Monicont iDigit Smart Thermostat User Manuel

COOLING AND SENSOR CONTROL PARAMETERS		MIN	MAX	UNIT	DEFAULT
S0	The Cooling Temperature Set Parameter is used to control the operation or shutdown of the compressor. It can be set in Celsius or Fahrenheit within the range of the S2 and S3 Parameters.	S2*	S3*	C°/F°	-10 C°
S1	The Cooling Temperature Delta T Parameter is the hysteresis set value used for the compressor to re-engage or disengage. It can be set in Celsius or Fahrenheit.	1 C°	20 C°	C°/F°	2 C°
S2	The Lower Limit for the Cooling Temperature Set Value is restricted by setting the minimum value of the S0 parameter through this parameter. The maximum value depends on the S3 parameter. It can be set in Celsius or Fahrenheit.	-60 C°	S3*	C°/F°	-60 C°
S3	The Upper Limit for the Cooling Temperature Set Value is restricted by setting the maximum value of the S0 parameter through this parameter. The minimum value depends on the S2 parameter. It can be set in Celsius or Fahrenheit.	S2*	150 C°	C°/F°	150 C°
S4	The Indoor Temperature Sensor Offset Adjustment is used for sensor calibration. It is used to calibrate the temperature sensor based on the measurement results from a reference device. It can be set in Celsius or Fahrenheit.	-10.1 C°	10.1 C°	C°/F°	0 C°
S5	The Defrost Temperature Sensor Offset Adjustment is used for sensor calibration. It is used to calibrate the temperature sensor based on the measurement results from a reference device. It can be set in Celsius or Fahrenheit.	-10.1 C°	10.1 C°	C°/F°	0 C°

THERMOSTAT CONTROL PARAMETERS		MIN	MAX	UNIT	DEFAULT
C1	Decimal Number Display Setting. Used to display temperature values with one decimal place on the device's LCD screen. If set to NO, decimal numbers are not shown. If set to YES, they are displayed. In Fahrenheit, this parameter is deactivated by system.	NO	YES	LOGICAL	NO
C2	Temperature Unit Setting adjusts which temperature unit is displayed on the device's LCD screen. C is set for Celsius, and F is set for Fahrenheit. If Fahrenheit is selected, internal operations are still performed in Celsius, but the screen will display the corresponding Fahrenheit value.	C°	F°	LOGICAL	C°
C3	Digital Input Polarization Setting adjusts the detection function of the digital input on the device. If the trigger signal should be interpreted as LOW, it should be set to CL; if it should be interpreted as HIGH, it should be set to OP. Ensure that the input voltage of the device's digital input is within the specified limits!	CL	OP	LOGICAL	OP
C4	Digital Input Function Execution Delay Setting. This determines how many seconds after the digital input is detected the trigger function, set by the C5 parameter, should start. It is in seconds and is disabled when NO or EU is selected in the C5 parameters.	0	99	SECONDS	5 SEC
C5	Through the digital input signals coming from the device, the following functions can be activated. These functions can be selected from the LCD menu. Function descriptions are provided below: ND = Digital input not used. DE = Door switch input. EU = Drip detection. CP = Compressor output is turned off. FC = Fan output is turned off. DF = Manual defrost is initiated. SA = Standard Alarm, a sound alarm is triggered on the device, and if connected, alarm data is sent to the server. EA = Critical Alarm, all outputs on the device are turned off, a sound alarm is triggered, and alarm data is sent to the server.	NO	EA	NUMBER	NO
C6	Can the Set Value Be Changed While the Key Lock is Active? The device has a key lock to prevent changes from being made through the LCD menu. If you want to allow changes to the set value while the key lock is active, set it to YES; if not, set it to NO.	NO	YES	LOGICAL	NO

COMPRESSOR CONTROL PARAMETERS		MIN	MAX	UNIT	DEFAULT
K1	This parameter defines the time required for the compressor to start when the device is initially powered on. It is in minutes; however, if the D5 parameter is set to NO, this parameter is disabled.	0	99	MINUTES	1 MIN
K2	The Compressor Protection Parameter defines the minimum delay time between stopping and restarting the compressor. It is in minutes, and setting it to 0 can disable this protection.	0	50	MINUTES	1 MIN
K3	This parameter specifies the compressor's operating time in case of an indoor temperature sensor failure. It is in minutes, and setting it to 0 means the compressor will not operate at all. This allows the device to perform defrosting if conditions permit during a failure.	0	99	MINUTES	0 MIN
K4	This parameter specifies the duration the compressor will remain off in the event of an indoor temperature sensor failure. It is in minutes, and setting it to 0 means that if the K3 parameter is not set to 0, the compressor will not stop at all. This allows the device to perform defrosting if conditions permit during a failure.	0	99	MINUTES	1 MIN

