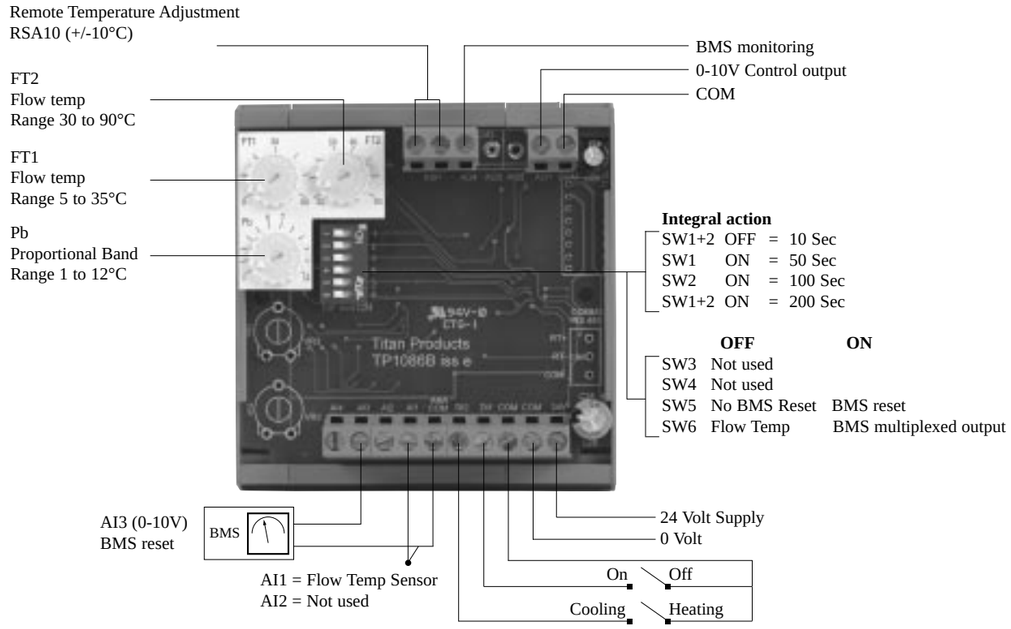
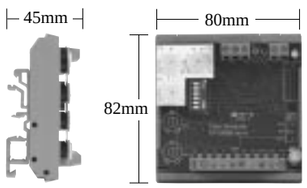
TECHNICAL INFORMATION

ATC190 AND ITC190 CONSTANT TEMPERATURE CONTROLLER

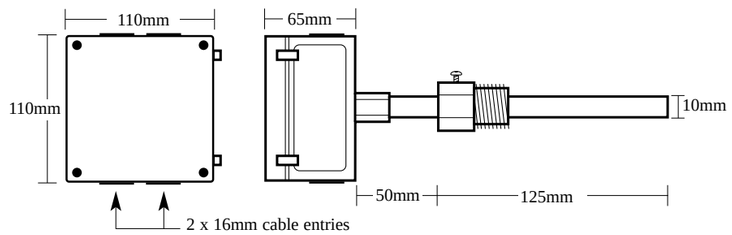


DIMENSIONS

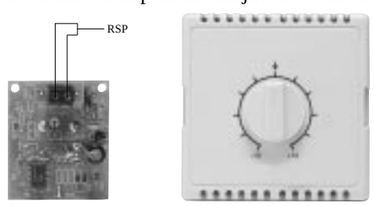
ATC190



ITC190



RSA5 Remote Temperature Adjuster +/- 10'C



PRODUCT TYPES

ATC190	DIN Rail mounted temperature controller
ITC190	Direct Immersion temperature controller
TPTIS	Immersion Sensor (inc brass pocket if required)
RSA10	Remote Temperature adjustment (if required)

ATC190 AND ITC190 CONSTANT TEMPERATURE CONTROLLER

DESCRIPTION

The ATC190 and ITC190 are designed to provide constant temperature control of flow temperatures in heating or cooling systems.
The ATC190 is din rail mounted whilst the ITC190 is direct immersion pipe mounted incorporating its own built in flow temperature sensor.
The ITC190 is supplied complete with a brass immersion pocket and a stainless steel pocket can be supplied as an alternative option.

