

UPDATE (10.29.2015): Verify that your tekmar system is properly updated! Irregular actions will happen if its not. Currently tekmar 482 firmware is at 149 protocol 2. To update please visit:
<http://tekmarcontrols.com/products/accessories/482.html>

Purpose of Driver: Many C4 dealers encounter situations where the Control4 Thermostat is not sophisticated enough to handle radiant floor heating and special HVAC applications. Often the HVAC installer will install a tekmar system to handle these applications. Until now, the Control4 dealer had to say to the customer 'Sorry, but we can't integrate with tekmar'. Not any longer! This driver takes information from the tekmar system and converts it to Control4 information using the existing Control4 Thermostat Proxy system. What this means to you as the dealer is you can provide the same solution to your customer with this driver as you do with normal Control4 thermostats.

Features:

- Snow Melt Control (Customers can now engage and disengage melting for all 12 zone of tekmar snow melting). Note: Must use tekmar 654
- Setpoint type devices now supported (161 and 162 thermostats)
- Humidity Control now supported (via OS 2.7.0)
- Utilizes standard Control4 thermostat interface. This means that 'all' control4 enabled interfaces work with this driver
- Support for Heat, Cool, Auto modes, Heat/Cool Setpoints, Current Temperature, Fahrenheit and Celsius, Active State and Outdoor Temperature
- Works with an undetermined amount of thermostats in one system (currently has been tested to 32 but has been designed to be unlimited)
- Driver uses a polling or auto reporting system. This is now an installer options depending on the requirements of the system and size (auto reporting is recommended only on HC1000 systems)
- Device Inventory Button to list under the LUA tab all the thermostats in the system
- Network Error event for errors that occur on the tekmar gateway
- Outdoor Temperature event/variable for Control4 Programming
- Utilize tekmar Slab or Air setpoints

Setup/Installation of Driver and Gateway

tekmar System:

- ⤴ Driver requires tN4 482 Gateway to be installed with RS232 communication between Control4 and the Gateway
- ⤴ One Cat5e cable (568A or B) from the tn4 482 to the Control4 system should be connected
- ⤴ Install Gateway according to tekmar installation instructions (should be done by qualified HVAC company)
- ⤴ This driver requires that each tekmar thermostat have a unique static address to work. Below explains how to assign static addresses. Please record the addresses for each thermostat. The Port and Bus will not be listed on the thermostat. The address is a 4 digit number that is formatted: PBNN
 - P = the Port on the tN4 Bus (acceptable numbers are: 0, 1, 2, 3, 4). The port is easy to tell as a 'LED' will be lit on the front of the tN4 gateway. Usually this is either 0 or 1 (Note: in very large or multi-boiler system you may have multiple ports being used)
 - B = the System bus that is controlling. This is the actual 'system' that controls the

thermostats

- 274, 275, 400, 401, 402 , 420, 421, 423 tN4 Boiler Bus = 1
- 402, 422, Mix2, 423 (Bus2) tN4 Boiler Bus = 2
- 423 (Bus3) tN4 = 3
- 423 (Bus4) tN4 = 4
- No Boiler Bus = 0
- NN = the 'static' address of the thermostat.
 - 527 through 540 - press and hold the up and down arrows together and wait until the display shows "Adjust Address XX Auto", where the address number and the word auto alternate. Then press the up arrow button until the address shows an constant address.
- 541 through 546 - press the menu button until the "Misc" menu is located. Then press the item button until the display shows "Address XX Auto", where the address number and the word auto alternate. Then press the up arrow button until the address shows an constant address.

Address Example: Customer has a boiler bus (423 tN4 Bus 1) wired to port 0 on the Gateway with a static address of 23. So the 'address' will be 0123
- ▲ Note: Software version 2.0.0 of this driver now includes a Device Inventory which will list all the current thermostats on the tekmar system including Port, Bus and Address.