DEFROST CONTROL PARAMETERS		MIN	MAX	UNIT	DEFAULT
D1	This parameter defines the interval time between consecutive defrost cycles. It sets the start time of the next defrost cycle after the current one ends. It is in hours.	0	99	HOURS	1 HR
D2	The Defrost Type Selection Parameter determines the method used for defrosting. The methods are described below: ELC = Electric defrost is performed, and the compressor is turned off. GAS = Hot gas defrost is performed, and the compressor is turned on.	ELC	GAS	LOGICAL	ELC
D3	This parameter specifies the end temperature required to terminate the defrost process when the device is in defrost mode. It is compared with the data read from the defrost temperature sensor and can be set in Celsius or Fahrenheit. When this value is smaller than the defrost sensor reading, the device will switch to drip mode.	-50 C°	50 C°	C°/F°	2 C°
D4	The Defrost Duration Parameter specifies that defrosting will occur for the set duration if the temperature measured by the defrost sensor is below the value of the D3 parameter. If this parameter is set to 0, both automatic and manual defrosting are disabled, and the device will only operate in cooling mode.	0	99	MINUTES	30 MIN

D5	The Parameter for Starting Defrost Operation with Power specifies whether defrosting begins when power is supplied to the device. If set to YES, defrosting will start if the conditions for defrost are met based on the data from the defrost temperature sensor when power is applied. If set to NO, defrosting will not start even if the conditions are met when power is supplied.	NO	YES	LOGICAL	NO
D6	This parameter specifies the waiting time for defrosting to start when power is supplied. It is in minutes, and it is disabled if the D5 parameter is set to NO.	0	99	MINUTES	1 MIN
D7	This parameter configures the display during defrost. If set to RE, the indoor temperature sensor value before defrosting will be displayed on the LCD screen during defrost. If set to LC, the current indoor temperature will continue to be displayed throughout the defrost process.	RE	LC	LOGICAL	LC
D8	The Drip Time Parameter specifies how long the device will wait for dripping in minutes. Additionally, if the C5 parameter is set for digital input water detection, this detection will also occur during this time. If dripping is not detected by the end of this period, the device will indicate a drip error.	0	99	MINUTES	2 MIN
D9	The Smart Defrost Selection Parameter determines how the interval timer between defrost cycles operates. If set to NO, the timer increments regardless of the compressor's status. If set to YES, the timer increments only when the compressor is running, and defrosting will start if conditions are met at the end of this period.	NO	YES	LOGICAL	NO
D10	The Real Temperature Display Delay After Defrost Parameter specifies the delay in minutes before showing the current indoor temperature after defrosting is complete. If the D7 parameter is set to RE, this parameter determines how long after defrosting ends the current indoor temperature will be displayed.	0	99	MINUTES	1 MIN
D11	The Time Parameter Required to Avoid Room Temperature Error After Defrost specifies the duration in minutes needed to prevent a room temperature error after defrosting. If set to 0, this parameter is disabled.	0	99	MINUTES	10 MIN
D12	The Parameter for Continuing or Stopping Operation After a Defrost Error determines the action taken if a defrost error occurs. If set to YES, the device will not continue cooling if the system does not reach the defrost end temperature. If set to NO, the system will continue cooling from where it left off.	NO	YES	LOGICAL	NO

