

UniPi Neuron M10x

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 |
| 1015 | 1 × 1015 | RW | MixedBits | Enable DS on DI1.4 | 3 |
| | | | | Enable DS polarity function of group 1 | |
| | | | | Enable DS polarity on DI1.1 | 0 |
| | | | | Enable DS polarity on DI1.2 | 1 |
| 1016 | 1 × 1016 | RW | MixedBits | Enable DS polarity on DI1.3 | 2 |
| | | | | Enable DS polarity on DI1.4 | 3 |
| | | | | Enable DS toggle function of group 1 | |
| | | | | Enable DS toggle on DI1.1 | 0 |
| 1017 | 1 × 1017 | RW | MixedBits | Enable DS toggle on DI1.2 | 1 |
| | | | | Enable DS toggle on DI1.3 | 2 |
| | | | | Enable DS toggle on DI1.4 | 3 |
| | | | | | |
| 1018 | 1 × 1018 | RW | word | PWM prescale of group 1 | |
| 1019 | 1 × 1019 | RW | word | PWM cycle of group 1 | |
| 1020 | 1 × 1020 | RW | MixedBits | AO 1 settings of | |
| | | | | Enable current output | 0 |
| 1021 | 1 × 1021 | R | Word | AO 1 Voltage deviation | |
| 1022 | 1 × 1022 | R | Word | AO 1 Voltage offset | |
| 1023 | 1 × 1023 | R | Word | AO 1 Current deviation | |
| 1024 | 1 × 1024 | R | Word | AO 1 Current offset | |
| 1025 | 1 × 1025 | RW | MixedBits | AI 1 settings | |
| | | | | Enable current input | 0 |
| 1026 | 1 × 1026 | R | Word | AI 1 Voltage deviation | |
| 1027 | 1 × 1027 | R | Word | AI 1 Voltage offset | |
| 1028 | 1 × 1028 | R | Word | AI 1 Current deviation | |
| 1029 | 1 × 1029 | R | Word | AI 1 Current offset | |
| 1030 | 1 × 1030 | R | Word | AI 2 Voltage deviation (on AO1) | |
| 1031 | 1 × 1031 | R | Word | AI 2 Voltage offset (on AO1) | |
| 1032 | 1 × 1032 | 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 |

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 |
| | | | | Digital input 2.7 | 6 |
| | | | | Digital input 2.8 | 7 |
| 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 |
| | | | | Digital (Relay) output 2.6 | 5 |
| | | | | Digital (Relay) output 2.7 | 6 |
| | | | | Digital (Relay) output 2.8 | 7 |
| 102 | 2 × 2 | RW | MixedBits | MasterWatchDog (MWD) status of group 2 | |
| | | | | MWD enable | 0 |
| | | | | MWD reboot detected | 1 |
| 103 – 104 | 2 × 3 – 4 | RW | DWord | Counter of Digital input 2.1 | |
| 105 – 106 | 2 × 5 – 6 | RW | DWord | Counter of Digital input 2.2 | |
| 107 – 108 | 2 × 7 – 8 | RW | DWord | Counter of Digital input 2.3 | |
| 109 – 110 | 2 × 9 – 10 | RW | DWord | Counter of Digital input 2.4 | |
| 111 – 112 | 2 × 11 – 12 | RW | DWord | Counter of Digital input 2.5 | |
| 113 – 114 | 2 × 13 – 14 | RW | DWord | Counter of Digital input 2.6 | |
| 115 – 116 | 2 × 15 – 16 | RW | DWord | Counter of Digital input 2.7 | |
| 117 – 118 | 2 × 17 – 18 | RW | DWord | Counter of Digital input 2.8 | |
| 1100 | 2 × 1000 | R | | Firmware version of group 2 | |
| 1101 | 2 × 1001 | R | MixedBits | Number of DI/Dos of group 2 | |
| | | | | Number of Dos | 0 – 7 |
| | | | | Number of Dis | 8 – 15 |
| 1102 | 2 × 1002 | R | MixedBits | Number of AI/Ao/Serials of group 2 | |
| | | | | Number of serial lines | 0 – 3 |
| | | | | Number of AOs | 4 – 7 |
| | | | | Number of AIs | 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 | word | Debounce time of DI2.7 [100µs] | |
| 1117 | 2 × 1017 | RW | word | Debounce time of DI2.8 [100µs] | |
| 1118 | 2 × 1018 | 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 |
| | | | | Enable DS on DI2.6 | 5 |
| | | | | Enable DS on DI2.7 | 6 |
| | | | | Enable DS on DI2.8 | 7 |
| 1119 | 2 × 1019 | 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 |
| | | | | Enable DS polarity on DI2.6 | 5 |
| | | | | Enable DS polarity on DI2.7 | 6 |
| | | | | Enable DS polarity on DI2.8 | 7 |
| 1120 | 2 × 1020 | 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 |
| | | | | Enable DS toggle on DI2.6 | 5 |
| | | | | Enable DS toggle on DI2.7 | 6 |
| | | | | Enable DS toggle on DI2.8 | 7 |

