



Modbus Register Map: InRow ACRC30x

Part number: 990-4742B

Notes:

- 16-bit registers are transmitted MSB first (i.e., big-endian).
- INT32 and UINT32 are most-significant word in n+0, least significant word in n+1 (i.e. big-endian).
- Reads can be performed with function codes 3, or 4. Writes can be performed with function code 16, or with function code 6 to registers with length 1.
- Modbus serial RTU and Modbus over TCP is supported.
- Signed numbers are twos-compliment
- Status bits are atomic within a single Modbus register. User should not look for consistency across multiple registers, only within a single register.
- Strings are two characters per register, first character in high-order byte, second character in low-order byte. Printable ASCII only.
- When writing an ASCII string the null terminator must be included.
- Single-register reads of reserved or undefined registers will return an error. Block reads which begin with a valid register will not return an error but will return zeros for undefined registers.
- Data Type column: "INT16"=signed 16-bit integer, "UINT16" = unsigned 16-bit integer, "INT32" = signed 32-bit integer, "UINT32" = unsigned 32-bit integer, "ENUM" is a UINT16 value which maps to a defined list of states, "ASCII" = the printable ASCII subset from 0x20 - 0x7E. BOOLEAN= a single bit, 0 or 1.
- "Absolute Starting Register Address" = 0 (the column heading used in this table) is equivalent to "Register 40001" in Modicon terminology, which is address zero when transmitted over the wire.
- Accesses to items before data is available will result in an invalid address error.
- Response Timeout Guide: A single register response is typically less than 100 ms; however, reading a large number of registers may take 2 seconds or more. If timeouts occur, reduce the number of registers in each request or increase the response timeout.

Modicon Standard Register Number	Absolute Starting Register Number, (Hexadecimal)	Absolute Starting Register Number, (Decimal)	Data Point	R/W	Length	Units	Valid Response						
Group Data													
40001	0	0	OVERALL STATUS	R	1	ENUM	0 = No Alarm	1 = Informational	2 = Warning	3 = Critical			
40002	1	1	GROUP_COOL_OUTPUT	R	2	INT32	(Tenths) kW						
40004	3	3	GROUP_COOL_DEMAND	R	2	INT32	(Tenths) kW						
40006	5	5	COOL_SETPOINT	R/W	2	INT32	(Tenths Deg) F						
40008	7	7	SUPPLY_AIR_SETPOINT	R/W	2	INT32	(Tenths Deg) F						
40010	9	9	GROUP_AIR_FLOW	R	2	INT32	CFM						
40012	11	11	GROUP_MAX_RACK_TEMP	R	2	INT32	(Tenths Deg) F						
40014	13	13	GROUP_MIN_RACK_TEMP	R	2	INT32	(Tenths Deg) F						
40016	15	15	AIRFLOW_CONTROL	R/W	1	ENUM	0 = Automatic	1 = 60%	2 = 70%	3 = 80%	4 = 90%	5 = 100%	
40017	16	16	NUMBER_OF_UNITS	R/W	2	INT32	N/A						
40019	18	18	CONFIGURATION_TYPE	R	1	ENUM	0 = RACS	1 = HACS	2 = InRow	3 = CACS			
40020	19	19	COOL_PID_P	R	2	INT32	(Hundredths) Unitless						

