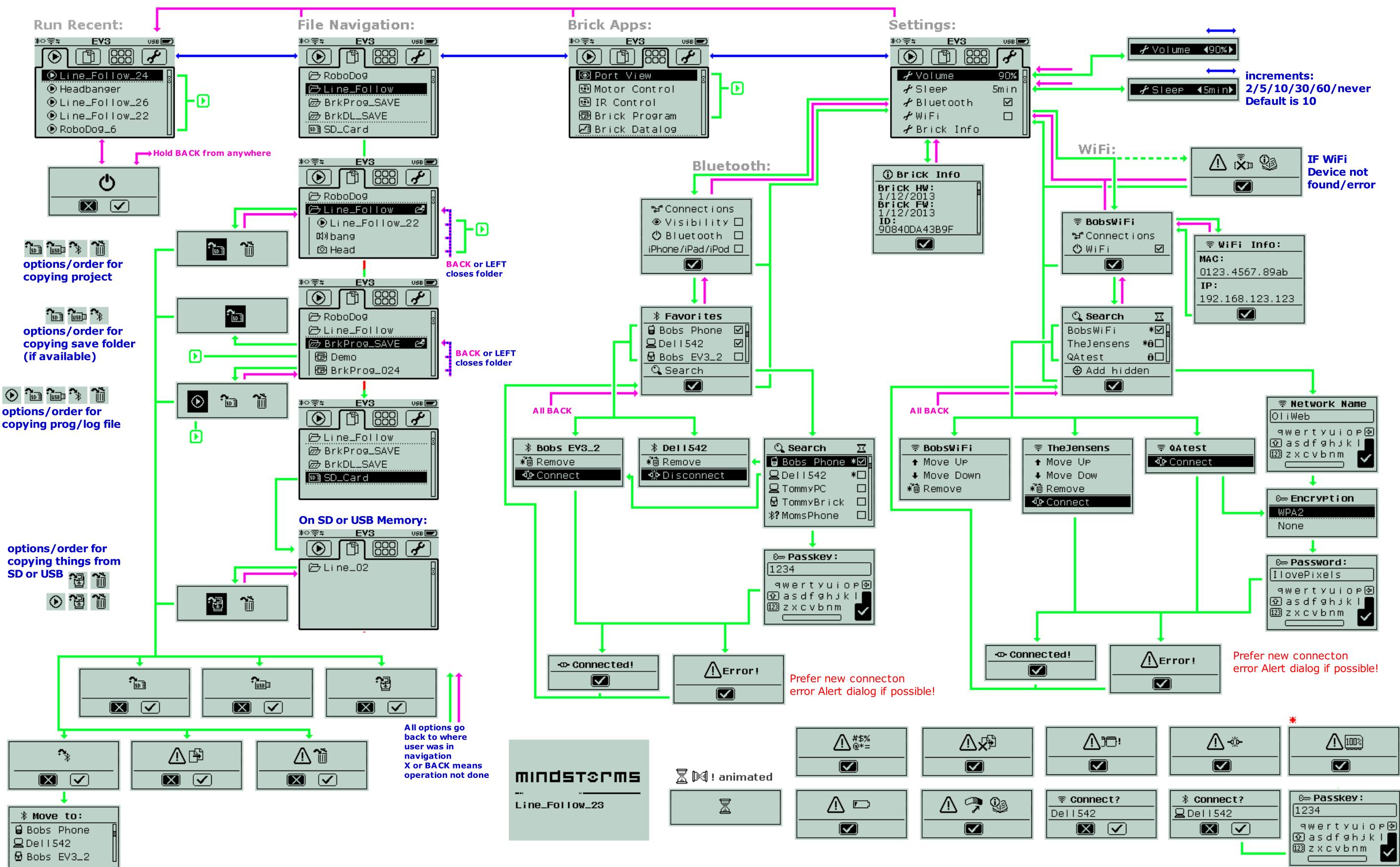


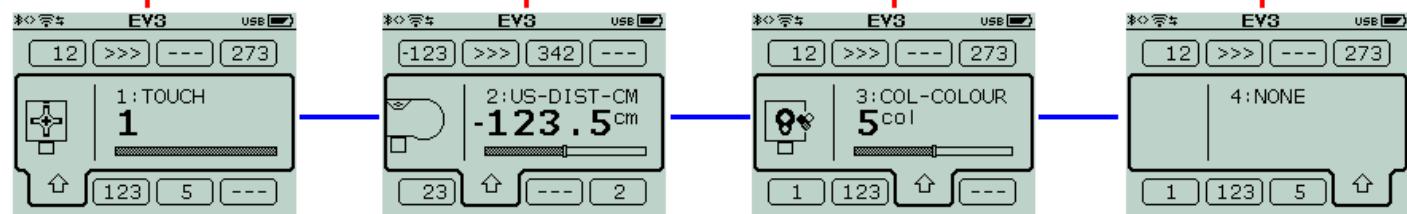
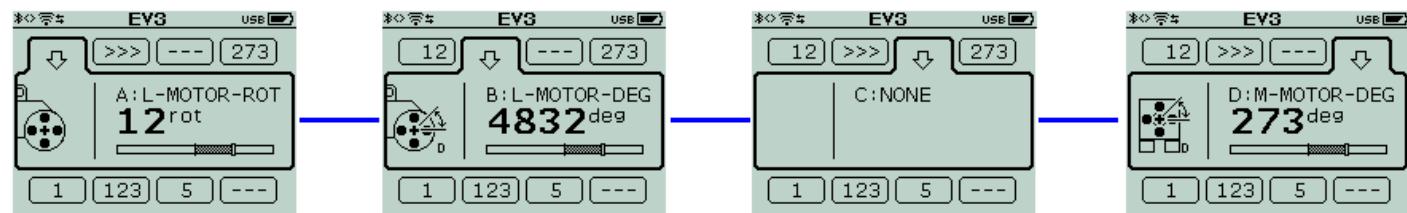
# General Navigation: Flow (2 OCT)

\*2 OCT

- iPhone/iPad/iPod option in Bluetooth
- Demo Prog in Brick Program folder
- Rename of "Play recent" to "run recent"
- Confirmed File Navigation behaviour
- USB icon when connected



# VIEW: Flow (2 Oct)

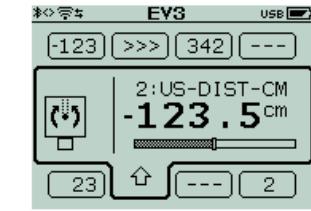


If press "ok" on a ID'ed sensor/motor  
that has multiple modes:



## 30 MAR Outstanding

- Use LookUp for NXT elements
- Reset all accumulating sensors/motors when
  - Unplug/replug sensor
  - Coming into app
  - Rollover on Bar Graphic



Preferred Function for Sensors/Modes that can accumulate  
(can be a standard behaviour as will not effect others)

L-MOTOR-ROT, L-MOTOR-DEG, M-MOTOR-ROT, M-MOTOR-DEG, GYRO\_ANG  
can accumulate values

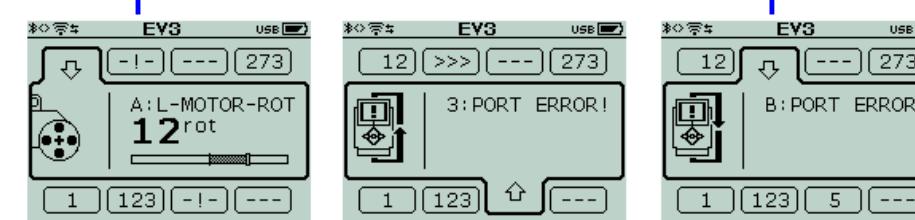
If press ok to sensor set up....

- pressing OK on any option will set the sensor to Zero
- pressing BACK while on any option returns to main screen without reset  
(similar for sensor setup page in DataLog)

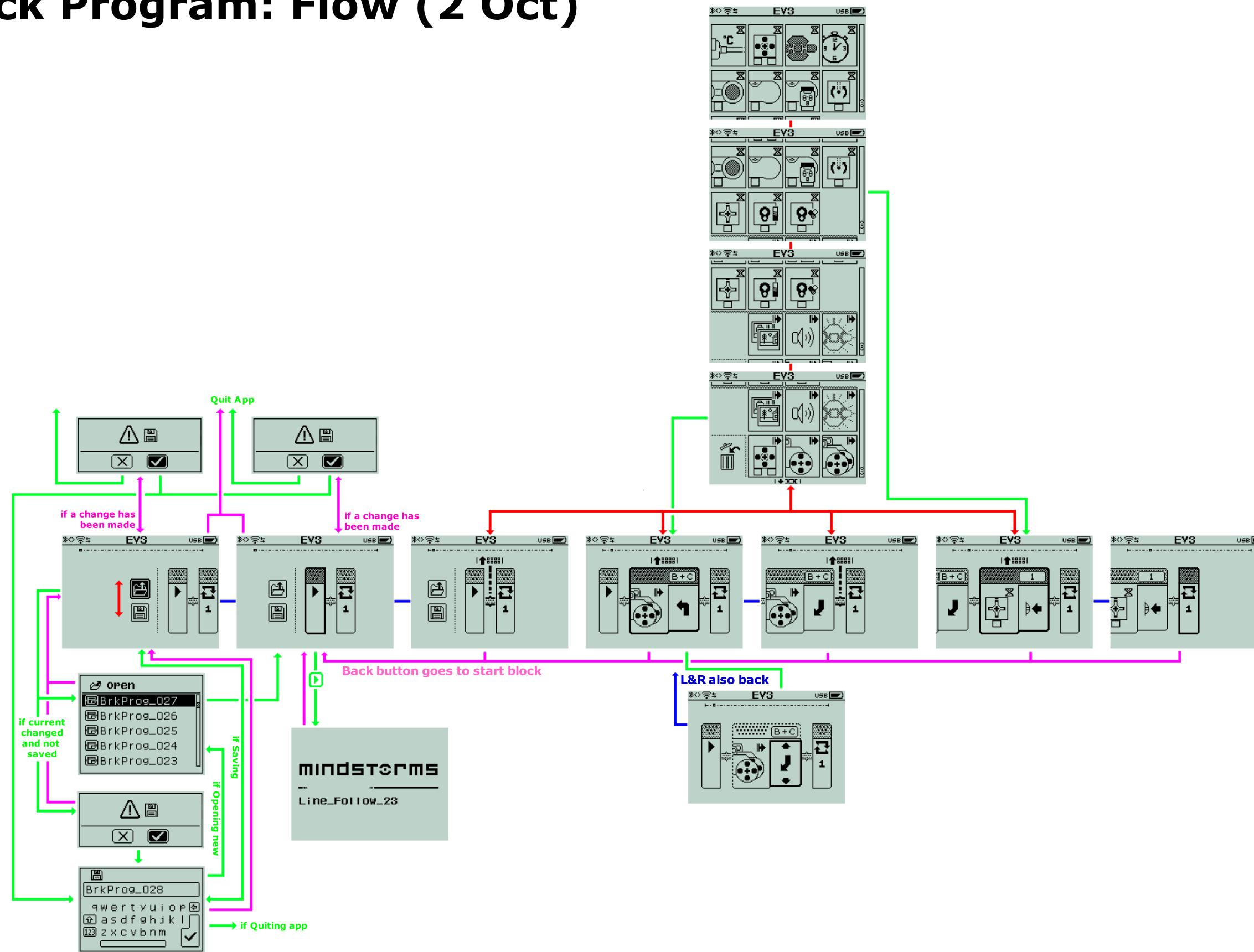
Navigating sensors does not reset to Zero

App restart and disconnect sensor does reset to zero

IF sensor/motor plugged into wrong side:



