

Interface Definitions

Interface	Properties
outside_to_sytem_acpwr	<ul style="list-style-type: none"> • Vnominal: 120VAC via a NEMA 5-15R connector • Ipeak: 15A • Inominal: 500mA
fused_acpwr	<ul style="list-style-type: none"> • Vnominal: 120VAC via a NEMA 5-15R connector • Ipeak: 5A • Inominal: 500mA • Disconnects system from input when 5A draw is exceeded
mcu_dcpwr	<ul style="list-style-type: none"> • Vnominal: 3.3VDC • Vmax: 3.6VDC • Vmin: 2.3 VDC • Inominal: 500mA • Powers ESP32 Microcontroller
node_dcpwr_(n)*	<ul style="list-style-type: none"> • Vnominal: 4.5VDC • Inominal: 500mA • Powers Relays
sensor_to_mcu_dsig_(n)*	<ul style="list-style-type: none"> • Vnominal: <1VDC • Reports current on output channels • Inominal: <5A
sensor_to_mcu_asig	<ul style="list-style-type: none"> • VHighMin: $0.75 \cdot \text{mcu_dcpwr VDC}$ • VHighMax: $\text{VDD} + 0.3 \text{ VDC}$ • VLowMin: -0.3 VDC • VLowMax: $0.25 \cdot \text{mcu_dcpwr VDC}$
mcu_to_node_dsig_(n)*	<ul style="list-style-type: none"> • Imax: 70mA • Imin: 0A • Disables output after a time of upto 1 hour \pm 1 minute when enabled • Operate output channels independently
user_bluetooth_in	<ul style="list-style-type: none"> • Enable/disable relays • Set a timer up to 60 min. \pm 1 min. • Can give commands from over 20 ft • Interface via a mobile phone (Android)
user_bluetooth_out	<ul style="list-style-type: none"> • Reports on current/voltage draw • Able to report data to phone from over 20 ft away • Confirms length of timers • Disables channels if timer is up

user_wifi_in	<ul style="list-style-type: none"> • Enable/disable relays • Set a timer up to 60 min. \pm 1 min. • Can give commands from over 20 ft • Interface via a mobile phone (Android)
user_wifi_out	<ul style="list-style-type: none"> • Reports on current/voltage draw • Able to report data to phone from over 20 ft away • Confirms length of timers • Disables channels if timer is up
system_to_outside_usrout	<ul style="list-style-type: none"> • Display current of outputs - 0-5 A • Able to update output statuses from 20 feet away • Confirms timers if set
outside_to_system_usrin	<ul style="list-style-type: none"> • User interacts with system via Smartphone App • 9/10 users able to operate switches in <10 seconds without any previous training or knowledge of the interface • Enable/Disable each channel • Set delay on each output • Accepts inputs from 20 feet away • Disables output after a time of upto 1 hour \pm 1 minute when enabled
system_to_outside_acpwr_(n)*	<ul style="list-style-type: none"> • Turn off and on at least 2 independent household lamps with up to 100W incandescent bulbs and report current watts delivered by each channel • Vnominal: 120VAC via a NEMA 5-15R connector • Ipeak: 5A • Inominal: 500mA • Outputs will turn off after times of up to 60 minutes when selected

*note: n represents the nth redundant node