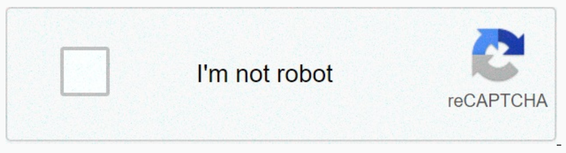

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TC344AX Download TC344AX Click to view File Size 1129.79 Kbytes Page 3 Pages Manufacturer SELEC [SELEC Controls Pvt. Ltd] Direct Link Logo Description Economic Temperature Controller Download Datasheet Part No. TC344AX Download TC344AX Click to view File Size 1129.79 Kbytes Page 3 Pages Manufacturer SELEC [SELEC Controls Pvt. Ltd] Direct Link Logo Description Economic Temperature Controller ManufacturerPart No.DatasheetDescription Microchip Technology TC3400 437Kb / 16P 1.8V, Low Power, 16-Bit Sigma-Delta A/D Converter 2002 TC3400VOA 437Kb / 16P 1.8V, Low Power, 16-Bit Sigma-Delta A/D Converter 2002 TC3400VPA 437Kb / 16P 1.8V, Low Power, 16-Bit Sigma-Delta A/D Converter 2002 TC3401 458Kb / 16P 16-Bit Low Cost, Low Power Sigma-Delta A/D Converter 2002 SHENZHEN FUMAN ELECTRON... TC34014AS 367Kb / 12P 10/12 digit calculator More results ManufacturerPart No.DatasheetDescription SELEC Controls Pvt. Ltd DTC204A-2 745Kb / 2P Economic Temperature Controller TC513AX 887Kb / 2P Economic Temperature Controller TC533 675Kb / 2P Economic Temperature Controller TT Electronics. DS2703 540Kb / 4P Economic Industrial Transmitter Amphenol Corporation 357-561 212Kb / 5P Economic Environmental Connecting Solutions Advantech Co., Ltd. DSA-3010 564Kb / 2P Economic Network Signage Platform Omron Electronics LLC E5AX-P 162Kb / 14P Temperature Controller FOTEK CONTROLS CO., LTD... TC4896-DA 1Mb / 5P Temperature Controller TC-4896DA-PT-R3-F-S-A 3Mb / 10P Temperature Controller Pentair plc. All rights... 760 256Kb / 2P SIMPLE ECONOMIC ELECTRONIC METER CONTROL More results English 中文 français español 日本語 Deutsch italiano русский polski português Tiếng việt Indian Mexican British New Zealand Privacy Policy ALLDATASHEET.COM Transcript Operating Instructions OP294-V05 selec TC544A / TC244AX / TC344AX / DTC204A-2 / DTC324A-2 HEAT COOL PID Control Method PID Proportional Band-Cool 0.0 to 400.0° Cycle Time-Cool 0.1 to 99.9 sec Dead Band SPLL to SPHL (Programmable) OUTPUT Control Output (Relay or SSR user selectable) : Relay Contact (SPDT) 05 A AC / 30V DC (TC544A : SPST RLY) 10 A resistive*@250V AC / 30V DC (*For DTC204A-2 / DTC324A-2) SSR Drive Output (Voltage Pulse) 12V DC, 50 mA Auxiliary Output : Relay Contact (SPDT) 05 A AC / 30V DC(TC544A : SPST RLY) SSR Drive Output (Voltage Pulse) 12V DC, 50 mA SPECIFICATIONS Display 4 + 4 digit, 7 segment digital display 4 digit for DTC204A-2 / DTC324A-2 LED Indications 1 : Output 1 ON 2 : Output 2 ON T : Auto tune S : Dwell timer* (Applicable for TCX44A/AX) Keys 3 keys for digital setting INPUT SPECIFICATIONS Input Signal Thermocouple (J,K,T,R,S) / RTD (Pt100) Sampling time 250 ms Input Filter (FTC) 0.2 to 10.0 sec Resolution 0.1/1° for TC/RTD input (Fixed 1° for R & S type TC input) Temperature Unit o C / °F selectable Indication Accuracy For TC inputs : 0.25% of F.S ±1° For R & S inputs : 0.5% of F.S ± 2° (20 min of warm up time for TC input) POWER SUPPLY Supply Voltage 85 to 270V AC/DC (AC: 50 or 60 Hz) Optional - 24V AC/DC Power Consumption 6 VA AC Temperature Operating : 0 to 50°C Storage : -20 to 75°C Humidity (non-condensing) 95% RH Weight TC544A : 142 gms TC244AX / DTC204A-2 : 200 gms TC344AX / DTC324A-2 : 252 gms SAFETY PRECAUTIONS All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument. If the equipment is not handled in a manner specified by the manufacturer it might impair the protection provided by the equipment. Read complete instructions prior to installation and operation of the unit. A better anti-noise effect can be expected by using standard power supply cable for the instrument. MAINTENANCE 1. The equipment should be cleaned regularly to avoid blockage of ventilating parts. 