FEATURES

* 24 Volt AC/DC supply
* Proportional plus Integral control action
* Constant Temperature Control
* Heating or Cooling Control (0-10V)
* ON/OFF input option
* Heating or Cooling input switch option
* Separate setpoints for Heating and Cooling options
* Remote Temperature offset adjustment
* Output for BMS monitoring
* DIN rail or direct pipe mounting

SPECIFICATION

Power Supply	24 Volt AC/DC (+/- 15%)
Power Consumption	12mA plus 0-10V outputs
Outputs	0-10V (5mA max) controlled
	0-10V (5mA max) remote monitoring
Sensing Elements	10K3A1 Thermister
Inputs	0-10V BMS for SP offset
	RSA Remote Setpoint (500-10500 ohms)
Settings	Flow Temp 1 range 5-35°C
	Flow Temp 2 range 30-90°C
	Proportional Band (Pb) 1-12°C
	Integral action (I time) 10, 50, 100, 200 secs
Option selections	SW 1+2 Integral I time
	SW5 BMS reset
	SW6 Monitoring output
Terminals	Max. cable size 1.0mm
Operating Temperature	0 to 50°C
Dimensions	See back for details

TITAN Products Ltd.

Measurement Devices for Control Systems

TITAN Products Ltd.
Unit 7 Southside, Bredbury Park Industrial Estate, Bredbury,
Stockport SK6 2SP England.
Tel :- 0161 406 6480 Fax :- 0161 494 8309
E-mail: admin@titanproducts.com
Website: www.titanproducts.com

Ref. C-011 07/03

OPTIONS AND CONTROL FUNCTIONS (see back for full connection details)

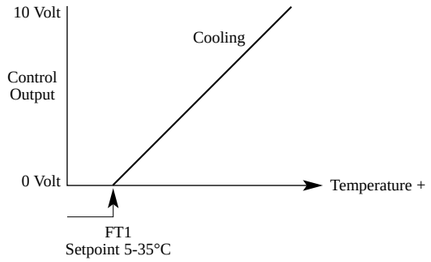
CONTROL OPERATION

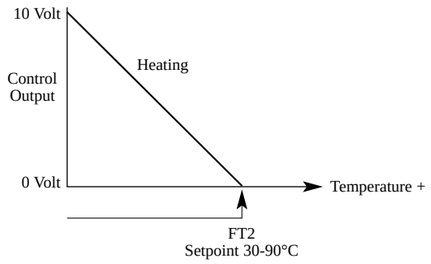
The controller provides constant temperature control via a 0-10V control signal.

The controller can be used for the control of heating (DI2 open circuit) or cooling (DI2 closed circuit) with independent setting for both operations. For single pipe installations the controller can be made to operate in a summer (cooling) and winter (heating) mode by simply switching across terminals COM and DI2.

Applications include: -
Valve control for constant flow temperature (heating or cooling)
Sequence control of multiple boilers via a step controller
Sequence control of multiple chillers via a step controller
Control of a heat exchanger (heating or cooling).
Control of storage calorifier.

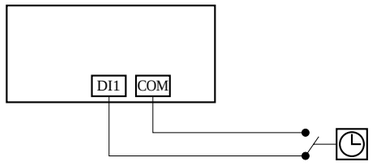
Legends used the following diagrams: -
IT = ITC temperature controller or Immersion Temperature sensor 10K3A1 for ATC190
B1 = Boiler or Heat Source
V1 = 3 port diverting valve or mixing valve
RSP = Remote Setpoint Adjuster (RSA/5 optional)





ON/OFF

The controller can be switched ON/Off from a remote time clock or switch by connecting across terminals DI1 and Com. In the OFF mode the controlled output drives to zero Volts (closed).

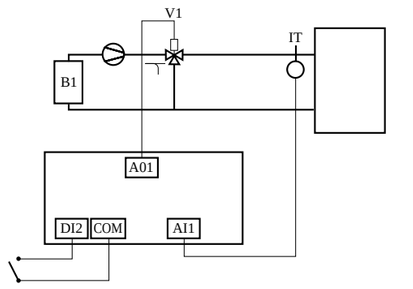


CONTROL OUTPUT

The controller output AO1 provides a 0-10V control signal (proportional + integral) for constant temperature control applications.

The controller can be used for control heating (DI2 open circuit) or cooling (DI2 closed circuit) with independent setting for both operations.

