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Berner AIR® BMS Package Modbus Registers

General Overview

This document provides detailed information about the Modbus registers for the IntelliSwitch™ Gen 5 supporting Modbus RTU, ASCII, and TCP communication protocols. The document covers register mapping, data encoding, and specific function codes to facilitate seamless integration into various systems.

Communication Protocols

Supported Protocols:

- Modbus RTU: Standard serial communication using RS-485.
- Modbus ASCII: Serial communication using ASCII representation on RS-485.
- Modbus TCP: Communication over Ethernet/IP. Can use the Wi-Fi or Ethernet interface¹.

Supported Communication Settings:

Protocol	RTU, ASCII
Speed	300 - 115200 bps
Byte length	5, 6, 7, 8
Stop bits	1, 2
Parity	None, Odd, Even, Space, Mark
Dev ID	1 - 247
Timeout	1 - 999 seconds

Protocol	TCP
IP Address	Manual or DHCP (default) ¹
Port	502 (default)
Mask	Manual or DHCP (default) ¹
Gateway	Manual or DHCP (default) ¹

¹ Please refer to the IntelliSwitch™ Gen 5 Quick Start Guide or the Berner App to find out how to configure Ethernet.



Input Registers

Address	Description	Datatype	Unit	Access
1	Temperature at the door	INT16	°C x 10 e.g.: 215 = 21.5 °C	RO
2	Temperature at the door	INT16	°F x 10 e.g.: 720 = 72.0 °F	RO
3	Door switch status	INT16	0: closed 1: open	RO
4	Door open count since Midnight	INT16	-	RO
5	External thermostat status	INT16	0: off 1: on	RO
6	Heater status	INT16	0: off 1: on	RO
7	Motor state	INT16	0: off 1: low 2: default	RO
8	Motor Speed	INT16	RPM	RO
9	Number of available motor speeds	INT16	-	RO
10	Heating supported (0: no, 1: yes)	INT16	0: no 1: yes	RO
11	E-Stop locked	INT16	0: no 1: yes	RO
201	Error code 1	INT16	-	RO
202	Error code 2	INT16	-	RO
203	Error code 3	INT16	-	RO
204	Error code 4	INT16	-	RO
205	Error code 5	INT16	-	RO
206	Error code 6	INT16	-	RO

Holding Registers

Address	Description	Datatype	Unit	Access
101	Mode*	INT16	0: off 1: on, 2: auto, 4: comfort+ 5: BMS	RW
102	Fan Speed	INT16	1 to N N is max nb. of speeds (1, 2, 3 or 10)	RW
103	Target Temperature	INT16	°C x 10 e.g.: 215 = 21.5 °C	RW
104	Target Temperature	INT16	°F x 10 e.g.: 720 = 72.0 °F	RW
105	Time Delay	INT16	Seconds	RW
106	Cool Down Delay	INT16	Seconds	RW
107	Call for Heat* (BMS mode)	INT16	0: no 1: yes	RW
108	Call for Fan* (BMS mode)	INT16	0: no 1: yes	RW
109	Heater Disabled	INT16	0:no 1:yes	RW

* These registers are reset to 0 and made RO when register 11 (E-stop locked) equals 1

Notes

To avoid confusion, input and holding registers do not share relative addresses.

As per Modbus Application Protocol 1.1b section 4.4, the offset relative to address 1 must be passed to requests. For example, accessing address 101, offset 100 must be used.