2. Clean the equipment with a clean soft cloth. Do not use Isopropyl alcohol or any other cleaning agent. INSTALLATION GUIDELINES 1. This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and Internal wiring. 2. Do not allow pieces of metal, wire clippings, or fine metallic fillings from installation to enter the product or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator. 3. Circuit breaker or mains switch must be installed between power source and supply terminals to facilitate power 'ON' or 'OFF' function.

However this switch or breaker must be installed in a convenient position normally accessible to the operator. 4. Use and store the temperature controller within the specified ambient temperature and humidity ranges as mentioned in this manual. CAUTION 1. When powering up for the first time, disconnect the output connections. 2. Fuse Protection: The unit is normally supplied without a power switch and fuses. Make wiring so that the fuse is placed between the mains power supply switch and the controller. (2 pole breaker fuse- rating: 275V AC,1A for 1.
2. 3. 4.
WARNING: To prevent the risk of electric shock power supply to the equipment must be kept OFF while doing the wiring arrangement. Do not touch the terminals while power is being supplied.
To eliminate electromagnetic interference use short wire with adequate ratings; twists of the same in equal size shall be made. For the input and output signal lines, be sure to use shielded wires and keep them away from each other. Cable used for connection to power source, must have a cross section of 1mm2 or greater. These wires shall have insulation capacity made of at least 1.5kV. When extending the thermocouple lead wires, always use thermocouple compensation wires for wiring. For the RTD type, use a wiring material with a small lead resistance (5Ω max per line) and no resistance differentials among three wires. The equipment in its installed state must not come in close proximity to any heating sources, caustic vapors, oils, steam, or other unwanted process by-products. 4. Use the specified size of crimp terminals (M3.5 screws) to wire the terminal block. Tighten the screws on the terminal block using the tightening torque within the range of 1.2 N.m. 5. Do not connect anything to unused terminals. EMC GUIDELINES 1. Use proper input power cables with shortest connections and twisted type. 2. Layout of connecting cables shall be away from any internal EMI source. LOAD CONNECTIONS 1. The service life of the output relays depends on the switching capacity and switching conditions. Consider the actual application conditions and use the product within the rated load and electrical service life. 2. Although the relay output is rated at 5/10 amps it is always necessary to use an interposing relay or contactor that will switch the load. This avoids damage to the controller in the event of a fault short developing on the power output circuit. 3. Always use a separate fused supply for the "power load circuit"and do not take this from the live and neutral terminals supplying power to the controller. For load current less than 0.5A Since this is a built-in-type equipment (finds place in main control panel), its output terminals get connected to host equipment. Such equipment shall also comply with basic EMI/EMC and other safety requirements like BSEN61326-1 and BSEN 61010 respectively. 