

## ULS SERIES ULTRASONIC LEVEL SENSORS

### MODBUS PROTOCOL ADDRESS TABLE

#### COIL ADDRESS TABLE

Coil Address (hex)	Parameter Name	Parameter Description	Count of Bit	Value	Read/Write
0x00	RESET_VALLEY	Resetting the minimum value read since the device is started	1 bit	Default value=0 0=inactive 1=Active	Read/Write
0x01	RESET_PEAK	Resetting the maximum value read since the device is started			
0x02	RESET_PEAK_VALLEY	Resetting the minimum and maximum value read since the device is started			
0x03	TARE_APPLY	Activating the Tare function			
0x04	PLAY_BUZZER_100MS	Buzzer's beeping			
0x05	OUT1_SET	1. Open Drain Out = High			
0x06	OUT1_CLEAR	1. Open Drain Out = Low			
0x07	OUT2_SET	2. Open Drain Out = High			
0x08	OUT2_CLEAR	2. Open Drain Out = Low			

In order for the Open Drain outputs to be controlled by the coil parameters, the corresponding output function type (mode) must be OFF.

#### HOLDING REGISTER ADDRESS TABLE

Holding Register Address (hex)	Parameter Name	Parameter Description	Count of Bit	Default Value	Read/Write	
0x00	DECIMAL_POINTS	Decimal point location on the screen display (0=A, 1=A.A, 2=A.AA, 3=A.AAA, 4=A.AAAA)	16 bit (word)	1	Read/Write	
Relay 1 Output	0x01	SET1A_HIGH	Set-1A value [MSB]	16 bit (H word)	0	Read/Write
	0x02	SET1A_LOW	Set-1A value [LSB]	16 bit (L word)	250	
	0x03	SET1B_HIGH	Set-1B value [MSB]	16 bit (H word)	0	
	0x04	SET1B_LOW	Set-1B value [LSB]	16 bit (L word)	350	
	0x05	MODE1	Function Type (0=OFF, 1=Stand, 2=Band, 3=Catch, 4=Dual, 5=Periodic)	16 bit (word)	1	
	0x06	DELAY1_HIGH	Delay time (seconds) [MSB]	16 bit (H word)	0	
	0x07	DELAY1_LOW	Delay time (saniye) [LSB]	16 bit (L word)	0	
	0x08	HYSUP1_HIGH	Upper hysteresis value [MSB]	16 bit (H word)	0	
	0x09	HYSUP1_LOW	Upper hysteresis value [LSB]	16 bit (L word)	0	
	0x0A	HYSDOWN1_HIGH	Lower hysteresis value [MSB]	16 bit (H word)	0	
	0x0B	HYSDOWN1_LOW	Lower hysteresis value [LSB]	16 bit (L word)	0	
	0x0C	OFFSET1_HIGH	Offset value [MSB]	16 bit (H word)	0	
	0x0D	OFFSET1_LOW	Offset value [LSB]	16 bit (L word)	0	
	0x0E	CONDITION_MODE1	Normally state of Open Drain Out (0=N.C.=Kapalı 1=N.O.=Açık)	16 bit (word)	0	

