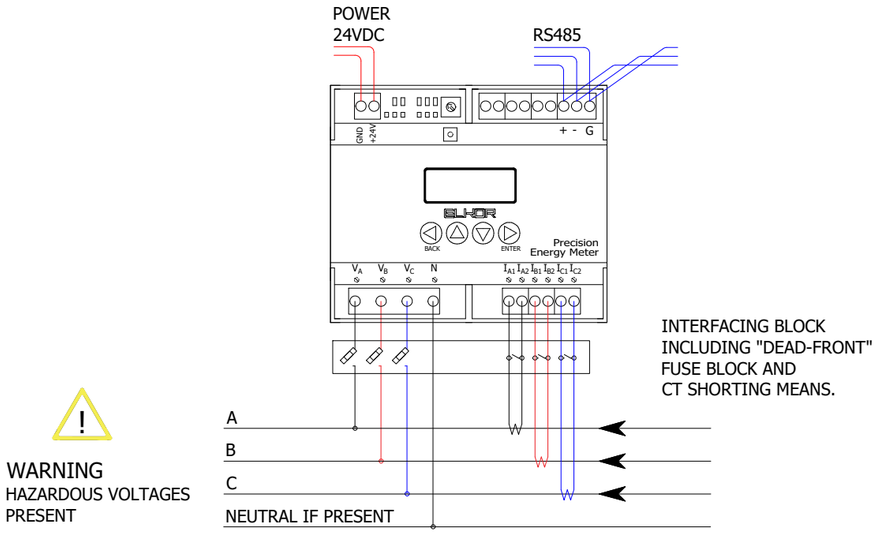
METER INSTALLATION WITH 5A CURRENT TRANSFORMERS

ELKOR MARK II SHOWN, COMMON 5A METERS INCLUDE SEL-735, ACUVIM II(R), SHARK 100/200



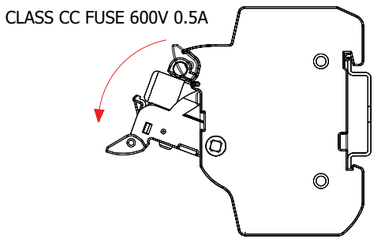
WARNING
HAZARDOUS VOLTAGES
PRESENT

INTERFACING BLOCK

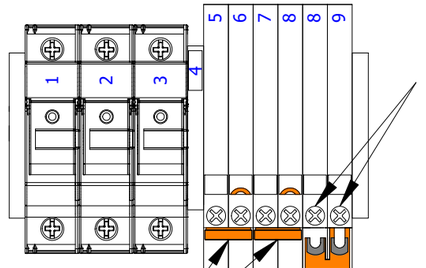
CT SHORTING PINS ARE USED TO DE-ENERGIZE CT LEADS INTO THE METER. ENCLOSURES ARE SHIPPED WITH PINS IN THE SHORTED POSITION FOR INSTALLATION. AFTER CT LEADS HAVE BEEN CONNECTED THE PINS MUST BE RELEASED FOR PROPER METER OPERATION. NOTE THAT SEL-735 METER INCLUDES A SWITCH BLOCK ON THE FRONT PANEL FOR SAFE CT SHORTING OPERATION. TO ENGAGE CT SHORTING SWITCHES AND DISCONNECT VOLTAGE REFERENCE INPUT OF THE SEL735 METER PULL ALL SWITCHES. SEE ENCLOSURE WIRING DIAGRAM FOR DETAIL.

PULL DOWN TABS ON THE DEAD-FRONT FUSE BLOCK TO RELEASE FUSES AND DISCONNECT VOLTAGE TAPS AT THE BLOCK.

IMPORTANT: CTS ARE ENERGIZED EVEN IF SHORTING PINS ARE ENGAGED, ALWAYS DE-ENERGIZE FEEDER BEFORE INSTALLING OR DISCONNECTING CTS.



FUSE BLOCK
SIDE VIEW



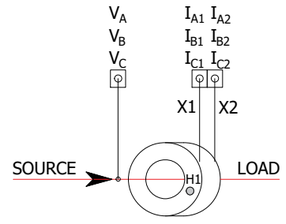
LOOSEN SCREWS TO
RELEASE SHORTING
PIN

PINS IN SHORT POSITION (FACTORY DEFAULT) METER WILL NOT RECEIVE CURRENT FROM CTS

SHORTING PIN IN RELEASED POSITION ENERGIZES CT LEADS TO THE METER

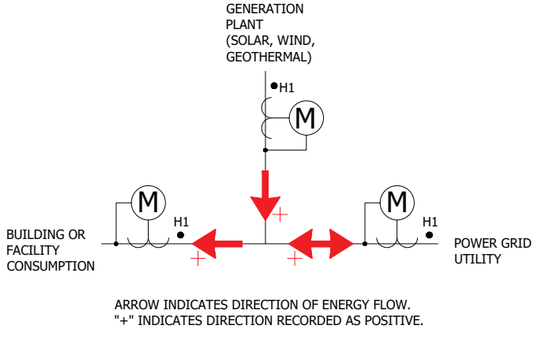
METER TERMINAL BLOCK NUMBERING		
METER INTERFACE BUS	TERMINAL #	SIGNAL
M# X40	1	VOLTAGE PHASE A
	2	VOLTAGE PHASE B
	3	VOLTAGE PHASE C
	4	VOLTAGE NEUTRAL (IF PRESENT)
	5	CT X1 PHASE A
	6	CT X2 PHASE A
	7	CT X1 PHASE B
	8	CT X2 PHASE B
	9	CT X1 PHASE C
	10	CT X2 PHASE C

VOLTAGE TAP AND CURRENT TRANSFORMER INSTALLATION



- MOUNT CT SO THAT DOT OR "H1" MARK FACES THE ENERGY SOURCE. FOR GENERATION SYSTEMS THIS WILL BE THE SOLAR ARRAY OR SIMILAR GENERATION SOURCE SO THAT ENERGY GENERATED IS MEASURED AS POSITIVE. FOR CONSUMPTION OR NET METERS THE MARK WILL POINT TOWARDS THE GRID SO THAT ENERGY SUPPLIED FROM THE GRID IS MEASURED AS POSITIVE.
- VOLTAGE TAPS AND CTS ARE PHASE-SPECIFIC AND MUST BE MATCHED WHEN CONNECTING TO THE METER. THE VOLTAGE TAP "V_A" MUST CONNECT TO THE SAME PHASE THAT IS BEING MEASURED BY THE CT CONNECTED TO "I_{A1}" AND "I_{A2}". SIMILARLY "V_B" IS ASSOCIATED WITH "I_{B1}" AND "I_{B2}" AND "V_C" WITH "I_{C1}" AND "I_{C2}".
- OBSERVE CORRECT POLARITY OF CT LEADS. X1 AND X2 WILL BE LABELED OR COLOR CODED BY THE CT MANUFACTURER, SEE MANUFACTURER DATA SHEET FOR SPECIFIC CT INFORMATION.

ORIENT CT DOT OR "H1" MARK TOWARDS THE ENERGY SOURCE



ARROW INDICATES DIRECTION OF ENERGY FLOW.
"+" INDICATES DIRECTION RECORDED AS POSITIVE.

- PRODUCTION / GENERATION METER - MEASURES ENERGY PRODUCED BY SOLAR PLANT OR OTHER GENERATION SOURCE, CT MARK POINTS TOWARD THE GENERATION SOURCE.
- NET/ GRID / UTILITY METER - MEASURES ENERGY RECEIVED AND DELIVERED, CT MARK POINTS TOWARDS THE GRID.ENERGY IS REPORTED AS POSITIVE WHEN IT IS CONSUMED FROM THE GRID AND NEGATIVE WHEN GENERATION EXCEEDS DEMAND AND ENERGY IS RETURNED TO THE GRID.
- CONSUMPTION / DEMAND METER - MEASURES ENERGY CONSUMED BY BUILDING AND FACILITY LOADS, CT MARK POINTS TOWARD THE GRID.

also energy a stem company
Boulder, CO 80301
866-303-5668
AlsoEnergy.com

SIZE: ANSI B
SCALE: NONE

INFORMATIONAL SUPPLEMENT

GENERALIZED INFORMATION REGARDING DEVICE FUNCTION AND BEST PRACTICES FOR INSTALLATION AND COMISSIONING. INFORMATION ON THIS SHEET IS NOT SPECIFIC TO ANY INSTALLATION. REFER TO ENCLOSURE DIAGRAMS AND SITE SINGLE LINE DIAGRAMS.

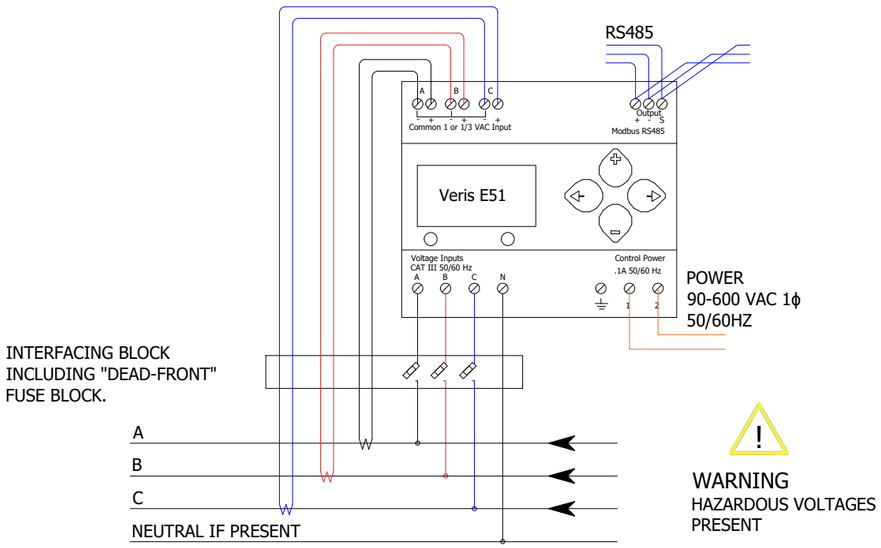
DETAIL - METER WITH 5A CURRENT TRANSFORMERS

LOCATION:
-

WT701

METER INSTALLATION WITH ROGOWSKI COIL AND MILLIVOLT CURRENT TRANSFORMERS

VERIS E51 SHOWN, COMMON MILLIVOLT METERS INCLUDE ACUREV 1314, ELKOR ROGOWSKI, ACUVIM ROGOWSKI

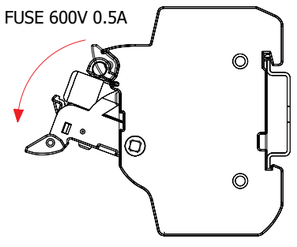


INTERFACING BLOCK

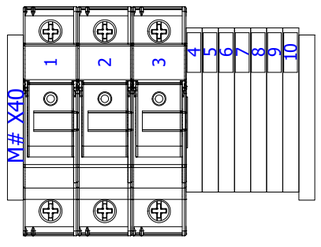
PULL DOWN TABS ON THE DEAD FRONT FUSE BLOCK TO RELEASE FUSES AND DISCONNECT VOLTAGE TAPS AT THE BLOCK.

SHORTING MEANS ARE NOT PROVIDED FOR METERS WITH REQUIRING MILLIVOLT SIGNALS FOR CURRENT READINGS. ROGOWSKI COILS AND CURRENT TRANSFORMERS WITH 333mV, 1V SECONDARY DO NOT REQUIRE SHORTING MECHANISMS FOR SAFE OPERATION AND SHOULD NOT BE SHORTED, DAMAGE TO CURRENT TRANSFORMERS MAY RESULT.

