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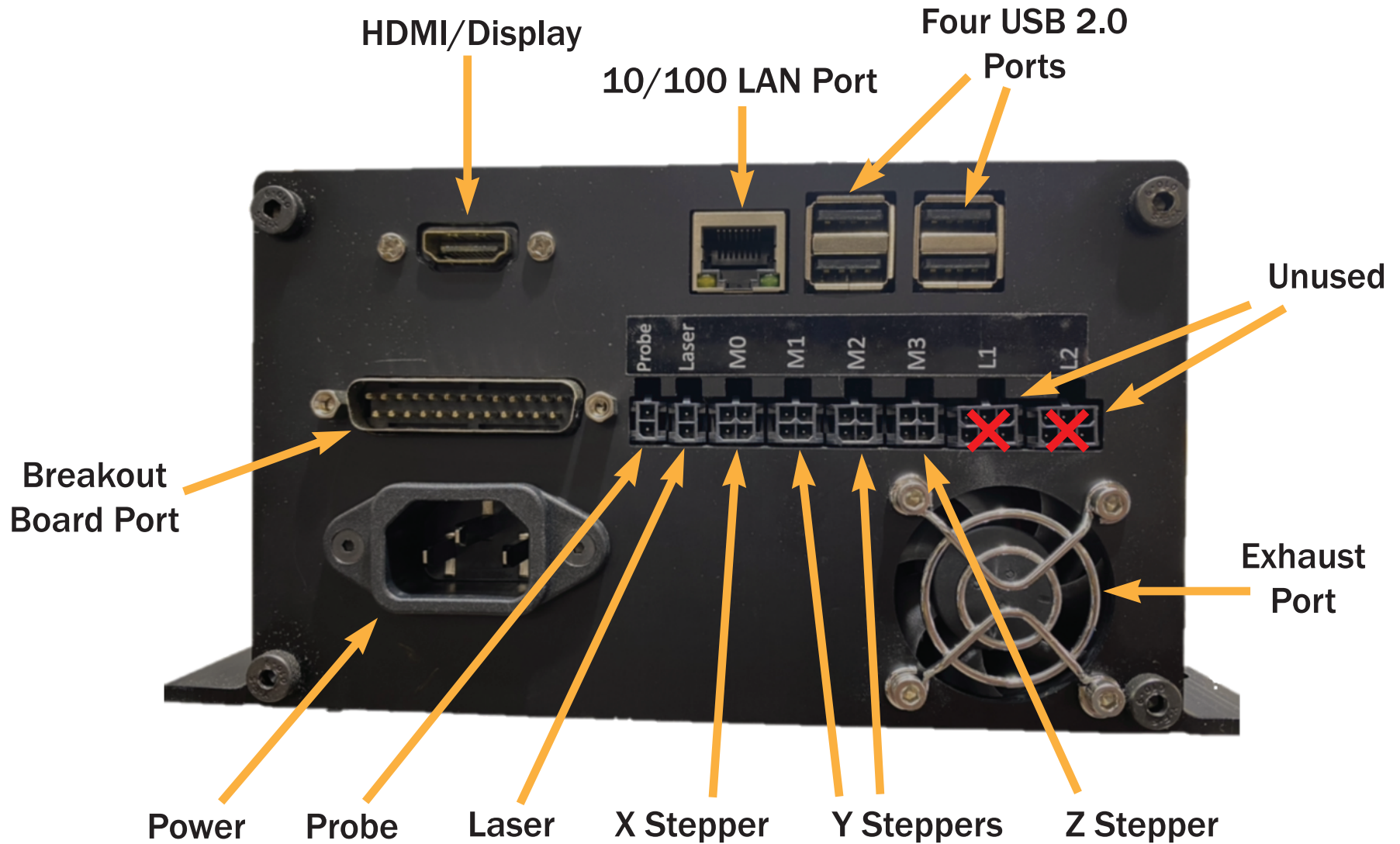
CONTROLLER SOFTWARE MANUAL