# Brick Program: Flow (2 Oct)



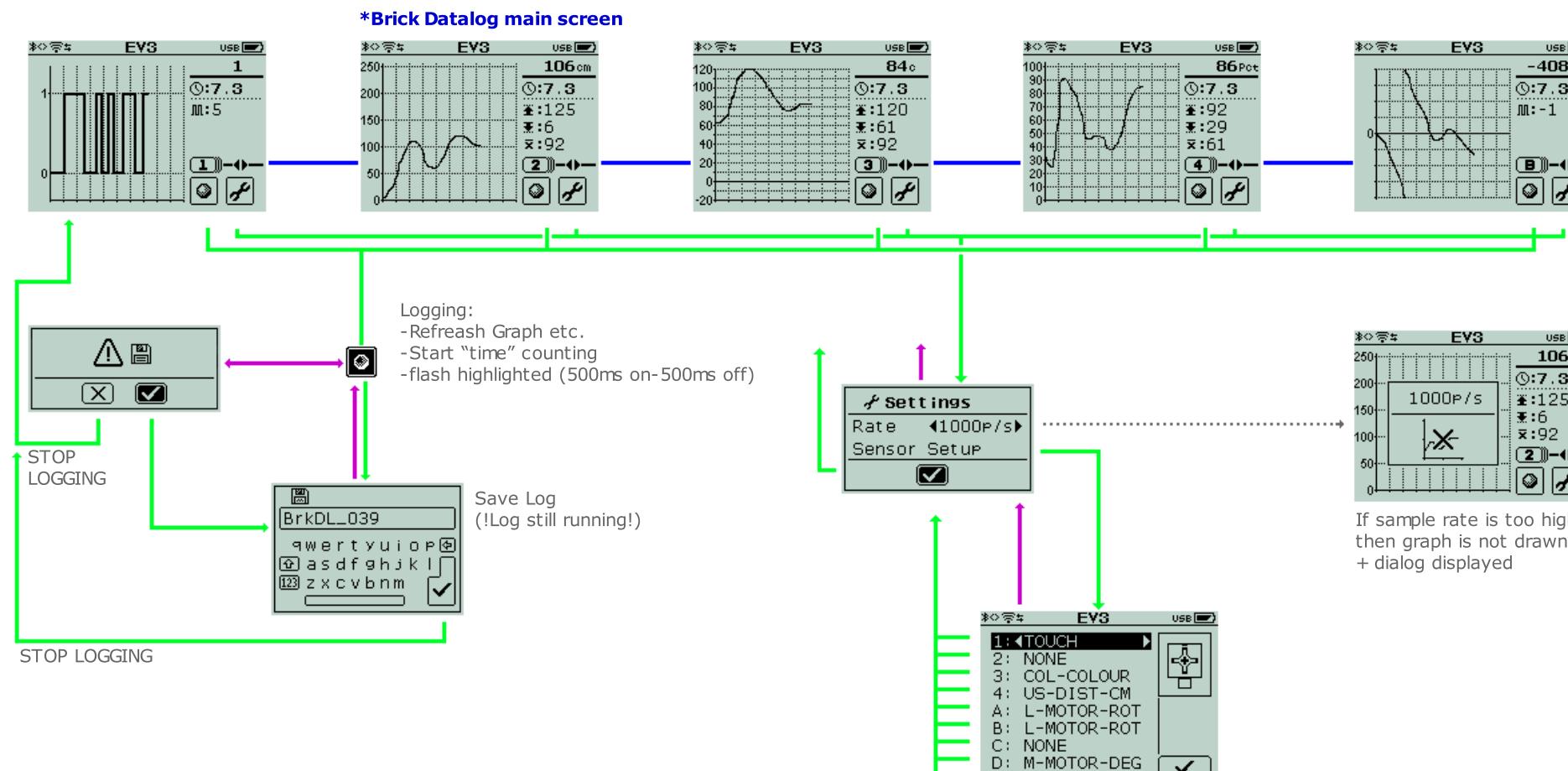
**15 JUNE outstanding issues:**  
- "OK" to also go to library?

# Brick Datalog: Flow (2 Oct)

## Scope Preferred Functionality:

- Do not increment time value: -.-
- Keep Graph running/scrolling when switching between sensors (ie: do not clear graph)
- If new sensor plugged in..then use its first stable value..and that draws from left (as graph is running/scrolling)
- Can refresh graph/scrolling if: all sensors are unplugged or going into logging

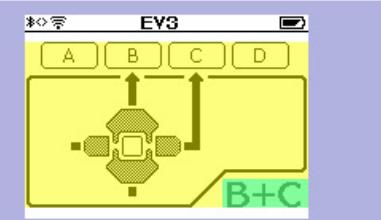
Graph on screen is always running 10 pixels per sec



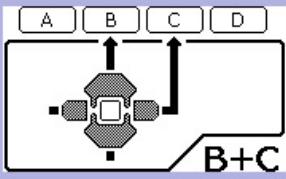
## 30 MAR outstanding issues:

- Confirm Graphical rollover
- Confirm feasibility of changing details (min/max/ave-count)
- Confirm showing multiple graphs (show all mode)

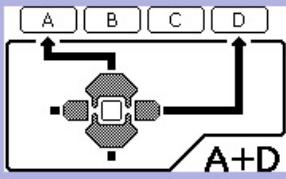
# Motor Control: Flow + Assets (11 May)



MotorCtlLAY.bmp



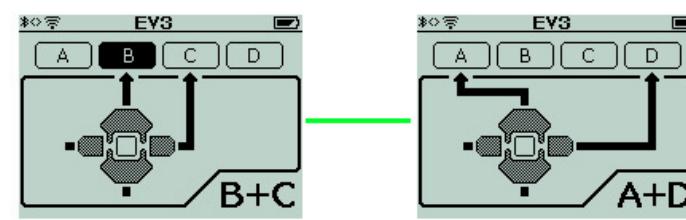
MotorCtlBC.bmp



MotorCtlAD.bmp

**B+C**  
MctlBC.bmp

**A+D**  
MctlAD.bmp



**Function:** Motors are directly controlled by Buttons on P-Brick

**P-Brick Buttons:**

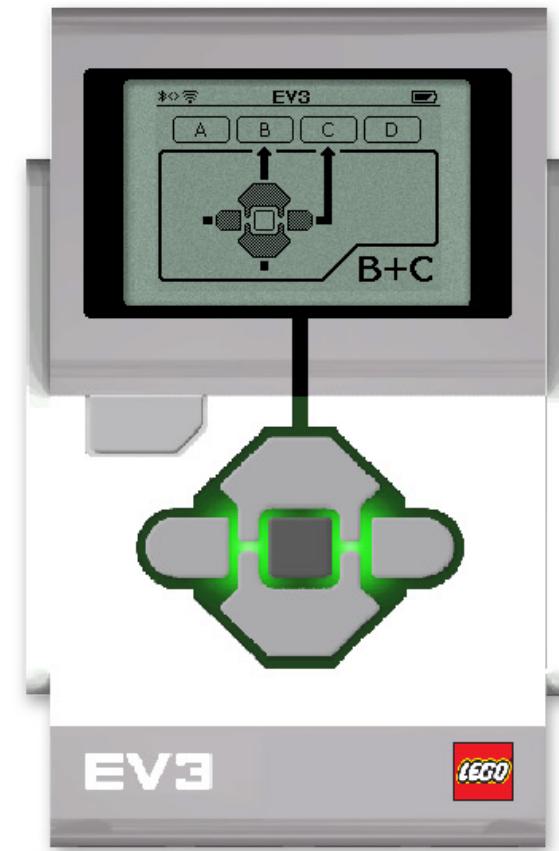
Center= Toggle Ports between BC and AD

(*also changes graphic*)

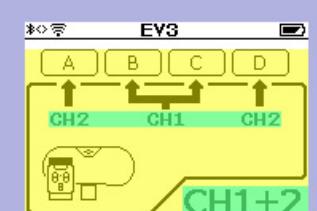
Up/Down = Motor B or A Fwd/Back

Right/Left = Motor C or D Fwd/Back

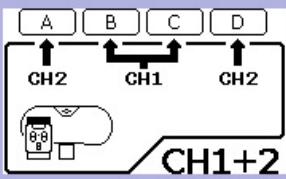
Highlight active port (highlight while motor ON)



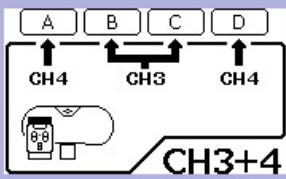
# IR Control: Flow + Assets (11 May)



IRCtlLAY.bmp



IRCtl12.bmp

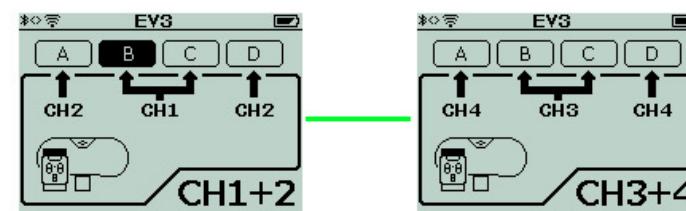


IRCtl34.bmp

**CH1+2**  
IRctlsm12.bmp

**CH3+4**  
IRctlsm34.bmp

**CH1+2**  
IRctlbb12.bmp



**Function:** Motors are directly controlled by Buttons on IR Beacon

**P-Brick Buttons:**

Center= Toggle Channels that P-Brick responds to (1+2 OR 3+4)  
(*also changes graphic*)

Up/Down/Left/Right: Do nothing

**IR SEEKER IN PORT 4 + BEACON/REMOTE:**

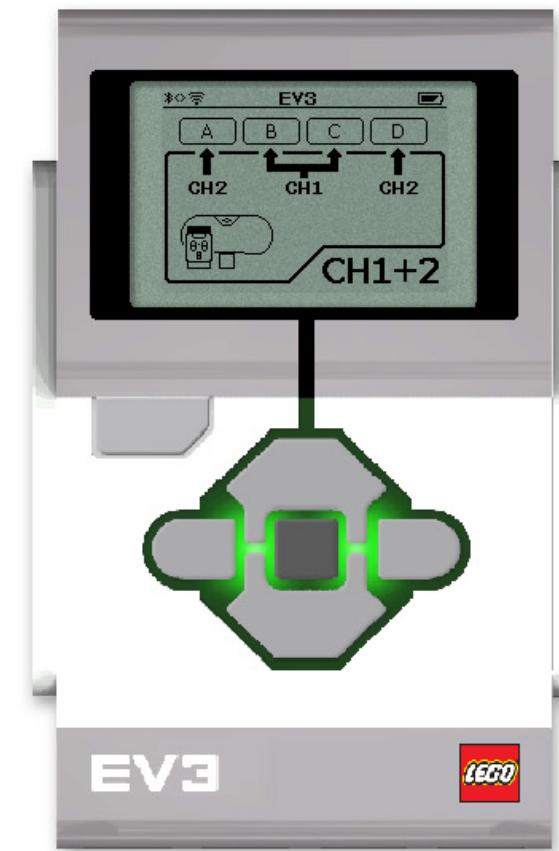
Channel 1: If Brick CH 1+2 - Beacon Buttons mapped to Port B and C

Channel 2: If Brick CH 1+2 - Beacon Buttons mapped to Port A and D

Channel 3: If Brick CH 3+4 - Beacon Buttons mapped to Port B and C

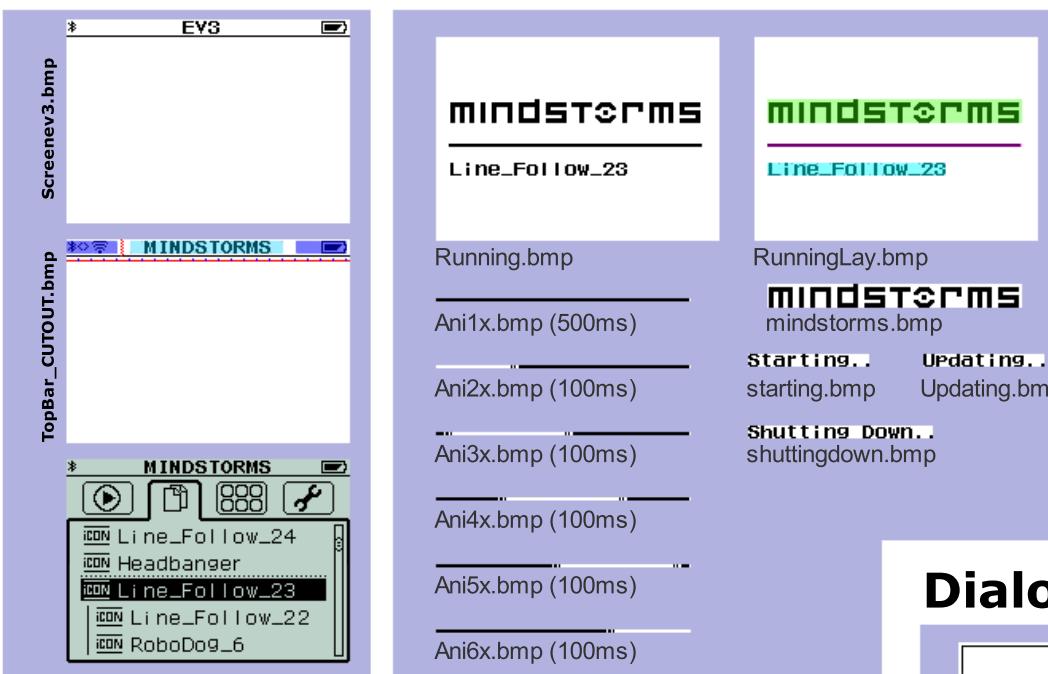
Channel 4: If Brick CH 3+4 - Beacon Buttons mapped to Port A and D

Highlight active port (highlight while motor ON)