CLASS CC FUSE 600V 0.5A

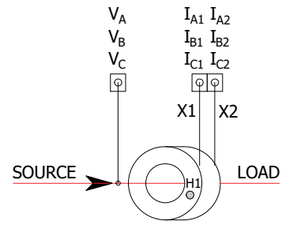


FUSE BLOCK
SIDE VIEW



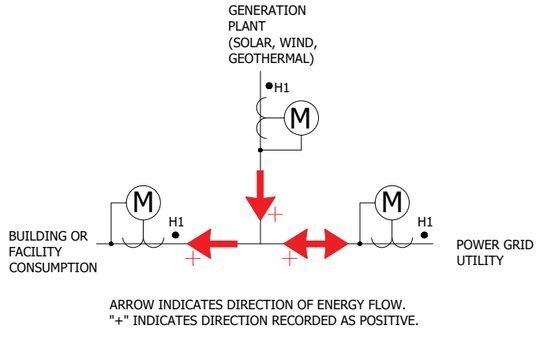
METER TERMINAL BLOCK NUMBERING		
METER INTERFACE BUS	TERMINAL #	SIGNAL
M# X40	1	VOLTAGE PHASE A
	2	VOLTAGE PHASE B
	3	VOLTAGE PHASE C
	4	VOLTAGE NEUTRAL (IF PRESENT)
	5	CT X1 PHASE A
	6	CT X2 PHASE A
	7	CT X1 PHASE B
	8	CT X2 PHASE B
	9	CT X1 PHASE C
	10	CT X2 PHASE C

VOLTAGE TAP AND CURRENT TRANSFORMER INSTALLATION



- MOUNT CT SO THAT DOT OR "H1" MARK FACES THE ENERGY SOURCE. FOR GENERATION SYSTEMS THIS WILL BE THE SOLAR ARRAY OR SIMILAR GENERATION SOURCE SO THAT ENERGY GENERATED IS MEASURED AS POSITIVE. FOR CONSUMPTION OR NET METERS THE MARK WILL POINT TOWARDS THE GRID SO THAT ENERGY SUPPLIED FROM THE GRID IS MEASURED AS POSITIVE.
- VOLTAGE TAPS AND CTS ARE PHASE-SPECIFIC AND MUST BE MATCHED WHEN CONNECTING TO THE METER. THE VOLTAGE TAP "V_A" MUST CONNECT TO THE SAME PHASE THAT IS BEING MEASURED BY THE CT CONNECTED TO "I_{A1}" AND "I_{A2}". SIMILARLY "V_B" IS ASSOCIATED WITH "I_{B1}" AND "I_{B2}" AND "V_C" WITH "I_{C1}" AND "I_{C2}".
- OBSERVE CORRECT POLARITY OF CT LEADS. X1 AND X2 WILL BE LABELED OR COLOR CODED BY THE CT MANUFACTURER, SEE MANUFACTURER DATA SHEET FOR SPECIFIC CT INFORMATION.

ORIENT CT DOT OR "H1" MARK TOWARDS THE ENERGY SOURCE



- PRODUCTION / GENERATION METER - MEASURES ENERGY PRODUCED BY SOLAR PLANT OR OTHER GENERATION SOURCE, CT MARK POINTS TOWARD THE GENERATION SOURCE.
- NET/ GRID / UTILITY METER - MEASURES ENERGY RECEIVED AND DELIVERED, CT MARK POINTS TOWARDS THE GRID.ENERGY IS REPORTED AS POSITIVE WHEN IT IS CONSUMED FROM THE GRID AND NEGATIVE WHEN GENERATION EXCEEDS DEMAND AND ENERGY IS RETURNED TO THE GRID.
- CONSUMPTION / DEMAND METER - MEASURES ENERGY CONSUMED BY BUILDING AND FACILITY LOADS, CT MARK POINTS TOWARD THE GRID.

also a stem company energy
Boulder, CO 80301
866-303-5668
AlsoEnergy.com

SIZE: ANSI B
SCALE: NONE

INFORMATIONAL SUPPLEMENT

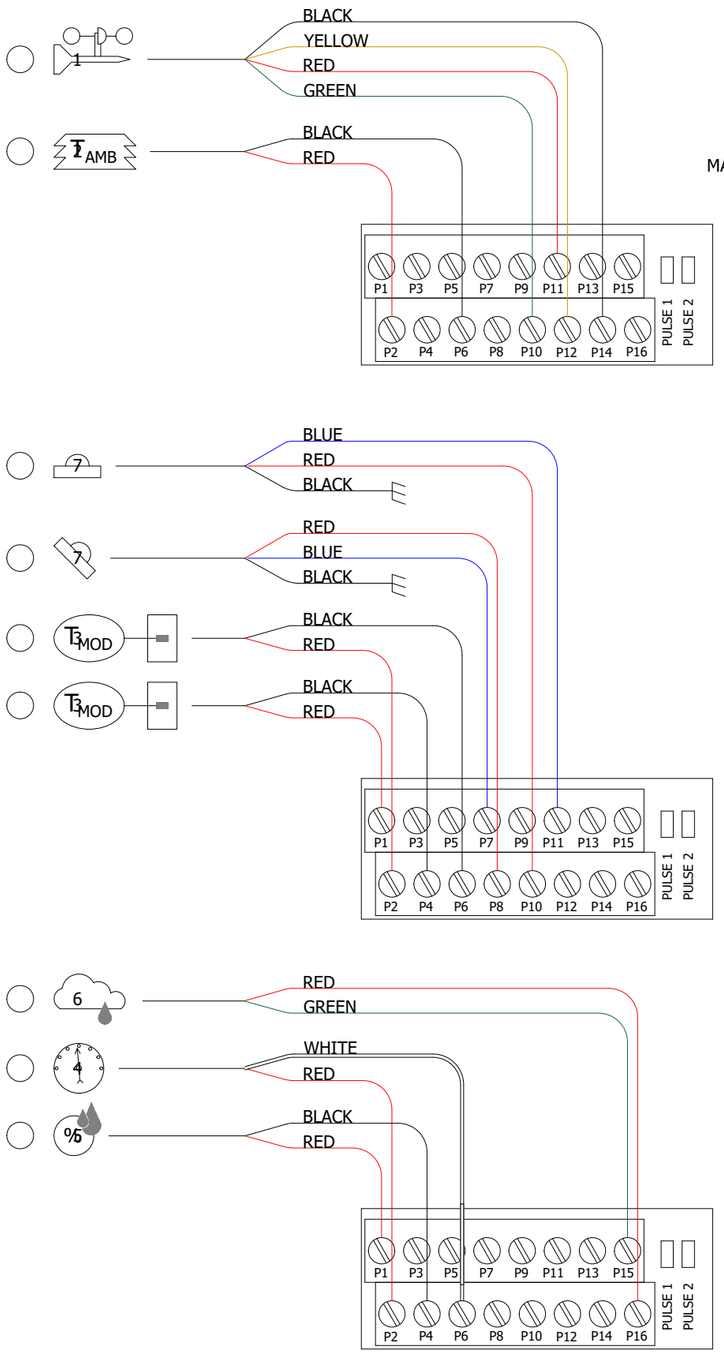
GENERALIZED INFORMATION REGARDING DEVICE FUNCTION AND BEST PRACTICES FOR INSTALLATION AND COMISSIONING. INFORMATION ON THIS SHEET IS NOT SPECIFIC TO ANY INSTALLATION. REFER TO ENCLOSURE DIAGRAMS AND SITE SINGLE LINE DIAGRAMS.

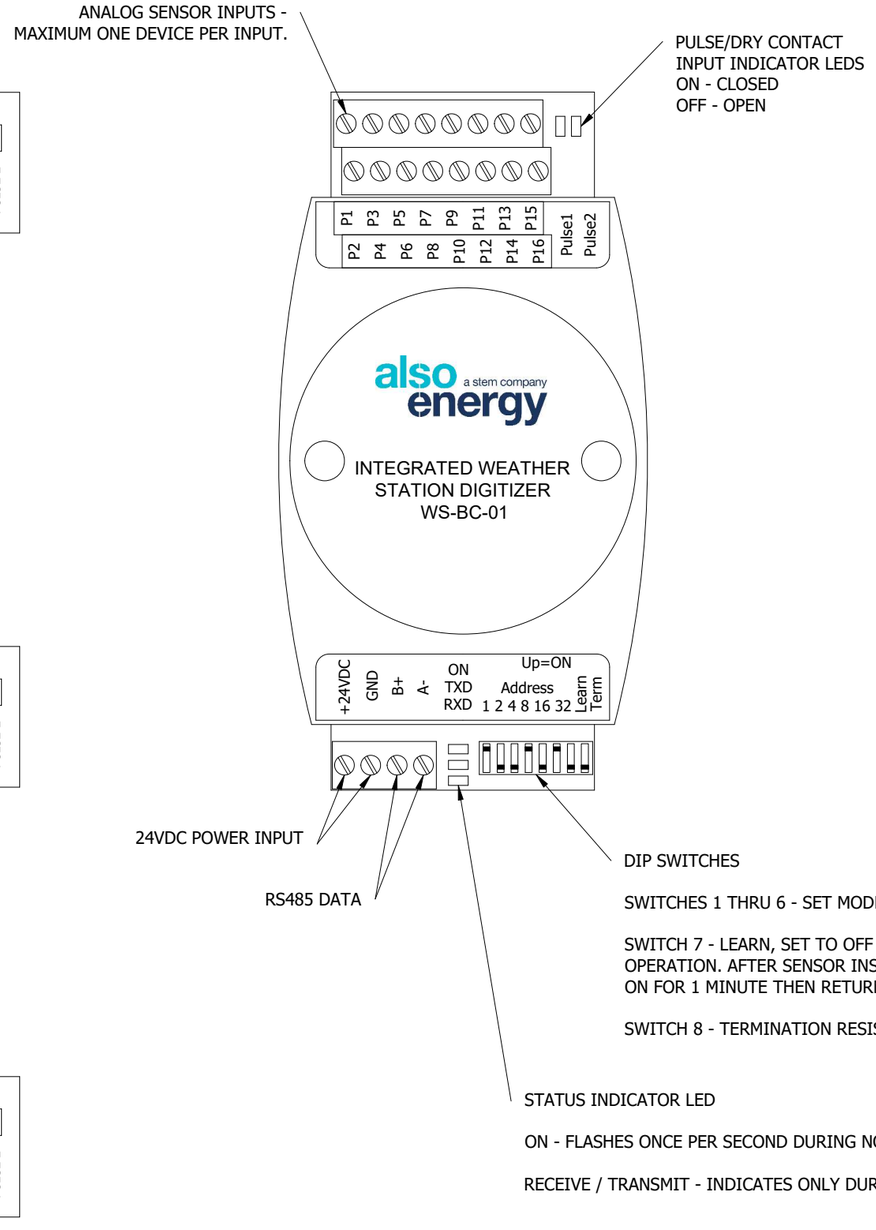
DETAIL - METER WITH MILLIVOLT CURRENT TRANSFORMER

LOCATION:
-

WT702

WEATHER STATION SENSOR PINOUT GUIDE





ANALOG SENSOR PINOUT					
MEASUREMENT	DEVICE NUMBER	MAKE / MODEL	WIRE COLOR	PIN	
				DEFAULT	OPTIONAL
WIND SPEED	1	DAVIS ANEMOMETER	BLACK	P14	-
			YELLOW	P12	-
WIND DIRECTION			RED	P11	-
			GREEN	P10	-
AMBIENT TEMPERATURE	2	BAPI AMBIENT	BLACK	P6	-
			RED	P2	-
MODULE TEMPERATURE	3	BAPI MODULE	BLACK	P4	P6
			RED	P1	P2
BAROMETRIC PRESSURE	4	BAPI PRESSURE	WHITE	P6	-
			RED	P2	-
RELATIVE HUMIDITY	5	BAPI RELATIVE HUMIDITY	BLACK	P4	-
			RED	P1	-
RAIN GAUGE	6	DAVIS RAIN COLLECTOR II	GREEN	P15	-
			RED	P16	-
				POA OR BPOA POSITION	GHI OR ALB POSITION
PYRANOMETER (POA OR GHI)	7	KIPP & ZONEN SP-LITE 2 OR CMP-XX	RED	P8	P10
			BLUE	P7	P11
			CLEAR (SHIELD)	PE	PE

NOTES:

- OPTIONAL PINS ARE USED IF MORE THAN ONE OF THE SAME DEVICE TYPE ARE LANDED AT THE SAME DIGITIZER.
- SHIELD WIRE TO BE GROUNDED (PE) AT CABLE END IF DEVICE IS NOT LOCALLY GROUNDED.

INFORMATIONAL SUPPLEMENT

GENERALIZED INFORMATION REGARDING DEVICE FUNCTION AND BEST PRACTICES FOR INSTALLATION AND COMISSIONING. INFORMATION ON THIS SHEET IS NOT SPECIFIC TO ANY INSTALLATION. REFER TO ENCLOSURE DIAGRAMS AND SITE SINGLE LINE DIAGRAMS.

also energy a stem company
Boulder, CO 80301
866-303-5668
AlsoEnergy.com

SIZE: ANSI B

SCALE: NONE

DETAIL - ALSOENERGY WEATHER STATION

LOCATION:
-

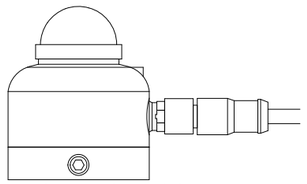
WT711

IRRADIANCE MEASUREMENT DEVICES
REFERENCE CELLS AND PYRANOMETERS

USE LEVELING SCREWS TO ENSURE THE SENSOR IS HORIZONTAL IN ALL DIRECTIONS (GHI OR ALB) OR IN PLANE WITH THE SOLAR ARRAY (POA OR BPOA).

