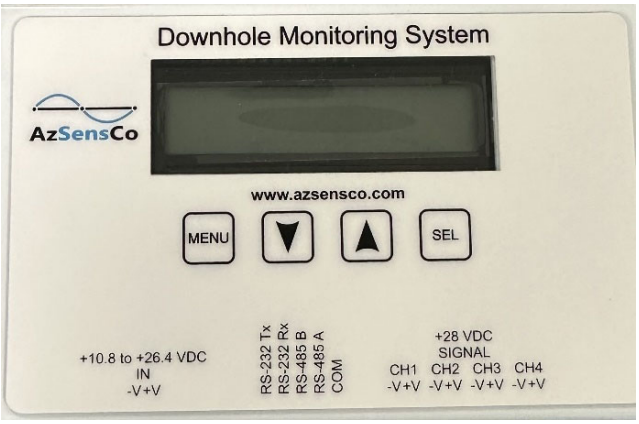
4 Channel Surface Readout With Optical Isolation Filter (IPC-2221)

ASR240I



The ASR240I is the surface readout unit for the APS400/APS420 series transducers. It has a built-in optical isolation filter per IPC-2221.

The SRU has a 16-digit LED display with built-in Modbus support. The SRU acts as a RTU slave. There are two Modbus connections available, two wire RS-485 and RS-232. Only one connection can be used at a time. Both connections are optically isolated to prevent ground-based noise and provide electrical protection.

The menu that is accessible from the front panel has options for one or up to four transducers with up to 2 pressures per transducer plus an optional accelerometer. There are several Modbus speeds and different data integration options.

Specifications

Power Required	12-24VDC
Display Type	16 Digit Alphanumeric LED
Communication Protocol	Modbus RTU Slave
Modbus RS-485 (Isolated)	3 Wire Standard
Modbus RS-232 (Isolated)	3 Wire, No Handshake Required
Operating Temperature	-18°C to 85°C
Dimensions	5.25" x 4.25" x 1.25"
Weight	1.0 Lbs.

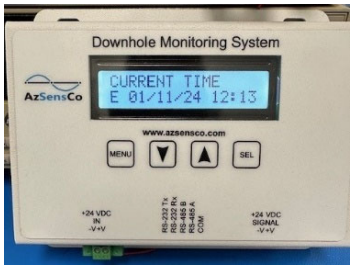
+28V Power Isolator: 3kV
+5V COM Port Power Isolator: 1.6kV
+-5V Power Isolator: 1kV
COM and Downhole IO Isolator: 2.5kV
Downhole Signal Isolator: 5.3kV

Ordering Guide

ASR240I	ASR240I
DIN Rail Mount	ASR240I-DIN

SRU Menus

Menu: ASR200/240



Overview Menu

On power up,the SRU will enter the overview mode and cycle between the time/ date and the temperature/ pressure readings. If the accelerometer is present, those readings will be displayed.

Press Menu Button 2x
For Settings Menu

↓

Settings Menu

Press Select Button to step through menu Items. See menu tables below for SRU models. To change a parameter, press the up or down arrow keys. To save the change, press the menu button.

Press Menu Button for
Save Menu

↓

Save Menu

Press Select Button for
Save to Flash Menu

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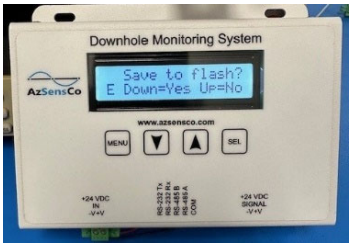

Press the DOWN Arrow key to save the changes or the UP Arrow key to discard the changes. The menu will return to the Overview Menu and will cycle through the readings.

Modbus Registers

Modbus Reg	Surface Readout Menus	DH Channel	Units	Options									
0	Temperature 1	0	F										
1	Pressure 1	0	PSIA										
2	Temperature 2	0	F										
3	Pressure 2	0	PSIA										
4	Downhole Current	0	x10 mA										
5	System Voltage		x10 V										
6	Total Packets												
7	Bad Packets												
8	Sensor Channels	0		2	4								
9	Integration Time	0	s	1	2	3	4	5	6	7	8	9	10
10	Modbus Baudrate		BAUD	0	1	2	3						
11	Modbus ID												
12	Com Type			1	2								
13	Pressure Range	0	PSIA	0	1	2	3	4					
14	Clock Year												
15	Clock Month												
16	Clock Day												
17	Clock Hour												
18	Clock Minute												
19	Clock Second												
20	UTC Offset												
21	SRU Serial Number												
22	HW Major Revision												
23	HW Minor Revision												
24	SW Major Revision												
25	SW Minor Revision												
26	DH Serial Number	0											
27	DH HW Major Revision	0											
28	DH HW Minor Revision	0											
29	DH SW Major Revision	0											
30	DH SW Minor Revision	0											
31	SRU Error Code												
32	DH Error Code	0											
33	Password												
34	Accel-X	0	G										
35	Accel-Y	0	G										
36	Accel-Z	0	G										
37	DH Gen	0											
38	SD Logging												
39	SD Features												
40	Temperature 1	1	F										
41	Pressure 1	1	PSIA										
42	Temperature 2	1	F										
43	Pressure 2	1	PSIA										
44	Downhole Current	1	x10 mA										
45	Sensor Channels	1		2	4								
46	Integration Time	1	s	1	2	3	4	5	6	7	8	9	10
47	Pressure Range	1	PSIA	0	1	2	3	4					