Setting FT1 is for cooling control ranged 5-35°C
Setting FT2 is for heating control ranged 30-90°C
Proportional Band is set on Pb ranged 1-12°C
Integral Time is set on the DIL switches 1 & 2 (see back for more detail)

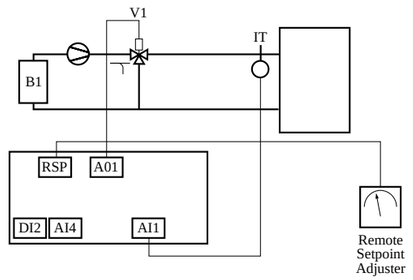


REMOTE SETPOINT ADJUSTMENT (+/-10°C)

The controller can have a remote setpoint adjuster that off sets the set points (FT1 & FT2) by up to + or – 10°C. Care must be taken with this option to ensure the flow temperature does not exceed the system limits. This could be critical in the single pipe installations with auto summer/winter changeover.

The remote setpoint adjuster RSA/10 is a 2 wire resistance potentiometer range 500 to 10500 Ohms.

The controller automatically detects if the RSA10 is connected.

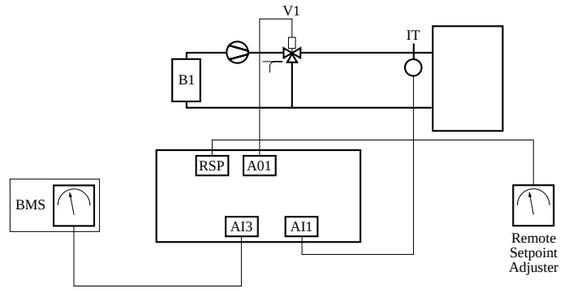


BMS TEMPERATURE RESET

The controller can have a remote setpoint adjustment from a 0-10V input (AI3) that off sets the set points (FT1 & FT2) by up to + or – 10°C.
0V input = -10°C offset
5V input = 0°C offset
10V input = +10°C offset

Care must be taken with this option to ensure the flow temperature does not exceed the system limits. This could be critical in the single pipe installations with auto summer/winter changeover.

For this function to work DIL switch 5 must be in the ON position.



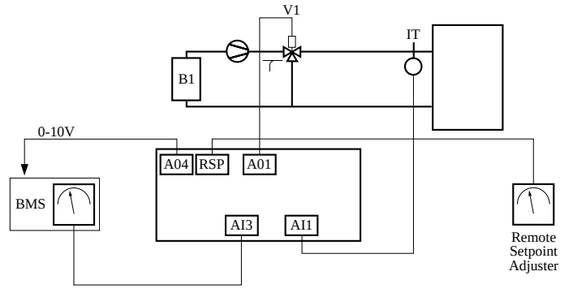
BMS MONITORING

The controller flow temperature can be measured 0-10V on output AO4 (ranged 0 to 100°C). This signal can be used to monitor the flow temperature remotely by a digital display or by a BMS input. If DIL SW6 is on then AO4 puts out a multiplexed 0-10V signal for the values of Flow Temp, Calculated required temp, Cooling Set Point (FT1) and Heating Set Point (FT2).

MULTIPLEXED AO4 SIGNAL

Condition	Output V	Range °C	Time
Start	10V	N/A	4 Sec
Flow Temp	0-10V	0 to 100	4 Sec
Calculated Temp	0-10V	0 to 100	4 Sec
Cooling SP	0-10V	0 to 100	4 Sec
Heating SP	0-10V	0 to 100	4 Sec

Note: - The calculated flow temperature is the summation of the setpoint, BMS reset value and remote reset value.



OPTIONAL CONTROL PRODUCTS

For sequence step controller with boilers or chillers use the ATC/ITC190 with one of the following: -

IO/DOM2 2 relay module (data sheet M-013)
IO/4SQM 4 relay module (data sheet M-009)
IO/6SQM 6 relay module (data sheet M-009)

For the ATC190 use the TPTIS/R immersion temperature sensor.

INFORMATION

Although the ATC190 and ITC190 controllers can be applied for cooling control the applications in this data sheet show only the modulation of a heating valve.

If you have any difficulty in determining the requirements for your application please consult the sales office.