- MOUNT IN A LOCATION THAT IS UNSHADED AT ALL TIMES. A MINIMUM DISTANCE OF 10 TIMES THE HEIGHT OF NEARBY OBJECTS IS RECOMMENDED FOR GLOBAL HORIZONTAL PYRANOMETERS.
- ORIENT THE PYRANOMETER SO THAT THE CABLE CONNECTION POINTS TO THE NORTH.
- PROVIDED PYRANOMETER BRACKET MAY BE MOUNTED DIRECTLY TO ARRAY RACKING OR VERTICAL POLE MOUNT USING THE INCLUDED U-BOLT CLAMP OR ZINC COATED FASTENERS.
- DO NOT GROUND CABLE SHIELD IF DEVICE IS GROUNDED THROUGH THE MOUNTING STRUCTURE.
- PROVIDED CABLE FOR RS485 AND DEVICE POWER MAY BE EXTENDED FOLLOWING RS485 BEST PRACTICES. DO NOT EXTEND LEADS FOR IMT PLUG IN AUXILIARY SENSORS OR RT-1 BACK OF MODULE PROBE.

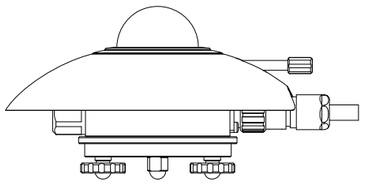
HUKSEFLUX PYRANOMETERS



HUKSEFLUX SR-05 & SR-15

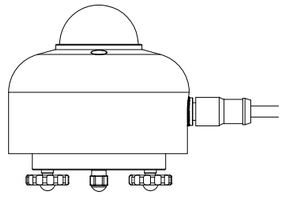
HUKSEFLUX SR05-D1A3 PYRANOMETER	
WIRE COLOR	SIGNAL
BROWN	SUPPLY POWER POSITIVE
BLACK	SUPPLY POWER NEGATIVE
BLUE	NOT CONNECTED
WHITE	RS485 DATA +
GREY	RS485 DATA -
YELLOW	SHIELD DRAIN

HUKSEFLUX SR15-D1 PYRANOMETER	
WIRE COLOR	SIGNAL
BROWN	SUPPLY POWER POSITIVE
BLACK	SUPPLY POWER NEGATIVE
BLUE	HEATER + (12VDC ONLY)
WHITE	RS485 DATA +
GREY	RS485 DATA -
YELLOW	SHIELD DRAIN



HUKSEFLUX SR-20

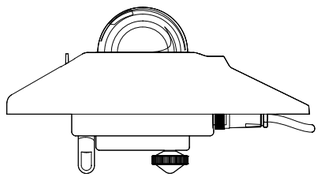
HUKSEFLUX SR20-D2 PYRANOMETER	
WIRE COLOR	SIGNAL
RED	SUPPLY POWER POSITIVE
BLUE	SUPPLY POWER NEGATIVE
WHITE	RS485 DATA +
GREEN	RS485 DATA -
BLACK	SHIELD DRAIN
YELLOW	NOT CONNECTED
BROWN	NOT CONNECTED
PINK	NOT CONNECTED (4-20mA+)
GREY	NOT CONNECTED (4-20mA-)



HUKSEFLUX SR-30

HUKSEFLUX SR30-M2-D1 PYRANOMETER	
WIRE COLOR	SIGNAL
BROWN	SUPPLY POWER POSITIVE
BLACK	SUPPLY POWER NEGATIVE
BLUE	RS485 COMMON
WHITE	RS485 DATA +
GREY	RS485 DATA -
YELLOW	SHIELD DRAIN

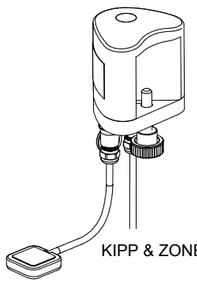
KIPP & ZONEN PYRANOMETERS AND RT-1



KIPP & ZONEN SMP

KIPP & ZONEN SMP PYRANOMETER ALL MODELS*	
WIRE COLOR	SIGNAL
WHITE	SUPPLY POWER POSITIVE
BLACK	SUPPLY POWER NEGATIVE
YELLOW	RS485 DATA +
GRAY	RS485 DATA -
BLUE	RS485 COMMON
SHIELD	SHIELD DRAIN
RED	NOT CONNECTED
GREEN	NOT CONNECTED (4-20mA+)
BROWN	NOT CONNECTED (4-20mA-)

*SMP12 ONLY
ADDITIONAL WIRES FOR HEATER POWER
RED 24V+
BROWN 24V COMMON



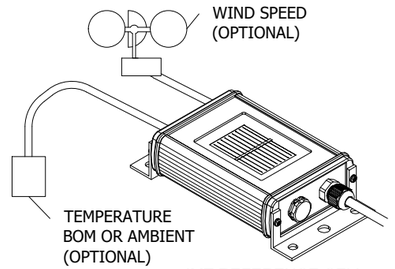
KIPP & ZONEN RT-1

KIPP & ZONEN PYRANOMETER AND BACK OF MODULE TEMPERATURE	
WIRE COLOR	SIGNAL
RED	SUPPLY POWER POSITIVE
BLUE	SUPPLY POWER NEGATIVE
YELLOW	RS485 DATA +
GREY	RS485 DATA -
GREEN	RS485 COMMON
SHIELD	SHIELD DRAIN

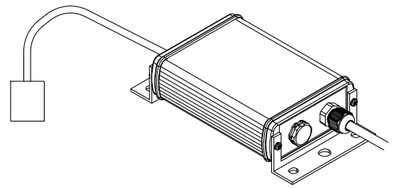
- MOUNT KIPP & ZONEN RT-1 DIRECTLY TO CORNER OF MODULE
- AFFIX BACK OF MODULE TEMPERATURE SENSOR PROBE TO CENTER OF BACK OF MODULE AWAY FROM THE EDGE OF THE ARRAY.

IMT DEVICES

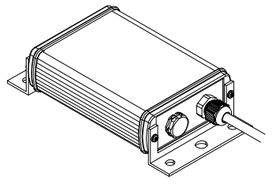
REFERENCE CELL
BACK OF MODULE TEMPERATURE
AMBIENT TEMPERATURE
WIND SPEED



IMT REFERENCE CELL



IMT BACK OF MODULE TEMPERATURE



IMT AMBIENT TEMPERATURE

IMT (ALL DEVICES)	
WIRE COLOR	SIGNAL
RED	SUPPLY POWER POSITIVE
BLACK	SUPPLY POWER NEGATIVE
BROWN	RS485 DATA +
ORANGE	RS485 DATA -
BLACK (THICK)	SHIELD DRAIN

- REFERENCE CELL CAN ACCOMMODATE ONE AUXILIARY TEMPERATURE (AMBIENT OR MODULE) AND ONE WIND SPEED SENSOR. ONLY ONE OF EACH TYPE OF SENSOR, WIND OR TEMPERATURE, MAY BE ADDED. DUAL TEMPERATURE SENSORS ARE NOT SUPPORTED.
- AFFIX IMT MODULE TEMPERATURE SENSOR PROBE TO CENTER OF BACK OF MODULE AWAY FROM THE EDGE OF THE ARRAY.
- LOCATE AMBIENT TEMPERATURE FOR FULL DAY SHADE.

also energy a stem company
Boulder, CO 80301
866-303-5668
AlsoEnergy.com

SIZE: ANSI B
SCALE: NONE

INFORMATIONAL SUPPLEMENT

GENERALIZED INFORMATION REGARDING DEVICE FUNCTION AND BEST PRACTICES FOR INSTALLATION AND COMISSIONING. INFORMATION ON THIS SHEET IS NOT SPECIFIC TO ANY INSTALLATION. REFER TO ENCLOSURE DIAGRAMS AND SITE SINGLE LINE DIAGRAMS.

DETAIL - RS485 PYRANOMETER REFERENCE CELL / TEMPERATURE

LOCATION:
-

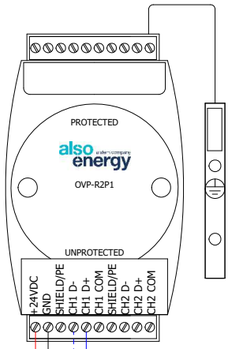
WT712

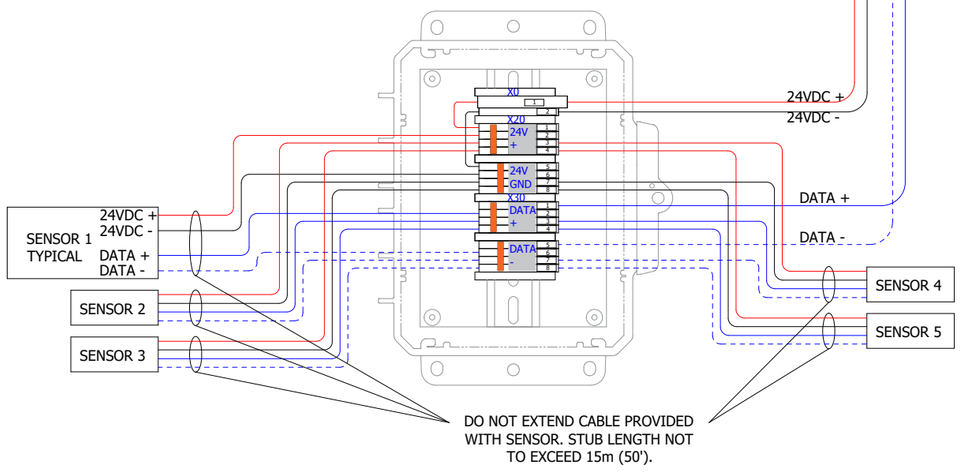
WEATHER STATION JUNCTION BOX

THE ALSOENERGY WEATHER SENSOR JUNCTION BOX WS-JB-01 INCLUDES JUMPERED TERMINAL BLOCKS MOUNTED INSIDE OF A NEMA 4X ENCLOSURE. TERMINALS ARE PROVIDED FOR BOTH 24VDC SENSOR POWER AND RS485 DATA WIRES.

- UP TO 5 RS485 SENSOR PIGTAILS MAY BE CONNECTED AT ONE JUNCTION BOX.
- INSTALL ONE JUNCTION BOX AT EACH SENSOR LOCATION. RS485 TRUNK BETWEEN JUNCTION BOXES AND DAS CLIENT MAY BE EXTENDED FOLLOWING RS485 BEST PRACTICES. SENSOR WIRE CONNECTING TO THE JUNCTION BOX MUST NOT BE EXTENDED BEYOND 15m (APPROX 50') TO AVOID STAR CONFIGURATION AND COMMUNICATION FAILURES. SEE SHEET WT721 RS485 BEST PRACTICES FOR ADDITIONAL INFORMATION.
- CABLE SHIELD MUST BE CONNECTED TO EARTH GROUND AT ONE END OF THE CABLE. AVOID GROUND LOOPS CAUSED BY LANDING SHIELD AT BOTH ENDS OF A CABLE RUN.

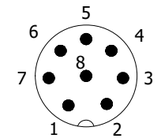
JUNCTION BOX TERMINALS		
BUS	TERMINAL	SIGNAL
X0	1	INPUT 24VDC+ WITH 4A FUSE
	2	INPUT 24VDC GND
X20	1	24VDC+ TO SENSORS
	2	
	3	
	4	
	5	24VDC GND TO SENSORS
	6	
	7	
	8	
X30	1	RS485 DATA + TO SENSORS
	2	
	3	
	4	
	5	RS485 DATA - TO SENSORS
	6	
	7	
	8	





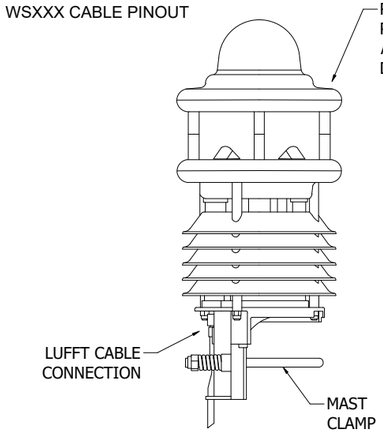
LUFFT SMART WEATHER STATION

WSXXX-UMB



WSXXX CABLE PINOUT

LUFFT WSXXX-UMB CABLE		
WIRE COLOR	SIGNAL	PIN
WHITE	SUPPLY POWER NEGATIVE	1
BROWN	SUPPLY POWER POSITIVE	2
GREEN	RS485 DATA +	3
YELLOW	RS485 DATA -	4
GRAY	NOT USED	5
PINK	NOT USED	6
BLUE	HEATER POWER NEGATIVE	7
RED	HEATER POWER POSITIVE	8
SHIELD	SHIELD DRAIN	NA
LUFFT WS600-UMB SHOWN. WIRE KEY VALID FOR ALL LUFFT WS200/300/400/500/600/700/800 MODELS.		