40275	274	274	STANDBY INPUT STATE	R	1	ENUM	0 = Open	1 = Closed						
40276	275	275	RESERVED	R	1	NA	Reserved							
40277	276	276	OUTPUT_STATE_1	R	1	ENUM	0 = Abnormal	1 = Normal	Same as register 280. For legacy systems.					
40278	277	277	RESERVED	R	1	NA	Reserved							
40279	278	278	POWER_SOURCE	R/W	1	ENUM	0 = Single	1 = Dual						
40280	279	279	IDLE_ON_COOL_FAIL	R/W	1	ENUM	0 = Yes	1 = No						
40281	280	280	OUTPUT_STATE_1	R	1	ENUM	0 = Abnormal	1 = Normal	Same as register 276.					
40282	281	281	OUTPUT_STATE_2	R	1	ENUM	0 = Abnormal	1 = Normal						
40283	282	282	OUTPUT_STATE_3	R	1	ENUM	0 = Abnormal	1 = Normal						
40284	283	283	OUTPUT_STATE_4	R	1	ENUM	0 = Abnormal	1 = Normal						
40285	284	284	RESERVED	R	5	NA	Reserved							
40290	289	289	MAXIMUM_CHILLED_WATER_FLOW	R	2	INT32	(Tenths) GPM							
40292	291	291	BYPASS_VALUE_POSITION	R/W	1	ENUM	0 = Open	1 = Closed						
40293	292	292	UNIT_SERVICE_INTERVAL	R	2	INT32	Weeks							
40295	294	294	UNIT_SERVICE_INTERVAL_ALARM	R	1	ENUM	0 = Enable	1 = Disable						
40296	295	295	DEW_POINT_TEMP	R	2	INT32	(Tenths Deg) F							
40298	297	297	COIL_CHILLED_WATER_TEMP	R	2	INT32	(Tenths Deg) F							
40300	299	299	UNIT_POWER	R	2	INT32	(Tenths) kW							
40302	301	301	UNIT_ENERGY	R	2	INT32	(Tenths) kWh							
40304	303	303	UNIT_RUNHOUR	R	2	INT32	Hours							
40306	305	305	CIRCULATION_PUMP_RUNHOUR	R	2	INT32	Hours							
40308	307	307	NUMBER_OF_RACK_INLET_TEMPERATURE_SENSORS	R/W	2	INT32	N/A							
40310	309	309	NUMBER_OF_LEAK_DETECTORS	R/W	2	INT32	N/A							
40312	311	311	AIR_FILTER_TYPE	R/W	1	ENUM	0 = Standard	1 = Pleated						
40313	312	312	LEAK_DETECTOR_STATE_1	R	1	ENUM	0 = No Leak	1 = Leak Detected						
40314	313	313	LEAK_DETECTOR_STATE_2	R	1	ENUM	0 = No Leak	1 = Leak Detected						
40315	314	314	LEAK_DETECTOR_STATE_3	R	1	ENUM	0 = No Leak	1 = Leak Detected						
40316	315	315	LEAK_DETECTOR_STATE_4	R	1	ENUM	0 = No Leak	1 = Leak Detected						
40317	316	316	UNIT_RACK_INLET_TEMP_1	R	2	INT32	(Tenths Deg) F							
40319	318	318	UNIT_RACK_INLET_TEMP_2	R	2	INT32	(Tenths Deg) F							
40321	320	320	UNIT_RACK_INLET_TEMP_3	R	2	INT32	(Tenths Deg) F							
40323	322	322	UNIT_RACK_INLET_TEMP_4	R	2	INT32	(Tenths Deg) F							
40325	324	324	ALARM_ON_STANDBY	R/W	1	ENUM	0 = No	1 = Yes						
40326	325	325	CIRCULATION_PUMP_FLOW	R	2	INT32	(Tenths) GPM							
40328	327	327	CIRCULATION_PUMP_SPEED	R	2	INT32	%							
40330	329	329	CIRCULATION_PUMP_POWER	R	2	INT32	W							
40332	331	331	UNIT_RESERVED_REGISTERS	R	53	NA	Reserved							
Alarms														
40385	384	384	INTERNAL_COMM_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40386	385	385	RESERVED	R	1	ENUM	0 = Clear	1 = Alarm						
40387	386	386	COOL_FUNCTION_UNAVAILABLE	R	1	ENUM	0 = Clear	1 = Alarm						
40388	387	387	HIGH_RACK_TEMP	R	1	ENUM	0 = Clear	1 = Alarm						
40389	388	388	AIR_FILTER_CLOGGED	R	1	ENUM	0 = Clear	1 = Alarm						
40390	389	389	LOWER_RETURN_AIR_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40391	390	390	UPPER_RETURN_AIR_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40392	391	391	LOWER_SUPPLY_AIR_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40393	392	392	UPPER_SUPPLY_AIR_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40394	393	393	RACK_TEMP_SENSOR_1_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40395	394	394	CHILLED_WATER_VALVE_ACTUATOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40396	395	395	FAN_1_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40397	396	396	FAN_2_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40398	397	397	FAN_3_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40399	398	398	FAN_4_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40400	399	399	FAN_5_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40401	400	400	FAN_6_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40402	401	401	FAN_7_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40403	402	402	FAN_8_ERROR	R	1	ENUM	0 = Clear	1 = Alarm						
40404	403	403	WATER_DETECTED	R	1	ENUM	0 = Clear	1 = Alarm						