Modbus Registers

48	DH Serial Number	1											
49	DH HW Major Revision	1											
50	DH HW Minor Revision	1											
51	DH SW Major Revision	1											
52	DH SW Minor Revision	1											
53	DH Error Code	1											
54	Accel-X	1	G										
55	Accel-Y	1	G										
56	Accel-Z	1	G										
57	DH Gen	1											
58	Temperature 1	2	F										
59	Pressure 1	2	PSIA										
60	Temperature 2	2	F										
61	Pressure 2	2	PSIA										
62	Downhole Current	2	x10 mA										
63	Sensor Channels	2		2	4								
64	Integration Time	2	s	1	2	3	4	5	6	7	8	9	10
65	Pressure Range	2	PSIA	0	1	2	3	4					
66	DH Serial Number	2											
67	DH HW Major Revision	2											
68	DH HW Minor Revision	2											
69	DH SW Major Revision	2											
70	DH SW Minor Revision	2											
71	DH Error Code	2											
72	Accel-X	2	G										
73	Accel-Y	2	G										
74	Accel-Z	2	G										
75	DH Gen	2											
76	Temperature 1	3	F										
77	Pressure 1	3	PSIA										
78	Temperature 2	3	F										
79	Pressure 2	3	PSIA										
80	Downhole Current	3	x10 mA										
81	Sensor Channels	3		2	4								
82	Integration Time	3	s	1	2	3	4	5	6	7	8	9	10
83	Pressure Range	3	PSIA	0	1	2	3	4					
84	DH Serial Number	3											
85	DH HW Major Revision	3											
86	DH HW Minor Revision	3											
87	DH SW Major Revision	3											
88	DH SW Minor Revision	3											
89	DH Error Code	3											
90	Accel-X	3	G										
91	Accel-Y	3	G										
92	Accel-Z	3	G										
93	DH Gen	2											

Error Codes

Hex Code	Decimal Code	Error Name	Error Description	Threshold	Units
0x00	0	No Error	No error is present, system is operating normally		
0x01	1	High Temp 1	Temperature is higher than the maximum		C
0x02	2	Low Temp 1	Temperature is lower than the minimum		C
0x03	3	High Pressure 1	Pressure is higher than the maximum		PSIA
0x04	4	Low Pressure 1	Pressure is lower than the minimum		PSIA
0x06	6	Downhole Short 1	Downhole current is higher than the maximum		30mA
0x07	7	High Voltage	Input voltage is higher than the maximum	26	V
0x08	8	Low Voltage	Input voltage is lower than the minimum	21.6	V
0x09	9	RTC Failure	RTC failed to initialize, or operate correctly		
0x0A	10	FLASH Erase Failure	System has failed to erase flash		
0x0B	11	FLASH Write Failure	System has failed to write to flash		
0x0C	12	Not Implemented			
0x0D	13	Not Implemented			
0x0E	14	Not Implemented			
0x0F	15	Not Implemented			
0x10	16	MODBUS: Address	Wrong modbus address		
0x11	17	MODBUS: Read Memory Address	Invalid modbus memory read address		
0x12	18	MODBUS: Read Register Quantity	Invalid modbus register read quantity		
0x13	19	MODBUS: Write Memory Address	Invalid modbus memory write address		
0x14	20	MODBUS: Write Register Quantity	Invalid modbus register write quantity		
0x15	21	MODBUS: CRC Read Error	Invalid modbus CRC read calculation		
0x16	22	MODBUS: CRC Write Error	Invalid modbus CRC write calculation		
0x17	23	MODBUS: Function Code	Invalid modbus function code		
0x18	24	ADC Failure	ADC Failed to function		
0x19	25	SD Failure	SD card had an unrecoverable failure		
0x1A	26	High Temp 2	Temperature is higher than the maximum		C
0x1B	27	Low Temp 2	Temperature is lower than the minimum		C
0x1C	28	High Pressure 2	Pressure is higher than the maximum		PSIA
0x1D	29	Low Pressure 2	Pressure is lower than the minimum		PSIA
0x1E	30	Downhole Short 2	Downhole current is higher than the maximum		30mA
0x1F	31	High Temp 3	Temperature is higher than the maximum		C
0x20	32	Low Temp 3	Temperature is lower than the minimum		C
0x21	33	High Pressure 3	Pressure is higher than the maximum		PSIA
0x22	34	Low Pressure 3	Pressure is lower than the minimum		PSIA
0x23	35	Downhole Short 3	Downhole current is higher than the maximum		30mA
0x24	36	High Temp 4	Temperature is higher than the maximum		C
0x25	37	Low Temp 4	Temperature is lower than the minimum		C
0x26	38	High Pressure 4	Pressure is higher than the maximum		PSIA
0x27	39	Low Pressure 4	Pressure is lower than the minimum		PSIA
0x28	40	Downhole Short 4	Downhole current is higher than the maximum		30mA