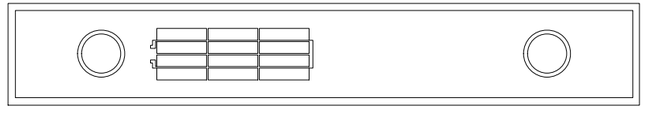


- MOUNT LUFFT SENSOR AT THE TOP OF THE MAST. MINIMUM 2m (6' 7") ABOVE GROUND FOR SENSORS WITH WIND MEASUREMENT AND 4.5m (14' 9") FOR SENSORS WITH RADAR PRECIPITATION SENSOR.
- TIGHTEN MOUNTING NUTS EVENLY UNTIL MAST CLAMP CONTACTS THE MAST THEN TIGHTEN AN ADDITIONAL 3 FULL REVOLUTIONS OF EACH NUT.
- FOR ACCURATE WIND DIRECTION READINGS USE AN ALUMINUM MAST.
- LOCATE THE SENSOR AWAY FROM ROADS, TREES, BUILDINGS AND OTHER OBSTRUCTIONS AS THEY CAN INTERFERE WITH WIND MEASUREMENTS. FALLING LEAVES AND OTHER MOVING OBJECTS MAY CAUSE FALSE READINGS FROM THE RADAR PRECIPITATION SENSOR.
- PROVIDED CABLE FOR POWER AND RS485 DATA MAY BE EXTENDED FOLLOWING RS485 DAISY CHAIN CONFIGURATION BEST PRACTICES.

DUST IQ SOILING STATION

- SELECT SOILING STATION MOUNTING LOCATION BASED ON EXPECTED SITE SOILING CONDITIONS. MULTIPLE SENSORS MAY BE DISTRIBUTED THROUGHOUT THE ARRAY TO PRODUCE MULTIPLE DATA POINTS THAT MAY BE USED TO EXTRAPOLATE OVERALL SITE SOILING CONDITIONS. IDEAL MOUNTING LOCATION WILL VARY FOR EVERY SITE, FOR BEST RESULTS CONSIDER SURROUNDINGS, ENVIRONMENT, AND PREVAILING WIND DIRECTIONS WHEN SELECTING MOUNTING LOCATION.
- MOUNT DIRECTLY TO THE PV ARRAY RACKS USING THE INCLUDED BRACKETS. SEE THE KIPP & ZONEN DUST IQ INSTALLATION MANUAL FOR ADDITIONAL MOUNTING INFORMATION.
- CONNECT THE 8 PIN WATERPROOF CONNECTOR OF THE DEVICE CABLE TO THE DUST IQ HOST TERMINAL. CONNECT THE PIGTAIL WIRES TO RS485 AND 24VDC. UNUSED WIRES SHOULD BE TRIMMED AND TAPED.

KIPP & ZONEN DUST IQ	
WIRE COLOR	SIGNAL
WHITE	SUPPLY POWER POSITIVE
BLACK	SUPPLY POWER NEGATIVE
YELLOW	RS485 DATA +
GRAY	RS485 DATA -
BLUE	RS485 COMMON
SHIELD	SHIELD DRAIN
PINK	NOT USED
GREEN	NOT USED
BROWN	NOT USED



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SIZE: ANSI B

SCALE: NONE

INFORMATIONAL SUPPLEMENT

GENERALIZED INFORMATION REGARDING DEVICE FUNCTION AND BEST PRACTICES FOR INSTALLATION AND COMISSIONING. INFORMATION ON THIS SHEET IS NOT SPECIFIC TO ANY INSTALLATION. REFER TO ENCLOSURE DIAGRAMS AND SITE SINGLE LINE DIAGRAMS.

DETAIL - JUNCTION BOX

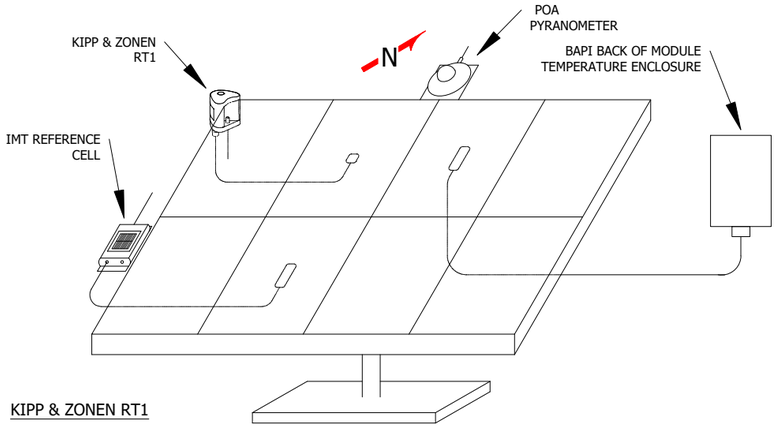
LUFFT / DUST IQ

LOCATION:

-

WT713

WEATHER SENSOR MOUNTING GUIDE



KIPP & ZONEN RT1

- MOUNT RT1 SENSOR AT THE CORNER OF THE PV MODULE, USING THE THUMB SCREW TO TIGHTEN IN PLACE. ALTERNATIVELY, INSTALL THE SIDE MOUNT ADAPTER AND SECURE TO THE SIDE OF THE MODULE WITH THE INCLUDED CLIP.
- THE 20m 5-PIN CABLE WILL CONNECT THE RT1 TO THE DAS. THE 3m 2-PIN CABLE WILL CONNECT THE TEMPERATURE SENSOR TO THE RT1 HOUSING. DO NOT EXTEND THE 2-PIN CABLE. THE 5-PIN CABLE MAY BE EXTENDED FOLLOWING RS485 DAISY CHAIN CONFIGURATION BEST PRACTICES.
- LOCATE THE SENSOR AWAY FROM ROADS, TREES, BUILDINGS AND OTHER OBSTRUCTIONS THAT MAY CAST A SHADOW OR INTERFERE WITH TEMPERATURE READINGS.

BAPI MODULE TEMPERATURE

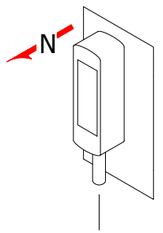
- MOUNT THE BAPI MODULE TEMPERATURE ENCLOSURE. EXTEND THE MODULE TEMPERATURE SENSOR AND MOUNT NEAR THE CENTER OF A CELL, AT LEAST 100cm (37") FROM THE ARRAY EDGE AND AT LEAST 40cm (16") FROM THE FRAME . MAKE SURE THE ADHESIVE USED FOR THE SENSOR MODULE IS RATED FOR UP TO 83° C (180° F). ALSOENERGY RECOMMENDS HIGH TEMPERATURE EPOXY. PLUG ANY HOLES IN THE BAPI ENCLOSURE TO MAKE IT WEATHER TIGHT.
- DO NOT SPLICE OR EXTEND THE WIRE BETWEEN THE SENSOR AND THE BAPI ENCLOSURE. IT HAS BEEN CALIBRATED TO PROVIDE ACCURATE MEASUREMENTS. THE WIRE LEADING TO THE WEATHER STATION FROM THE BAPI ENCLOSURE CAN BE EXTENDED UP TO 500FT USING 22AWG WIRE.

IMT REFERENCE CELL

- MOUNT REFERENCE CELL DIRECTLY TO MODULE FRAME AT PERIMETER OF ARRAY.
- REFERENCE CELL CAN ACCOMMODATE ONE AUXILIARY TEMPERATURE (AMBIENT OR MODULE) AND ONE WIND SPEED SENSOR. ONLY ONE OF EACH TYPE OF SENSOR, WIND OR TEMPERATURE, MAY BE ADDED. DUAL TEMPERATURE SENSORS ARE NOT SUPPORTED.
- AFFIX IMT MODULE TEMPERATURE SENSOR PROBE TO CENTER OF BACK OF MODULE AWAY FROM THE EDGE OF THE ARRAY.
- IMT DEVICE SHIP WITH A 3m CABLE FOR POWER AND RS485 DATA. THE CABLE MAY BE EXTENDED FOLLOWING RS485 DAISY CHAIN CONFIGURATION BEST PRACTICES.

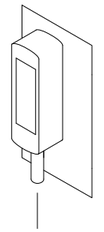
PLANE OF ARRAY AND BACKSIDE PLANE OF ARRAY (POA, BPOA) PYRANOMETER

- MOUNT THE PYRANOMETER ON TOP OF THE NORTH SIDE OF THE ARRAY OR AT THE END OF ROW RACKING OR TORQUE TUBE. USE LEVELING SCREWS TO MATCH THE PLANE OF ARRAY. THE PYRANOMETER MUST NOT BE SHADED AT ANY TIME OF THE DAY.
- MOUNT USING THE INCLUDED BRACKETS AND MOUNTING HARDWARE WITH THE WIRE POINTING NORTH. CONNECT SENSOR LEADS TO THE CORRECT TERMINALS ON WEATHER STATION PER THE WIRING GUIDE.



BAPI AMBIENT TEMPERATURE

- MOUNT THE BAPI ENCLOSURE OUTDOORS IN A NORTH-FACING, ALWAYS-SHADED LOCATION WITH THE SENSOR POINTING DOWN. PLUG ANY HOLES IN THE ENCLOSURE TO MAKE IT WEATHER TIGHT.
- INSIDE THE COVER ARE RED AND BLACK WIRES WHICH MUST BE EXTENDED TO THE WEATHER STATION ENCLOSURE. ALSOENERGY RECOMMENDS USING OUTDOOR SHIELDED CAT 5, AND SPLICING WITH *FILLED* 3M SCOTCHLOK CONNECTORS.
- DO NOT SPLICE OR EXTEND THE WIRE BETWEEN THE SENSOR AND THE BAPI ENCLOSURE. IT HAS BEEN CALIBRATED TO PROVIDE ACCURATE MEASUREMENTS. THE WIRE LEADING TO THE WEATHER STATION FROM THE BAPI ENCLOSURE CAN BE EXTENDED UP TO 150m (500') USING 22AWG (0.34mm^2) WIRE.

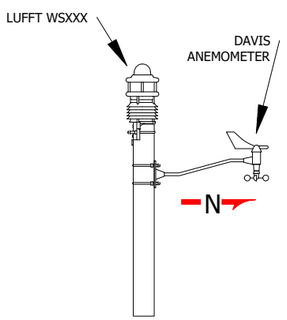


BAPI RELATIVE HUMIDITY

- MOUNT THE BAPI RELATIVE HUMIDITY ENCLOSURE OUTDOORS WITH THE SENSOR POINTING DOWN. PLUG ANY HOLES IN THE ENCLOSURE TO MAKE IT WEATHER-TIGHT.
- INSIDE THE COVER ARE RED AND BLACK WIRES WHICH MUST BE EXTENDED TO THE WEATHER STATION ENCLOSURE. ALSOENERGY RECOMMENDS USING OUTDOOR SHIELDED CAT 5, AND SPLICING WITH *FILLED* 3M SCOTCHLOK CONNECTORS.

BAPI BAROMETRIC PRESSURE

- THE BAROMETRIC PRESSURE SENSOR IS DESIGNED TO BE MOUNTED INDOORS. IT WILL BE MOUNTED AND WIRED IN THE WEATHER STATION ENCLOSURE PRIOR TO SHIPPING.
- IF THE BAROMETRIC PRESSURE SENSOR IS FIELD INSTALLED, CONNECT THE SENSOR WIRES TO THE TERMINALS ON THE WEATHER STATION PER THE WIRING GUIDE.