VERSION 2.0



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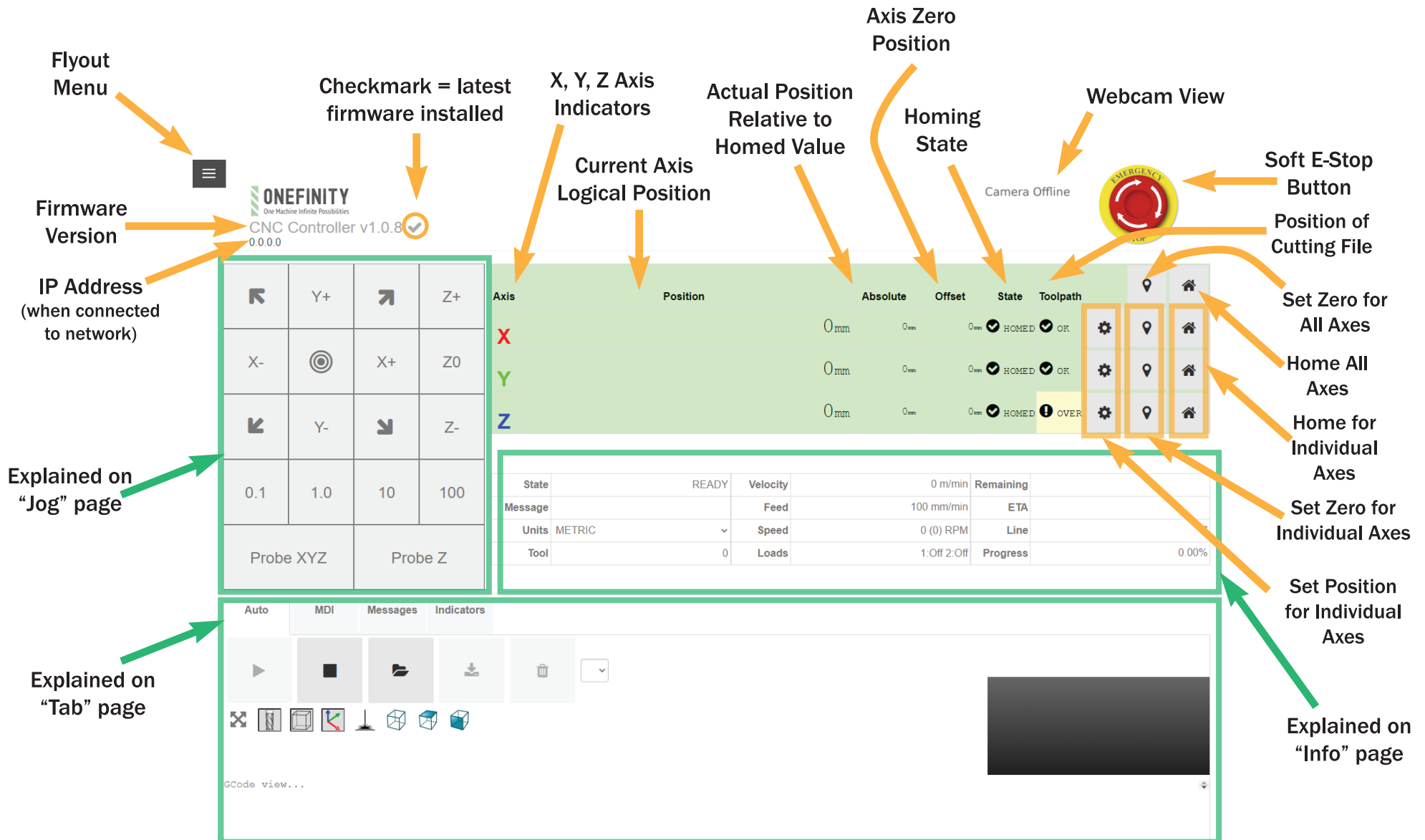
CONTROLLER PORT LAYOUT