4. Thermal dissipation of equipment is met through ventilation holes provided on chassis of equipment. Such ventilation holes shall not be obstructed else it can lead to a safety hazard. 5. The output terminals shall be strictly loaded to the Manufacturer specified values / range. NEW TC TC C Panel Cutout D DIM For bigger loads, use interposing relay / contactor N L TC TC Contactor NO MOV C Snubber LOAD F 2 S MODELS Snubber C G C E C MOV R Outline Dimensions 1 T LOAD NO R C A B N L electrical circuitry is highly recommended) WARNING : Risk of electric shock. WIRING GUIDELINES 3. 3. MECHANICAL INSTALLATION For RTD inputs : 0.1% of F.S ±1° (F.S = Full Scale) FUNCTIONAL SPECIFICATIONS Control Method 1) PID control with auto tuning 2) ON-OFF control 3) Heat-Cool (with auto-tuning) Proportional Band (P) 1.0 to 400.0° Integral Time (I) 0 to 9999 sec Derivative Time (D) 0 to 9999 sec Cycle Time 0.1 to 99.9 sec Hysteresis Width 0.1 to 99.9° Dwell Timer 0 to 9999 min (only for TCX44A/AX) Manual Reset Value -19.9 to 19.9° 5. A B C D E F G TC544A 52 52 94 45 4 46 46 TC244AX / DTC204A-2 72 72 83.7 67 4.5 69 69 TC344AX / DTC324A-2 96 96 73 90.5 5 92 92 1. Prepare the panel cutout with proper dimensions as shown above. 2. Fit the unit into the panel with the help of clamp given. ELECTRICAL PRECAUTIONS DURING USE Electrical noise generated by switching of inductive loads can create momentary disruption, erratic display, latch up, data loss or permanent damage to the instrument. To reduce noise: a) Use of snubber circuits across loads as shown above, is recommended. b) Use separate shielded wires for inputs. Document name : Operating / 1105 / TC544A/TC244AX/TC344AX/ DTC204A-2/DTC324A-2 OP294-V05 (Page 1 of 3) TERMINAL CONNECTIONS FRONT PANEL DESCRIPTION TCX44A/AX INPUT RANGES (Table 1) Programming online parameters FOR RTD TC +/RTD1 + L ( ) SSR1 + N( ) 3 4 TC /RTD2 NO2 + RTD3 SSR2 1 T 2 S Resolution 1 0.1 °C -150 to 850 -150 to 850 °F -238 to 1562 -199 to 999 6 value. 1 Process-value (PV) / Parameter name display 1) Displays a process value (PV). 2) Displays the parameter symbols at configuration mode/online menu. 3) Displays PV error conditions.

Parameter setting display 1) Displays the parameter settings at configuration mode/online menu. Input Ranges Resolution 1 0.1 °C -199 to 750 -199 to 750 °F -328 to 1382 -199 to 999 (refer Table 2 on page 2) 1 8 - 2 9 10 3 Control output 1 indication The LED is lit when the control output 1 is ON TC / RTD2 4 Control output 2 indication The LED is lit when the control output 2 is ON RTD3 5 Tune Auto tune : Blinking 6 Dwell timer Blinking: Dwell timer is in progress. Continuous ON : Time over. 11 NC2 5 12 + NO1 6 13 COM1 7 14 - 4 - COM2 (Not applicable for DTC204A-2 / DTC324A-2) NC1 * SSR2 Not applicable for DTC204A-2 - 2 11 3 12 4 + 13 COM2 5 TC + /RTD1 FUNCTIONS T TC /RTD2 RTD3 °C -199 to 1350 -199 to 999 °F -328 to 2462 -199 to 999 °C -199 to 400 -199 to 400 °F -328 to 750 -199 to 750 °C 0 to 1750 N/A °F 32 to 3182 N/A R&S Press key for 3 seconds. To view Level 2 Press key for 3 seconds. To view Protection Level Press + keys for 3 seconds. Lower display selectable between SET1/SET2/TIME using key. To view online parameters NOTE : Elapsed time / Remaining time dependent on the selection of ONL parameter in level1.