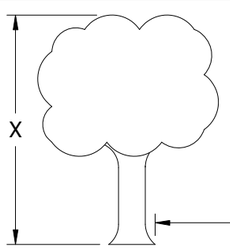


LUFFT WSXXX

- MOUNT LUFFT SENSOR AT THE TOP OF THE MAST, AT A MINIMUM OF 2m (6' 7") ABOVE GROUND FOR SENSORS WITH WIND MEASUREMENT AND 4.5m (14' 9") FOR SENSORS WITH PRECIPITATION SENSOR.
- TIGHTEN MOUNTING NUTS EVENLY UNTIL MAST CLAMP CONTACTS THE MAST, THEN TIGHTEN AN ADDITIONAL 3 FULL REVOLUTIONS OF EACH NUT.
- FOR ACCURATE WIND DIRECTION READINGS, USE AN ALUMINUM MAST.
- LOCATE THE SENSOR AWAY FROM ROADS, TREES, BUILDINGS AND OTHER OBSTRUCTIONS AS THEY CAN INTERFERE WITH WIND MEASUREMENTS. FALLING LEAVES AND OTHER MOVING OBJECTS MAY CAUSE FALSE READINGS FROM THE RADAR PRECIPITATION SENSOR.

DAVIS ANEMOMETER

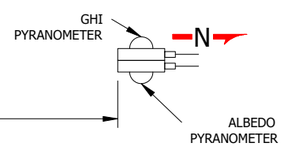
- FOLLOW THE DIRECTIONS THAT COME WITH THE ANEMOMETER TO ASSEMBLE AND MOUNT THE SENSOR.
- ENSURE THAT THE ANEMOMETER IS MOUNTED POINTING TRUE NORTH, ADJUSTING FOR MAGNETIC DECLINATION. CONNECT THE ANEMOMETER TO THE CORRECT TERMINALS ON THE WEATHER STATION PER THE WIRING GUIDE.



GLOBAL HORIZONAL IRRADIANCE AND ALBEDO (GHI, ALB) PYRANOMETER

- MOUNT IN A LOCATION THAT IS UNSHADED AT ALL TIMES AND AWAY FROM LIGHT-COLORED OR REFLECTIVE WALLS. A MINIMUM DISTANCE OF 10 TIMES THE HEIGHT OF NEARBY OBJECTS SUCH AS TREES AND BUILDINGS IS REQUIRED FOR GLOBAL HORIZONTAL PYRANOMETERS.
- USE LEVELING SCREWS TO ENSURE THE SENSOR IS HORIZONTAL IN ALL DIRECTIONS.
- ORIENT THE PYRANOMETER SO THAT THE CABLE CONNECTION POINTS TO THE NORTH.

10X



CONNECTING MULTIPLE SENSORS

MULTIPLE SENSORS MAY BE USED TO PROVIDE GREATER DETAIL OF OVERALL SITE CONDITIONS. BACK OF MODULE TEMPERATURE, SOILING CONDITIONS, AND PLANE OF ARRAY IRRADIANCE MAY VARY AT DIFFERENT LOCATIONS WITHIN THE ARRAY. REDUNDANT MEASUREMENTS MAY ALSO BE DESIRED AS A CHECK TO FUNCTIONALITY OF CRITICAL SENSORS. THE BEST LOCATION FOR SENSOR MOUNTING WILL VARY DEPENDING ON SITE TOPOGRAPHY AND INTENDED MEASUREMENT PURPOSE.

- WHEN SENSORS ARE MOUNTED AT MULTIPLE LOCATIONS SELECT A VARIETY OF LOCATIONS THAT WILL PROVIDE A REPRESENTATIVE DATA SET FOR THE SITE AS A WHOLE. IRRADIANCE AND TEMPERATURE MAY VARY ACROSS DISTANCE AND ELEVATION SO MEASUREMENT LOCATIONS SHOULD BE CHOSEN TO BE EVENLY DISPERSED ACROSS THE AREA OF THE SITE AND AT VARIOUS ELEVATIONS IF APPLICABLE. FOR ARRAYS WITH MULTIPLE PLANES OF ARRAY AT LEAST ONE MEASUREMENT OF IRRADIANCE AND BACK OF MODULE TEMPERATURE AT EACH PLANE OF ARRAY IS RECOMMENDED.
- FOR REDUNDANT MEASUREMENTS BOTH DEVICES SHOULD BE MOUNTED AS CLOSE TOGETHER AS POSSIBLE WITHOUT AFFECTING THE DEVICE FUNCTION.

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SIZE: ANSI B
SCALE: NONE

INFORMATIONAL SUPPLEMENT

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DETAIL - WEATHER SENSOR MOUNTING

LOCATION:
-

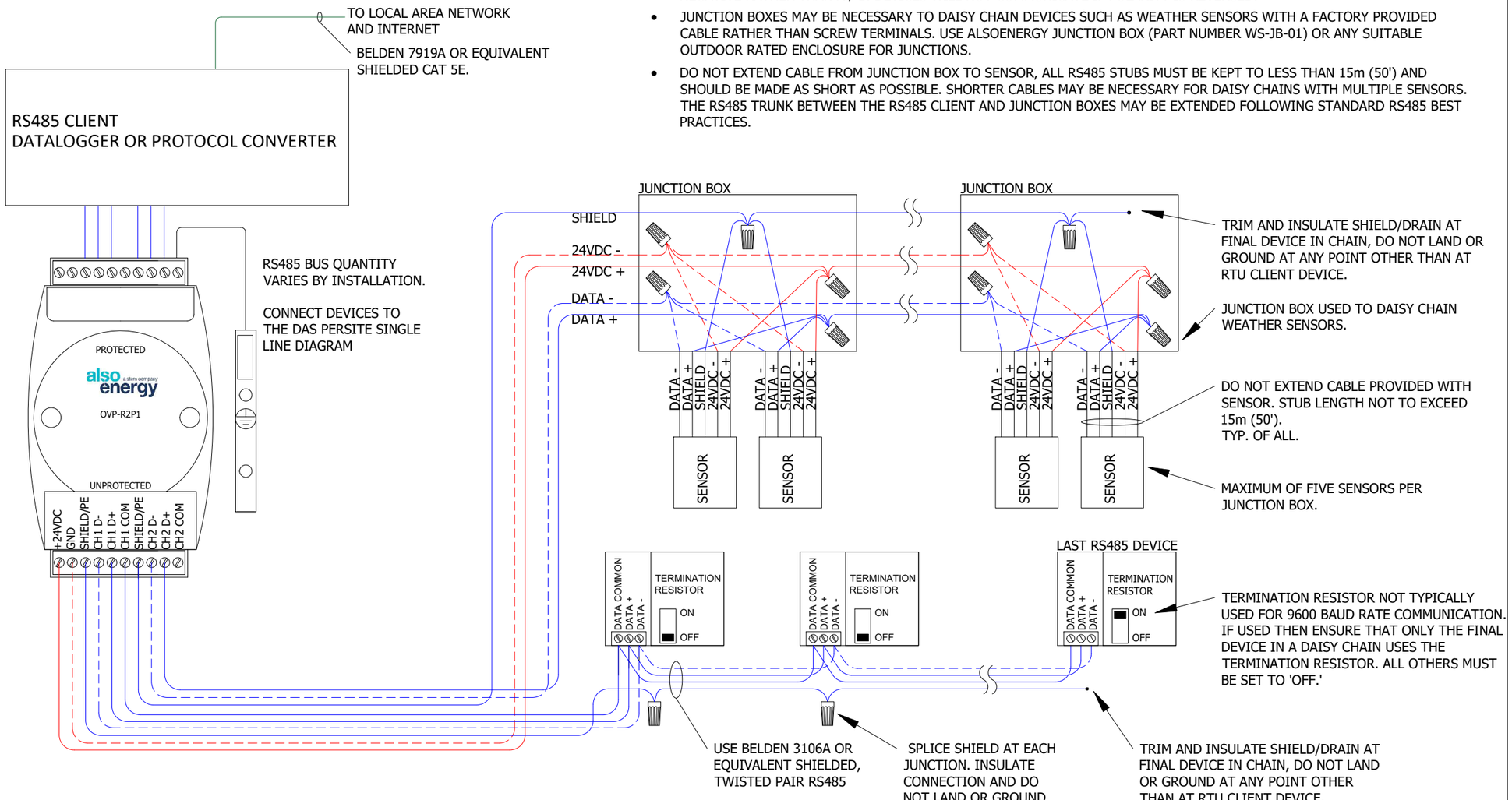
WT715

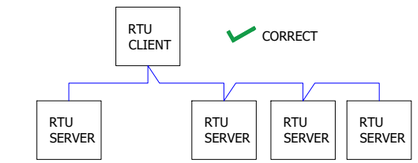
DATA LOGGER RS485 WIRING BEST PRACTICES

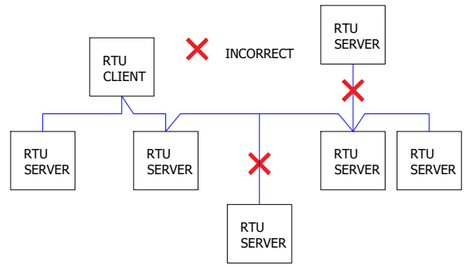
OVP-R2P1 RS485 AND 24VDC SURGE SUPPRESSOR

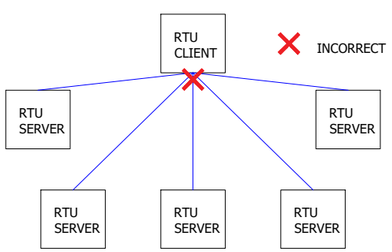
- EACH OVP-R2P1 UNIT PROVIDES OVER-VOLTAGE SURGE PROTECTION FOR TWO RS485 BUSSES AND ONE 24VDC BUS.
- FIELD WIRING MUST CONNECT AT THE UNPROTECTED SIDE OF THE BOARD
- DOUBLE WIRE LANDING PERMITTED UP TO 16AWG
- ONE OR BOTH SHIELD/PE TERMINALS MUST BE CONNECTED TO EARTH GROUND FOR PROPER OPERATION OF THE SURGE SUPPRESSOR
- THE OVP-R2P1 WILL PROTECT DEVICES FROM SURGES ON THE RS485 OR 24VDC CONNECTIONS. THE DEVICE IS PASSIVE AND DOES NOT REQUIRE POWER TO OPERATE, 24VDC SHOULD BE CONNECTED ONLY AS NEEDED FOR SURGE PROTECTION

- EACH RS485 BUS MAY SUPPORT A SINGLE DAISY CHAIN. DO NOT WIRE AS A STAR CONFIGURATION AND ENSURE THAT ALL STUBS ARE LESS THAN 15m (APPROXIMATELY 50 FEET). IRREGULAR COMMUNICATION AND DATA LOSS MAY RESULT IF COMMUNICATION LINES ARE NOT WIRED IN A DAISY CHAIN TOPOLOGY.
- THE TOTAL LENGTH OF THE RS485 DAISY CHAIN MUST NOT EXCEED 1200m (4000 FEET).
- ALSOENERGY RECOMMENDS THAT NO MORE THAN 20 DEVICES BE CONNECTED TO A SINGLE RS485 BUS.
- EACH DEVICE ON A BUS MUST HAVE A UNIQUE ADDRESS.
- AVOID CONNECTING DEVICES USING DIFFERENT BAUD RATES OR PROTOCOLS TOGETHER ON AN RS485 BUS. THE DEFAULT BUS CONFIGURATION FOR ALSOENERGY DATALOGGERS IS 9600 BAUD, 8 DATA BITS, NO PARITY, 1 STOP BIT (8N1).
- DATA +/- MAY BE LABELED AS DATA A/B ON SOME DEVICES, HOWEVER THE POLARITY OF 'A' AND 'B' IS NOT STANDARDIZED. ALWAYS REFER TO MANUFACTURER DOCUMENTS TO DETERMINE PROPER POLARITY AND WIRE ACCORDING TO POSITIVE / NEGATIVE RATHER THAN A / B. DEVICES WILL NOT COMMUNICATE IF POLARITY IS REVERSED.
- JUNCTION BOXES MAY BE NECESSARY TO DAISY CHAIN DEVICES SUCH AS WEATHER SENSORS WITH A FACTORY PROVIDED CABLE RATHER THAN SCREW TERMINALS. USE ALSOENERGY JUNCTION BOX (PART NUMBER WS-JB-01) OR ANY SUITABLE OUTDOOR RATED ENCLOSURE FOR JUNCTIONS.
- DO NOT EXTEND CABLE FROM JUNCTION BOX TO SENSOR, ALL RS485 STUBS MUST BE KEPT TO LESS THAN 15m (50') AND SHOULD BE MADE AS SHORT AS POSSIBLE. SHORTER CABLES MAY BE NECESSARY FOR DAISY CHAINS WITH MULTIPLE SENSORS. THE RS485 TRUNK BETWEEN THE RS485 CLIENT AND JUNCTION BOXES MAY BE EXTENDED FOLLOWING STANDARD RS485 BEST PRACTICES.