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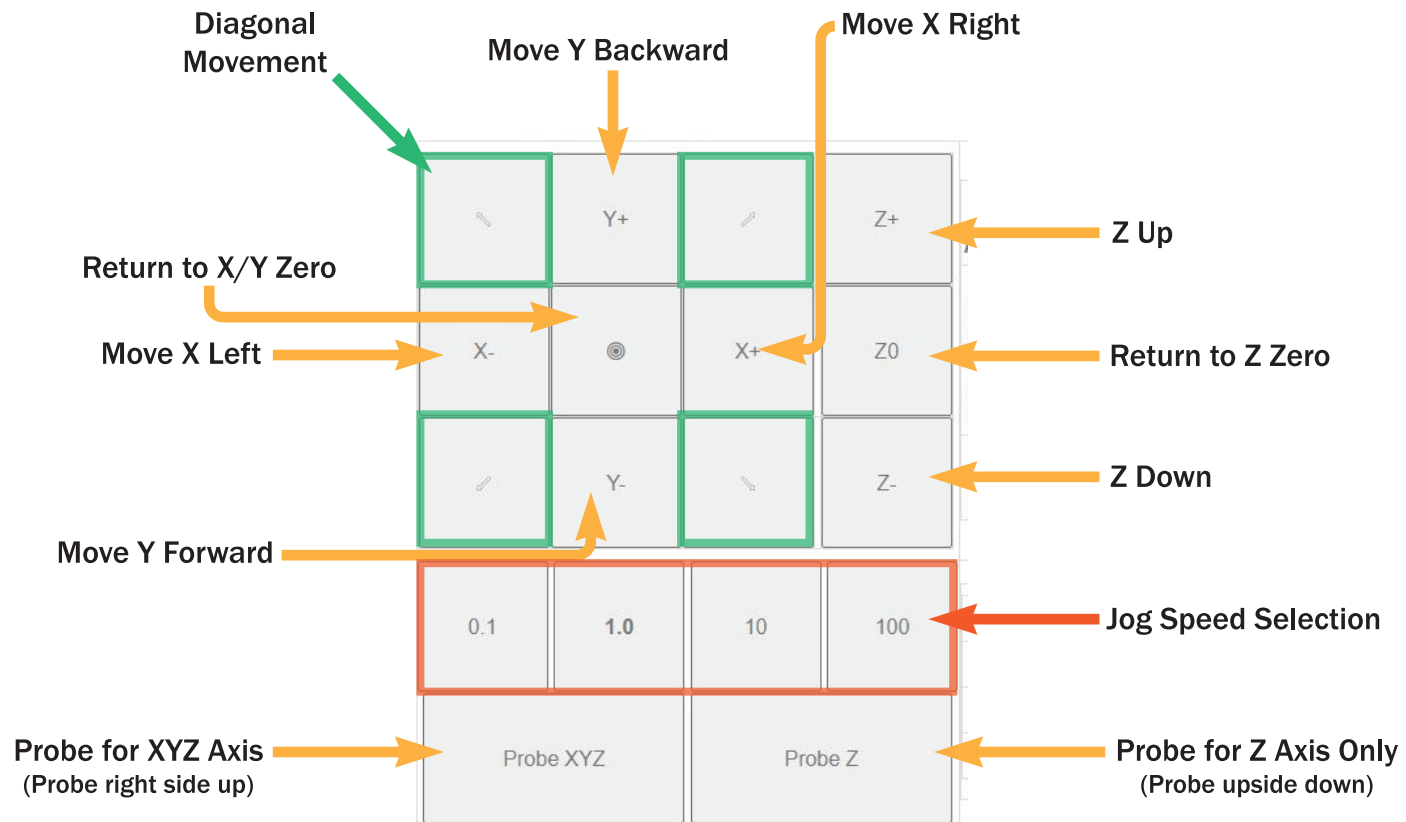
CONTROL SCREEN





