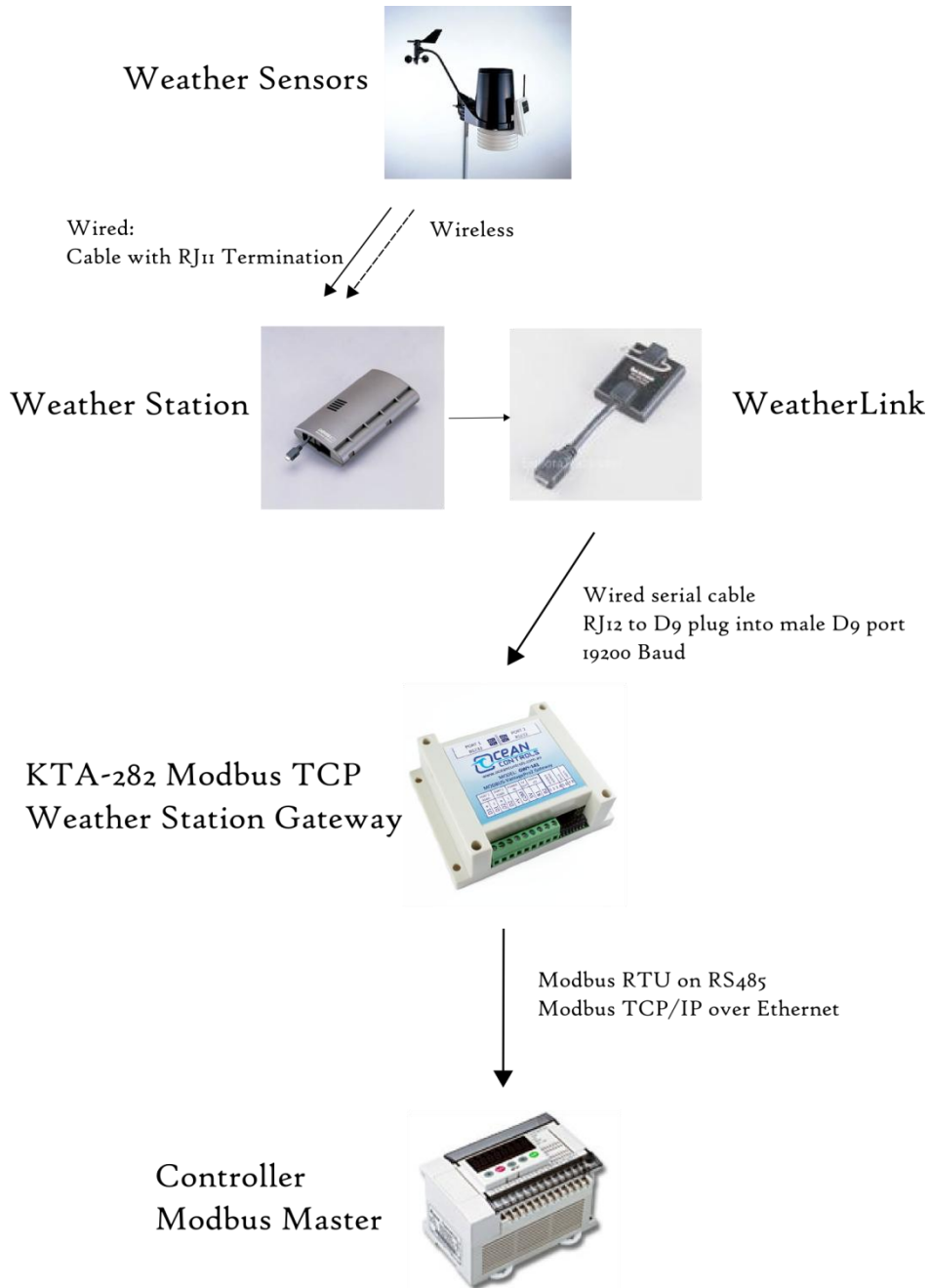


For more detailed instruction, see the KTA-282 user manual. This document is a condensed version; intended as a reference.