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SIZE: ANSI B

SCALE: NONE

INFORMATIONAL SUPPLEMENT

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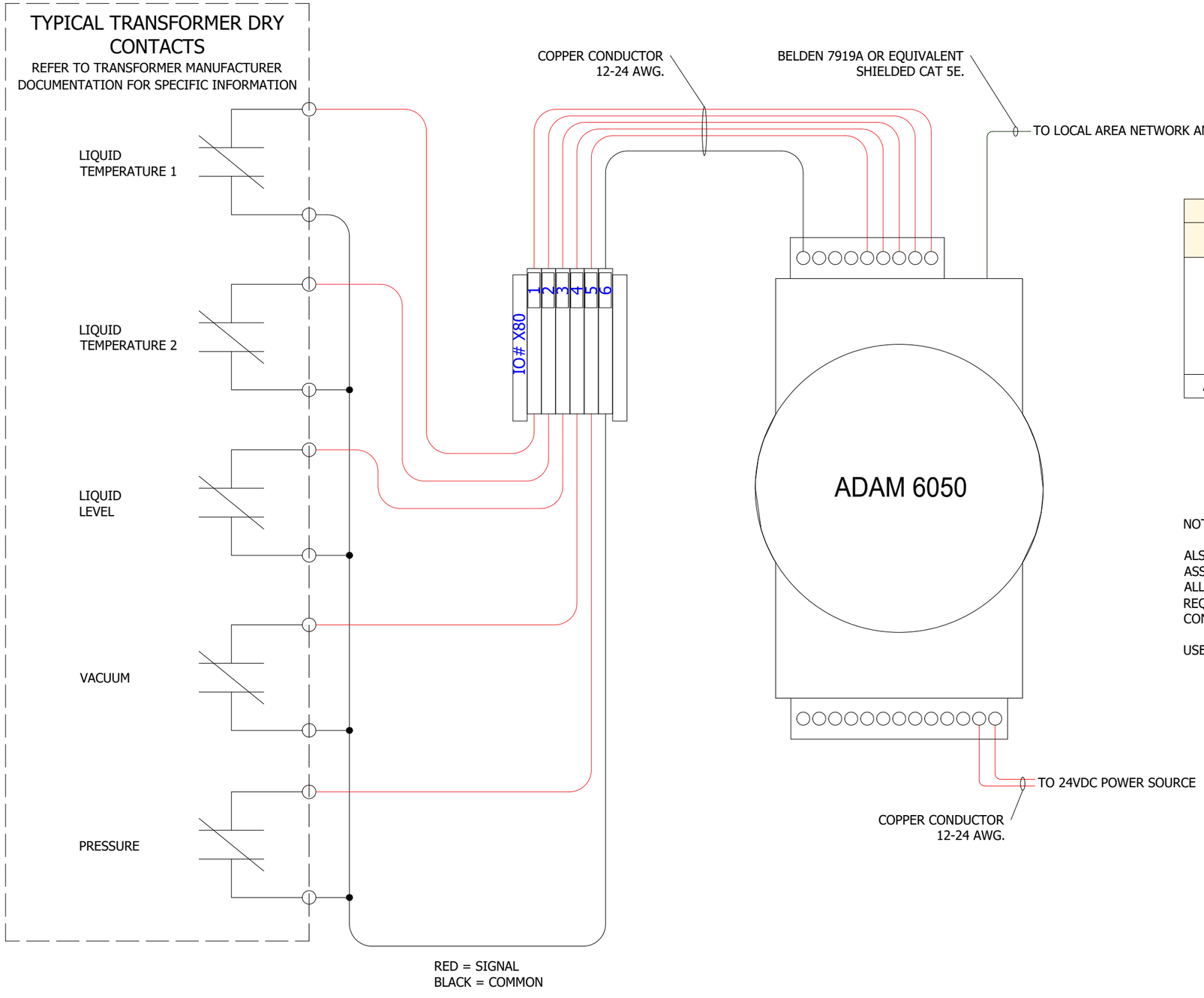
DETAIL - RS485 WIRING BEST PRACTICES

LOCATION:
-

WT721



TRANSFORMER DRY CONTACTS		
I/O INTERFACE BUS	TERMINAL #	TRANSFORMER ALARM CONTACT
IO# X80	1	LIQUID TEMPERATURE 1
	2	LIQUID TEMPERATURE 2
	3	LIQUID LEVEL
	4	VACUUM
	5	PRESSURE
ALL CONTACTS USE A SHARED COMMON CONNECTED TO TERMINAL BLOCK 6.		

NOTE:

ALSOENERGY DEFAULT SETTINGS INCLUDE ALL FIVE CONTACTS SHOWN AND ASSUMES NORMALLY CLOSED CONTACTS. IF YOUR TRANSFORMER DOES NOT HAVE ALL CONTACTS SHOWN OR HAS ONLY NORMALLY OPEN CONTACTS SEND A REQUEST TO support@AlsoEnergy.com WITH A FULL DESCRIPTION OF THE CONTACTS BEING MONITORED.

USE DRIVER 7860 AND ALERT 534

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SCALE: NONE

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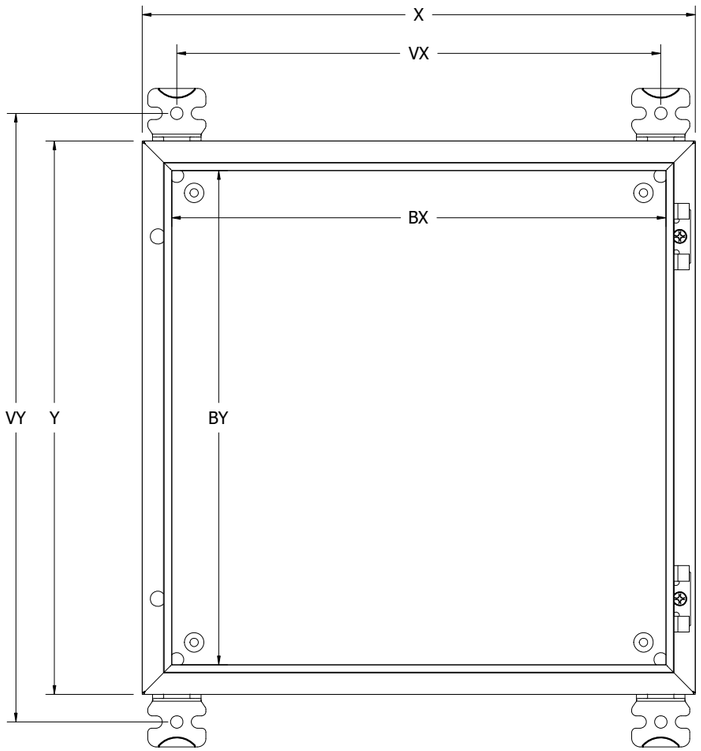
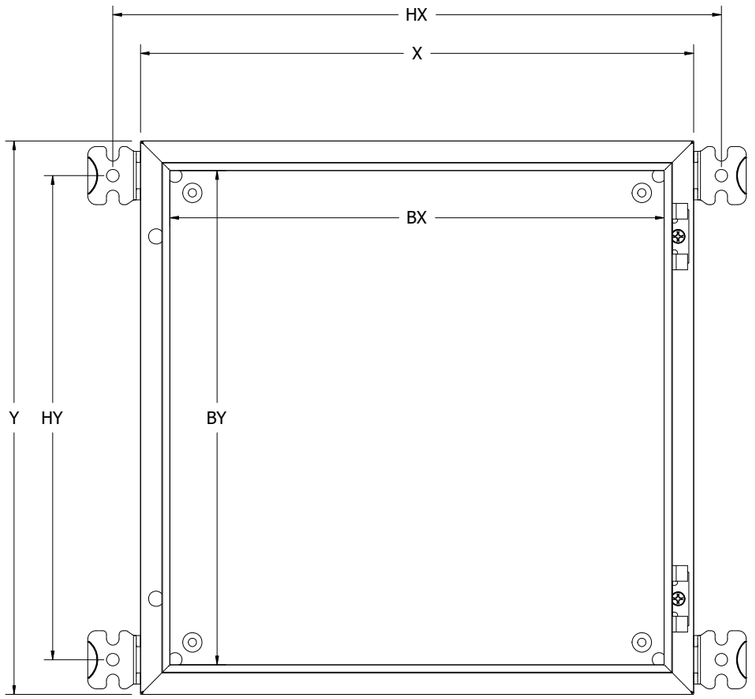
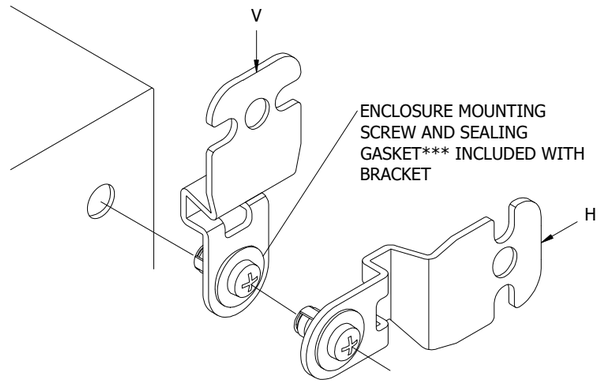
DETAIL - TRANSFORMER DRY CONTACTS

LOCATION:
-

WT731







USE M8 BOLTS TO MOUNT TO RACKING STRUCTURE.

ENCLOSURE DIMENSIONS (mm (in.))										
PART NO.	EXTERNAL DIMENSIONS			BACKPLATE		VERTICAL BRACKET ORIENTATION SPACING		HORIZONTAL BRACKET ORIENTATION SPACING		APPROXIMATE WEIGHT *
ITEM	X	Y	Z	BX	BY	VX	VY	HX	HY	-
E4-ST-NL	400 (15.75")	400 (15.75")	200 (7.9")	350 (13.8")	350 (13.8")	357 (14.1")	440 (17.3")	440 (17.3")	357 (14.1")	11-16kg (25-35lb)
E4-LG-NL	400 (15.75")	600 (23.6")	200 (7.9")	350 (13.8")	550 (21.7")	357 (14.1")	640 (25.2")	440 (17.3")	557 (21.9")	18-23kg (40-50lb)
E4-XL-NL E4-XLV-NL	800 (31.5")	800 (31.5")	300 (11.8")	750 (29.5")	750 (29.5")	757 (29.8")	840 (33.1")	840 (33.1")	757 (29.8")	43-52kg (95-115lb)**
E4--664-PS E4-664-PSV	600 (23.6")	600 (23.6")	397 (15.6")	550 (21.7")	550 (21.7")	557 (21.9")	640 (25.2")	640 (25.2")	557 (21.9")	43-52kg (95-115lb)**
PMCS-GX	636 (25.0")	847 (33.4")	300 (11.8")	550 (21.7")	750 (29.5")	530 (20.9")	889 (35.0")	664 (29.7")	755 (29.7")	43-52kg (95-115lb)**
PMCS-GL	436 (17.2")	647 (25.5")	250 (9.8")	350 (13.8")	50 (21.7")	330 (13.0")	689 (27.1")	464 (18.3")	555 (21.9")	27-32kg (60-70lb)**

NOTE: ENCLOSURES NOT TO SCALE

* WEIGHTS ARE APPROXIMATE FOR REFERENCE ONLY. ACTUAL WEIGHT WILL VARY DEPENDING ON TYPE AND QUANTITY OF HARDWARE WITHIN THE ENCLOSURE

** WEIGHT ESTIMATE DOES NOT INCLUDE BATTERY ADD 25kg (56lb)PER 38Ah BATTERY PAIR AND 9kg (20lb) PER 12Ah BATTERY.

*** MOUNTING SCREWS FOR FIBERGLASS REINFORCED POLYCARBONATE ENCLOSURES DO NOT PENETRATE THE ENCLOSURE AND DO NOT INCLUDE A GASKET AS IT IS NOT NECESSARY. MOUNTING BRACKET APPEARANCE MAY VARY.