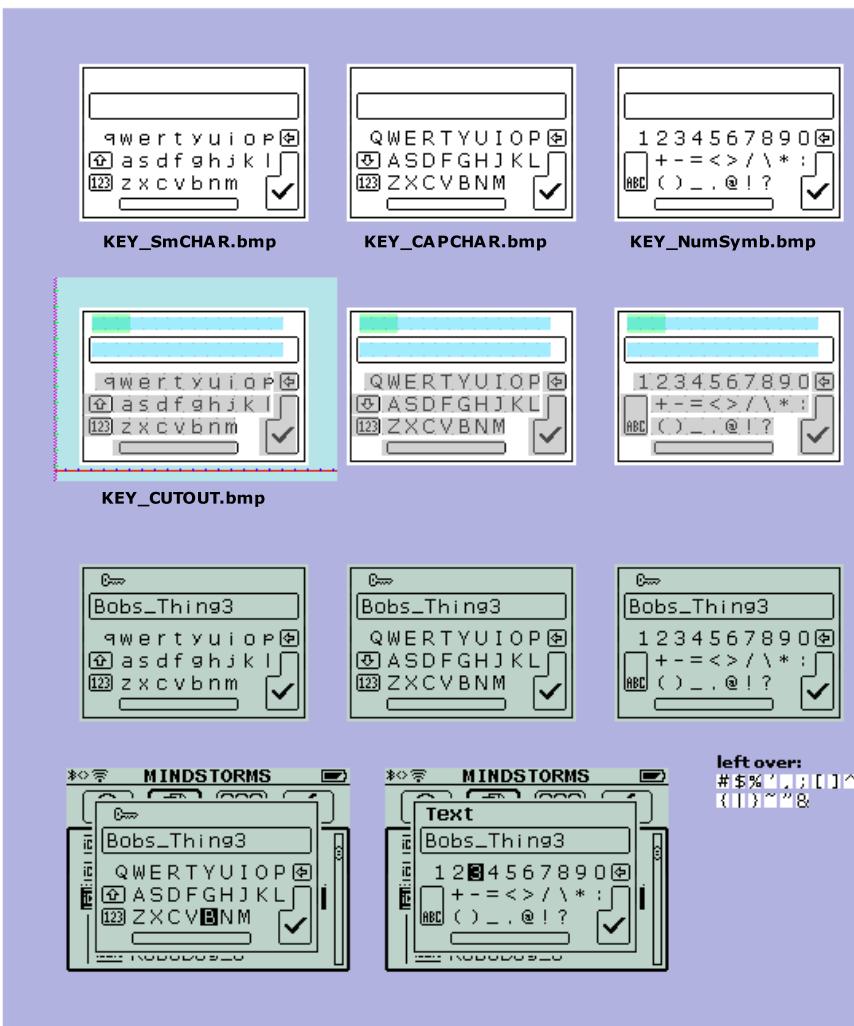


# Common Assets (13 FEB)

**Top Bar:** (icons/Layout)

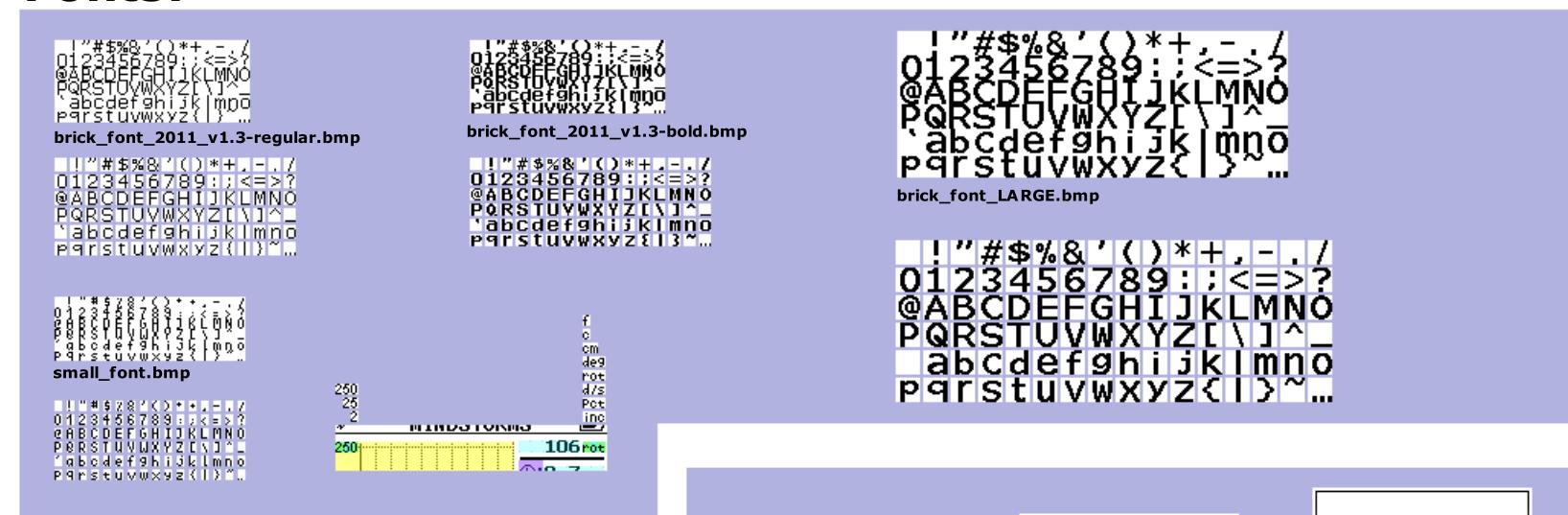


**Keyboard:** (same size/pos as 5 line pop-up)

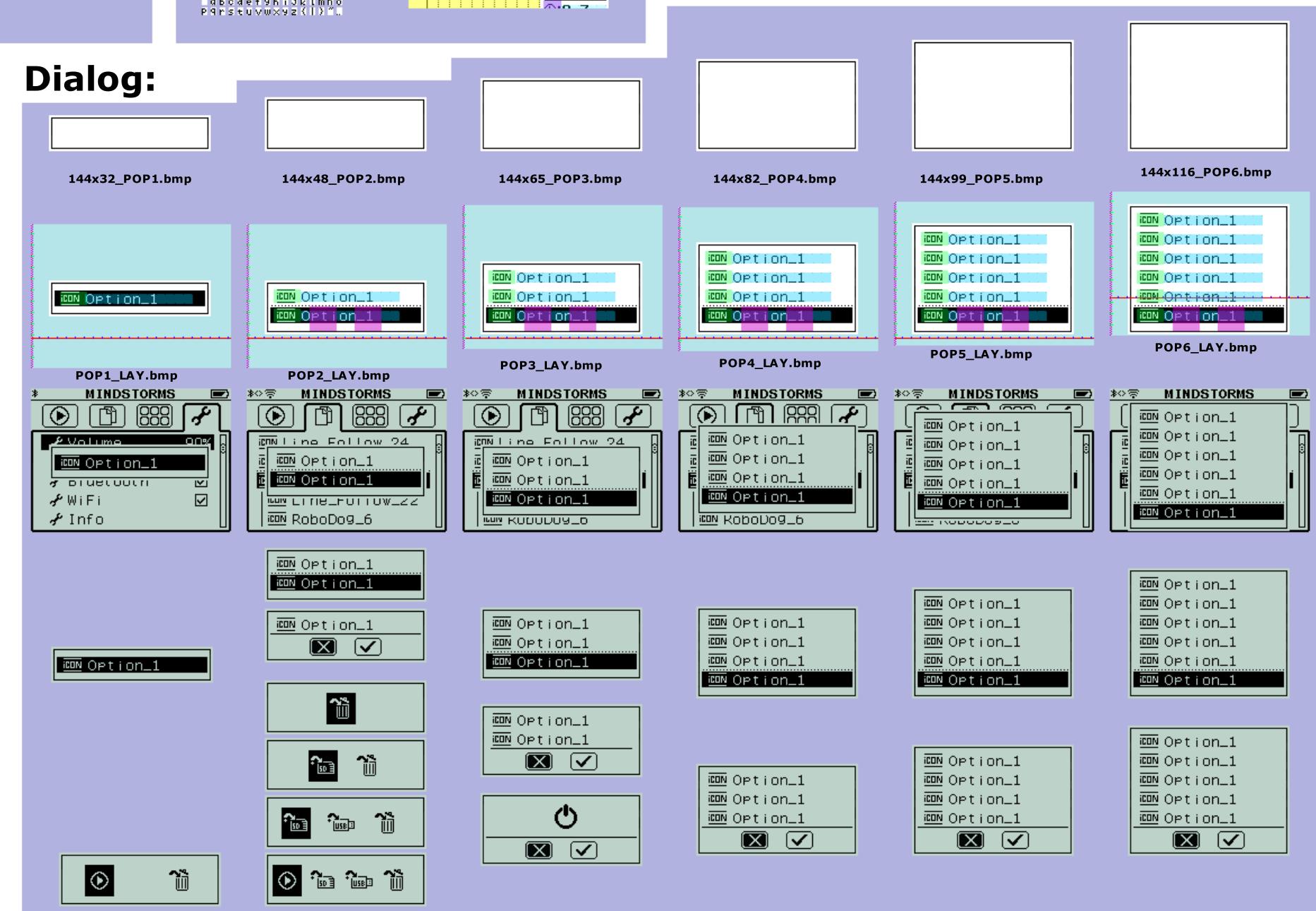


\* 13 FEB Recent Updates:

**Fonts:**

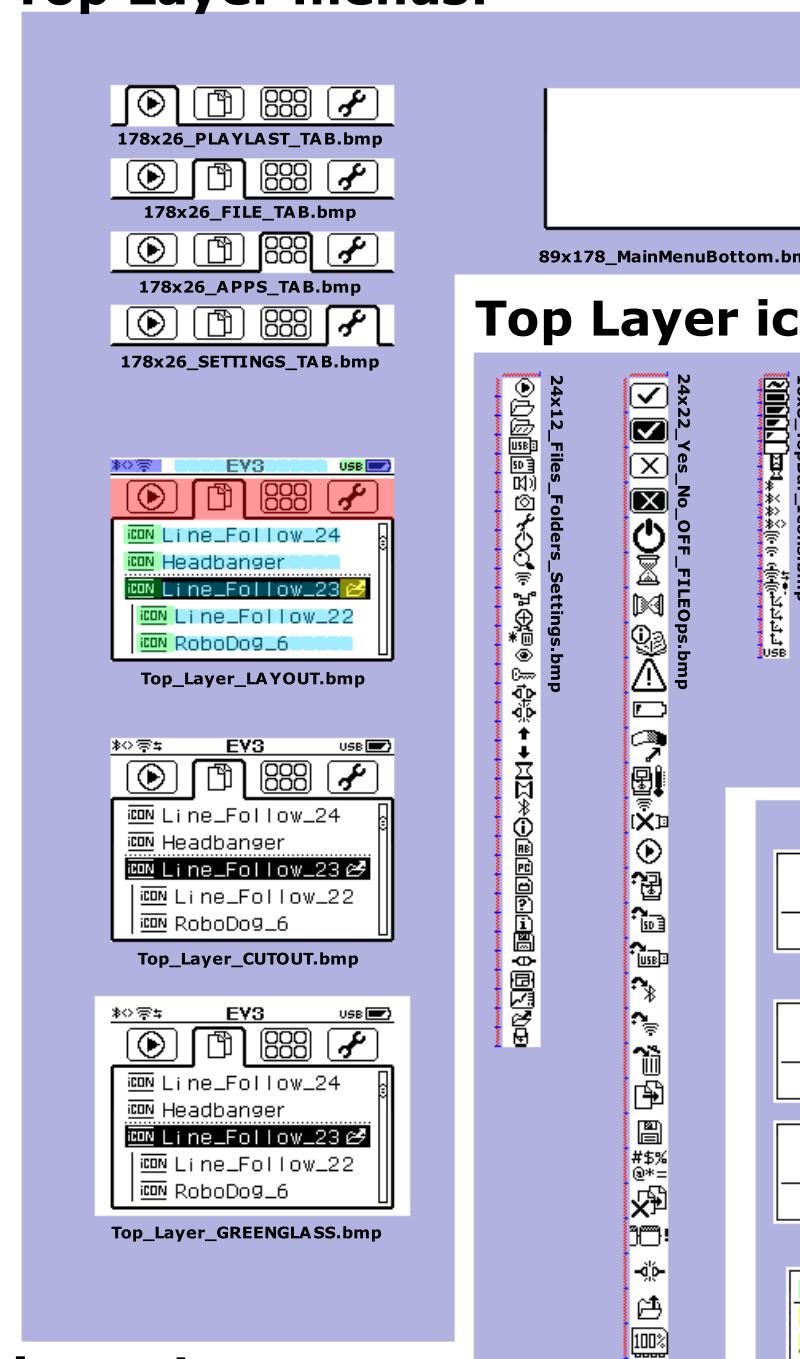


**Dialog:**

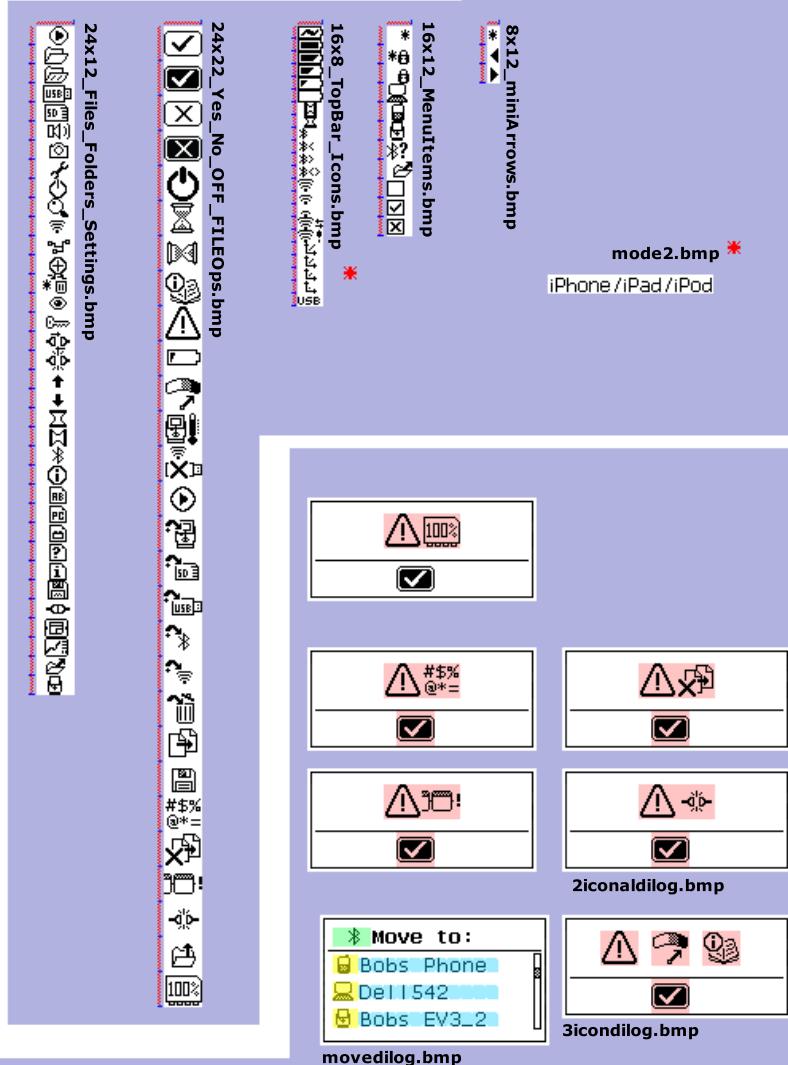


# General Navigation: Assets (2 Oct)

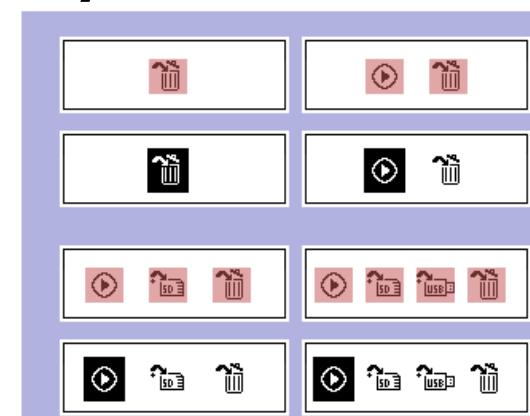
## Top Layer menus:



## Top Layer icons:



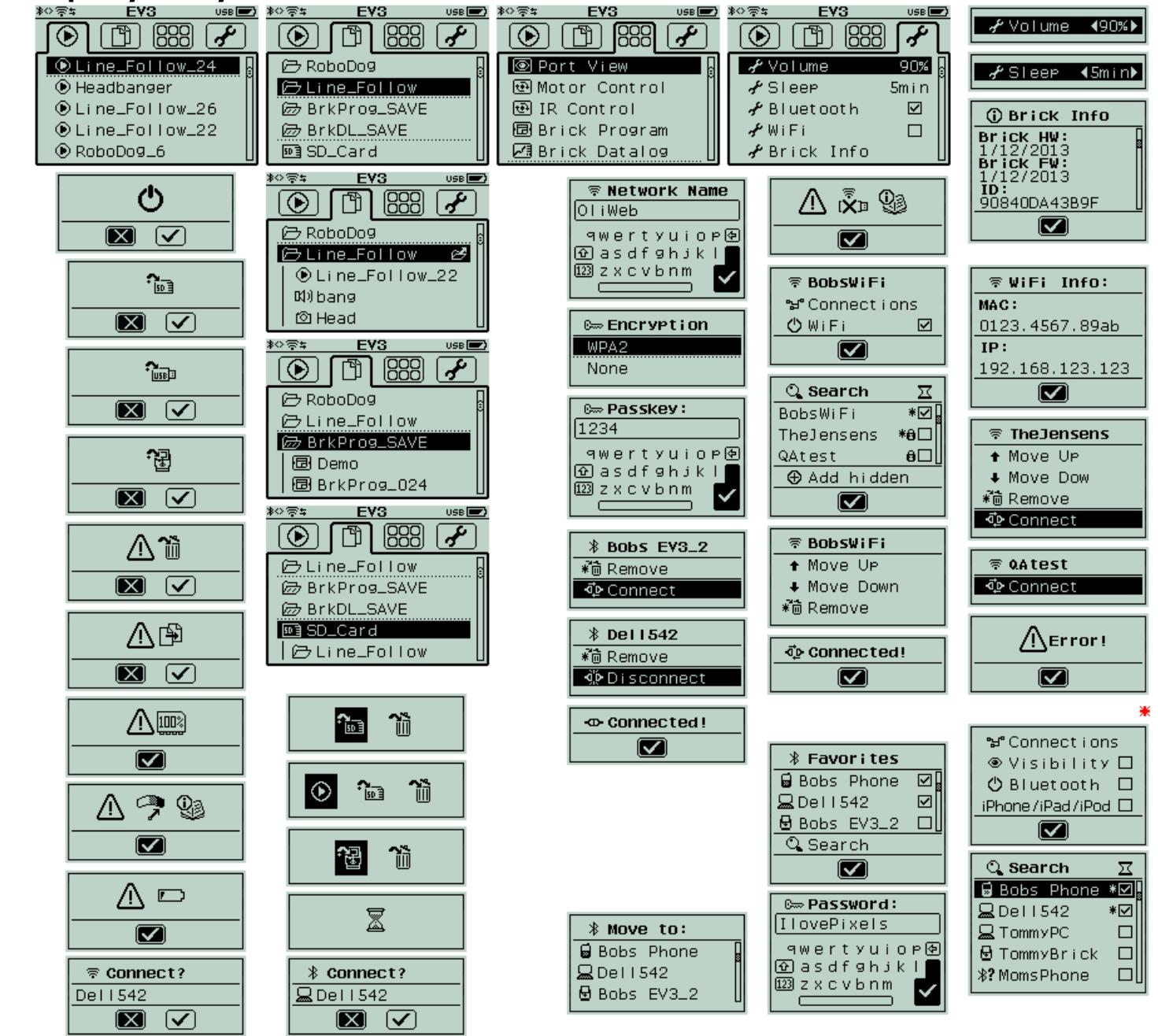
## Layouts:



\* 2 Oct

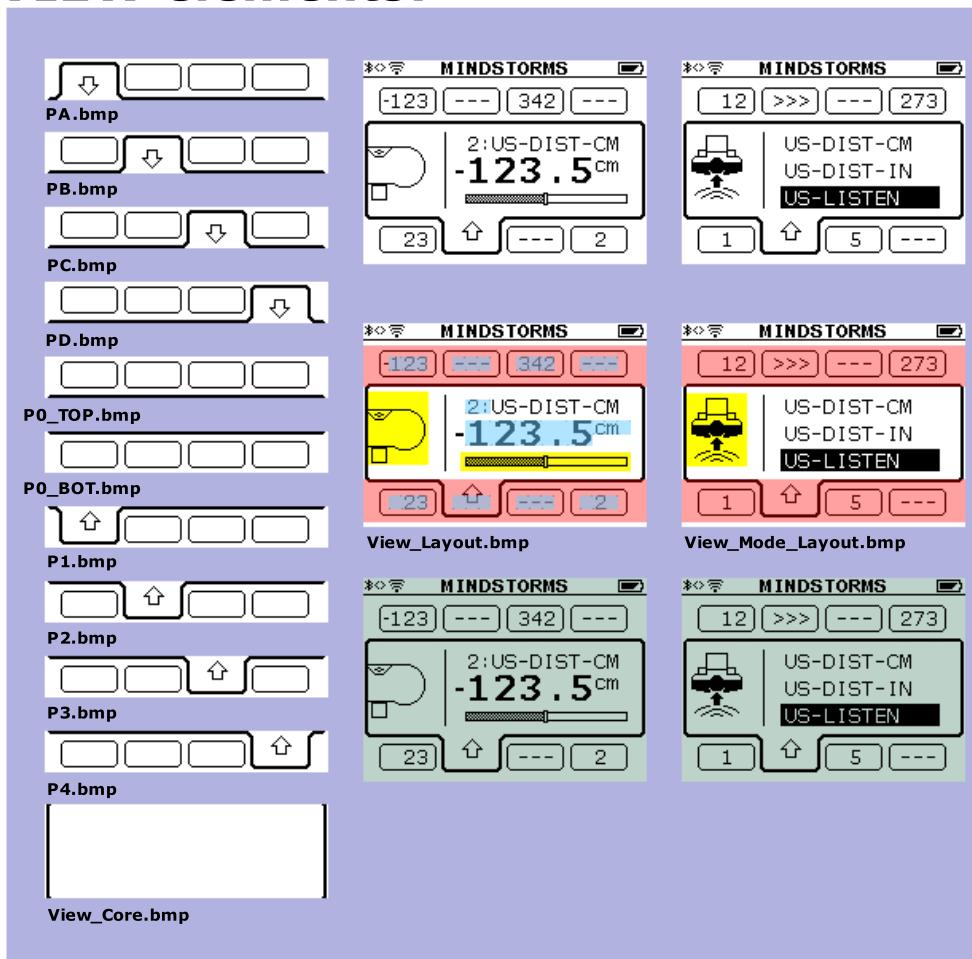
- USB icon
- iPhone/iPad/iPod option in bluetooth

## Top Layer Key Screens:



# VIEW: Assets (30 MAR)

## VIEW elements:



List of sensors/motors/blocks inc. modes used in view  
Red indicated the default mode  
If 2 values: first is for Number field, second for bar graph.

- **TOUCH** (1,0) *none*
- **COL-REFLECT** (0-100) pct
- COL-COLOR** (0-7) *col*
- COL-AMBIENT** (0-100) pct
- **IR-PROX** (0-100) pct
- IR-REMOTE** (0-10) *btn*
- IR-SEEK** (-100-100) pct
- **US-DIST-CM** (0.0-255.0) cm
- US-DIST-IN** (0-?) inch
- US-LISTEN** (0,1) *none*
- **GYRO-ANG** (-9999-9999)(-180-180) deg
- GYRO-RATE** (-440-440) d/s
- **TEMP-C** (-20-120) c
- TEMP-F** (-4-248) f
- **L-MOTOR-DEG** (-9999-9999)(-180-180) deg
- L-MOTOR-ROT** (-100-100) rot
- **M-MOTOR-DEG** (-9999-9999)(-180-180) deg
- M-MOTOR-ROT** (-100-100) rot

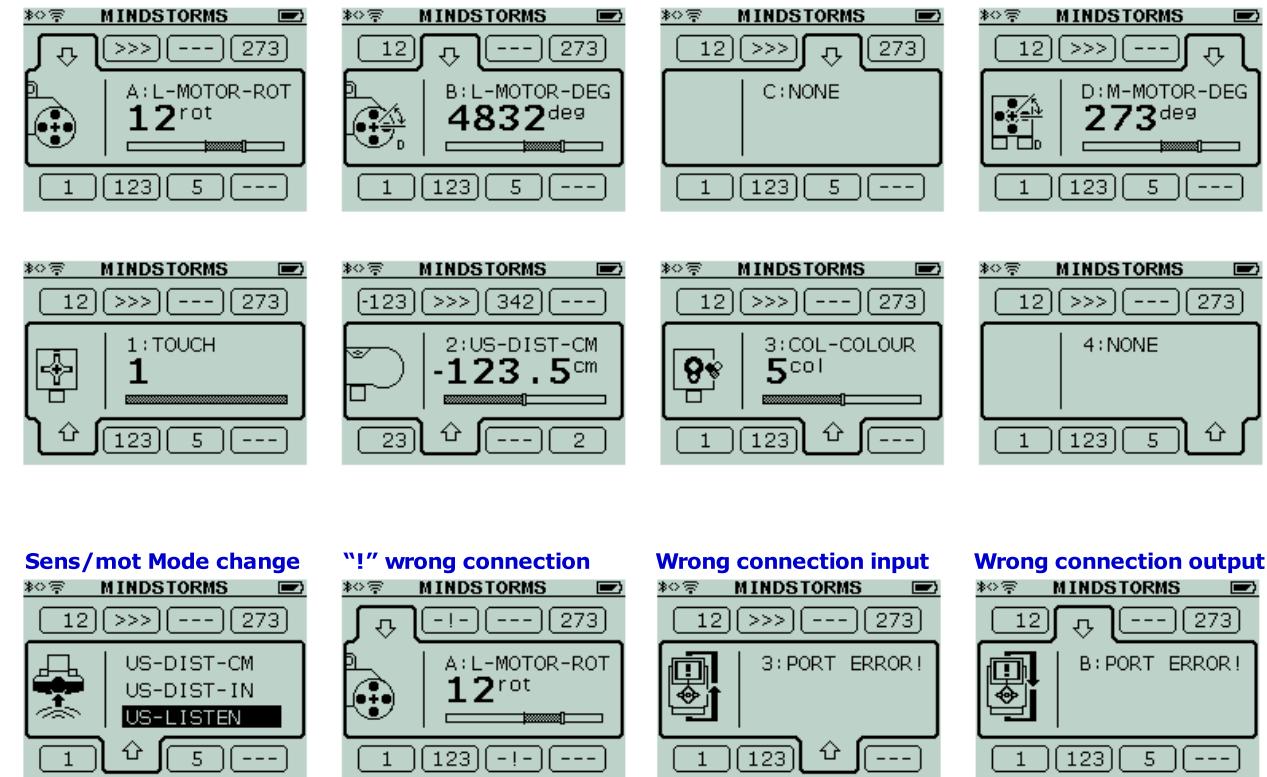
### NXT: Use Lookup table for name/scale