When an error has occured, the upper display indicates error codes as given below. Error Meaning Control Output Status Sensor break / over range condition OFF Sensor reverse / under range condition OFF Default : 0 Range : SPLL to SPHL If upper display is selected as / then, Pressing key will show on Upper display : / Lower display: <0> Press + / keys to increment/decrement value. Dwell Timer ERROR DISPLAY (Table 2) To view Level 1 Setpoint 2 / Dead band / KEY PRESS TCX44A/AX Default : OFF Range : OFF, 1 to 9999 min If upper display is selected as / then, Pressing key will show on Upper display : Lower display : Press + / keys to increment/decrement time value. DTC204A-2 / DTC324A-2 Programming online parameters (Not applicable for DTC204A-2 / DTC324A-2) DTC204A-2 / DTC324A-2 14 6 15 NO1 7 16 + COM1 8 17 NC1 9 18 - NC2 SSR1 NO2 - TC344AX / DTC324A-2 N( ) SSR2 10 - 1 K FRONT KEYS DESCRIPTION ONLINE L (+) J (Not applicable for DTC204A-2 / DTC324A-2) TC + / RTD1 SSR1 NO2 SSR2 L (+) - TC244AX / DTC204A-2 2 + 3 Default : 50 Range : SPLL to SPHL If upper display is selected as then, Pressing key will show on Upper display : Lower display : <50> Press + / keys to increment/decrement FOR THERMOCOUPLE COM1 N( ) Setpoint 1 Pt100 SSR1 COM2 NO1 Ranges 2 5 - TC544A 1 Input To view online parameters Display selectable between SET1/ SET2 using key. Note : Display shows parameter SET1/ SET2 for 1sec. To change online parameter values Press + / to change parameter value. PROGRAMMING MODE To view parameters on the same level. * SSR2 Not applicable for DTC324A-2 Use only the correct thermocouple wire or compensating cable from the probe to instrument terminals avoiding joints in the cable if possible. Failure to use the correct wire type will lead to inaccurate readings. To increase or decrease the value of a particular parameter. + to increase and + to decrease the function value. Note: Parameter value will not alter when respective level is locked. NOTE : The unit will auto exit programming mode after 30 seconds of inactivity. OR By pressing the Ensure that the input sensor connected at the terminals and the input type set in the temperature controller configuration are the same. or key once to view the next or previous function in operational menu. or or + keys for 3 seconds. Setpoint 1 CALIBRATION CERTIFICATE Product is tested & calibrated by automatic technique. The calibration of this instrument is done as per following accuracy : Default : 50 Range : SPLL to SPHL If online parameter is selected as then, Pressing key will show on display : & then <50> Press + / keys to increment / decrement value. For TC inputs : 0.25% of F.S ±1° For R & S inputs : 0.5% of F.S ± 2° (20 min of warm up time for TC input) For RTD inputs : 0.1% of F.S ±1° Sources calibrated against: Kusam-meco, model 405, Sr.No.:104446 Initial calibration is valid for 18 months after the Month/Year of manufacturing which is mentioned on order code label. Setpoint 2 / Dead band Default : 0 Range : SPLL to SPHL If upper display is selected as / then, Pressing key will show on display : / & then <0> Press + / keys to increment/decrement / value. Document name : Operating / 1105 / TC544A/TC244AX/TC344AX/ DTC204A-2/DTC324A-2 OP294-V05 (Page 2 of 3) KEY FUNCTIONS CONFIGURATION INSTRUCTIONS + or Press once to view next parameter in configuration menu Press once to view online parameters Press for 3 sec to enter Level 2 Press for 3 sec to enter Level 1 Press once to view previous parameter in configuration menu + Allows the user to increase or decrease associated parameter value or + Press for 3 sec to enter protection Level + or To exit configuration menu press any of these keys for 3 sec OPERATIONAL MENU POWER ON Note : At power ON lower display shows (momentary) input type selected in Level 1. *Lower display not applicable for DTC204A-2/DTC324A-2 Press 1 T 2 S key for 3sec.