FAN CONTROL PARAMETERS		**MIN**	**MAX**	**UNIT**	**DEFAULT**
F1	This parameter controls the fan operation mode. The modes are described below: 1 = The fan operates and stops with the compressor and does not run during defrost. 2 = The fan starts operating even if the compressor is off and does not run during defrost. 3 = The fan starts and stops with the compressor and operates during defrost. 4 = The fan continues to operate without stopping during defrost.	1	4	NUMBER	1
F2	The Fan Stop Temperature Parameter determines whether the fan operates based on the temperature data from the defrost temperature sensor. The device compares this parameter with the defrost sensor reading; if the sensor's temperature is below this value, the fan stops. It can be set in Celsius or Fahrenheit.	-50 C°	50 C°	C°/F°	1.0 C°
F3	The Defrost End Fan Delay Parameter specifies the time to wait before the fan starts operating after defrost ends. It is in minutes and depends on the F1 parameter, which determines whether the fan operates or stops. It is specified in minutes.	0	99	MINUTES	3 MIN
F4	The Fan Delta T Value Parameter is the hysteresis value required for the fan to restart and stop. It can be set in increments of 0.1 degrees Celsius or Fahrenheit.	0.1 C°	20.0 C°	C°/F°	2.0 C°
F5	The Fan Start Delay Parameter specifies the time to wait for the fan to start after power is supplied. It depends on the fan operation mode set by the F1 parameter and can be set in minutes.	0	99	MINUTES	1 MIN
F6	This parameter ensures that fan control is dependent on the indoor temperature sensor. If set to YES, the fan will stop if the temperature difference between the indoor temperature sensor and the defrost temperature sensor is below the F2 value. If this difference is greater than F2 + F4, the fan will operate. If set to NO, the fan will stop if the defrost temperature sensor value is above the F2 value.	NO	YES	LOGICAL	NO

ALARM CONTROL PARAMETERS		**MIN**	**MAX**	**UNIT**	**DEFAULT**
A1	The Alarm Low Temperature Set Parameter specifies the minimum temperature below which an alarm will be triggered. The maximum value of this parameter depends on the A4 parameter. It can be set in Celsius or Fahrenheit.	-60 C°	**A4***	C°/F°	-60 C°
A2	The Alarm Generation Mode Set Parameter determines the conditions under which an alarm is triggered. The conditions are described below: ABS = Absolute Alarm condition, where an alarm is triggered if the indoor temperature sensor value goes outside the range defined by the A1 and A4 parameters. REF = Relative Alarm condition, where an alarm is triggered if the indoor temperature sensor value goes outside the range defined by S0 - A1 or S0 + A4.	ABS	REF	LOGICAL	ABS
A3	The Alarm Delta-T Temperature Parameter is the hysteresis set value required for an alarm to be triggered. It can be set in increments of 0.1 degrees Celsius or Fahrenheit.	0.1 C°	20 C°	C°/F°	2.0 C°
A4	The Alarm High Temperature Set Parameter specifies the maximum temperature above which an alarm will be triggered. The minimum value of this parameter depends on the A1 parameter. It can be set in Celsius or Fahrenheit.	**A1***	150 C°	C°/F°	150 C°
A5	The Alarm Message Display Delay After Power Parameter specifies the time to wait after power is supplied before displaying an alarm message. It is in minutes; if set to 0, the alarm will be triggered immediately upon the error occurring.	0	99	MINUTES	10 MIN
A6	The Alarm Message Display Delay After Alarm Status Parameter specifies the time to wait after an alarm status is created before displaying the alarm message. It is in minutes; if set to 0, the alarm message will be displayed immediately when the error occurs.	0	99	MINUTES	0 MIN

ALARM CONTROL PARAMETERS	**MIN**	**MAX**	**UNIT**	**DEFAULT**

H1	The Modbus Slave ID Set Parameter allows you to configure the device's slave ID on the RS485 bus for Modbus communication. It can be set to a value between 1 and 247.	1	247	NUMBER	1
H2	The Modbus Communication Speed Set Parameter allows you to configure the baud rate for Modbus communication on the RS485 bus. If set to 0, Modbus RTU communication will be disabled if the device is using Modbus RTU. The supported baud rates are listed below: 0 = Modbus RTU is disabled 1 = 1200 Baud 2 = 2400 Baud 3 = 4800 Baud 4 = 9600 Baud 5 = 19200 Baud	0	5	BAUD	4