Weather Station Setup



Configuring the KTA-282

Connection	Description
V +	Power Positive (8 to 28V DC)
GND	Power Negative (Ground)
D +	RS485 Data +
D -	RS485 Data -
GND	Ground
Male D9	Serial communications (RS232) between KTA-282 and Weather station via WeatherLink cable
RJ45 Socket	Ethernet Port

LED	Function
Red Tx LED (next to RS485 terminal)	Indicates serial communications received on RS485
Green Rx LED (next to RS485 terminal)	Indicates serial communications sent (Modbus RTU) on RS485
Green Rx LED next to D9 connector	Indicates serial communications received (from weather station) on the serial port
Red Tx LED next to D9 connector	Indicates serial communications sent on the serial port
Green LED (right side) on RJ45 socket	Link LED. Always on to indicate good status for Ethernet, flashes to indicate activity.
Yellow LED (left side) on RJ45 socket	FDX LED. On = Full duplex Ethernet Off = Half duplex Ethernet
Green Rx LED next to RJ45 socket	Flashes when packets are received on the Ethernet port.
Red Tx LED next to RJ45 socket	Flashes when packets are sent on the Ethernet port.

Modbus RTU

Modbus RTU Address	Switch 1	Switch 2	Switch 3	Switch 4
1	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF
3	OFF	ON	OFF	OFF
4	ON	ON	OFF	OFF
5	OFF	OFF	ON	OFF
6	ON	OFF	ON	OFF
7	OFF	ON	ON	OFF
8	ON	ON	ON	OFF
9	OFF	OFF	OFF	ON
10	ON	OFF	OFF	ON
11	OFF	ON	OFF	ON
12	ON	ON	OFF	ON
13	OFF	OFF	ON	ON
14	ON	OFF	ON	ON
15	OFF	ON	ON	ON
16	ON	ON	ON	ON

Baud Rate	Switch 5	Switch 6
2400	OFF	OFF
4800	ON	OFF
9600	OFF	ON
19200	ON	ON

Parity	Switch 7	Switch 8
None	OFF	OFF
Even	ON	OFF
Odd	OFF	ON
Bootloader ¹	ON	ON

Notes:

1. The bootloader is an advanced function that allows firmware updates to be deployed in the field.

Modbus TCP/IP

Default Values

IP Address: 192.168.1.100

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

Power Up Configuration		Switch 1
OFF	TCP/IP settings from switches on boot	
ON	TCP/IP settings from internal persistent memory on boot	

Reset to Default		Switch 2
OFF	No action	
ON	TCP/IP settings reset to default	

TCP/IP Base Settings	Switch 3	Switch 4
IP Address: 192.168.1.x Subnet Mask: 255.255.255.0 Default Gateway: 192.168.1.1	OFF	OFF
IP Address: 10.0.0.x Subnet Mask: 255.0.0.0 Default Gateway: 10.0.0.1	OFF	ON
IP Address: 10.1.1.x Subnet Mask: 255.255.0.0 Default Gateway: 10.1.1.1	ON	OFF
IP Address: 172.16.0.x Subnet Mask: 255.240.0.0 Default Gateway: 172.16.0.1	ON	ON

Last Octet (IP Address)	Switch 5	Switch 6	Switch 7	Switch 8
100	OFF	OFF	OFF	OFF
101	ON	OFF	OFF	OFF
102	OFF	ON	OFF	OFF
103	ON	ON	OFF	OFF
104	OFF	OFF	ON	OFF
105	ON	OFF	ON	OFF
106	OFF	ON	ON	OFF
107	ON	ON	ON	OFF
108	OFF	OFF	OFF	ON
109	ON	OFF	OFF	ON
110	OFF	ON	OFF	ON
111	ON	ON	OFF	ON
112	OFF	OFF	ON	ON
113	ON	OFF	ON	ON
114	OFF	ON	ON	ON
115	ON	ON	ON	ON

Configuration Using Webpage

Point your browser to the IP address of the gateway to serve out the configuration page.

Configuration Using Modbus (RTU or TCP/IP)

The KTA-282 has 13 Modbus holding registers reserved for configuration. These settings can be read and written using **either** serial Modbus (RTU on RS485) or Modbus TCP/IP.

