

Common Modbus Registers

F4T Mode

The following registers are applicable in the F4T Mode (Data Map 1). These are the most common registers that would need to be used in an automation environment.

Some F4T parameters are contained within 32 bits (IEEE Float). Notice that only one (low order) of the two registers is listed. By default, the low order word contains the two low bytes of the 32-bit parameter. As an example, in the table below see Actual Chamber Temp. Note that it lists register 27586. Because this parameter is a float, it is represented by registers 27586 (low order bytes) and 27587 (high order bytes).

Parameter Name	Register	Data Type and Access (Read or Write)
Temperature Set Point	2782	IEEE Float RW
Closed Loop Set Point*	2810	IEEE Float R
Target Set Point**	16602	IEEE Float R
Actual Chamber Temp. (PV)	27586	IEEE Float R
Humidity Set Point	2942	IEEE Float RW
Closed Loop Set Point*	2970	IEEE Float R
Target Set Point**	16604	IEEE Float R
Actual Chamber Humidity (PV)	28906	IEEE Float R
Event 1	16594	16-bit RW
Event 2	16596	16-bit RW
Event 3	16598	16-bit RW
Event 4	16600	16-bit RW
Event 5	16822	16-bit RW
Event 6	16824	16-bit RW
Event 7	16826	16-bit RW
Events 1-7	Off = 62, On = 63	

* Instantaneous Set Point during a ramp or profile

** Set Point target during a ramp or profile

Manual Ramp Parameters (Ramp to Set Point without a profile)

All 16-bit RW

Parameter Name	Register
Ramp Action (Temperature)	2794 Off = 62 Startup = 88 Set Point = 85 Both = 13
Ramp Scale (Temperature)	2796 °/Minutes = 57 °/Hours = 39
Ramp Rate (Temperature)	2798

Chapter 4 – Communications

Profile Parameters - All 16-bit R or RW

Parameter Name	Register	Range
Start Profile	16558 (RW)	1 to 40
Start Step	16560 (RW)	1 to max step # in profile
Profile Action Request	16562 (RW)	None = 61 Start = 1782 Calendar Start = 1783
Profile Action Request	16564 (RW)	None = 61 Resume = 147
Profile Action Request	16566 (RW)	None = 61 Pause = 146 Terminate = 148
Profile State	16568 (R)	Off = 62 Running = 149 Pause = 146 Not Started = 251 Completed Normal = 252 Terminated = 253 Calendar Start = 1783
Current Profile	16588 (R)	0 to 40
Current Step	16590 (R)	0 to 50
Step Type	16592 (R)	Soak = 87 Wait For = 1542 Instant Change = 1927 Ramp Time = 1928 Ramp Rate = 81 End = 27

F4 Compatibility Mode (Data Map 2)

The following common registers are available in the F4 Compatibility Mode (Data Map 2). This will allow you to use software that was written for the original F4 Controller. Only a limited set of parameters are available in this compatibility mode, but it should be sufficient for most applications. This complete register list is only valid for Firmware Revision 03:06:0011, released May 5, 2017 and higher. **Not all F4 parameters are mapped over to the F4T so check this list before assuming the F4T will be compatible with your existing software.**

Data Map 2 does NOT apply to F4T controllers with Cascade Control (Part Temperature Control). See Data Map 3 for controllers with Cascade Control (Part Temperature Control).

Parameter Name	Register	Data Type and Access (Read or Write)	
Temperature Set Point	300	16-bit Signed RW	
Actual Chamber Temperature	100	16-bit Signed R	
Temperature Input Precision	606	16-bit Signed RW	0 (0), 0.0 (1), 0.00 (2), 0.000 (3)
°C or °F	901	16-bit Signed RW	°C (1), °F (0)
Humidity Set Point	319	16-bit Signed RW	
Actual Chamber Humidity	104	16-bit Signed R	
Humidity Input Precision	616	16-bit Signed RW	0 (0), 0.0 (1), 0.00 (2), 0.000 (3)
Temperature Input Error	101	16-bit R	No Error = 0, Error = 1
Humidity Input Error	105	16-bit R	No Error = 0, Error = 1
Event 1	2000	16-bit RW	Off = 0, On = 1
Event 2	2010	16-bit RW	Off = 0, On = 1
Event 3	2020	16-bit RW	Off = 0, On = 1
Event 4	2030	16-bit RW	Off = 0, On = 1
Event 5	2040	16-bit RW	Off = 0, On = 1
Event 6	2050	16-bit RW	Off = 0, On = 1
Event 7	2060	16-bit RW	Off = 0, On = 1
Profile Action:			
Resume Profile	1209	16-bit R	
Hold Profile	1210	16-bit W	
Terminate Profile	1217	16-bit W	
Profile Start:			
Profile Start File #	4000	16-bit W	
Profile Start Step #	4001	16-bit W	
Profile Action Start:	4002	16-bit W	Create (1) Insert Step (2) Delete Current profile (3) Delete Step (4) Start Profile (5) Delete all Profiles (256)

F4 Compatibility Mode (Data Map 3, Cascade Control Only)

Data Map 3 does ONLY applies to F4T controllers with Cascade Control (Part Temperature Control). See the separate F4T Cascade Control manual for details on this version. **See Data Map 2 for controllers without Cascade Control (Part Temperature Control).**

The following common registers are available in the F4 Compatibility Mode (Data Map 3). This will allow you to use software that was written for the original F4 Controller. Only a limited set of parameters are available in this compatibility mode, but it should be sufficient for most applications. This register list is only valid for Firmware Revision 03:06:0011, released May 5, 2017 and higher. **Not all F4 parameters are mapped over to the F4T so check this list before assuming the F4T will be compatible with your existing software.**

Parameter Name	Register	Data Type and Access (Read or Write)	
Temperature Set Point	300	16-bit Signed RW	
Air Temperature	100	16-bit Signed R	
Air Temp Input Precision	606	16-bit Signed RW	0 (0), 0.0 (1), 0.00 (2), 0.000 (3)
Part Temperature	108	16-bit Signed RW	
Part Temp Input Precision	626	16-bit Signed RW	0 (0), 0.0 (1), 0.00 (2), 0.000 (3)
°C or °F	901	16-bit Signed RW	°C (1), °F (0)
Air Temp Input Error	101	16-bit R	No Error = 0, Error = 1
Part Temp Input Error	109	16-bit R	No Error = 0, Error = 1
Event 1	2000	16-bit RW	Off = 0, On = 1
Event 2	2010	16-bit RW	Off = 0, On = 1
Event 3	2020	16-bit RW	Off = 0, On = 1
Event 4	2030	16-bit RW	Off = 0, On = 1
Event 5	2040	16-bit RW	Off = 0, On = 1
Event 6	2050	16-bit RW	Off = 0, On = 1
Event 7	2060	16-bit RW	Off = 0, On = 1
Profile Action:			
Resume Profile	1209	16-bit R	
Hold Profile	1210	16-bit W	
Terminate Profile	1217	16-bit W	
Profile Start:			
Profile Start File #	4000	16-bit W	
Profile Start Step #	4001	16-bit W	
Profile Action Start:	4002	16-bit W	Create (1) Insert Step (2) Delete Current profile (3) Delete Step (4) Start Profile (5) Delete all Profiles (256)