Extension xS51
Holding registers

v1.2

Register Address		Length	R/W	Data Type	Content	Bit Nr.	Category
DEC	HEX						
0	0x0000	1	R	MixedBits	Digital Inputs		Basic
					Digital Input 1	0	
					Digital Input 2	1	
					Digital Input 3	2	
					Digital Input 4	3	
1	0x0001	1	RW	MixedBits	Relay Outputs		Basic
					Relay Output 1	0	
					Relay Output 2	1	
					Relay Output 3	2	
					Relay Output 4	3	
					Relay Output 5	4	
2	0x0002	1	RW	uint16 / uint	Analog Output 1 (0..4000 ~ 0..10V)		Basic
3	0x0003	1	RW	uint16 / uint	Analog Output 2 (0..4000 ~ 0..10V)		Basic
4	0x0004	1	RW	uint16 / uint	Analog Output 3 (0..4000 ~ 0..10V)		Basic
5	0x0005	1	RW	uint16 / uint	Analog Output 4 (0..4000 ~ 0..10V)		Basic
6	0x0006	2	R	float32 / real	Analog Input 1		Basic
8	0x0008	2	R	float32 / real	Analog Input 2		Basic
10	0x000A	2	R	float32 / real	Analog Input 3		Basic
12	0x000C	2	R	float32 / real	Analog Input 4		Basic
14	0x000E	1	RW	MixedBits	Group MasterWatchDog (MWD) Status		Advanced
					MWD Enable	0	
					MWD Reboot Detected	1	
15	0x000F	2	RW	uint32 / udint	Counter of Digital Input 1		Basic
17	0x0011	2	RW	uint32 / udint	Counter of Digital Input 2		Basic
19	0x0013	2	RW	uint32 / udint	Counter of Digital Input 3		Basic
21	0x0015	2	RW	uint32 / udint	Counter of Digital Input 4		Basic
23	0x0017	1		MixedBits	Reserved - Do Not Use		Expert
24	0x0018	1		MixedBits	Reserved - Do Not Use		Expert
25	0x0019	1		MixedBits	Reserved - Do Not Use		Expert
26	0x001A	1		MixedBits	Reserved - Do Not Use		Expert
27	0x001B	1	RW	MixedBits	User-programmable LED states		Basic
					User LED 1	0	
					User LED 2	1	
					User LED 3	2	
28	0x001C	1	RW	MixedBits	Synchronised Relay Outputs		Advanced
					Synchronised RO 1	0	
					Synchronised RO 2	1	
					Synchronised RO 3	2	
					Synchronised RO 4	3	
					Synchronised RO 5	4	
29	0x001D	1	RW	MixedBits	Synchronised Relay Output Locks		Advanced
					Synchronised RO Lock 1	0	
					Synchronised RO Lock 2	1	
					Synchronised RO Lock 3	2	
					Synchronised RO Lock 4	3	
					Synchronised RO Lock 5	4	
1000	0x03E8	1	R	uint16 / uint	Firmware Version		Expert

1001	0x03E9	1	R	MixedBits	Number of I/Os		Advanced
					Number of DOs	0 - 7	
					Number of DIs	8 - 15	
1002	0x03EA	1	R	MixedBits	Number of peripherals		Advanced
					Number of internal RS485 lines	0 - 3	
					Number of AOs	4 - 7	
					Number of AIs	8 - 15	
1003	0x03EB	1	R	uint16 / uint	Firmware ID		Expert
1004	0x03EC	1	R	uint16 / uint	Hardware ID		Expert
1005	0x03ED	2	R	uint32 / udint	PCB Serial Number		Expert
1007	0x03EF	1		MixedBits	Reserved - Do Not Use		Expert
1008	0x03F0	1	RW	uint16 / uint	MasterWatchDog (MWD) Timeout (in 1ms)		Advanced
1009	0x03F1	1	R	uint16 / uint	VRef of MCU		Expert
1010	0x03F2	1	RW	uint16 / uint	Debounce time (in 100us) for DI 1		Advanced
1011	0x03F3	1	RW	uint16 / uint	Debounce time (in 100us) for DI 2		Advanced
1012	0x03F4	1	RW	uint16 / uint	Debounce time (in 100us) for DI 3		Advanced
1013	0x03F5	1	RW	uint16 / uint	Debounce time (in 100us) for DI 4		Advanced
1014	0x03F6	1	RW	MixedBits	Enable DirectSwitch functionality		Basic
					Enable DirectSwitch on DI 1	0	
					Enable DirectSwitch on DI 2	1	
					Enable DirectSwitch on DI 3	2	
					Enable DirectSwitch on DI 4	3	
1015	0x03F7	1	RW	MixedBits	Invert DirectSwitch Polarity		Basic
					Invert DirectSwitch Polarity on DI 1	0	
					Invert DirectSwitch Polarity on DI 2	1	
					Invert DirectSwitch Polarity on DI 3	2	
					Invert DirectSwitch Polarity on DI 4	3	
1016	0x03F8	1	RW	MixedBits	Enabled DirectSwitch Toggle		Basic
					Enable DirectSwitch Toggle on DI 1	0	
					Enable DirectSwitch Toggle on DI 2	1	
					Enable DirectSwitch Toggle on DI 3	2	
					Enable DirectSwitch Toggle on DI 4	3	
1017	0x03F9	1		MixedBits	Reserved - Do Not Use		Expert
1018	0x03FA	1		MixedBits	Reserved - Do Not Use		Expert
1019	0x03FB	1	RW	uint16 / uint	Configuration(U/I/R) of Analog Input 1		Basic
1020	0x03FC	1	RW	uint16 / uint	Configuration(U/I/R) of Analog Input 2		Basic
1021	0x03FD	1	RW	uint16 / uint	Configuration(U/I/R) of Analog Input 3		Basic
1022	0x03FE	1	RW	uint16 / uint	Configuration(U/I/R) of Analog Input 4		Basic
1023	0x03FF	1	RW	MixedBits	RS485 Configuration - see **Description** sheet		Basic
					Baud rate	0 - 12	
					Parity enable	13	
					Parity-0=Even, 1=Odd	14	
1024	0x0400	1	RW	uint16 / uint	Modbus Address Configuration (1-254)		Basic