Modbus Register	Function
80	1 st octet IP Address
81	2 nd octet IP Address
82	3 rd octet IP Address
83	4 th octet IP Address
84	1 st octet Subnet Mask
85	2 nd octet Subnet Mask
86	3 rd octet Subnet Mask
87	4 th octet Subnet Mask
88	1 st octet Default Gateway
89	2 nd octet Default Gateway
90	3 rd octet Default Gateway
91	4 th octet Default Gateway
92	Commit to Gateway (write a 1)

Modbus Holding Register Listing

Holding Register Address	No. of Registers	Description	Multiplier	Units
40,000+				
1	1	Indicates the current 3-hour barometer trend.		
2	1	Packet Type , always 0		
3	1	Location in the archive memory where the next data packet will be written. This can be monitored to detect when a new record is created.		
4	1	Barometer	0.001	inHg
5	1	Inside Temperature	0.1	°F
6	1	Inside Humidity	1	%
7	1	Outside Temperature	0.1	°F
8	1	Wind Speed	1	mph
9	1	10Min Average Wind Speed	1	mph
10	1	Wind Direction	1	degrees
11	4	7 Extra Temperatures	1	°F
15	2	4 Soil Temperatures	1	°F
17	2	4 Leaf Temperatures	1	°F
19	1	Outside Humidity	1	%
20	4	7 Extra Humidities	1	%
24	1	Rain Rate	0.01	Inches/hour
25	1	UV Index	1	
26	1	Solar Radiation	1	W/m ²
27	1	Storm Rain	0.01	Inches
28	1	Current Date Of Storm Rain	1	
29	1	Day Rain	0.01	inches
30	1	Month Rain	0.01	inches
31	1	Year Rain	0.01	inches
32	1	Day ET	0.001	inches
33	1	Month ET	0.01	inches
34	1	Year ET	0.01	inches
35	2	4 Soil Moistures	1	centibar
37	2	4 Leaf Wetnesses, 0 to 15, 0 = Very Dry, 15 = Very Wet	1	
39	1	Inside Alarms	1	

40	1	Rain Alarms	1	
41	1	Outside Alarms	1	
42	4	Extra Temp Hum alarms	1	
46	2	Soil and Leaf Alarms	1	
48	1	Transmitter Battery Status	1	
49	1	Console Battery Voltage	1	Volts
50	1	Forecast Icons	1	
51	1	Forecast Rule Number	1	
52	1	Time of Sunrise	1	HHMM
53	1	Time of Sunset	1	HHMM
54	1	Unused		
55	1	Unused		
56	1	Unused		
57	1	Unused		
58	1	Unused		
59	1	Unused		
60	1	Comms status between KTA-282 and weather station (1=OK, 0=Fault)	1	
61	1	2Min Wind Speed	0.1	mph
62	1	10Min Wind Gust	0.1	mph
63	1	Wind Direction for 10Min Gust	1	degrees
64	1	Dew Point	0.1	°F
65	1	Heat Index	0.1	°F
66	1	Wind Chill	0.1	°F
67	1	THSW Index	0.1	°F
68	1	Last 15Min Rain	0.01	Inches
69	1	Last Hour Rain	0.01	Inches
70	1	Last 24 Hours Rain	0.01	Inches
71	1	Barometric Reduction Method		
72	1	User Entered Barometric Offset	0.001	Inches
73	1	Barometric Calibration Number	0.001	Inches
74	1	Barometric Sensor Raw Reading	0.001	Inches
75	1	Absolute Barometric Pressure	0.001	Inches
76	1	Altimeter Setting	0.001	Inches
77	1	Index to Minute Within the Hour		
78	1	Loop 2 Comms Status		
79	1	Unused		
80	1	IP Address 1 st octet		
81	1	IP Address 2 nd octet		
82	1	IP Address 3 rd octet		
83	1	IP Address 4 th octet		
84	1	Subnet Mask 1 st octet		
85	1	Subnet Mask 2 nd octet		
86	1	Subnet Mask 3 rd octet		
87	1	Subnet Mask 4 th octet		
88	1	Default Gateway 1 st octet		
89	1	Default Gateway 2 nd octet		
90	1	Default Gateway 3 rd octet		
91	1	Default Gateway 4 th octet		
92	1	Commit IP values to Gateway (write a 1 to send values)		
93	1	Unused		
94	1	Unused		
95	1	Unused		
96	1	Unused		
97	1	Unused		
98	1	Unused		
99	1	Unused		
100	1	Product Code		
101	1	Firmware Version		
102	1	Modbus RTU address		
103	1	Modbus RTU baudrate		