## HOLDING REGISTER ADDRESS TABLE

Holding Register Address (hex)	Parameter Name	Parameter Description	Count of Bit	Default Value	Read/Write	
<b>Relay 2 Output</b>	0x0F	SET2A_HIGH	Set-2A value [MSB]	16 bit (H word)	0	Read/Write
	0x10	SET2A_LOW	Set-2A value [LSB]	16 bit (L word)	350	
	0x11	SET2B_HIGH	Set-2B value [MSB]	16 bit (H word)	0	
	0x12	SET2B_LOW	Set-2B value [LSB]	16 bit (L word)	500	
	0x13	MODE2	Function type (0=OFF, 1=Stand, 2=Band, 3=Catch, 4=Dual, 5=Periodic)	16 bit (word)	1	
	0x14	DELAY2_HIGH	Delay time (seconds) [MSB]	16 bit (H word)	0	
	0x15	DELAY2_LOW	Delay time (seconds) [LSB]	16 bit (L word)	0	
	0x16	HYSUP2_HIGH	Upper hysteresis value [MSB]	16 bit (H word)	0	
	0x17	HYSUP2_LOW	Upper hysteresis value [LSB]	16 bit (L word)	0	
	0x18	HYSDOWN2_HIGH	Lower hysteresis value [MSB]	16 bit (H word)	0	
	0x19	HYSDOWN2_LOW	Lower hysteresis value [LSB]	16 bit (L word)	0	
	0x1A	OFFSET2_HIGH	Offset value [MSB]	16 bit (H word)	0	
	0x1B	OFFSET2_LOW	Offset value [LSB]	16 bit (L word)	0	
	0x1C	CONDITION_MODE2	Normally state of Open Drain Out (0=N.C.=Off 1=N.O.=On)	16 bit (word)	0	
<p>*MSB (Most Significant Bit) or H word (HIGH): Represents the 16 bits which are significant for a 32-bit number.</p> <p>*LSB (Least Significant Bit) or L word (LOW): refers to the 16 bits which are small for a 32-bit number.</p> <p>* For values to be entered with H word and L word, the function code Write Multiple Register (0x10) must be used and both values must be entered at any time. The decimal point value for these values is always 3.</p> <p>* For example to set the value of SET1A to 66.5, SET1A_HIGH =1000 (1.000d), SET1A_LOW = 964 (0.965d).</p>						
<b>ANALOG OUTPUT</b>	0x3E	ANALOG_OUTPUT	1 = Analog output directly reflects the value coming from the sensor. 0 = Analog output, manually specified in percentage.	16 bit (word)	1	Read/Write
	0x3F	ANALOG_OUTPUT_SET	Specify analogue output as a manual percentage. Decimal points are always 2. For example; This value is 6500 (65.00d) since the analog output for 0-10 V is 65%.		0	

## HOLDING REGISTER ADRES TABLOSU

Holding Register Adresi (hex)	Parametre Adı	Parametre Açıklaması	Bit Sayısı	Varsayılan Değer	Read/Write
RS-232 ve RS-485	0x40	UART_PROTOCOL	16 bit (word)	1	Read/Write
	0x41	UART_ADDRESS		1	
	0x42	UART_BAUD		4	
	0x43	UART_PARITY		0	
	0x44	UART_PERIOD		100	

\*MSB(Most Significant Bit) veya H word(HIGH): 32 bitlik bir sayı için büyük olan 16 biti ifade eder.

\*LSB(Least Significant Bit) veya L word(LOW): 32 bitlik bir sayı için küçük olan 16 biti ifade eder.

\*H word ve L word ile girilecek değerler için Write Multiple Register(0x10) fonksiyon kodu kullanılıp, her iki değer de her zaman girilmelidir. Bu değerler için decimal points değeri her zaman 3'tür.

\*Örneğin SET1A değerini 25.5 yapmak için SET1A\_HIGH=0 (0d), SET1A\_LOW=25500 (25.500d) olmalıdır.

\*\*Analog\_Output1\_Set parametresiyle ayarlanan analog çıkışı yalnızca Analog\_Output1=0 olduğunda çalışır. Analog\_Output1=1 iken analog çıkış cihaz kontrolünde değildir, sensörden gelen değer direkt olarak aktarılır.

## INPUT REGISTER ADRES TABLOSU

Input Register Adresi (hex)	Parametre Adı	Parametre Açıklaması	Bit Sayısı	Varsayılan Değeri	Read/Write
0x01	DECIMAL_POINTS	Ondalık hane noktasının ekrandaki gösterimde yeri (0=A, 1=A.A, 2=A.AA, 3=A.AAA 4=A.AAAA)	16 bit (word)	1	Read-only
0x02	PROCESS_VALUE	Cihaz ekranında gösterilen anlık değer		-	
0x03	VALLEY_VALUE	Cihaz açıldığından beri okunan en yüksek değer		-	
0x04	PEAK_VALUE	Cihaz açıldığından beri okunan en düşük değer		-	
0x05	DIGITAL_IOS	Harici Tare Modülünün durumu (4.bit), 1. ve 2. Rölelerin durumu (0. ve 1. bit) [00000=Hepsi İnaktif, 10011=Hepsi Aktif]	16 bit (word)	00000	Read-only
0x06	TARE_STATUS	Process Value değerinin o anda tare'li mi tare'siz mi olduğunu gösterir. 0=Tare'siz, 1=Tare'li		0	

### Function Code Definitons

Read Coil	0x01
Read Holding Register	0x03
Read Input Register	0x04
Write Single Coil	0x05
Write Single Register	0x06
Write Multiple Coils	0x0f
Write Multiple Register	0x10



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