UniPi Neuron M50x

Registers – group 1

Register Number		R/W	DataType	Content	Bit Nr.
Unit 0	**Unit × Reg. NR**				
0	1 × 0	R	MixedBits	Digital inputs of group 1	
				Digital input 1.1	0
				Digital input 1.2	1
				Digital input 1.3	2
				Digital input 1.4	3
1	1 × 1	RW	MixedBits	Digital outputs of group 1	
				Digital output 1.1	0
				Digital output 1.2	1
				Digital output 1.3	2
				Digital output 1.4	3
2	1 × 2	RW	Word	Analog output 1	
3	1 × 3	R	Word	Analog input 1	
4	1 × 4	R	Word	Analog Output/Input 1	
5	1 × 5	R	Word	VrefInt	
6	1 × 6	RW	MixedBits	MasterWatchDog (MWD) status of group 1	
				MWD enable	0
				MWD reboot detected	1
7	1 × 7	R	Word	Length of TX queue	
8 – 9	1 × 8 – 9	RW	DWord	Counter of Digital input 1.1	
10 – 11	1 × 10 – 11	RW	DWord	Counter of Digital input 1.2	
12 – 13	1 × 12 – 13	RW	DWord	Counter of Digital input 1.3	
14 – 15	1 × 14 – 15	RW	DWord	Counter of Digital input 1.4	
16	1 × 16	RW	Word	PWM of DO1.1	
17	1 × 17	RW	Word	PWM of DO1.2	
18	1 × 18	RW	Word	PWM of DO1.3	
19	1 × 19	RW	Word	PWM of DO1.4	
20	1 × 20	RW	MixedBits	User programmable LED settings	
				User LED X1	0
				User LED X2	1
				User LED X3	2
				User LED X4	3
1000	1 × 1000	R		Firmware version of group 1	
1001	1 × 1001	R	MixedBits	Number of DI/Dos	
				Number of Dos	0 – 7
				Number of Dis	8 – 15
1002	1 × 1002	R	MixedBits	Number of AI/Ao/Serials of group 1	
				Number of serial lines	0 – 3
				Number of AOs of	4 – 7
				Number of AIs of	8 – 15
1003	1 × 1003	R		HW Version of group 1	
1004	1 × 1004	R	Word	Board HW version of group 1	
1005 – 1006	1 × 1005 – 1006	R	DWord	Board serial number of group 1	
1007	1 × 1007	R	MixedBits	Interrupt mask of group 1	
				Serial line RX queue not empty	0
				Sending on serial line finished	1
				Receiving Modbus RTU frame finished	2

				Digital input changed state	3
1008	1 × 1008	RW	Word	MWD timeout of group 1	
1009	1 × 1009	R	Word	Vref	
1010	1 × 1010	RW	Word	Debounce time of DI1.1 [100µs]	
1011	1 × 1011	RW	Word	Debounce time of DI1.2 [100µs]	
1012	1 × 1012	RW	Word	Debounce time of DI1.3 [100µs]	
1013	1 × 1013	RW	Word	Debounce time of DI1.4 [100µs]	
1014	1 × 1014	RW	MixedBits	Direct Switch function of group 1	
				Enable DS on DI1.1	0
				Enable DS on DI1.2	1
				Enable DS on DI1.3	2
				Enable DS on DI1.4	3
1015	1 × 1015	RW	MixedBits	Enable DS polarity function of group 1	
				Enable DS polarity on DI1.1	0
				Enable DS polarity on DI1.2	1
				Enable DS polarity on DI1.3	2
				Enable DS polarity on DI1.4	3
1016	1 × 1016	RW	MixedBits	Enable DS toggle function of group 1	
				Enable DS toggle on DI1.1	0
				Enable DS toggle on DI1.2	1
				Enable DS toggle on DI1.3	2
				Enable DS toggle on DI1.4	3
1017	1 × 1017	RW	Word	PWM prescale of group 1	
1018	1 × 1018	RW	Word	PWM cycle of group 1	
1019	1 × 1019	RW	MixedBits	AO 1 settings of	
				Enable current output	0
1020	1 × 1020	R	Word	AO 1 Voltage deviation	
1021	1 × 1021	R	Word	AO 1 Voltage offset	
1022	1 × 1022	R	Word	AO 1 Current deviation	
1023	1 × 1023	R	Word	AO 1 Current offset	
1024	1 × 1024	RW	MixedBits	AI 1 settings	
				Enable current input	0
1025	1 × 1025	R	Word	AI 1 Voltage deviation	
1026	1 × 1026	R	Word	AI 1 Voltage offset	
1027	1 × 1027	R	Word	AI 1 Current deviation	
1028	1 × 1028	R	Word	AI 1 Current offset	
1029	1 × 1029	R	Word	AI 2 Voltage deviation (on AO1)	
1030	1 × 1030	R	Word	AI 2 Voltage offset (on AO1)	
1031	1 × 1031	RW	MixedBits	Configuration of RS485 serial line	
				Baud rate	0 – 12
				Parity enable	13
				Parity – 0=Even, 1=Odd	14
				Modbus RTU support enabled (interrupt)	15