- **UNKNOWN** (0-100) pct
- **PORT ERROR!** NO VALUE
- **NONE** NO VALUE

prefer roll over on the bar graph for:

- GYRO-ANG
- All motors and their modes

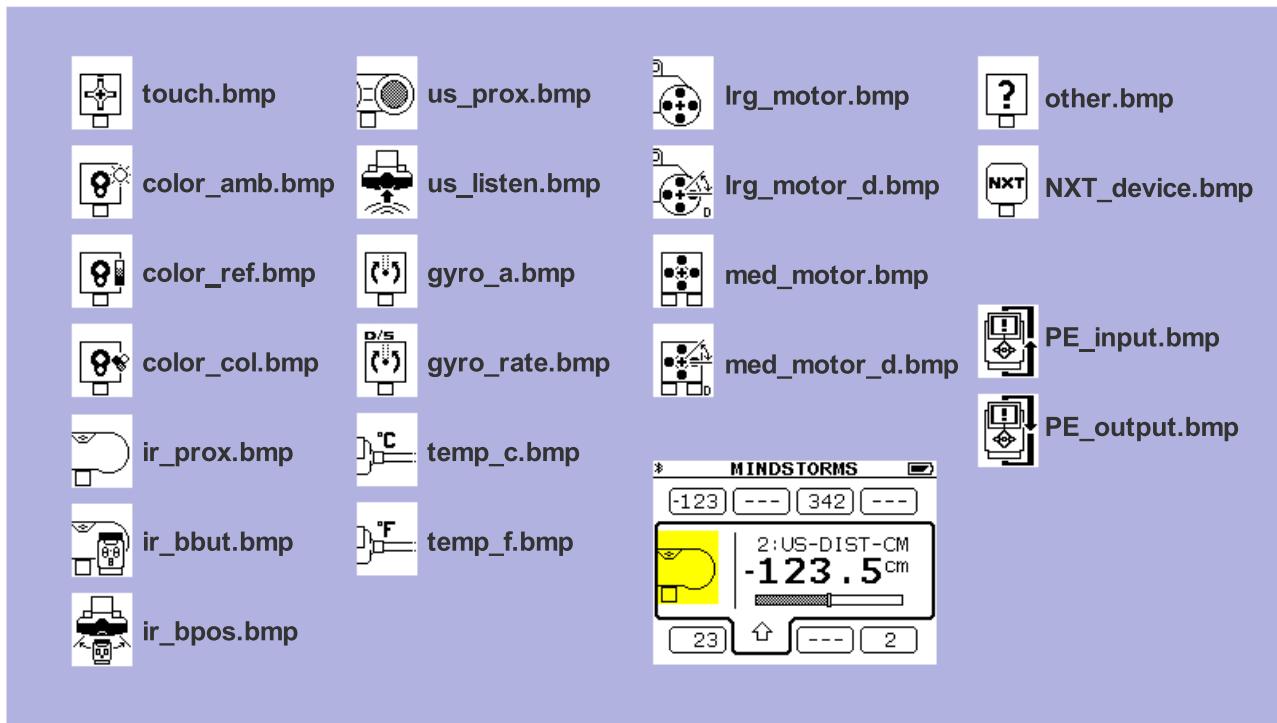
## View Key Screens:



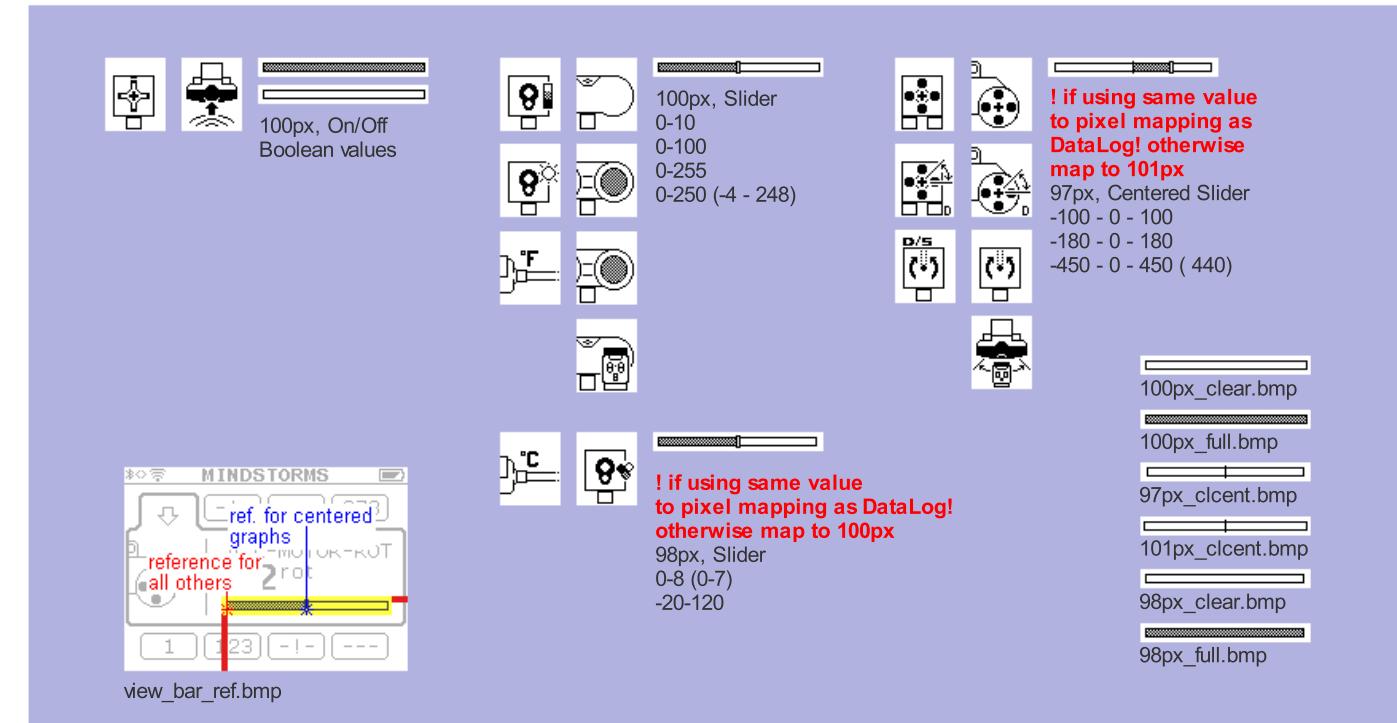
### 30 MAR Outstanding

- Use LookUp for NXT elements
- Reset all accumulating sensors/motors when
  - Unplug/replug sensor
  - Coming into app
  - Rollover on Bar Graphic

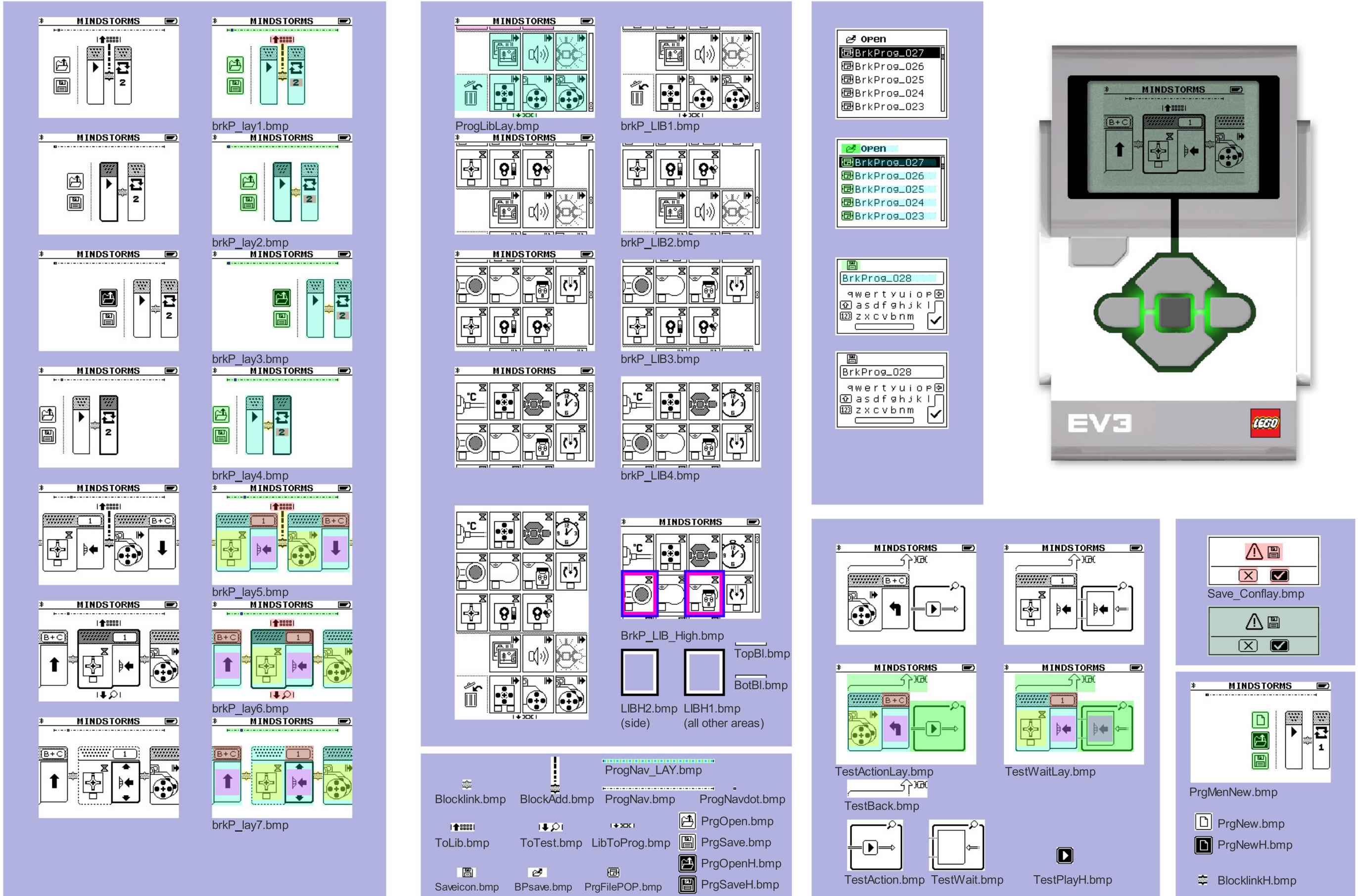
## Sensor/Mode elements:



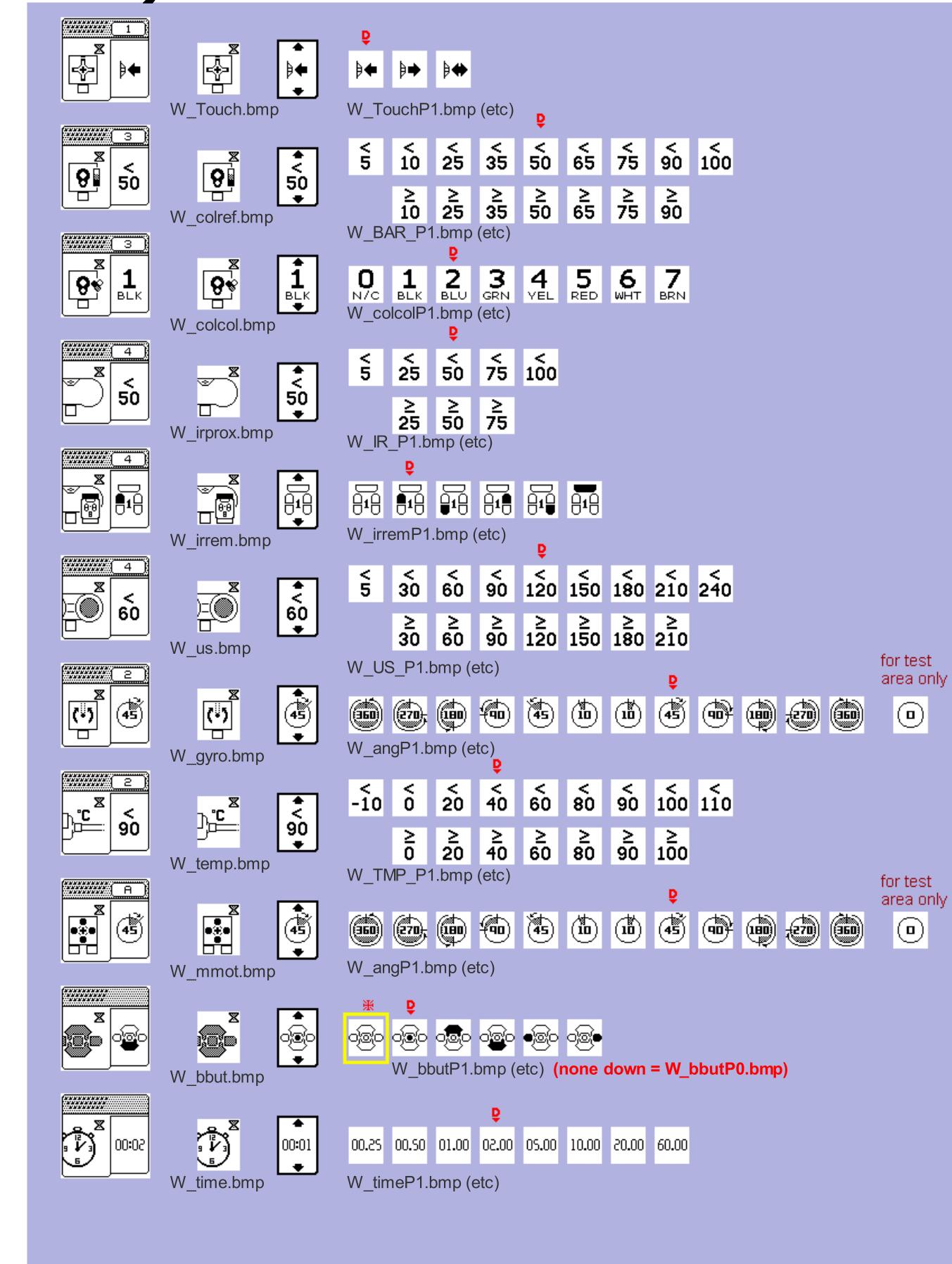
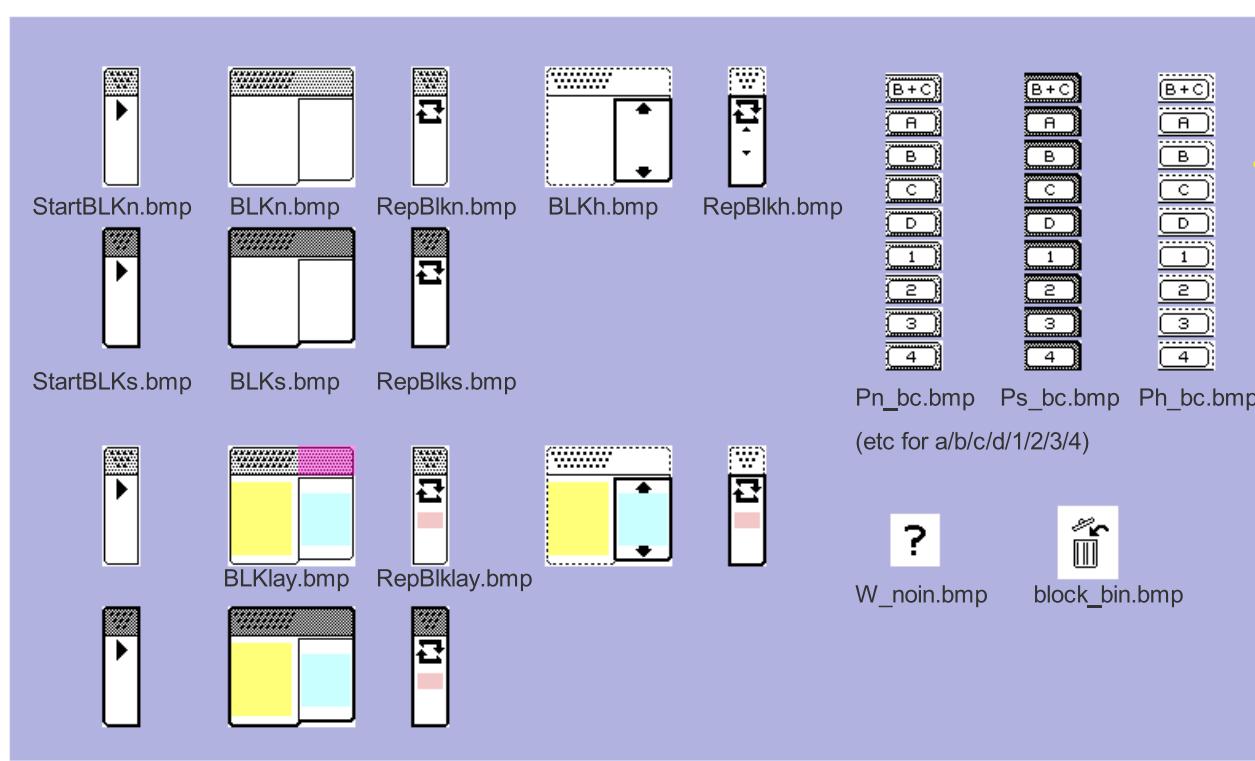
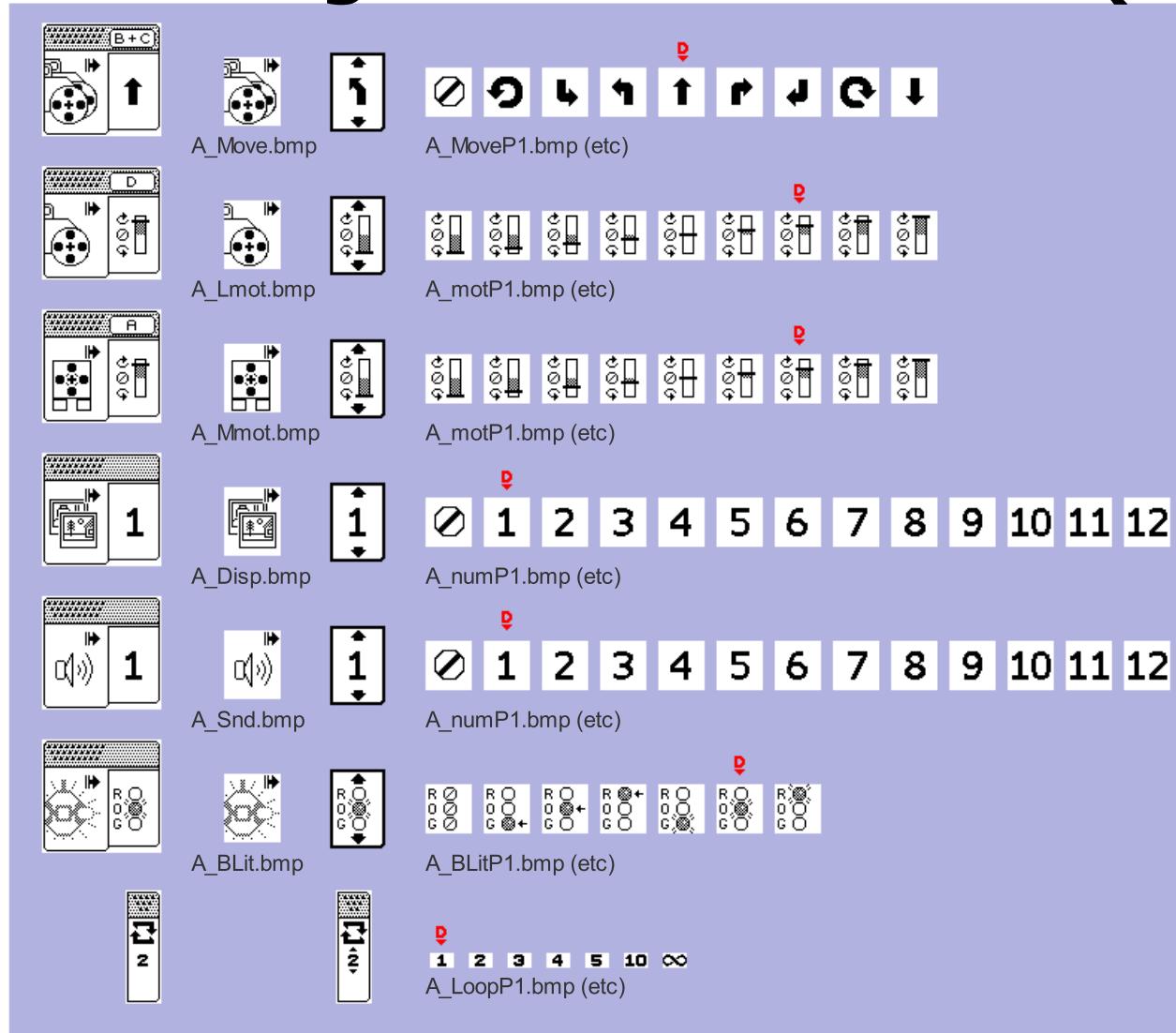
## Bar details / elements:



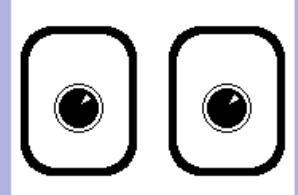
# Brick Program: General Assets/Layout (30 MAR)



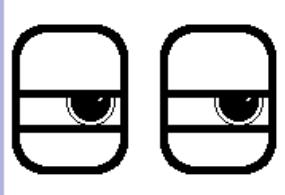
# Brick Program: Block Assets (15 June)



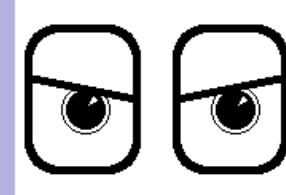
# Brick Program: Image Assets (2 Oct)