104	1	Modbus RTU parity 0 = None 2 = Even 3 = Odd		
105	1	Temperature Conversion setting		
106	1	Pressure Conversion setting		
107	1	Wind speed conversion		
108	1	Rain and rain rate conversion		
109	1	Weather station polling period (Default: 25 = 2.5 seconds)	0.1	Seconds
110	1	Weather station EEPROM write: address		
111	1	Weather station EEPROM write: payload		
112	1	Weather station EEPROM write: send (write to 1 to send EEPROM write command)		
113	1	Weather station elevation & barometer write: barometer argument		
114	1	Weather station elevation & barometer write: elevation argument		
115	1	Weather station elevation & barometer write: send (write to 1 to send elevation and barometer write command)		
116	1	Weather station memory write success (will be written to a 1 if either weather station memory write command is successful)		
117	1	Unused		
118	1	Unused		
119	1	Unused		
120	1	Unused		
121	1	Unused		
122	1	Unused		
123	1	Unused		
124	1	Unused		
125	1	Unused		

Notes:

- The three hour barometer trend will show one of the following:

Value	Meaning
-60 (196 as an unsigned byte)	Falling Rapidly
-20 (236 as an unsigned byte)	Falling Slowly
0	Steady
20	Rising Slowly
60	Rising Rapidly
80 (ASCII 'P')	Rev A firmware; no trend info is available. The WeatherLink cable can be used to update the weather station to the latest firmware
Any other value	The weather station doesn't have the 3 hours of barometer data required to calculate trend data

- The rain rate is actually returned as "rainclicks." The actual unit depends on the size of the rain buckets used in your weather station (either 0.01 in or 0.2 mm).
- The start date of current storm is represented as follows, bit 15 to bit 12 is the month, bit 11 to bit 7 is the day and bit 6 to bit 0 is the year offset by 2000.
- Holding Register 60 contains the communications status, which indicates if the Gateway is receiving data from the Weather Station.
- The barometric reduction method applies corrections to the barometer to get a more accurate reading. The raw pressure is affected by other weather events such as temperature, humidity, and elevation. The options are:

Reading	Barometric Reduction Method
0	User offset
1	Altimeter Setting
2	NOAA Bar Reduction (for Vantage Pro 2 this is the default and cannot be changed)

- Index to the minute within the hour holds the current progress of the hour used for rain rate calculations – from 0 to 59.
- Holding register 78 contains the status of the loop 2 command. If 1, loop 2 is being successfully received. To obtain the loop 2 data, the hardware must be either a Vantage Pro2 (Firmware revision 1.90 or later) or a Vantage Vue.
- Unit conversions in detail:

Holding Register	Variable Type	Conversion ¹	Registers Affected
105	Temperature	0 = 0.1 °F 1 = 0.1 °C	5, 7
105	Extra Temperatures ²	0 = 1 °F + 90 1 = 1 °C + 50	11, 12, 13, 14, 15, 16, 17, 18
106	Pressure	0 = 0.001 inHg 1 = 0.1 mmHg 2 = 0.1 mb 3 = 0.001 atm	4
107	Wind Speed	0 = 1 mph 1 = 1 kph 2 = 1 knots 3 = 1 m/s 4 = 1 ft/s	8, 9
108	Rain ³	0 = 0.01 in 1 = 1 mm	24, 27, 29, 30, 31, 32, 33, 34

- The units used by the gateway:

Symbol	Unit
°F	Fahrenheit
°C	Centigrade or Celcius
inHg	Inches of Mercury
mmHg	Millimetres of Mercury
mbar	Millibar
atm	Atmospheres
mph	Miles per Hour
kph	Kilometeres per Hour
knots	Knots (Nautical Miles per Hour)
m/s	Metres per Second
ft/s	Feet per second
in	Inch
mm	millimetre

- The Extra Temperatures apply to the 7 extra, 4 Leaf and 4 soil temperatures from loop 1. For Fahrenheit readings, Extra Temperatures need to have 90 subtracted from them. For Centigrade readings, Extra Temperatures need to have 50 subtracted from them.
- Register 32 is reduced by a factor of 10; the readings returned will be 0.0001 in or 0.1 mm.