DEVICE CONTROL PARAMETERS		**MIN**	**MAX**	**UNIT**	**DEFAULT**
c1	The Communication Hardware Set Parameter specifies the communication hardware options for your thermostat, allowing it to connect to the external world. The available hardware options are listed below, and setting the appropriate hardware enables your device to connect to the internet: NOC = No communication; the device cannot connect to the internet. All communication hardware is disabled. RFC = WLAN 802.11 b/g/n Wireless Communication Technology ETH = Ethernet 10/100 Mbps LAN Communication Technology	NOC	ETH	NUMBER	RFC
c2	The Communication Type Set Parameter determines whether your thermostat communicates in Online or Offline mode. The modes are described below: ONL = Online mode, where the device communicates with an external server to enable remote control and monitoring. OFL = Offline mode, where the device communicates over a local network via a TCP server and port 80, allowing control and monitoring within the internal network.	ONL	OFL	LOGICAL	ONL
c3	The Modbus Communication Type Set Parameter allows you to configure the Modbus communication type for your thermostat. The device supports Modbus RTU and Modbus TCP/IP communication via the integrated communication interfaces. The types are listed below: NOC = Modbus communication disabled. Both Modbus RTU and TCP/IP are off. RTU = Modbus RTU communication type. Communication can be done via RS485. TCP = Modbus TCP/IP communication type. Communication can be done over the network via Ethernet or Wi-Fi.	NOC	TCP	LOGICAL	RTU
c4	The Log Recording Interval Set Parameter configures how often the thermostat records logs. The device can store sensor data, errors, and operational mode information for up to 6 months using its 4MB of non-volatile memory, which can be reviewed through a mobile application when needed. This parameter sets the interval in minutes for log recording. If set to 0, the device will not record logs. The maximum interval for log recording is 1 hour.	0	60	MINUTES	15 MIN
c5	The Cryptographic Communication Set Parameter ensures the security of data transmission between the thermostat and the server or TCP using AES-256 CBC symmetric encryption algorithms. This feature helps prevent unauthorized access to your device. If set to YES, communication will be encrypted. If set to NO, communication will be unencrypted.	NO	YES	LOGICAL	NO
c6	The Static IP Set Parameter allows your device to obtain an IP address either via DHCP or a static IP for network communication, internet access, and local network presence. This parameter enables you to configure whether the device should use a static IP or DHCP for IP assignment. If set to NO, DHCP is active. If set to YES, static IP is active. You can configure separate static IP addresses for both WiFi and Ethernet communication interfaces using this parameter.	NO	YES	LOGICAL	NO

Monicont Technology iDigit Thermostat Modbus RTU and TCP/IP Memory Map

Holding Register Addresses		Data Type	(Parameter Name) Parameter Description (Limit values)	R/W Permissions
Decimal	Hex			
00001d	0x0001	Dec16	(S0) Cooling Room Temperature Set Parameter (-20 to 20 degrees, Default -10)	Read and Write
00002d	0x0002	Dec16	(S3) Upper Limit for Cooling Room Temperature Set Value (Default -60 to 150 degrees)	Read and Write
00003d	0x0003	Dec16	(A4) High-Level Alarm (Default -60 to 150 degrees)	Read and Write
00004d	0x0004	Dec16	(S2) Lower Limit for Cooling Room Temperature Set Value (Default -60 to 150 degrees)	Read and Write
00005d	0x0005	Dec16	(A1) Low-Level Alarm (Default -60 to 150 degrees)	Read and Write
00006d	0x0006	Dec16	(S4) Room Sensor Offset Setting (-10.1 to 10.1 degrees, Default 0)	Read and Write
00007d	0x0007	Dec16	(S5) Defrost Sensor Offset Setting (-10.1 to 10.1 degrees, Default 0)	Read and Write
00008d	0x0008	Dec16	(S1) Cooling Room Temperature Delta T Degree (1 to 20 degrees, Default 2 degrees)	Read and Write
00009d	0x0009	Dec16	(A3) Alarm Hysteresis (0.1 to 20 degrees, Default 2 degrees)	Read and Write
00010d	0x0010	Dec16	(D3) Defrost End Temperature (-50 to 50 degrees, Default 2 degrees)	Read and Write
00011d	0x0011	Dec16	(F2) Fan Stop Temperature (-50 to 50 degrees, Default 1 degree)	Read and Write
00012d	0x0012	Dec16	(F4) Fan Delta T Value (0.1 to 20 degrees, Default 2 degrees)	Read and Write
00013d	0x0013	Dec16	(C5) Digital Input Types (0 to 7, Default 0)	Read and Write
00014d	0x0014	Dec16	(C4) Digital Input Delay (0 to 99 seconds, Default 5)	Read and Write
00015d	0x0015	Dec16	(K1) Compressor Start Delay After Power-On (0 to 99 minutes, Default 1)	Read and Write
00016d	0x0016	Dec16	(K2) Delay Between Compressor Cycles (0 to 50 minutes, Default 1)	Read and Write
00017d	0x0017	Dec16	(K3) Compressor Run Time on Room Sensor Failure (0 to 99 minutes, Default 1)	Read and Write
00018d	0x0018	Dec16	(K4) Compressor Off Time on Room Sensor Failure (0 to 99 minutes, Default 1)	Read and Write
00019d	0x0019	Dec16	(D1) Time Between Consecutive Defrost Cycles (0 to 99 hours, Default 1)	Read and Write
00020d	0x0020	Dec16	(D4) Defrost Duration (0 to 99 minutes, Default 30)	Read and Write
00021d	0x0021	Dec16	(D10) Delay for Showing Actual Temperature After Defrost Ends (0 to 99 minutes, Default 1)	Read and Write
00022d	0x0022	Dec16	(D8) Drip-Off Time (0 to 99 minutes, Default 2)	Read and Write
00023d	0x0023	Dec16	(A6) Alarm Status Message Display Delay After Alarm Occurs (0 to 99 minutes, Default 0)	Read and Write
00024d	0x0024	Dec16	(A5) Energy-On Alarm Message Display Delay (0 to 99 minutes, Default 10)	Read and Write
00025d	0x0025	Dec16	(F5) Delay Before Fan Starts After Power-On (0 to 99 minutes, Default 1)	Read and Write