Control4 System:

- On the right side of the 'System Design' page, select 'Search' and choose manufacturer 'TekMar'.
- Add the tN4 Gateway (RS232) driver to the project and enter your activation code *Note: There is a 24 hour trial period built into the driver for system setup and for basic demo features*
- Under Connections, 'bind' the tN4 driver to the correct RS232 connection.
- Go back to System Design and Search, Device Type: Control4 Wireless Thermostat and choose tekmar Heat Only or Thermostat if you need A/C also.
- Continue to add thermostats until you have added all the thermostats to the project
- Under Connections, select each room and bind the Temperature and Temperature Control for each thermostat accordingly
- Under System Design, Click on each thermostat and add the correct address in the tekmar address field. Once all thermostats have been setup correctly, go to the main tekmar tN4 Gateway (RS232) driver, under actions and press 'Link Tstat Addresses' This will create a table in the driver binding the tekmar address with the Control4 address *Note: If you need to change an address after this has been done, under each thermostat drivers 'action' tab, there is a single link tstat that will update only this address.*
- Under Actions, choose which type of reporting you require for your project. *Polling will update the Control4 heat, cool, mode and temperature at regular intervals but may take as long as 2 minutes between requests. Auto Reporting updates the Control4 properties as soon as they change on the tekmar. This does require a larger amount of director load so it is recommended to only enable this if you have a HC800 running.*

Troubleshooting Tips:

RS232 communication isn't working:

There are a couple of tips for this. See image below for proper 482 hardware setup



1. The LED that is 'ON' for Bus 0,1,2,3,4 is the 'PORT' number for you thermostats. If there are no LED's on, there is no communication on the tekmar tN4 network.
2. The dip switch in the top right of the unit must be set to 'ON'
3. Always use the RS232 adapter that comes with the tekmar unit. The recommended 568 configuration on the RJ45 should be A
4. If all the connections are good, to verify communication go to the main driver, under Actions Press Device Inventory. Below is an example of the lua output window of what would appear in a properly running system:
5. Cinegration has added 'Device Inventory' to the main driver to help dealers figure out if the RS232 is working or what the Port and Bus are. To use this feature, go to the main driver, ACTIONS and press Device Inventory. Under the lua tab something like this should appear:


```
Getting list from tekmar of all devices on the system. Turning off Debug Mode so data
output window is useful
DeviceInventory. Address to be entered in a thermostat: 0002 (Actual TekMar address:
0200)
DeviceInventory. Address to be entered in a thermostat: 0001 (Actual TekMar address:
0100)
DeviceInventory. Address to be entered in a thermostat: 0000 (Actual TekMar address:
0000)
DeviceInventory Done.
```

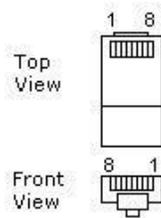
 - a. As you can see the 482 received 2 responses from tekmar, address 0002 and address 0001. Note: Not all thermostats will show up every time when this presses it's more for RS232 debugging and Port/Bus troubleshooting. In this example our Port is 0 and the Bus is 0. The address is: 01 and 02.
2. RS232 Adapter may be incorrect. Below is a description of the RS232 settings required for tekmar:

A serial (RS-232) interface is used on the tHA (482) gateway with the following parameters.

- No hardware flow control
- Full-duplex
- Baud Rate - 9600bps
- Data Bits - 8
- Parity - None
- Stop Bits - 1

The tHA (482) gateway uses a RJ45 connector described below.

RJ45 Male Connector Pin Numbering



Pin No.	Name	Notes/Description
1	DSR/RI	Data set Ready/ring indicator
2	DCD	Data Carrier Detect
3 *	DTR	Data Terminal Ready
4 *	SGND	Signal Ground
5 *	RD	Receive Data
6 *	TD	Transmit Data
7	CTS	Clear to Send
8	RTS	Request to Send

* These pins are used.

The DTR pin is used for in circuit serial programming (ISP) to allow for future firmware upgrades.

7. Firmware may be incorrect... As of version 7.0.5+ the Cinegration tekmar 482 driver now requires the tekmar 482 to be on Firmware 142 Protocol 2 or later. If communication with tekmar is good, the driver will list the current Firmware/Protocol on the main driver as shown here:

tekmar Firmware-Protocol Firmware 142 / Protocol 2

If you do not have this firmware please click this link for an explanation of how to update the firmware:

<http://tekmarcontrols.com/products/accessories/482-firmware-update.html>

Warranty:

Cinegration strives to provide fully working drivers without defects. However, changes and bugs may be found. Because of this, any bug/maintenance update to this driver within 6 months of purchase will be free of charge. However, due to the ever changing nature of computer and audio/video systems, if a new version of the Control4® software creates issues with this driver, or feature enhancements, an upgrade version will be provided for an additional expense as determined by Cinegration LLC.

Thank you for choosing a driver by: Cinegration LLC.