Extension xS51
Coils

v1.2

Register Address		R/W	Content	Category
DEC	HEX			
0	0x0000	RW	Relay Output 1	Basic
1	0x0001	RW	Relay Output 2	Basic
2	0x0002	RW	Relay Output 3	Basic
3	0x0003	RW	Relay Output 4	Basic
4	0x0004	RW	Relay Output 5	Basic
5	0x0005	R	Digital Input 1	Basic
6	0x0006	R	Digital Input 2	Basic
7	0x0007	R	Digital Input 3	Basic
8	0x0008	R	Digital Input 4	Basic
9	0x0009	RW	User Programmable LED 1	Basic
10	0x000A	RW	User Programmable LED 2	Basic
11	0x000B	RW	User Programmable LED 3	Basic
1000	0x03E8	RW	MWD reset indication	Advanced
1001	0x03E9		Reserved - Do Not Use	Reserved
1002	0x03EA	RW	Reset group MCU	Advanced
1003	0x03EB	RW	Save current configuration and use on startup	Advanced
1004	0x03EC		Reserved - Do Not Use	Reserved
1005	0x03ED		Reserved - Do Not Use	Reserved
1006	0x03EE		Reserved - Do Not Use	Reserved
1007	0x03EF	RW	Enable DirectSwitch on DI 1	Advanced
1008	0x03F0	RW	Enable DirectSwitch on DI 2	Advanced
1009	0x03F1	RW	Enable DirectSwitch on DI 3	Advanced
1010	0x03F2	RW	Enable DirectSwitch on DI 4	Advanced
1011	0x03F3	RW	Invert DirectSwitch Polarity on DI 1	Advanced
1012	0x03F4	RW	Invert DirectSwitch Polarity on DI 2	Advanced
1013	0x03F5	RW	Invert DirectSwitch Polarity on DI 3	Advanced
1014	0x03F6	RW	Invert DirectSwitch Polarity on DI 4	Advanced
1015	0x03F7	RW	Enable DirectSwitch Toggle Mode on DI 1	Advanced
1016	0x03F8	RW	Enable DirectSwitch Toggle Mode on DI 2	Advanced
1017	0x03F9	RW	Enable DirectSwitch Toggle Mode on DI 3	Advanced
1018	0x03FA	RW	Enable DirectSwitch Toggle Mode on DI 4	Advanced

Extension xS51
Description

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Check out the Unipi Knowledge base for more information

Firmware (re)programming tool - [fwserial]
Debian packages: [unipi-firmware-tools], [unipi-firmware6]

Configuration (U/I/R) of Analog Inputs	
Value	**Type of measurement**
0	OFF
1	Voltage 0 – 10 V
2	Voltage 0 – 2.5 V
3	Current 0 – 20 mA
4	Resistance 0 – 1 960 Ω
5	Resistance 0 – 100 kΩ

Byte/register order	
Word	**Endianness**
16-bit	Big Endian (AB)
32-bit	Mid-Little Endian (CDAB)

Baud rate configuration	
Value	**Speed [bps]**
11	2400
12	4800
13	9600
14	19200
15	38400
4097	57600
4098	115200

Default configuration/values			
	Data	**Value**	**Description**
DI	Counter	0	-
	Debounce	50	5 ms
	Direct Switch	0	OFF
AI	Configuration	1	Voltage 0 – 10 V
RO	State	0	OFF
AO	State	0	0 V
MWD	Timeout	5000	5 s
	Enable	0	OFF
RS485	Modbus address	15	-
	Configuration	14	19200 bps, 8N1