Registers – group 2

Register Number		R/W	DataType	Content	Bit Nr.
Unit 0	**Unit × Reg. NR**				
100	2 × 0	R	MixedBits	Digital inputs of group 2	
				Digital input 2.1	0
				Digital input 2.2	1
				Digital input 2.3	2
				Digital input 2.4	3

				Digital input 2.5	4
				Digital input 2.6	5
101	2 × 1	RW	MixedBits	Digital outputs of group 2	
				Digital (Relay) output 2.1	0
				Digital (Relay) output 2.2	1
				Digital (Relay) output 2.3	2
				Digital (Relay) output 2.4	3
				Digital (Relay) output 2.5	4
102	2 x 2	RW	Word	Analog output 2.1	
103	2 x 3	RW	Word	Analog output 2.2	
104	2 x 4	RW	Word	Analog output 2.3	
105	2 x 5	RW	Word	Analog output 2.4	
106-107	2 x 6-7	R	Real	Analog input 2.1	
108-109	2 x 8-9	R	Real	Analog input 2.2	
110-111	2 x 10-11	R	Real	Analog input 2.3	
112-113	2 x 12-13	R	Real	Analog input 2.4	
114	2 x 14	RW	MixedBits	MasterWatchDog (MWD) status of group 2	
				MWD enable	0
				MWD reboot detected	1
115	2 x 15	R	Word	Length of TX queue	
116 – 117	2 × 16 – 17	RW	DWord	Counter of Digital input 2.1	
118 – 119	2 × 18 – 19	RW	DWord	Counter of Digital input 2.2	
120 – 121	2 × 20 – 21	RW	DWord	Counter of Digital input 2.3	
122 – 123	2 × 22 – 23	RW	DWord	Counter of Digital input 2.4	
124 – 125	2 × 24 – 25	RW	DWord	Counter of Digital input 2.5	
126 – 127	2 × 26 – 27	RW	DWord	Counter of Digital input 2.6	
1100	2 × 1000	R		Firmware version of group 2	
1101	2 × 1001	R	MixedBits	Number of DI/DO of group 2	
				Number of DI	0 – 7
				Number of DI	8 – 15
1102	2 × 1002	R	MixedBits	Number of AI/AO/Serial of group 2	
				Number of serial lines	0 – 3
				Number of AO	4 – 7
				Number of AI	8 – 15
1103	2 × 1003	R		HW Version of group 2	
1104	2 × 1004	R	Word	Board HW version of group 2	
1105 – 1106	2 × 1005 – 1006	R	DWord	Board serial number of group 2	
1107	2 × 1007	R	MixedBits	Interrupt mask of group 2	
				Serial line RX queue not empty	0
				Sending on serial line finished	1
				Receiving Modbus RTU frame finished	2
				Digital input changed state	3
1108	2 × 1008	RW	Word	MWD timeout of group 2	
1109	2 × 1009	R	Word	Vref of group 2	
1110	2 × 1010	RW	Word	Debounce time of DI2.1 [100µs]	
1111	2 × 1011	RW	Word	Debounce time of DI2.2 [100µs]	
1112	2 × 1012	RW	Word	Debounce time of DI2.3 [100µs]	
1113	2 × 1013	RW	Word	Debounce time of DI2.4 [100µs]	
1114	2 × 1014	RW	Word	Debounce time of DI2.5 [100µs]	
1115	2 × 1015	RW	Word	Debounce time of DI2.6 [100µs]	
1116	2 × 1016	RW	MixedBits	Enable Direct Switch function	
				Enable DS on DI2.1	0
				Enable DS on DI2.2	1

				Enable DS on DI2.3	2
				Enable DS on DI2.4	3
				Enable DS on DI2.5	4
1117	2 × 1017	RW	MixedBits	Enable DS polarity function	
				Enable DS polarity on DI2.1	0
				Enable DS polarity on DI2.2	1
				Enable DS polarity on DI2.3	2
				Enable DS polarity on DI2.4	3
				Enable DS polarity on DI2.5	4
1118	2 × 1018	RW	MixedBits	Enable DS toggle function	
				Enable DS toggle on DI2.1	0
				Enable DS toggle on DI2.2	1
				Enable DS toggle on DI2.3	2
				Enable DS toggle on DI2.4	3
				Enable DS toggle on DI2.5	4
1119	2 x 1019	RW	Word	Ai Mode 2.1	0 - 5
1120	2 x 1020	RW	Word	Ai Mode 2.2	0 - 5
1121	2 x 1021	RW	Word	Ai Mode 2.3	0 - 5
1122	2 x 1022	RW	Word	Ai Mode 2.4	0 - 5
1123	2 x 1023	RW	MixedBits	Configuration of RS485 serial line	
				Baud rate	0 – 12
				Parity enable	13
				Parity – 0=Even, 1=Odd	14
				Modbus RTU support enabled (interrupt)	15