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SCALE: NONE

INFORMATIONAL SUPPLEMENT

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DETAIL - SCHNEIDER ENCLOSURES

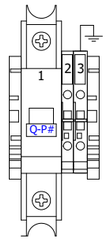
LOCATION:
-

WT741

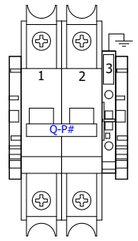
DC UPS INSTALLATION

CONTROL POWER INPUTS			
UPS MODEL	BREAKER	X9 TERMINALS	INPUT
UP-277-52W	1P	1	100-277VAC
		2	NEUTRAL
		3	PE
UP-240-77W	1P	1	100-240VAC
		2	NEUTRAL
		3	PE
UP-240-77W10A-SPCL	1P	1	100-240VAC
		2	NEUTRAL
		3	PE
UP-480-70W	2P	1	400-500VAC L1
		2	400-500VAC L2
		3	PE

SINGLE POLE
CIRCUIT BREAKER



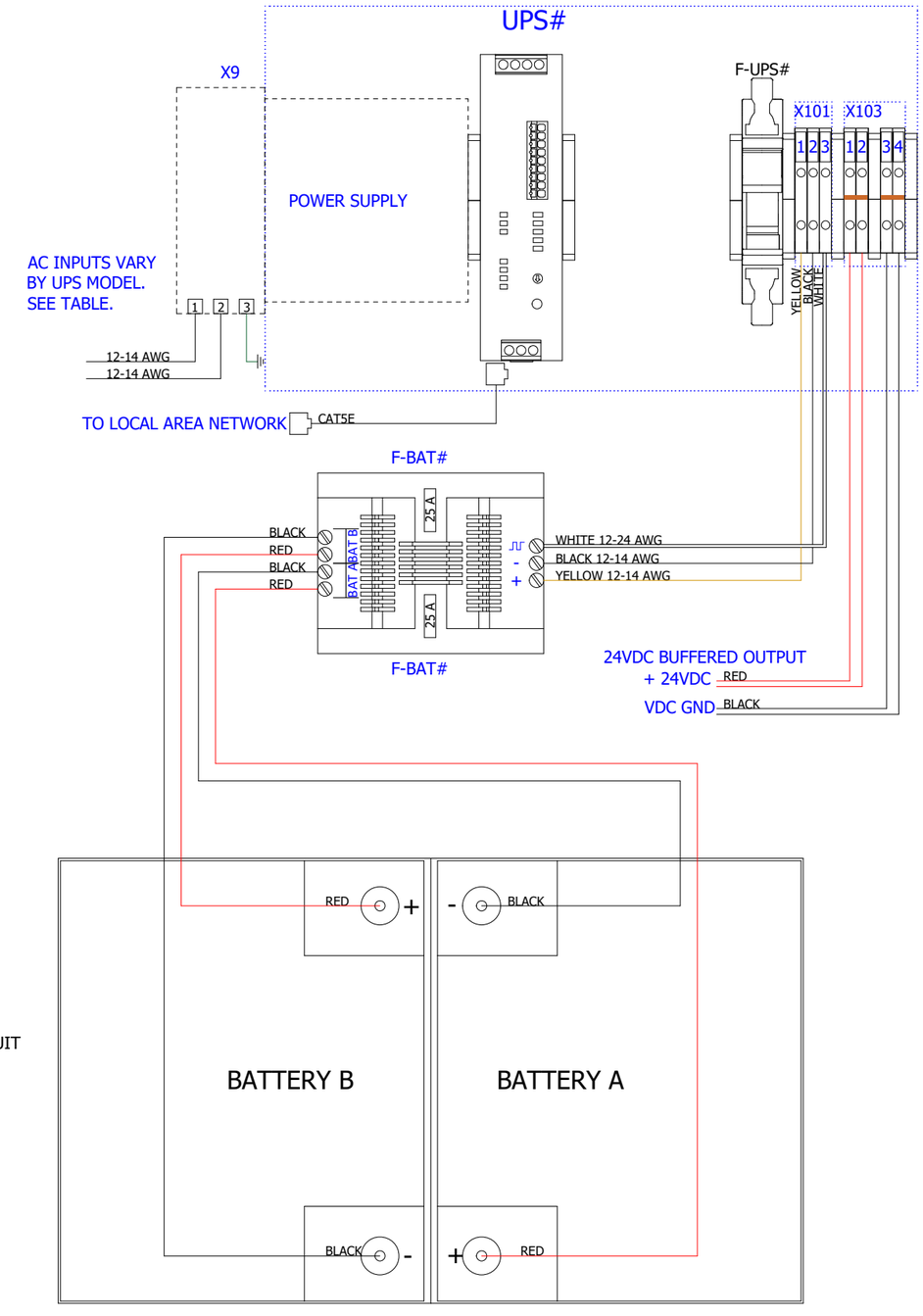
TWO POLE
CIRCUIT BREAKER



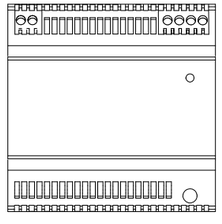
1. ENSURE BREAKER Q-P# (X9:1) IS IN OFF POSITION AND AC SUPPLY POWER IS OFF AT THE SOURCE
2. ENSURE F-UPS# FUSE HOLDER IS OPEN
3. ENSURE F-BAT# FUSES HAVE BEEN REMOVED FROM BATTERY CONNECTION MODULE
4. MAKE CONNECTIONS AS FOLLOWS:
   - ETHERNET PORT LOCATED ON UNDERSIDE OF CHARGE CONTROLLER TO LOCAL AREA NETWORK USING CAT5E OR CAT6 CABLE
   - TERMINAL X9:1 TO AC INPUT LINE
   - TERMINAL X9:2 TO AC INPUT NEUTRAL
   - TERMINAL X9:3 TO EGC
   - TERMINAL X103:1 AND/OR X103:2 TO 24VDC OUTPUT +
   - TERMINAL X103:3 AND/OR X103:4 TO 24VDC OUTPUT COMMON
   - TERMINAL X101:1 TO BATTERY CONNECTION MODULE POSITIVE CONTACT (+)
   - TERMINAL X101:2 TO BATTERY CONNECTION MODULE NEGATIVE CONTACT (-)
   - TERMINAL X101:3 TO BATTERY CONNECTION MODULE SIGNAL CONTACT (⎍)
   - (BAT A +) TO BATTERY A POSITIVE CONTACT
   - (BAT A -) TO BATTERY A NEGATIVE CONTACT
   - (BAT B +) TO BATTERY B POSITIVE CONTACT
   - (BAT B -) TO BATTERY B NEGATIVE CONTACT
5. INSERT F-BAT# FUSES INTO BATTERY CONNECTION MODULE ONLY WHEN SITE IS READY TO BE ENERGIZED. CONNECTING BATTERIES FOR PROLONGED PERIODS WITHOUT CHARGING WILL RESULT IN DECREASED BATTERY LIFE AND POSSIBLE BATTERY FAILURE.
6. ENERGIZE ENCLOSURE AT BREAKER Q-P# (X9:1)
7. INSERT F-UPS# FUSE AND CLOSE FUSE HOLDER

FUSE / BREAKER TABLE		
ID	TYPE	RATING
Q-P#	DC RATED CIRCUIT BREAKER (SEE TABLE FOR SINGLE OR TWO POLE)	6A*
F-UPS#	CLASS CC	4A
F-BAT#	ATO	25A

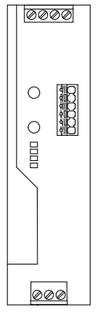
* UP-240-77W10A-SPCL INCLUDES A 16A BREAKER FOR AC INPUT CIRCUIT



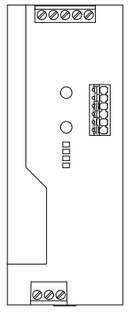
UP-277-52W
POWER SUPPLY



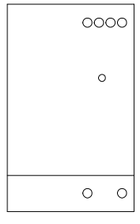
UP-240-77W
POWER SUPPLY



UP-240-77W10A-SPCL
POWER SUPPLY



UP-480-70W
POWER SUPPLY



also energy a stem company
Boulder, CO 80301
866-303-5668
AlsoEnergy.com

SIZE: ANSI B
SCALE: NONE

INFORMATIONAL SUPPLEMENT

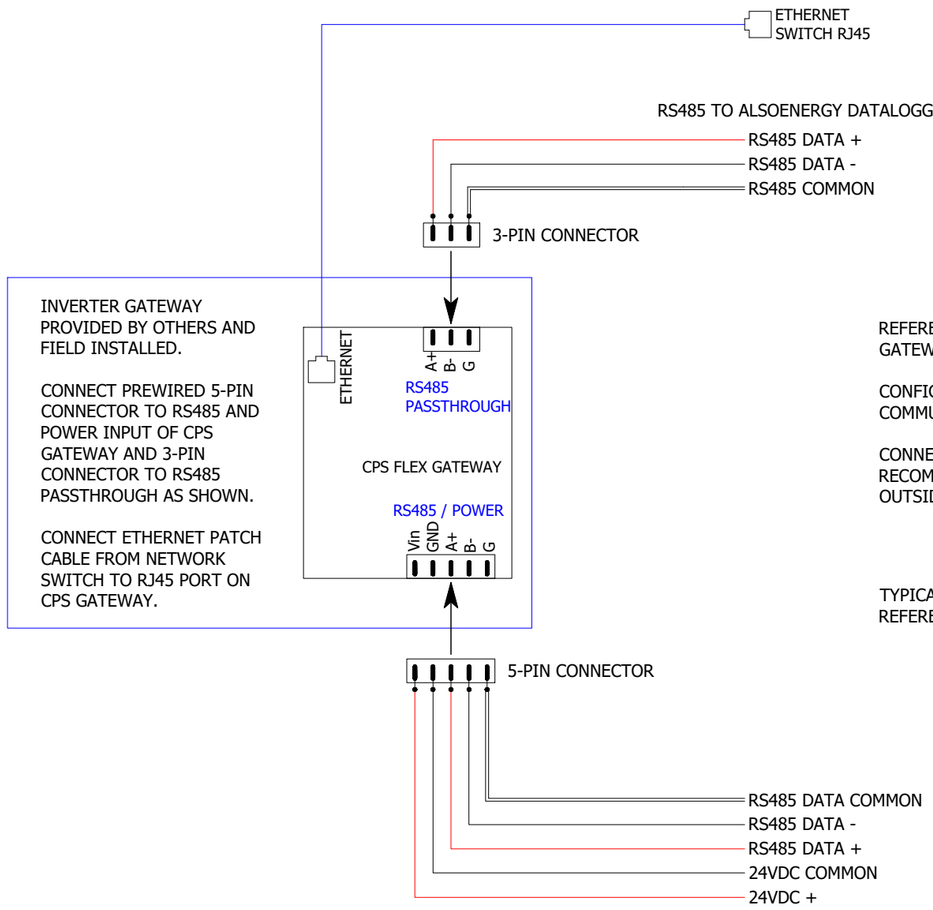
GENERALIZED INFORMATION REGARDING DEVICE FUNCTION AND BEST PRACTICES FOR INSTALLATION AND COMISSIONING. INFORMATION ON THIS SHEET IS NOT SPECIFIC TO ANY INSTALLATION. REFER TO ENCLOSURE DIAGRAMS AND SITE SINGLE LINE DIAGRAMS.

DETAIL - UPS ENCLOSURE

LOCATION:
-

WT743

CPS GATEWAY INSTALLATION USING ALSOENERGY FIELD INSTALLATION KIT IKIT-CPS-FGG2

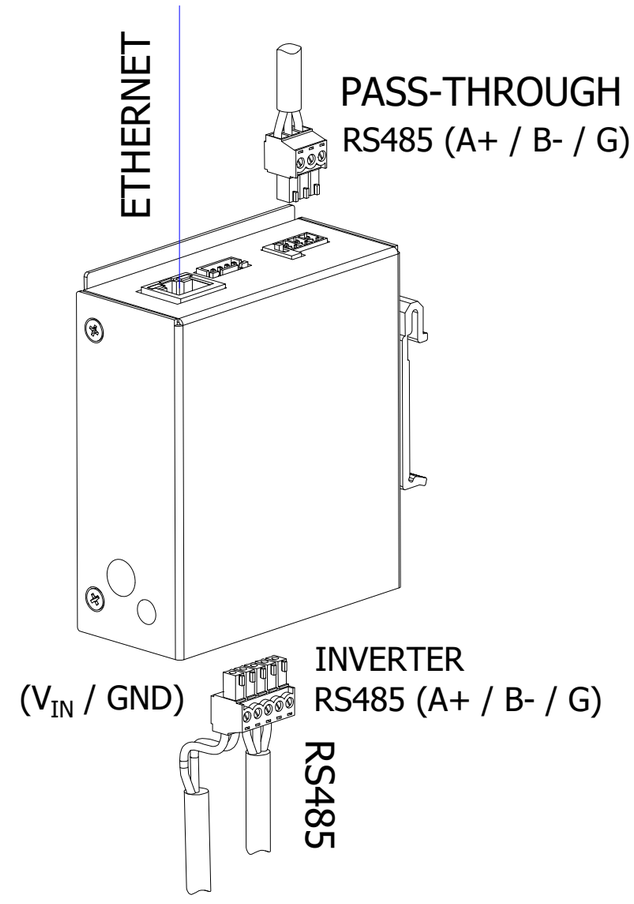


REFERENCE CPS DOCUMENTATION FOR CONFIGURATION OF WIFI MODULE AND INVERTER GATEWAY.

