

## DAT-770 Multifunction Thermostat

### GENERAL DESCRIPTION

Selecting the correct thermostat for a project is often a difficult process. As the thermostat is the main focus of any heating or cooling system it must look good on the wall, be very easy to use and meet all the needs of the user and the equipment it is controlling. This may seem an impossible task for a single thermostat especially when you consider all the different control variations required (Heat pump or heat cool logic, single or multiple fan speed control etc) as well as cater for the individual needs of all thermostat users.

This thermostat adapts quickly to suit its surroundings – a single thermostat that can control almost any type of heating, cooling or air conditioning system as well as meet all the individual needs of the people using it.

The installer is able to configure the DAT-770 to control Heat pump systems, (with auxiliary or emergency heating if necessary), gas/oil heating systems with add on cooling, control high and low balance points as well as the number of heating and cooling stages needing precise control. It can even adapt to manage the number of fan speeds it must control.

The user can choose their DAT-770 to be programmable or manual with single or multiple set points or the number of programs as required, and then if they change their mind, the DAT-770 will adapt without fuss to suit their new needs.

When larger projects are considered, or central control is necessary then the DAT-770 has integrated Modbus communication. Every function and setting within the DAT-770 can be viewed, locked, changed or edited from a centralised location as desired or automatically from a suitable building management system.

The DAT-770 is simply a thermostat so advanced, so simple and so attractive it will be the last thermostat you should ever need to buy.



### FEATURES

- Auto Season Change Over.
- Selectable programmable or manual mode.
- Heat cool or heat pump (O/B) logic.
- 0-10v output option for Heating or Cooling.
- High & Low balance points.
- Single or 3 speed fan control.
- Keyboard and/or Temperature Locks.
- Occupancy sensor inputs.
- Programmable occupancy inputs.
- Adaptive Recovery (Optimised Start).
- Smart Fan logic for Commercial Control.
- PIN protected menus (installer PIN).
- Outside air temperature display.
- 24V powered with memory backup.
- Volt Free (clean contact) relays.
- Large backlit EL Display.
- Remote temperature sensors available.
- Integrated Modbus option.
- Replaces almost all 24V thermostats.

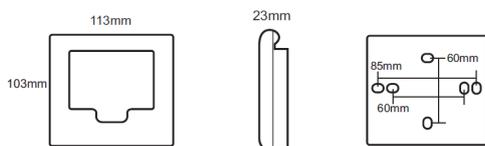
## INSTALLER OPTIONS

Pin number select	00 to 99.
Keyboard Lock	5 levels.
Max Heat set point	0 to 37 deg (32 to 99F)
Min Cool set point	1 to 38 deg (33 to 100F)
LCD Display Units	Deg C / Deg F
Sensor calibration	+/- 5 deg.
Time display	12 or 24 Hour.
Temperature display	Room&set temp/set temp only.
After Hours O/R time	0 to 12 hours
Stop mode Cool temp	Off 0-35c (32 - 95F)
Stop mode Heat temp	Off 0-35c (32 - 95F)
1 Set point Dead band	0.5 to 5
Advanced fan options	Cycle with heat and on with cool. Commercial "Smart fan". Smart fan with Cool run on. 0-5 minutes Auto season mode. Cooling only mode. Heating only mode. Auxiliary Heat Add On Heat Emergency Heat Outside air temp display. Remote room temp sensor. Average room temp sensor. Remote override to OFF. Occupancy mode On/Off Off or 5c (40F). Off 0-37 C (32-99F). Off 1-38 C (100F). 1 -5 deg C or F. 1 -5 deg C or F. 5 ~ 60 minutes. On or Off. +/- 5 deg 0-35C (32 - 95F) 0-35C (32 - 95F) 0-35C (32 - 95F) -9.5 -35C (15 - 95F) 0-99 Off to 900 hours. On/Off
Fan purge period	
Mode	
"W2" Output Logic	
TT Terminal Function	
Anti freeze	
Occupied Heating SP	
Occupied Cooling SP	
Span stage 1	
Span stage 2	
Upstage Delay time	
Adaptive recovery	
Outside sensor Calibration.	
Outside Temp Cool Inhib.	
Outside Temp Heat Inhib.	
High Balance point	
Low Balance point	
Modbus Address	
Filter monitor	
Commissioning Mode	

## SWITCH FUNCTIONS

	Off	On
Sw 1 - Fan Speed.	1 Speed (2 Heat / 2 Cool)	3 Speed (1 Heat / 1 Cool)
Sw 2 - A/C Equip.	Heat & Cool	Heat Pump O/B Terminals
Sw 3 - Stages (if Sw1 =OFF)	1 Stage	2 Stages
Sw 4 - Reversing Valve When Sw2 = ON (HP Mode)	Energized Cool (O)	Energized Heat (B)
Sw 4 - Fan Mode When Sw2 = OFF (HC Mode)	Fan by Heater (HG)	Fan by T'stat (HE)
Sw 5 - Anti cycle delay	Off	4 Minutes
Sw 6 - Operation	Manual Thermostat	Programmable Thermostat
Sw 7 - Min Run time	2 minutes	6 Minutes
Sw 8 - Prog Type When Sw6 = ON (programmable)	Commercial Programmable	Residential Programmable
Sw 8 - # Events When Sw6 = OFF (Manual)	Single Set Point	2 Set points

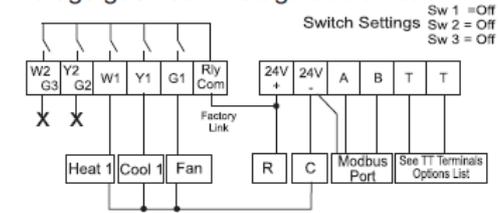
### Case size & mounting holes



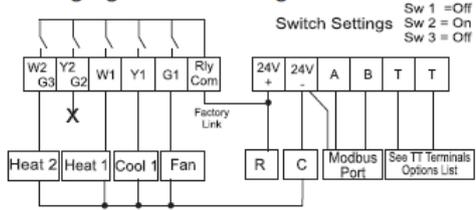
## WIRING EXAMPLES

Note: there are in excess of 192 possible control combinations with the DAT-770 thermostat, the following examples are the more popular configurations.

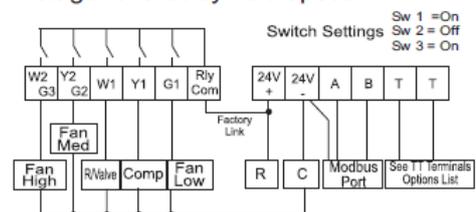
### 1 stage gas heat 1 stage add on cool



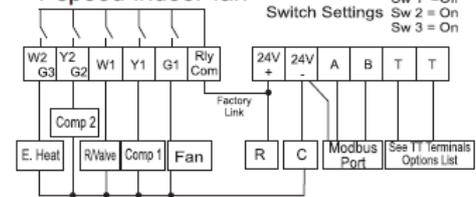
### 2 stage gas heat 1 stage add on cool



### 1 stage reverse cycle 3 speed fan



### 2 stage Heat Pump with Emergency Heat 1 speed indoor fan



## TERMINAL DESIGNATIONS

24-	24V - 0v input.
24+	24V - Active input.
R/com	Relay common.
G1	Fan low.
Y1	Compressor 1 / Cool 1 / 0-10v output
W1	Reversing Valve / Heat 1
G2/Y2	Fan Med / 2nd Compressor / Cool 2.
G3/W2	Fan High / Aux Heat. / Heat 2
T	Remote Terminal
T	Remote Terminal
A	Modbus Data
B	Modbus Data