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JOG PANE





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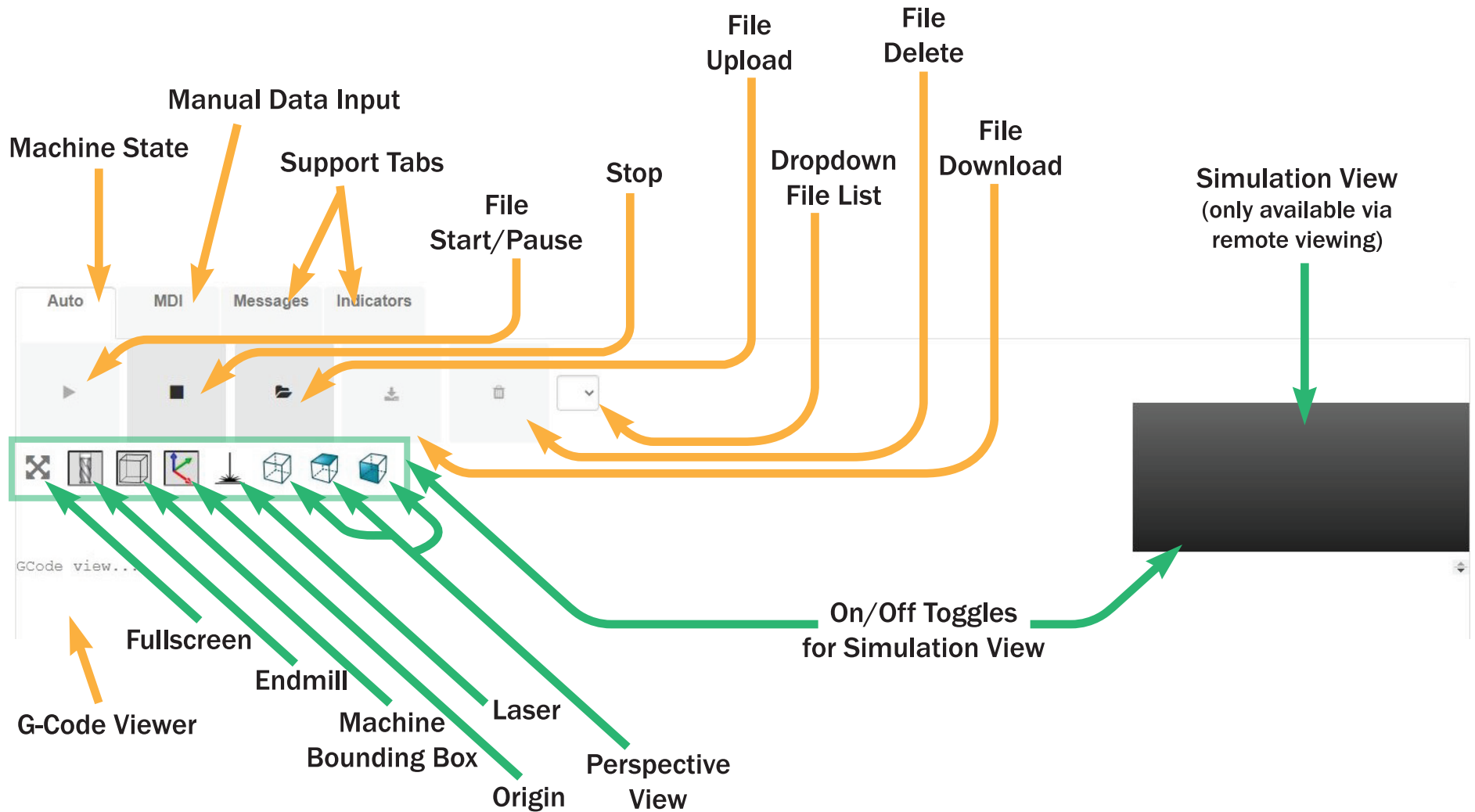
INFO PANE

Machine State		Actual Feedrate		Cut Time Remaining	
		Target Feedrate		Job End Time	
State	READY	Velocity	0 m/min	Remaining	
Message		Feed	0 mm/min	ETA	
Units	METRIC	Speed	0 (0) RPM	Line	0
Tool	0	Loads	1:Off 2:Off	Progress	0.00%
Bit Number Assigned via CAD		Metric or Imperial Selection		Current G-Code Line	
		Spindle Speed RPM (Not applicable with Makita router)		Percent Remaining	
		Unused			