Baud rate configuration

Value	Speed [bps]
11	2 400
12	4 800
13	9 600
14	19 200
15	38 400
4097	57 600
4098	115 200

Ai Mode configuration

Value	Type of measurement
0	Off
1	Voltage 0 – 10 V
2	Voltage 0 – 2.5 V
3	Current 0 – 20 mA
4	Resistance (three conductors) 0 – 1 960 Ω
5	Resistance (two conductors) 0 – 100 kΩ

Coils – group 1

Coil Number		R/W	Content
Unit 0	**Unit × Coil**		
0	1 × 0	RW	Digital Output 1.1
1	1 × 1	RW	Digital Output 1.2
2	1 × 2	RW	Digital Output 1.3
3	1 × 3	RW	Digital Output 1.4
4	1 × 4	R	Digital Input 1.1
5	1 × 5	R	Digital Input 1.2
6	1 × 6	R	Digital Input 1.3
7	1 × 7	R	Digital Input 1.4
8	1 × 8	RW	User programmable LED X1
9	1 × 9	RW	User programmable LED X2

10	1 × 10	RW	User programmable LED X3
11	1 × 11	RW	User programmable LED X4
1000	1 × 1000	RW	MWD reset indication/reset of group 1
1001	1 × 1001	RW	Disable 1-Wire bus
1002	1 × 1002	RW	Reset CPU of group 1
1003	1 × 1003	RW	Save current configuration as default to NV RAM of group 1
1016	1 × 1016	RW	Enable DS on DI 1.1
1017	1 × 1017	RW	Enable DS on DI 1.2
1018	1 × 1018	RW	Enable DS on DI 1.3
1019	1 × 1019	RW	Enable DS on DI 1.4
1020	1 × 1020	RW	Enable DS polarity on DI 1.1
1021	1 × 1021	RW	Enable DS polarity on DI 1.2
1022	1 × 1022	RW	Enable DS polarity on DI 1.3
1023	1 × 1023	RW	Enable DS polarity on DI 1.4
1024	1 × 1024	RW	Enable DS toggle on DI 1.1
1025	1 × 1025	RW	Enable DS toggle on DI 1.2
1026	1 × 1026	RW	Enable DS toggle on DI 1.3
1027	1 × 1027	RW	Enable DS toggle on DI 1.4

Coils – group 2

Coil Number		**R/W**	**Content**
Unit 0	**Unit × Coil**		
100	2 × 0	RW	Digital (Relay) output 2.1
101	2 × 1	RW	Digital (Relay) output 2.2
102	2 × 2	RW	Digital (Relay) output 2.3
103	2 × 3	RW	Digital (Relay) output 2.4
104	2 × 4	RW	Digital (Relay) output 2.5
105	2 × 5	R	Digital input 2.1
106	2 × 6	R	Digital input 2.2
107	2 × 7	R	Digital input 2.3
108	2 × 8	R	Digital input 2.4
109	2 × 9	R	Digital input 2.5
110	2 × 10	R	Digital input 2.6
1100	2 × 1000	RW	MWD reset indication/reset of group 2
1102	2 × 1002	RW	Reset CPU of group 2
1103	2 × 1003	RW	Save current configuration as default to NV RAM of group 2
1116	2 × 1016	RW	Enable DS on DI 2.1
1117	2 × 1017	RW	Enable DS on DI 2.2
1118	2 × 1018	RW	Enable DS on DI 2.3
1119	2 × 1019	RW	Enable DS on DI 2.4
1120	2 × 1020	RW	Enable DS on DI 2.5
1121	2 × 1021	RW	Enable DS polarity on DI 2.1
1122	2 × 1022	RW	Enable DS polarity on DI 2.2
1123	2 × 1023	RW	Enable DS polarity on DI 2.3
1124	2 × 1024	RW	Enable DS polarity on DI 2.4
1125	2 × 1025	RW	Enable DS polarity on DI 2.5
1126	2 × 1026	RW	Enable DS toggle on DI 2.1
1127	2 × 1027	RW	Enable DS toggle on DI 2.2
1128	2 × 1028	RW	Enable DS toggle on DI 2.3
1129	2 × 1029	RW	Enable DS toggle on DI 2.4
1130	2 × 1030	RW	Enable DS toggle on DI 2.5