40405	404	404	CHECK CONDS MGMT SYSTEM	R	1	ENUM	0 = Clear	1 = Alarm					
40406	405	405	CHILLED WATER FLOWMETER ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40407	406	406	ENTERING CHILLED WATER HIGH TEMP	R	1	ENUM	0 = Clear	1 = Alarm					
40408	407	407	ENTERING CHILLED WATER TEMP SENSOR ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40409	408	408	LEAVING CHILLED WATER TEMP SENSOR ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40410	409	409	CONDENSATE PAN FULL	R	1	ENUM	0 = Clear	1 = Alarm					
40411	410	410	PRIMARY POWER SOURCE UNAVAILABLE	R	1	ENUM	0 = Clear	1 = Alarm					
40412	411	411	SECONDARY POWER SOURCE UNAVAILABLE	R	1	ENUM	0 = Clear	1 = Alarm					
40413	412	412	FAN POWER SUPPLY 1 ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40414	413	413	FAN POWER SUPPLY 2 ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40415	414	414	AIR_FILTER_RUNHOUR_VIOLATION	R	1	ENUM	0 = Clear	1 = Alarm					
40416	415	415	RESERVED	R	1	ENUM	0 = Clear	1 = Alarm					
40417	416	416	STANDBY_DUE_TO_INPUT_CONTACT	R	1	ENUM	0 = Clear	1 = Alarm					
40418	417	417	UNEXPECTED_NUMBER_OF_UNITS_IN_GROUP	R	1	ENUM	0 = Clear	1 = Alarm					
40419	418	418	SUPPLY_HIGH_TEMPERATURE	R	1	ENUM	0 = Clear	1 = Alarm					
40420	419	419	RETURN_HIGH_TEMPERATURE	R	1	ENUM	0 = Clear	1 = Alarm					
40421	420	420	DP_FILTER_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40422	421	421	RESERVED	R	1	ENUM	0 = Clear	1 = Alarm					
40423	422	422	CHILLED_WATER_VALVE_NOT_SET_TO_AUTO	R	1	ENUM	0 = Clear	1 = Alarm					
40424	423	423	IDLE_DUE_TO_LEAK_DETECTED	R	1	ENUM	0 = Clear	1 = Alarm					
40425	424	424	RESERVED	R	1	ENUM	0 = Clear	1 = Alarm					
40426	425	425	RESERVED	R	1	ENUM	0 = Clear	1 = Alarm					
40427	426	426	RESERVED	R	1	ENUM	0 = Clear	1 = Alarm					
40428	427	427	RESERVED	R	1	ENUM	0 = Clear	1 = Alarm					
40429	428	428	RESERVED	R	1	ENUM	0 = Clear	1 = Alarm					
40430	429	429	ECOASLE_DOOR_OPEN	R	1	ENUM	0 = Clear	1 = Alarm					
40431	430	430	UNEXPECTED_NUMBER_OF_ACTIVE_FLOW_CONTROLLERS	R	1	ENUM	0 = Clear	1 = Alarm					
40432	431	431	INSUFFICIENT_AIRFLOW	R	1	ENUM	0 = Clear	1 = Alarm					
40433	432	432	ACTIVE_FLOW_CONTROLLER_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40434	433	433	RACK_TEMP_SENSOR_2_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40435	434	434	RACK_TEMP_SENSOR_3_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40436	435	435	RACK_TEMP_SENSOR_4_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40437	436	436	UNIT_SERVICE_REQUIRED	R	1	ENUM	0 = Clear	1 = Alarm					
40438	437	437	HUMIDITY_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40439	438	438	COIL_CONDENSATION_POSSIBLE	R	1	ENUM	0 = Clear	1 = Alarm					
40440	439	439	CONTROLLER_POWER_SUPPLY_1_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40441	440	440	CONTROLLER_POWER_SUPPLY_2_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40442	441	441	COIL_CHILLED_WATER_TEMP_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40443	442	442	FAN_POWER_SUPPLY_1_CURRENT_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40444	443	443	FAN_POWER_SUPPLY_2_CURRENT_SENSOR_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40445	444	444	FACTORY_CONFIGURATION_NOT_COMPLETE	R	1	ENUM	0 = Clear	1 = Alarm					
40446	445	445	UNIT_IN_MAINTENANCE_MODE	R	1	ENUM	0 = Clear	1 = Alarm					
40447	446	446	UNEXPECTED_NUMBER_OF_RACK_INLET_SENSORS	R	1	ENUM	0 = Clear	1 = Alarm					
40448	447	447	UNEXPECTED_NUMBER_OF_LEAK_SENSORS	R	1	ENUM	0 = Clear	1 = Alarm					
40449	448	448	OUTPUT_RELAY_1_ABNORMAL	R	1	ENUM	0 = Clear	1 = Alarm					
40450	449	449	OUTPUT_RELAY_2_ABNORMAL	R	1	ENUM	0 = Clear	1 = Alarm					
40451	450	450	OUTPUT_RELAY_3_ABNORMAL	R	1	ENUM	0 = Clear	1 = Alarm					
40452	451	451	OUTPUT_RELAY_4_ABNORMAL	R	1	ENUM	0 = Clear	1 = Alarm					
40453	452	452	CIRCULATION_PUMP_ERROR	R	1	ENUM	0 = Clear	1 = Alarm					
40454	453	453	STANDBY_DUE_TO_USER_ACTION	R	1	ENUM	0 = Clear	1 = Alarm					
40454	454	454	CIRCULATION_PUMP_COMM_LOSS	R	1	ENUM	0 = Clear	1 = Alarm					
40454	455	455	CIRCULATION_PUMP_WARNING	R	1	ENUM	0 = Clear	1 = Alarm					
40454	456	456	CIRCULATION_PUMP_NEEDS_SERVICE	R	1	ENUM	0 = Clear	1 = Alarm					

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