**Waiting for Hot Surface Ignitor pre-heat timer to expire**	Waiting for HSI heat up time to expire.
1-8	**Waiting for fan tacho feedback signal to be within acceptance window (module option)**	Fault in tacho or tacho feedback circuit. Check tacho circuit connection.
The following codes are invoked as a result of a lockout condition		
2-1	**Maximum retries exceeded**	• Module has tried for ignition but failed, check module is sparking at the spark electrode. • Check gas supply. • Check gas valve is opening.
2-2	**Lockout due to flame failure**	• Module has been running but flame has gone out. • Check gas supply • Check gas valve. • Check flame sense circuit.

LED Flash code (Long Flashes – Short Flashes)	Description	Possible Causes
2-3,2-4,2-5	**Hardware failure on module output(s). Possible hardware failure in module**	• Hardware failure. Check gas valve coil. If a rectifier plug is used on the valve (E.g, EBM plug), a fault in this plug will cause this fault. • Also possible module fault.
2-6	**Hardware failure on flame sensing circuit.**	Check sense electrode in not touching the ground or the burner.
2-7	**Hardware failure in module**	Replace module
2-8	**Combustion Fan timeout (where fitted)**	• Combustion fan has run for maximum allowable time without closing the pressure switch. • Check fan has power and is running. • Check pressure switch connections. • Clear dust from fan and tubes feeding pressure switch.
2-9	**Vent Switch lockout (where fitted)**	Module has locked out after vent switch did not close after maximum allowable time (normally 85 seconds).
The following codes are invoked as a result of a lockout condition / hardware fault		
3-1	**Lockout due to main pressure switch opening (where fitted)**	• Main pressure switch has opened during operation. • Check pressure switch and fan. • Check flue/pressure switch is not affected by wind gusts.
3-2	**Lockout due to second pressure switch opening (where fitted)**	As above but for second pressure switch (if used/available).
3-3	**Lockout due to fan tacho feedback signal failing (where fitted)**	No feedback from tacho. Check tacho circuit.
3-4	**Lockout due to internal fault (software error).**	**Module fault. Replace module**
3-5	**Lockout due to internal fault (EEPROM error)**	
3-6	**Lockout due to internal fault (microcontroller communications error)**	

TC AIS ACCESSORIES

WIRING KIT: Various types of wiring kit is available for different models of the ignition module. Techrite makes up a wiring kit as per customer's requests.

PRODUCT CODE	SUITABLE FOR TAIS MODELS
TC AIS 0050 KIT	Atmospheric (Suit EBM/ Dungs 055 Valves)
TC AIS 0051 KIT	Fan Forced (Suit EBM/ Dungs 055 Valves)
TC AIS 0051A KIT	TC AIS 0017 (Suit Coffee Roasters)
TC AIS 0052	Standard Atmospheric
TC AIS 0053	Standard Fan Forced

DUNGS REPLACEMENT MODELS

The common dungs module that are replaced by TAIS Ignition modules are given below

DUNGS MODEL NUMBER	Availibility	EQUIVALENT TAIS MODULE
DGAI. 73 Mod. 5.1.0 TCV		TC AIS 0015 & TC AIS 0052
DGAI .73 Mod. 5.1.3 TCV		TC AIS 0002 & TC AIS 0053
DGAI. 73 Mod. 10.1.0 TCL DGAI. 73 Mod. 10.1.0 TCL-G DGAI. 73 Mod. 5.1.0 TCL DGAI. 73 Mod. 5.1.0 TLL DGAI. 73 Mod. 10.3.30 TCL DGAI. 73 Mod. 10.1.3 TCL DGAI. 73 Mod. 5.1.30 TCL DGAI. 73 Mod. 5.1.30 TCL-G DGAI. 73 Mod. 3.1.30 TLL DGAI. 73 Mod. 3.1.30 TLL-Z DGAI. 73 Mod. WLW 5.1.30 TCL DGAI. 73 Mod. B 10.1.0 TCL DGAI. 73 Mod. 5.1.10 TCL	(Phased Out)	Available upon request

OTHER RELVANT ACCESSORIES

PART REFERENCE.	SPECIFICATIONS	PRODUCT
CLEVELAND NS 2 Series PRESSURE SWITCHES with NO and NC contact NS2-0045 NS2-0607 NS2-1061-00 and more	Max Pressure: 3.5 kPa Operating Range: 0.01-2.5kPa Operating Temperature: -40 to + 88 deg C	
KUPO Valves KU CV-983 LPG 24V KU CV-983 LPG 240V KU CV-983 NG 240V KU CV-983 NG 24V	Max Inlet Pressure: 3.5kPa Regulator Range: 0.7-0.1 kPa (NG) 2.0-2.6kPA (Propane) Operating Temperature: -10 to +80 deg C Connection: 15mm (1/2") BSP(1SO7)	
KUPO 3 way Valve KU CV-923 NG 240VAC **KUPO 4 way Valve** KU CV-924 NG 24VDC KU CV-924 NG 240VAC	Max Inlet Pressure: 7 kPa Gas: Town Gas, Natural Gas & LPG Operating Temperature: -10 to +80 deg C Connection: 1/4" BSP (Inlet/Outlet)	
Flame rod CST 08219899 CST 08223208 CST 08313974 and more	Available in different options. Can be customized as per Customer's Specifications	
Electrode Sensor Lead TCA 4.500 TCA 4.500.4.8mm TCA 4.600.4.8mm and more	Available in different length ranging from 200mm to 600mm. Piezo Lead is also available ranging from 150mm to 1000mm.	
Hot Surface Igniter	Rated Voltage: 110V Rated Current: 3.1A – 3.9A Wire Length: 20cm Size: 70mm x 15mm x 3.2mm	

CONTACT TECHRITE CONTROLS

AUSTRALIA P/L FOR THE LATEST TAIS SERIES CONTROLLER SPECIFICATIONS

TECHRITE INDUSTRIAL CONTROLS

- SOLENOID & CONTROL VALVES
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- THERMOSTATS & TEMPERATURE CONTROL INSTRUMENTS
- PRESSURE SWITCHES
- COMBUSTION MANAGEMENT SYSTEM

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