

A decorative graphic on the left side of the slide, consisting of a network of white lines and circles on a blue gradient background, resembling a circuit board or a neural network.

WATCHDOGGING

STATE MONITORING, RESET AND ACCOUNTING

IDENTIFY REQUIREMENTS

- Does it need to be automated?
 - Remote telemetered sites; telemetry equipment and data acquisition
 - Receive facilities; not always readily accessible.
 - Telemetry equipment; loss of remote access
 - Data acquisition equipment; does it have local recording? Is it real time?
 - State change record; is equipment recording state change?
 - Local log, remote syslog, SNMP, SMS, MQTT, SMTP...
 - Other...

FAILURE MODES

- Telemetry partial failure no throughput; can access locally only.
- Telemetry partial failure no throughput; can access remotely only.
- Telemetry equipment in full failure.
- Temporary loss of telemetry due to met conditions, short or long term.
- Data acquisition equipment lockup; can affect SOH or operational data
- Others...

TWADDLING PARANOIA

- Can it be broken by a power cycle? i.e: mid-firmware update, mid-config change/update?
- Is the outage due to an external force where rebooting will do nothing?
- Power removed long enough to induce full reset?
- Is there a possibility that the equipment will have to be touched to recover?
- Manually triggered after monitoring alert or automated?
- Safe modes and working config saved.
- Other things causing a need for Zantac...

AUTOMATONS



WebRelay Quad

- Low power consumption.
- Web API for remote automation and state monitoring.
- MODBUS capable.
- Firmware customization available. Ex: AVO watchdog
- Insufficient capacity to log locally.
- No SNMP
- No local manual control
- Excellent reliability.

<https://www.controlbyweb.com/webrelay/>

AUTOMATONS



DinRelay III

- Reasonable power consumption
- Web API
- Onboard scripting, watchdog less flexible than WebRelay
- Local manual control
- Local logging, remote logging
- Multiple users, per relay
- High capacity relays
- Good reliability

AUTOMATONS

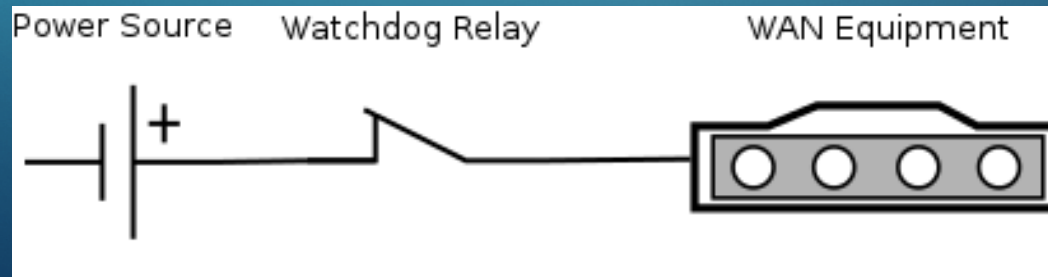


DinRelay IV

- Reasonable power consumption, no disable for WiFi.
- Web API
- Onboard Lua scripting.
- Lua scripting allows complex watchdogs
- Local manual control
- Local logging, remote logging
- Multiple users, per relay
- High capacity relays
- 1-wire sensor capable.
- **Delicate hardwired fuses prone to failure.**

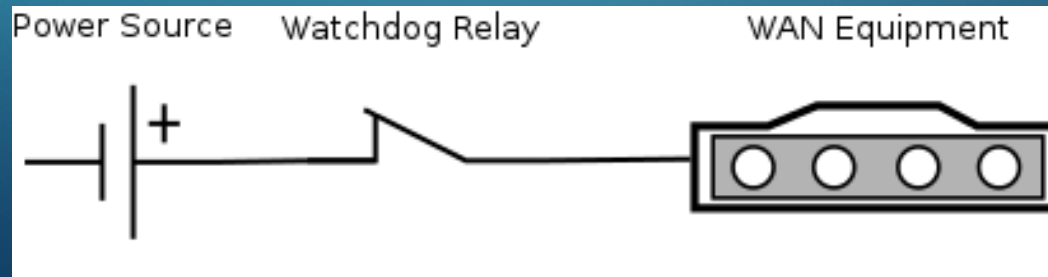
WEBRELAY FAST WATCHDOG

Ping IP Address:	<input type="text" value="192"/> . <input type="text" value="168"/> . <input type="text" value="205"/> . <input type="text" value="1"/>
Pulse/Reboot Time:	<input type="text" value="30.0"/> secs
Successful Ping Period:	<input type="text" value="300"/> secs
Unsuccessful Ping Period:	<input type="text" value="120"/> secs
Delay Before First Ping:	<input type="text" value="300"/> secs
Failed Pings Before Reboot:	<input type="text" value="10"/>
Max Reboot Attempts:	<input type="text" value="255"/>



WEBRELAY SLOW WATCHDOG

Ping IP Address:	<input type="text" value="8"/> <input type="text" value="8"/> <input type="text" value="4"/> <input type="text" value="4"/>
Pulse/Reboot Time:	<input type="text" value="30.0"/> secs
Successful Ping Period:	<input type="text" value="300"/> secs
Unsuccessful Ping Period:	<input type="text" value="300"/> secs
Delay Before First Ping:	<input type="text" value="300"/> secs
Failed Pings Before Reboot:	<input type="text" value="96"/>
Max Reboot Attempts:	<input type="text" value="255"/>



WEBRELAY DOUBLE WATCHDOG

Ping IP Address:

192 . 168 . 205 . 1

Pulse/Reboot Time:

30.0 secs

Successful Ping Period:

300 secs

Unsuccessful Ping Period:

120 secs

Delay Before First Ping:

300 secs

Failed Pings Before
Reboot:

10

Max Reboot Attempts:

255

Ping IP Address:

8 . 8 . 4 . 4

Pulse/Reboot Time:

30.0 secs

Successful Ping Period:

300 secs

Unsuccessful Ping Period:

300 secs

Delay Before First Ping:

300 secs

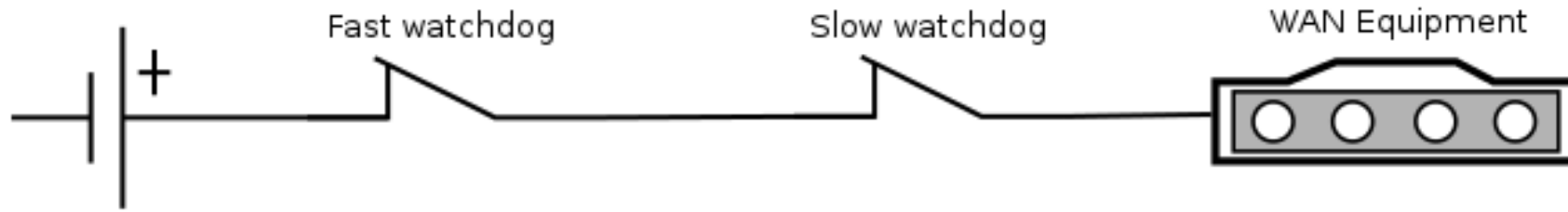
Failed Pings Before
Reboot:

96

Max Reboot Attempts:

255

Power Source



EXTERNAL CONTROLS

- IoT has allowed significant local intelligence with Linux and similar lightweight, well featured systems for low costs for power, size and dollars.
- Local site monitoring, control, recording, alerting, and transmission to centralized aggregation and presentation points. Life on the Edge.
- Controls automated with scripting, web APIs, SNMP, MODBUS and...
- It really only costs time. Don't forget rigorous testing, it's extremely easy to end up with a site in the dark.