CONFIGURE INVERTER ID RANGE TO INCLUDE ALL INVERTER ADDRESSES AS SPECIFIED IN COMMUNICATION TABLE.

CONNECTING DEVICES OTHER THAN CPS INVERTERS THROUGH THE CPS GATEWAY IS NOT RECOMMENDED. IF ADDITIONAL DEVICES ARE CONNECTED THE MODBUS ADDRESS MUST BE OUTSIDE THE INVERTER ADDRESS RANGE.

TYPICAL CPS GATEWAY INSTALL CONFIGURATION SHOWN.
REFERENCE SINGLE LINE DIAGRAM AND SCHEMATIC FOR SITE-SPECIFIC INFORMATION.



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DETAIL - CPS FLEX GATEWAY FIELD INSTALLATION

LOCATION:
-

WT745

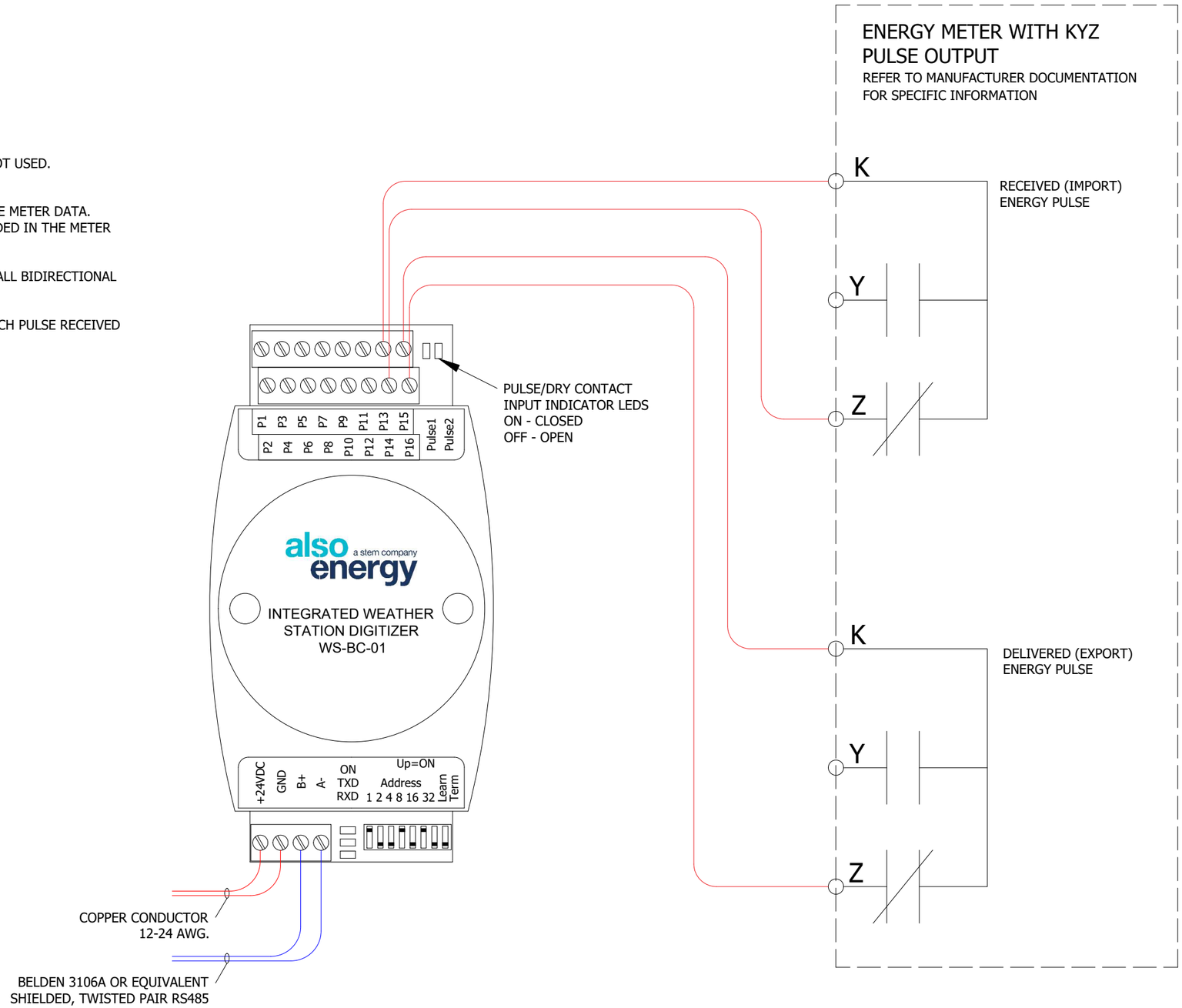
CONNECT K AND Z TERMINALS AS SHOWN. Y CONTACT IS NOT USED.

WATT-HOURS PER PULSE SCALE IS REQUIRED FOR ACCURATE METER DATA. Wh/PULSE IS SET WITHIN THE METER AND MUST BE RECORDED IN THE METER SETTINGS ON POWERTRACK.

CONNECT BOTH RECEIVED AND DELIVERED CONTACTS FOR ALL BIDIRECTIONAL METERS.

PULSE CONTACT LED INDICATORS WILL BLINK ONCE FOR EACH PULSE RECEIVED FROM THE METER.

KYZ PULSE METER CONTACTS	
METER CONTACT	ALSOENERGY TERMINAL BLOCK
DELIVERED ENERGY K	P15
DELIVERED ENERGY Y	NA
DELIVERED ENERGY Z	P16
RECEIVED ENERGY K	P13
RECEIVED ENERGY Y	NA
RECEIVED ENERGY Z	P14



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SCALE: NONE

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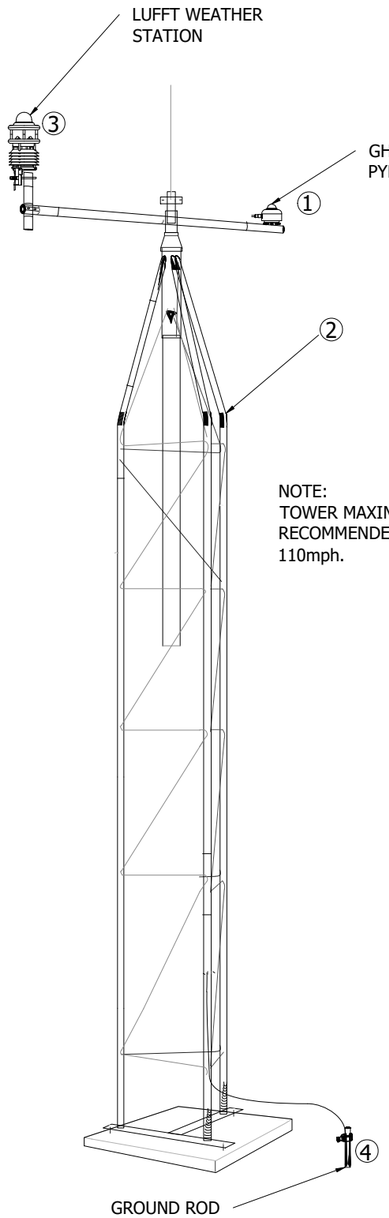
DETAIL - KYZ PULSE OUTPUT

LOCATION:
-

WT732

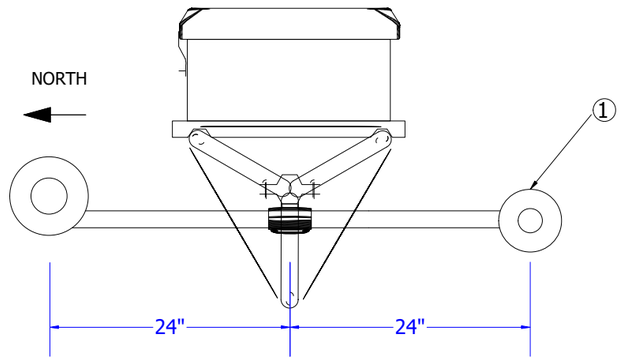
WEATHER STATION TOWER



NOTE:
TOWER MAXIMUM RECOMMENDED WIND LOAD 110mph.

WEATHER TOWER CROSSARM

MEASUREMENTS FOR REFERENCE ONLY



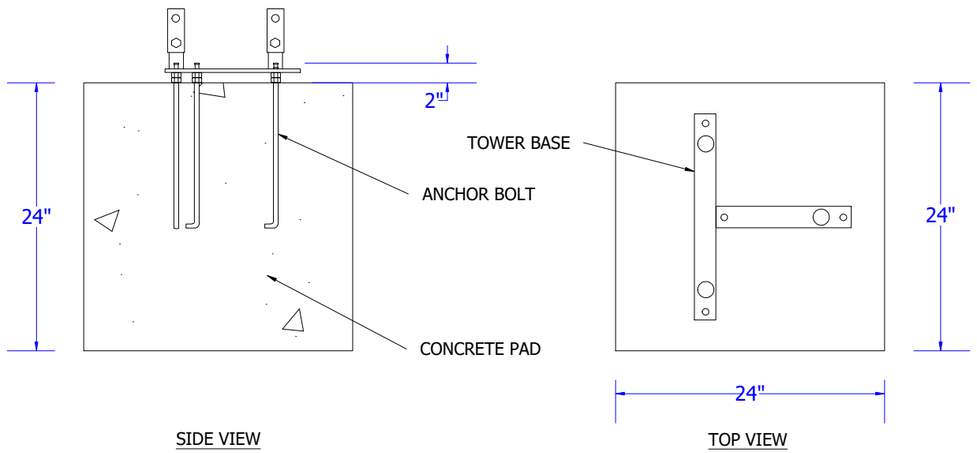
NOTES

1. GHI PYRANOMETER TO BE MOUNTED AT THE HIGHEST POSSIBLE POINT OF THE TOWER. MOUNT BEAM SO THAT PYRANOMETER IS TO THE SOUTH OF THE TOWER AND IS POSITIONED AS FAR AS POSSIBLE FROM THE TOWER AND OTHER COMPONENTS, WIRE POINTING NORTH.
2. TOWER HEIGHT: ADJUSTABLE 9-12'
3. SECURE LUFFT WEATHER STATION TO VERTICAL POLE
4. STRUCTURE MUST BE GROUNDED, GROUND ROD NOT INCLUDED.

APPROXIMATE WEIGHT INCLUDING SENSORS AND ENCLOSURES: 110lbs

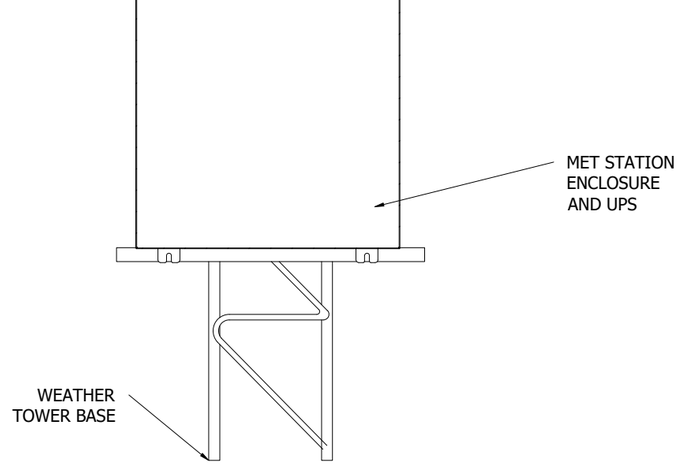
WEATHER TOWER BASE INSTALLATION

MEASUREMENTS FOR REFERENCE ONLY
CONCRETE PAD SIZING AND CONSTRUCTION BY OTHERS



WEATHER TOWER ENCLOSURE INSTALLATION

NOT TO SCALE



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DETAIL - WEATHER STATION TOWER

LOCATION:
-

WT719