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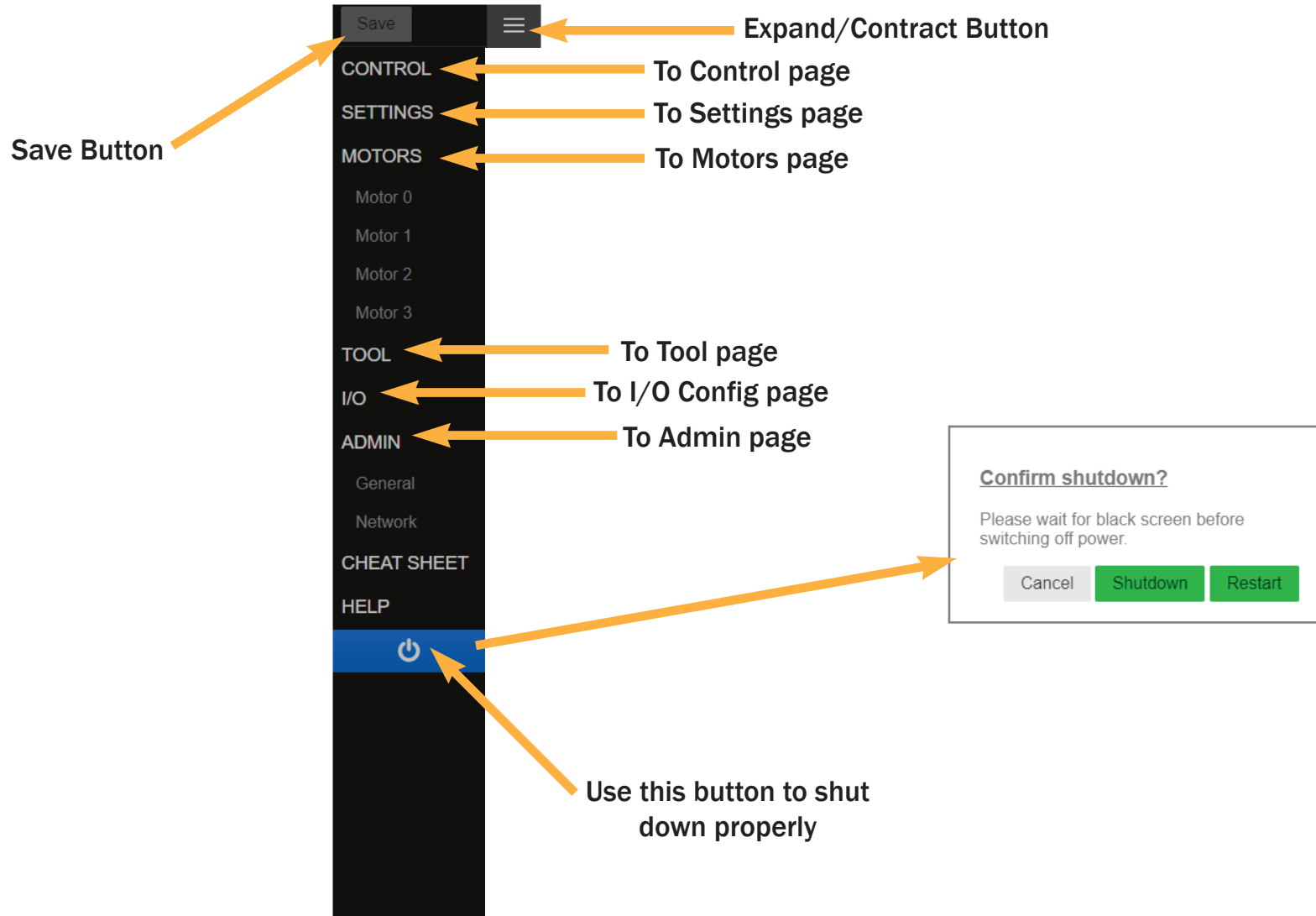
TAB PANE





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FLYOUT MENU





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SETTINGS 1

Settings

Units

Switch between
Imperial and Metric

units

Note, `units` sets both the machine default units and the units used in motor configuration. GCode `program-start`, set below, may also change the default machine units.

Enables/disables safety prompts
before and after probing

Probing Safety Prompts

probing-prompts ☒

Probe Dimensions

User configurable initial probe diameter size

probe-diameter mm

Fine-tune probe dimension X

probe-xdim mm

Fine-tune probe dimension Y

probe-ydim mm

Fine-tune probe dimension Z

probe-zdim mm

Adjust speed of probe seek

probe-fast-seek mm/m

probe-slow-seek mm/m

GCode

Program-start GCode

program-start

(Runs at program start)
G90 (Absolute distance mode)
G17 (Select XY plane)

continued





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SETTINGS 2

Tool change (M6) GCode



tool-change

```
(Runs on M6, tool change)
M70
G21
S0
M0 M6 (MSG, Change tool and attach probe)
F100
(probe to minimum z soft limit, which is -10)
```

Program-end GCode



program-end

```
(Runs on M2, program end)
M2
```

Path Accuracy

Precision of Path



max-deviation

mm

Lower **max-deviation** to follow the programmed path more precisely but at a slower speed.