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 | RW | Digital Input 1.1 |
| 5 | 1 × 5 | RW | Digital Input 1.2 |
| 6 | 1 × 6 | RW | Digital Input 1.3 |
| 7 | 1 × 7 | RW | 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 | RW | Digital (Relay) output 2.6 |
| 106 | 2 × 6 | RW | Digital (Relay) output 2.7 |
| 107 | 2 × 7 | RW | Digital (Relay) output 2.8 |
| 108 | 2 × 8 | RW | Digital input 2.1 |
| 109 | 2 × 9 | RW | Digital input 2.2 |
| 110 | 2 × 10 | RW | Digital input 2.3 |
| 111 | 2 × 11 | RW | Digital input 2.4 |
| 112 | 2 × 12 | RW | Digital input 2.5 |
| 113 | 2 × 13 | RW | Digital input 2.6 |
| 114 | 2 × 14 | RW | Digital input 2.7 |
| 115 | 2 × 15 | RW | Digital input 2.8 |
| 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 on DI 2.6 |
| 1122 | 2 × 1022 | RW | Enable DS on DI 2.7 |
| 1123 | 2 × 1023 | RW | Enable DS on DI 2.8 |
| 1124 | 2 × 1024 | RW | Enable DS polarity on DI 2.1 |
| 1125 | 2 × 1025 | RW | Enable DS polarity on DI 2.2 |
| 1126 | 2 × 1026 | RW | Enable DS polarity on DI 2.3 |
| 1127 | 2 × 1027 | RW | Enable DS polarity on DI 2.4 |
| 1128 | 2 × 1028 | RW | Enable DS polarity on DI 2.5 |
| 1129 | 2 × 1029 | RW | Enable DS polarity on DI 2.6 |
| 1130 | 2 × 1030 | RW | Enable DS polarity on DI 2.7 |
| 1131 | 2 × 1031 | RW | Enable DS polarity on DI 2.8 |
| 1132 | 2 × 1032 | RW | Enable DS toggle on DI 2.1 |

| | | | |
|-------------|----------|----|----------------------------|
| 1133 | 2 × 1033 | RW | Enable DS toggle on DI 2.2 |
| 1134 | 2 × 1034 | RW | Enable DS toggle on DI 2.3 |
| 1135 | 2 × 1035 | RW | Enable DS toggle on DI 2.4 |
| 1136 | 2 × 1036 | RW | Enable DS toggle on DI 2.5 |
| 1137 | 2 × 1037 | RW | Enable DS toggle on DI 2.6 |
| 1138 | 2 × 1038 | RW | Enable DS toggle on DI 2.7 |
| 1139 | 2 × 1039 | RW | Enable DS toggle on DI 2.8 |