00026d	0x0026	Dec16	(F3) Delay Before Fan Starts After Defrost (0 to 99 minutes, Default 3)	Read and Write
00027d	0x0027	Dec16	(D6) When power is applied, defrost. If Yes, Time to Start Defrost (between 0 and 99, Default 1)	Read and Write
00028d	0x0028	Dec16	(D11) Room Temperature Error Delay After Defrost (between 0 and 99, Default 10)	Read and Write
00029d	0x0029	Dec16	Device Model Number (2403 IDigit Monicont Thermostat V1)	Only Read
Input Register Addresses				
Decimal	**Hex**			
00000d	0x0000	Dec16	Measured Ambient Temperature Value (Celsius or Fahrenheit)	Only Read
00001d	0x0001	Dec16	Measured Defrost Probe Temperature Value (Celsius or Fahrenheit)	Only Read
00002d	0x0002	Dec16	Status of All Control Outputs (0.bit Compressor, 1.bit Defrost, 2.bit Fan) (0=OFF, 1=ON)	Only Read
Discrete Input Addresses				
Decimal	**Hex**			
00000d	0x0000	Bit	Compressor Output Status (0=OFF, 1=ON)	Only Read
00001d	0x0001	Bit	Defrost Output Status (0=OFF, 1=ON)	Only Read
00002d	0x0002	Bit	Fan Output Status (0=OFF, 1=ON)	Only Read
Coil Addresses				
Decimal	**Hex**			
00000d	0x0000	Bit	(C2) Temperature Unit (0 = Celsius, 1 = Fahrenheit)	Read and Write
00001d	0x0001	Bit	(C1) Decimal Place Display (0 = Do Not Display, 1 = Display)	Read and Write
00002d	0x0002	Bit	(C3) Digital Input Polarity (0 = CL, 1 = OP)	Read and Write
00003d	0x0003	Bit	(D9) Smart Defrost Selection (0 = OFF, 1 = ON)	Read and Write
00004d	0x0004	Bit	(D2) Defrost Type Selection (0 = ELC, 1 = GAS)	Read and Write
00005d	0x0005	Bit	(D7) Display Configuration During Defrost (0 = LC, 1 = RE)	Read and Write
00006d	0x0006	Bit	(D5) Start Defrost Process with Energy (0 = OFF, 1 = YES)	Read and Write
00007d	0x0007	Bit	(A2) Alarm Configuration (0 = ABS, 1 = REF)	Read and Write
00008d	0x0008	Bit	(F1 = 1?) Fan Operation with Thermostat (0 = OFF, 1 = ON)	Read and Write
00009d	0x0009	Bit	(F1 = 2?) Fan Operation When Compressor Stops (0 = OFF, 1 = ON)	Read and Write
00010d	0x0010	Bit	(F1 = 3?) Fan Operation During Defrost (0 = OFF, 1 = ON)"	Read and Write
00011d	0x0011	Bit	(F6) Fan Temperature Dependent on Ambient Temperature (0 = OFF, 1 = ON)	Read and Write
00012d	0x0012	Bit	(C6) Adjusting Set Value When Key Lock is Active (0 = OFF, 1 = ON)	Read and Write
00013d	0x0013	Bit	Activating/Deactivating Key Lock (0 = OFF, 1 = ON)	Read and Write

00014d	0x0014	Bit	Manual Defrost Start (0 = Inactive, 1 = Active)	Read and Write
00015d	0x0015	Bit	(D12) Continue Processing After Defrost Error (0 = NO, 1 = YES)	Read and Write
00016d	0x0016	Bit	Loading Factory Settings (0 = Inactive, 1 = Active)	Read and Write