In order to improve traversal speed, the path planner may merge consecutive moves or round off sharp corners if doing so would deviate from the program path by less than **max-deviation**.

GCode commands [G61](#), [G61.1](#) and [G64](#) also affect path planning accuracy.

Cornering Speed (Advanced)

Cornering Speed



junction-accel

mm/min²

Junction acceleration limits the cornering speed the planner will allow. Increasing this value will allow for faster traversal of corners but may cause the planner to violate axis jerk limits and stall the motors. Use with caution.



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MOTORS 1



Motor 0 Configuration

General

Axis Selection



axis

Power

Power enabled/disabled checkbox



enabled

☒

Max peak current



drive-current

amps

Peak holding current



idle-current

amps

Motion

Reverse checkbox



reverse

☐

Resolution



microsteps

per full step

(53.3k μ step/sec)

Max speed axis will move



max-velocity

m/min

(1000 RPM)

Max acceleration



max-accel

km/min²

(21.244 g)

Rate change of acceleration



max-jerk

km/min³

(28.33 g/min)

Angle motor turns



step-angle

degrees

(200 steps/rev)

Revolution distance of motor



travel-per-rev

mm

(50.0 μ m/step)

Limits

Minimum absolute position



min-soft-limit

mm

Max absolute position



max-soft-limit

mm

Type of physical limit switch minimum



min-switch

Pin 3 ☐

Type of physical limit switch maximum



max-switch

Pin 4 ☐



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MOTORS 2

Homing

Homing mode selection	→	homing-mode	<input type="text" value="stall-min"/>	▼	
Homing resolution	→	stall-microstep	<input type="text" value="8"/>	▼	per full step (4.5k μ step/sec)
Max speed axis will home	→	search-velocity	<input type="text" value="1.688"/>		m/min (169 RPM)
Stall volts	→	stall-volts	<input type="text" value="2"/>		v
Microstep EMF sample time	→	stall-sample-time	<input type="text" value="200"/>	▼	μ sec
Stall current	→	stall-current	<input type="text" value="1"/>		amps
Distance backed away from endstop	→	zero-backoff	<input type="text" value="1.5"/>		mm



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TOOL CONFIGURATION

Tool Configuration

tool-type

Select 'Disabled' for use with Makita router

Select 'PWM Spindle' for use with laser

For use with spindles (unsupported by Onewfinity)

- Disabled
- PWM Spindle
- Huanyang VFD
- Custom Modbus VFD
- AC-Tech VFD
- Nowforever VFD
- Delta VFD015M21A (Beta)
- YL600, YL620, YL620-A VFD (Beta)
- FR-D700 (Beta)
- Sunfar E300 (Beta)
- OMRON MX2



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TOOL CONFIGURATION (CONT.)

Tool Configuration

Tool selection	→	tool-type	<input type="text" value="PWM Spindle"/>	▼
Tool rotation direction	→	tool-reversed	<input type="checkbox"/>	
Max RPM/power of spindle/laser	→	max-spin	<input type="text" value="255"/>	RPM
Min RPM/power of spindle/laser	→	min-spin	<input type="text" value="0"/>	RPM
Tool enable control	→	tool-enable-mode	<input type="text" value="disabled"/>	▼
Tool direction control	→	tool-direction-mode	<input type="text" value="disabled"/>	▼

Pin 15 ○

Pin 16 ○

PWM Spindle

Logic high/logic low toggle	→	pwm-inverted	<input type="checkbox"/>	
Min spindle rate	→	pwm-min-duty	<input type="text" value="1"/>	%
Max spindle rate	→	pwm-max-duty	<input type="text" value="99.99"/>	%
Pulse rate in hertz	→	pwm-freq	<input type="text" value="1000"/>	Hz
Turns off spindle/laser during rapid moves	→	rapid-auto-off	<input checked="" type="checkbox"/>	
Lowers power during acceleration and deceleration	→	dynamic-power	<input checked="" type="checkbox"/>	