Press Press key for 3sec. Display Description Level 1 Display Description Default Range Value Input type (Refer Table 1) J/K/T/R/S/RTD Display Resolution 1/0.1 Temperature unit Level 2 Display Condition Default Range Value + keys for 3sec. Protection Level Display Condition Display Description Default Range Value Tune OFF/ON For CNTL=PID Lock setpoint 1 UNLK/LOCK Proportional band 1.0 to 400.0° For CNTL=PID Lock setpoint 2 UNLK/LOCK °C/°F Integral time 0 to 9999 sec For CNTL=PID Lock level 1 UNLK/LOCK Set point low limit Min range of sensor selected to SPHL Derivative time 0 to 9999 sec For CNTL=PID Lock level 2 UNLK/LOCK Set point high limit SPLL to Max range of sensor selected Cycle time mode AUTO/USR.F For CNTL=PID Lock dwell time UNLK/LOCK Cycle time 0.1 to 99.9 sec For CNTL=PID Hysteresis 1 0.1 to 99.9° For CNTL=ONF Manual reset -19.9 to +19.9° For CNTL=PID & I=0 Filter time constant Not prompted for R & S type 0.2 to10.0 sec Control action for relay 1 RE/FD Control logic PID/ONF Control Output selection RELAY/SSR Dwell mode enable NO/YES Proportional band-cool 1.0 to 400.0° For CNTL=PID & HC=YES Heat-cool mode selection NO/YES Cycle time-cool 0.1 to 99.9 sec For CNTL=PID & HC=YES Control action for relay 2 RE/FD/TIME Relay 2 type DEV/ABS Online menu for timer REMN/ELPS Anti-reset windup % 1.0 to 100.0% Factory default (Reset all) NO/YES Not prompted for HC=YES When HC=NO.
TIME prompted when DWEL =YES When ACT2=RE/FD When DWEL =YES When CNTL =PID Hysteresis 2 0.1 to 99.9° Dwell time OFF, 1 to 9999 min Display bias -19.9 to 19.9° For HC=NO or HC=YES & CNTL=ONF Display Condition Prompted when DWEL=YES Note 1. Locking parameters (LVL1 or LVL2 or SP or DWEL) will not permit change in the value of respective level parameters. Time value (online) can be altered only when DWEL is not locked in protection level.
2. Continuous operation of + / keys for SP or other parameters makes update speed faster in 3 stages after 3 sec. (Specifications are subject to change, since development is a continuous process) When DWEL =YES Selec Controls Pvt. Ltd. Tel. No. : +91-22-40394200 / 40394202 Fax No. : +91-22-28471733 Toll free : 1800 227 353 Website: www.selec.com Email: Parameter marked not applicable for DTC204A-2 & DTC324A-2 Default value of = for DTC204A-2 & DTC324A-2 Document name : Operating / 1105 / TC544A/TC244AX/TC344AX/ DTC204A-2/DTC324A-2 OP294-V05 (Page 3 of 3) TEC Temperature Controllers TEC Temperature Controllers available from StockAMS Technologies' broad portfolio of TEC temperature controllers or TEC drivers available from stock is very well suited for drive and control of thermoelectric modules/coolers (TEC) based on Peltier technology. Analog and digital TEC drivers with PI (proportional, integral) or PID (proportional, integral, derivative) type of control are available. Our comprehensive inventory of TEC temperature controllers and drivers comprises systems for PCB, chassis or benchtop mount, providing TEC drive currents ranging from 1.5 A all the way to an impressive 28 A.
In combination with thermistor or RTD temperature sensors, these devices are able to control the temperature of laser diodes or power electronics very precisely – some models can even provide temperature regulation down to <0.001°C. Our product range offers cost effective and reliable temperature control solutions for your projects, capable of being implemented into an array of pre-existing systems and applicable in wide spectrum of industries. Some of our temperature controllers can also drive heating elements based on resistive technologies. If you can't find an off-the-shelf TEC temperature controller that meets your needs, please contact the AMS Technologies temperature controller experts – together with our suppliers we can create a temperature control solution tailored to your requirements. We guarantee that we can provide a solution to any thermal management issue, no matter how complex. Related ProductsUse our temperature controllers to drive and control AMS Technologies' broad range of thermoelectric or Peltier modules that comprises variants for industrial applications or consumer devices, multistage modules for high temperature difference requirements as well as small TECs, ideal for assembly into various sockets, packages & housings (e.g. TO-Cans, Butterfly, etc.) of optoelectronic and other electronic components. Our temperature controllers are also preferred solutions to drive TECs that are integrated in many of our laser diodes, modules and systems. Our portfolio of accessories for TEC temperature controllers ranges from various pre-confectioned cables and dedicated thermal management components like heat sinks, thermal paste and fans all the way to power supplies, digital displays and remote control units as well as evaluation boards. DefinitionThermoelectric coolers (TECs or Peltier elements) are particularly suitable for keeping a device or assembly precisely and constantly at a desired constant temperature. A TEC temperature controller supplies the voltage and current required by the TEC and ensures that the temperature is maintained exactly at the desired level, based on the feedback from a temperature sensor. With high-precision temperature sensors such as thermistors, RTDs or linear integrated circuits, temperature stabilities of ±0.01 °C to ±0.001 °C can be achieved. For less critical applications, thermocouples are also suitable, with which the temperature can be stabilized to about ±1 °C. Proportional TEC Temperature ControllersLike very basic "On-Off" models, proportional TEC temperature controllers are energy efficient. However, the proportional controller gives you better performance. This system functions from a band around the set point to avoid constantly cycling on and off. It does this by reducing percentage of power as you get closer to the set point. Proportional, Integral, Derivative (PID) TEC Temperature ControllersThe most complex and accurate type of control, PID, is an abbreviation for Proportional, Integral and Derivative. As an enhanced version of the standard proportional control type, PID calculates the system's hysteresis to manage the temperature and ensure maximum stability. Proportional TEC temperature control can be slow to climb back to the proper set temperature, thus the integral calculation allows the temperature controller to increase the rate of change to bring the system back to the set temperature faster. The derivative function monitors the change over a much longer period of time than the integral, which allows the system to more accurately compensate for rapid changes in temperature. Pulse Width Modulation TEC Temperature ControllersPulse-width modulated controllers are more efficient and smaller than their linear-mode counterparts. Thanks to high-efficiency switching technology, these controllers dissipate very little heat internally, and in most applications no additional heatsinking is required for safe operation. The controller drives the TEC with a pulse-width modulated current.
If more current is needed to keep the thermal load at the desired temperature, the controller increases the modulation ON-time and decreases the OFF-time. How to Select the Right TEC Temperature Controller for Your ApplicationTo decide which TEC temperature controller is most appropriate for driving your TEC or Peltier module(s), first sort by your maximum TEC current requirement: choose from our range of TEC drivers with TEC currents from below 1 A up to 28 A. Then choose what mount option would fit best – components for PCB mount, modules for chassis or benchtop mount or instruments for benchtop or rack mount – and also if features like low profile, integrated fan or integrated contact the AMS Technologies temperature controller experts – together with our suppliers we can create a temperature control solution tailored to your requirements. We guarantee that we can provide a solution to any thermal management issue, no matter how complex. Alternative Terms: Temperature Controller; TEC Driver; TEC Controller; Thermoelectric Cooler Driver; Thermoelectric Module Driver; Thermoelectric Module Controller; Peltier Module Driver; Peltier Module Controller; Resistive Heater Driver; Resistive Heater Controller