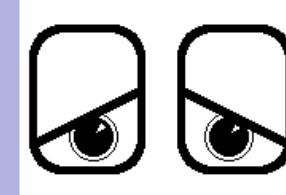
1.bmp



2.bmp



3.bmp



4.bmp



5.bmp



6.bmp



7.bmp



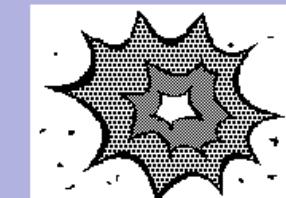
8.bmp



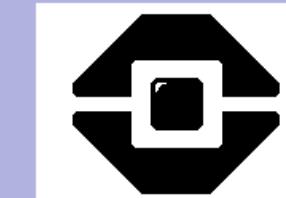
9.bmp



10.bmp



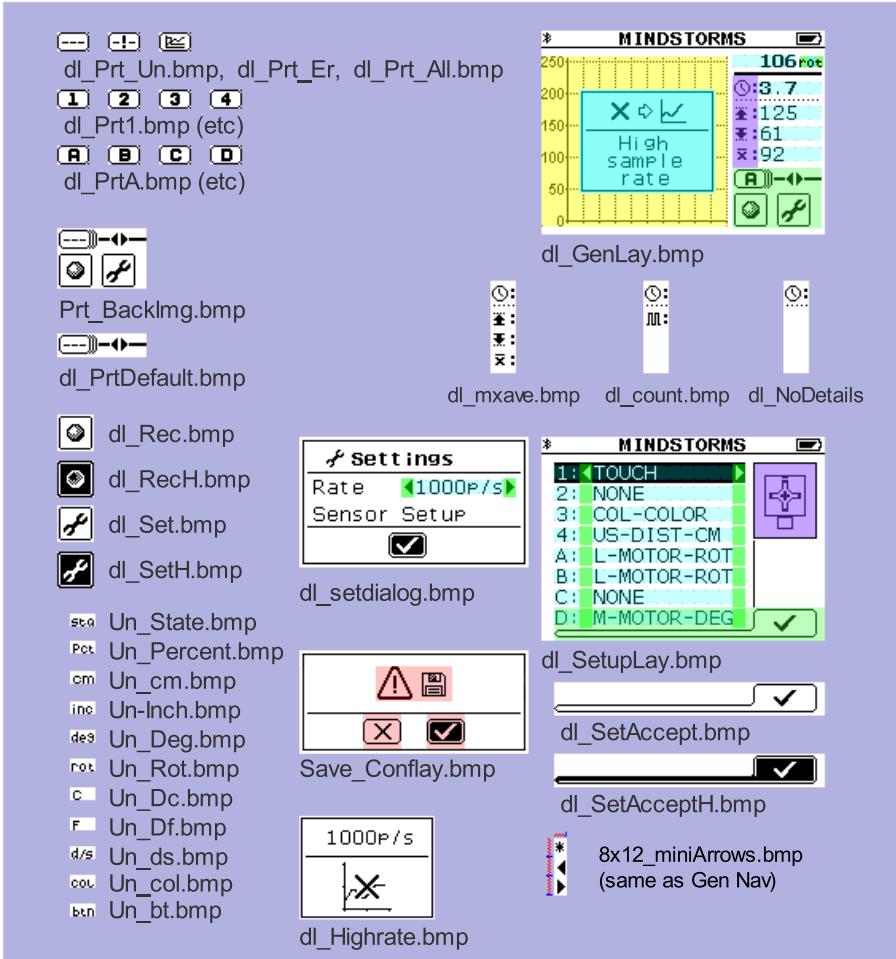
11.bmp



12.bmp

# Brick Datalog: Assets (30 MAR)

## Data Log General Assets/Layout:



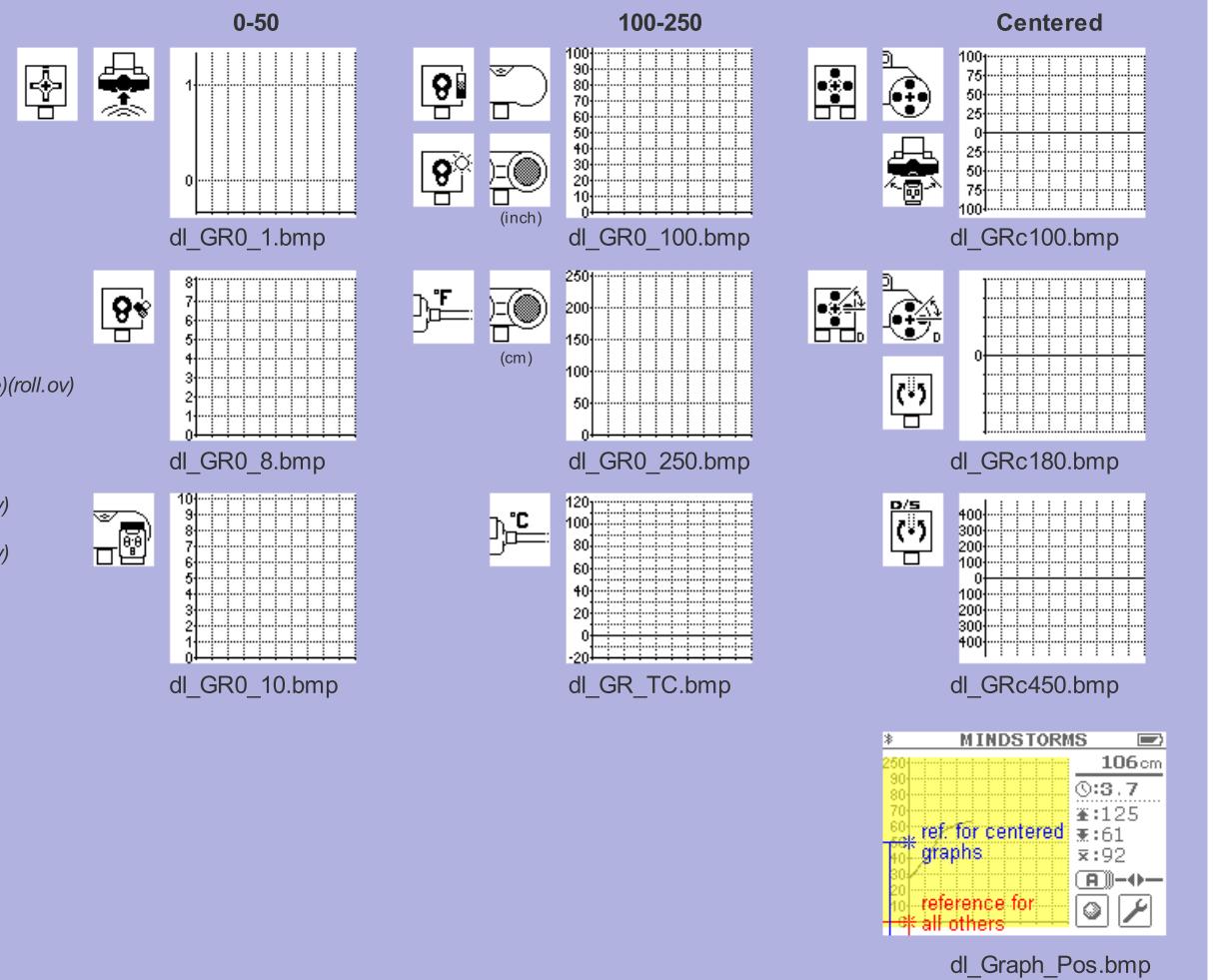
## Graph / Value Details:

List of sensors/motors/blocks inc. modes used in datalogging  
Red indicated the default mode  
If 2 values: first is for Number field, second for graph.

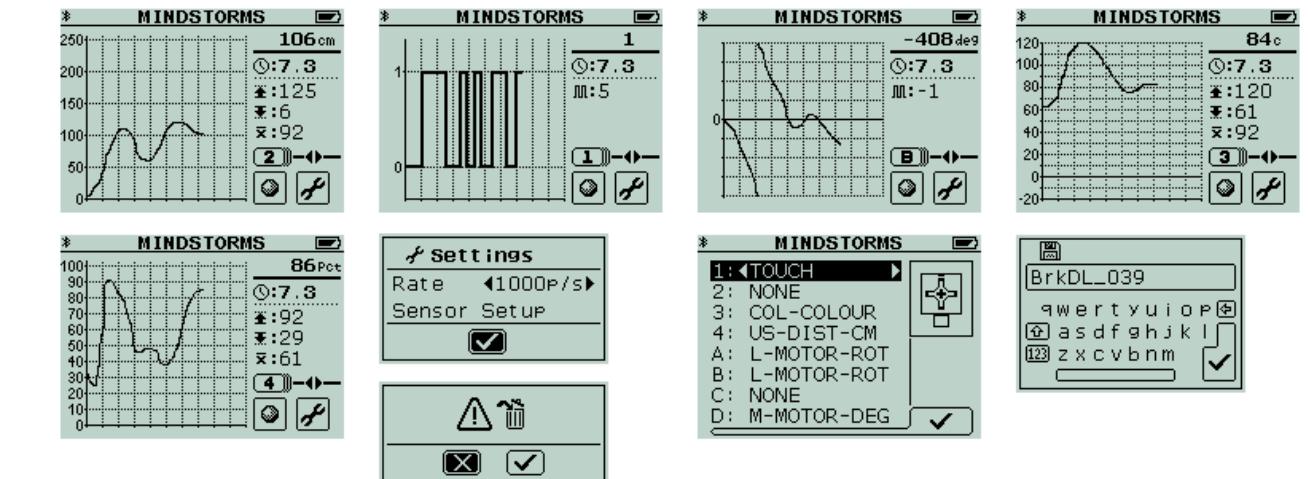
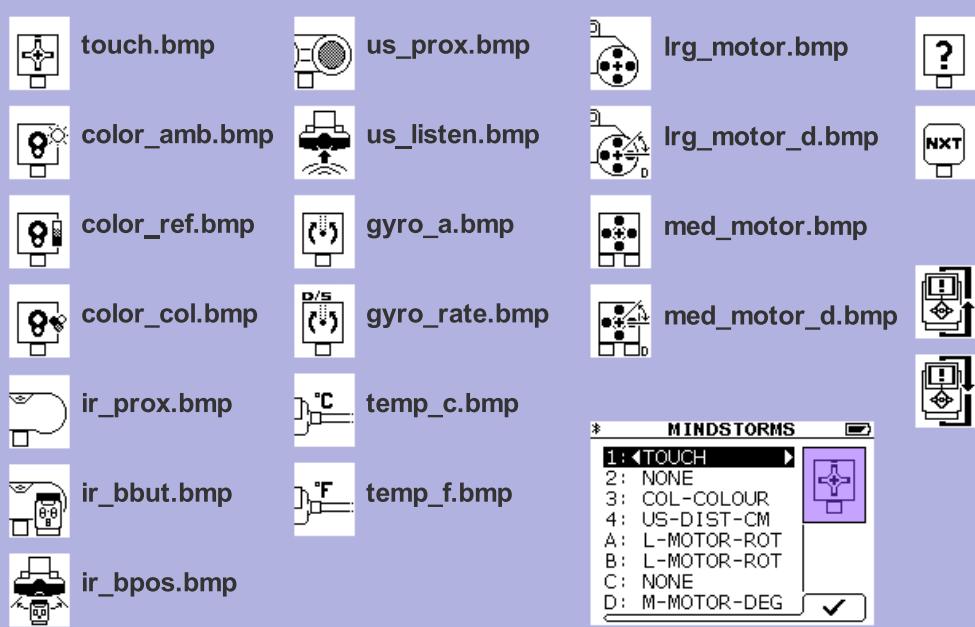
- **TOUCH** (1,0) **none** (count)
  - **COL-REFLECT** (0-100) pct (max,min,ave)
  - COL-COLOR (0-8) **col** (count)
  - COL-AMBIENT (0-100) pct (max,min,ave)
  - **IR-PROX** (0-100) pct (max,min,ave)
  - IR-REMOTE (0-10) **btn** (count)
  - IR-SEEK (-100-100) pct (max,min,ave)
  - **US-DIST-CM** (0.0-255.0) **cm** (max,min,ave)
  - US-DIST-IN (0-100) inch (max,min,ave)
  - US-LISTEN (0,1) **none** (count)
  - **GYRO-ANG** (-9999-9999)(-180-180) deg (max,min,ave)(roll.ov)
  - GYRO-RATE (-440-440) d/s (max,min,ave)
  - **TEMP-C** (-20-120) c (max,min,ave)
  - TEMP-F (-4-248) f (max,min,ave)
  - **L-MOTOR-DEG** (-9999-9999)(-180-180) deg (count)(roll.ov)
  - L-MOTOR-ROT (-100-100) rot (max,min,ave)(roll.ov)
  - **M-MOTOR-DEG** (-9999-9999)(-180-180) deg (count)(roll.ov)
  - M-MOTOR-ROT (-100-100) rot (max,min,ave)(roll.ov)
- **NXT: Use LookUp for name and graph**
- **UNKNOWN** (0-100) pct (max,min,ave)
- **PORT ERROR!** NO VALUE (dont navigate to port)
- **NONE** NO VALUE (dont navigate to port)

- Sample Rates: 1000p/s, 100p/s, 10p/s, 1p/s, 0.1p/s, 1p/m

Always draw 10ps a second / graph lines = 1 sec on graph



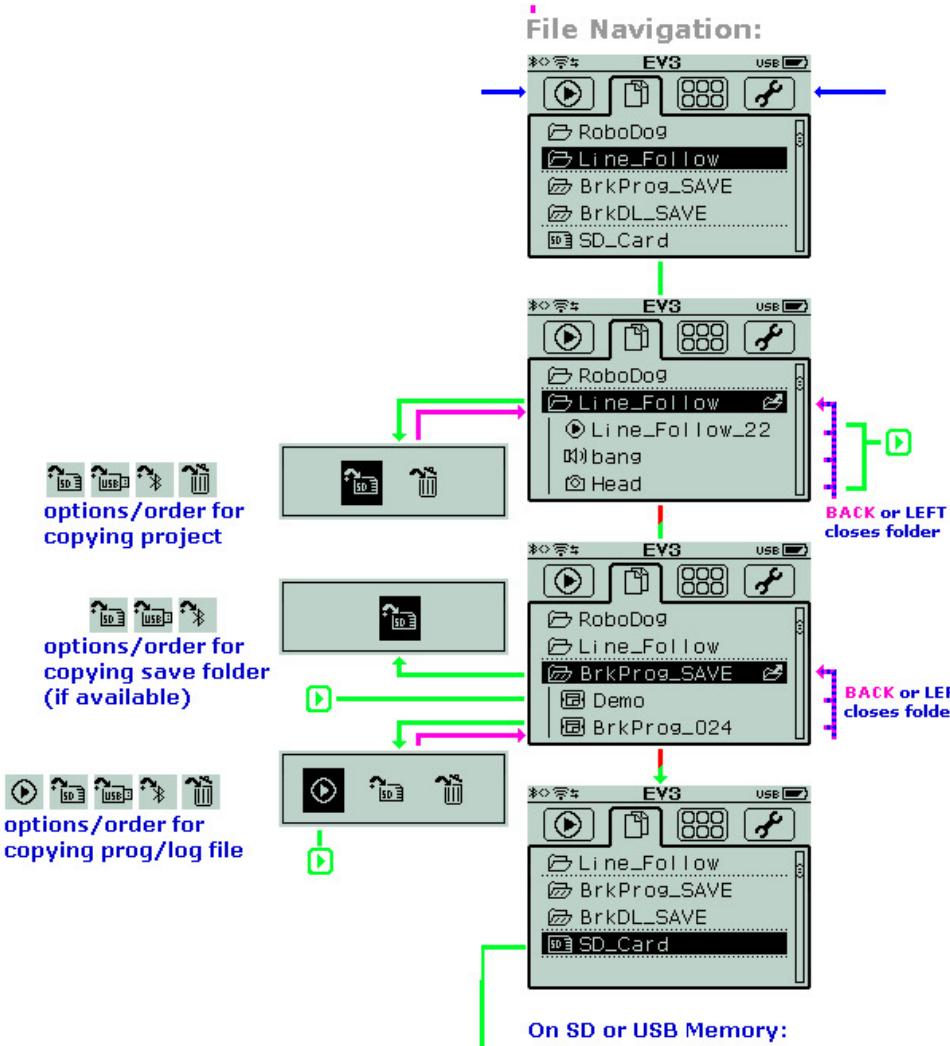
## Sensor/Mode elements:



### 30 MAR outstanding issues:

- Confirm Graphical rollover
- Confirm feasability of changing details (min/max/ave-count)
- Confirm showing multiple graphs (show all mode)
- Resset accumulating sensors when entering app, replug sensors

# Detail: File Navigation behaviour (2 Oct)

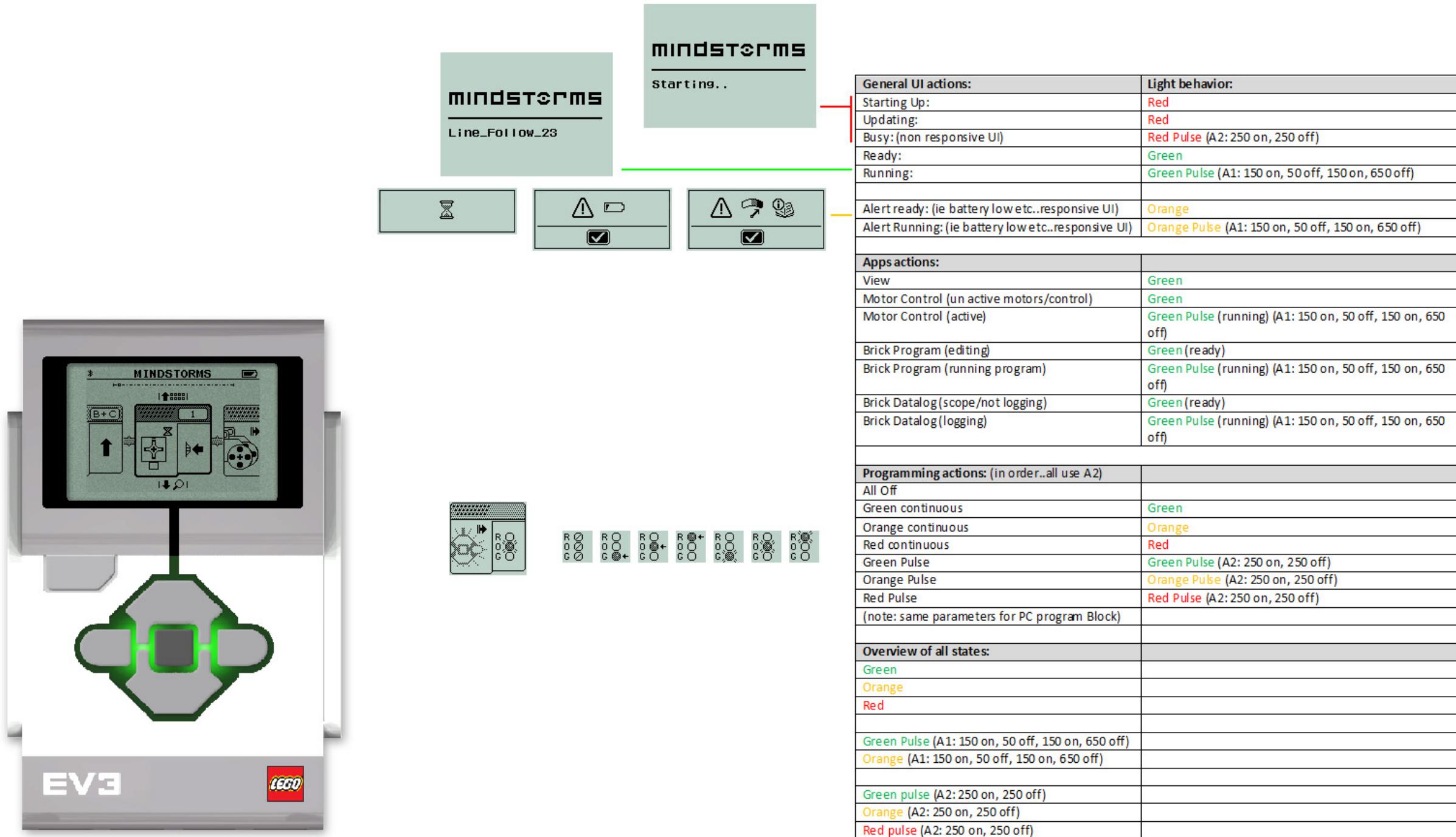


## Brick File Navigation Behaviour:

- Play/Run file (executable, sound, image, Brick program)
- Copy to P-Brick Internal memory
- Copy to SD Card (only show if available)
- Copy to USB memory device (only show if available)
- Copy to Bluetooth connected P-Brick (only show if available)
- Delete

Projects	Action if selected (highlight and press ok)
Project Folder (1)	Open folder / Show contents
Project Folder (2)	Dialog Box:  (show copy options only if available)
-  Executable	Play file
-  Brick Program	Play file (have not tried..can X3 add a brick program to a project?!)
-  Image file	Display Image
-  Sound file	Play Sound
-  Datalog File	Do Nothing
-  Text File	Do Nothing
<b>Brick ProgramSave</b>	
Brick ProgramFolder (1)	Open folder / Show contents
Brick ProgramFolder (2)	Dialog Box:  (show copy options only if available) (or nothing?)
-  Demo Program	Play file
-  Normal Program	Dialog Box:  (show copy options only if available)
<b>Brick Datalog Save</b>	
Brick Datalog Folder (1)	Open folder / Show contents
Brick Datalog Folder (2)	Dialog Box:  (show copy options only if available) (or nothing?)
-  Datalog file	Dialog Box:  (show copy options only if available)
<b>Other</b>	
SD Card	Switch to SD Card Navigation (! Only copy option to Internal:  )
USB Memory	Switch to USB Memory Navigation (! Only copy option to Internal:  )
Internal Memory	Switch to Internal Memory Navigation

# Common: Button Light behaviour (13FEB)



# Brick Program: Block Spec (15 JUNE)

Block ID	Functionality / UI	Port	Parameter One	Parameter Two	OnBrick Storage	Default values
2	Start block	N/A	0	0	0x02 0x00 0x00	No additional default values associated within this block
3	Loop block	N/A	1 - 7 1: Run program strip once (default) 2: 2 times 3: 3 times 4: 4 times 5: 5 times 6: 10 times 7: Forever	0	0x03 0x01 0x00	No additional default values associated within this block as we only support standard loops. Not input dependen loops. Is forever loop a different block than counted loops??
4	Empty Block	N/A	0	0	0x04 0x00 0x00	
5	Move block	B&C	1 - 9 1: Brake 0, 0 2: Rotate Left -50, 50 3: Left by reverse -50, 0 4: Forward Left 0, 50 5: Forward 70, 70 (default) 6: Forward Right 50, 0 7: Right by reversing 0, -50 8: Rotate Right 50, -50 9: Backwards -70, -70	0	0x05 0x00 0x00	Default values: Run-forever, Parameters aligned to mail: Fri 30/03/2012 15:53 change both steer and power (0 power equal brake)
6	Large motor Block	D	1 - 9 1: Back, Power = -100 2: Back, Power = -75 3: Back, Power = -50 4: Back, Power = -25 5: Brake 6: Forward, Power = 25 7: Forward, Power = 50 (default) 8: Forward, Power = 75 9: Forward, Power = 100	0	0x06 0x07 0x00	Default value: Run-forever
7	Medium motor Block	A	1 - 9 1: Back, Power = -100 2: Back, Power = -75 3: Back, Power = -50 4: Back, Power = -25 5: Brake 6: Forward, Power = 25 7: Forward, Power = 50 (default) 8: Forward, Power = 75 9: Forward, Power = 100	0	0x07 0x07 0x00	Default value: Run-forever
8	Sound playback	N/A	1 - 13 1: Stop Sound 2: OnBrickSound1 (default) 3: OnBrickSound2 4: OnBrickSound3 5: OnBrickSound4 6: OnBrickSound5 7: OnBrickSound6 8: OnBrickSound7 9: OnBrickSound8 10: OnBrickSound9 11: OnBrickSound10 12: OnBrickSound11 13: OnBrickSound12	0	0x08 0x02 0x00	Default value: Repeat = FALSE, Volume = 100%, Wait for completion disabled
9	Display Image	N/A	1 - 13 1: Clear display 2: OnBrickImage1 (default) 3: OnBrickImage2 4: OnBrickImage3 5: OnBrickImage4 6: OnBrickImage5 7: OnBrickImage6 8: OnBrickImage7 9: OnBrickImage8 10: OnBrickImage9 11: OnBrickImage10 12: OnBrickImage11 13: OnBrickImage12	0	0x09 0x02 0x00	Default value: Clear =
10	Button light (LED around buttons)	N/A	1 - 7 1: Off 2: Green 3: Orange 4: Red 5: Green Flashing 6: Orange Flashing (default) 7: Red Flashing	0	0x0A 0x04 0x00	No additional default values associated within this block
11	Wait for Touch	1	1 - 3 1: Wait for pressed (default) 2: Wait for release 3: Wait for bumped	0	0x0B 0x01 0x00	No additional default values associated within this block
12	Wait for reflected light (Color sensor, Reflected light mode)	3	1 - 16 1: Wait until value < 5 2: < 10 % 3: < 25 % 4: < 35 % 5: < 50 % (default) 6: < 65 % 7: < 75 % 8: < 90 % 9: < 100 % 10: => 10 % 11: => 25 % 12: => 35 % 13: => 50 % 14: => 65 % 15: => 75 % 16: => 90 %	0	0x0C 0x05 0x00	Default value: Generate light = TRUE
						aligned to mail Thu 12/04/2012 13:47

13	Wait for Color (Color sensor, Color mode)	3	0 - 7 0: No color 1: Black 2: Blue 3: Green 4: Yellow 5: Red 6: White 7: Brown	0	0x0D 0x02 0x00	No additional default values associated within this block
14	Wait for Beacon Button (IR Seek, Remote mode)	4	1 - 6 1: None 2: Top, left (default) 3: Bottom, left 4: Top, right 5: Bottom, right 6: Beacon signal	0	0x0E 0x02 0x00	No additional default values associated within this block. Button state is pressed
15	Wait for Proximity (IR Seek, Proximity mode)	4	1 - 8 1: Wait until value < 5 2: < 25 % 3: < 50 % (default) 4: < 75 % 5: < 100 % 6: => 25 % 7: => 50 % 8: => 75 %	0	0x0F 0x03 0x00	No additional default values associated within this block
16	Wait for Temperature (Temperature, Degree mode)	2	1 - 16 1: < -10 degree 2: < 0 degree 3: > 20 degree 4: > 40 degree (default) 5: < 60 degree 6: > 80 degree 7: < 90 degree 8: < 100 degree 9: < 110 degree 10: > 0 degree 11: > 20 degree 12: > 40 degree 13: > 60 degree 14: > 80 degree 15: > 90 degree 16: > 100 degree	0	0x10 0x04 0	Default value: Mode = Celsius degree
17	Wait for Ultrasonic (Ultrasonic, continuous mode, Cm)	4	1 - 16 1: Wait for value < 5 2: < 30 cm 3: < 60 cm 4: < 90 cm 5: < 120 cm (default) 6: < 150 cm 7: < 180 cm 8: < 210 cm 9: < 240 cm 10: > 30 cm 11: > 60 cm 12: > 90 cm 13: > 120 cm 14: > 150 cm 15: > 180 cm 16: > 210 cm	0	0x11 0x05 0x00	Default value: Mode = Continuously, Cm
18	Wait for Gyro Angle (Gyro, Angle mode)	2	1 - 12 1: Wait until value <= -360 clockwise 2: <= -270 clockwise 3: <= -180 clockwise 4: <= -90 clockwise 5: <= -45 clockwise 6: <= -10 clockwise 7: >= 10 clockwise 8: >= 45 clockwise (default) 9: >= 90 clockwise 10: >= 180 clockwise 11: >= 270 clockwise 12: >= 360 clockwise	0	0x12 0x08 0x00	No additional default values associated within this block (RESET)
19	Wait for generic encoder	A	1 - 12 1: Wait until value <= -360 clockwise 2: <= -270 clockwise 3: <= -180 clockwise 4: <= -90 clockwise 5: <= -45 clockwise 6: <= -10 clockwise 7: >= 10 clockwise 8: >= 45 clockwise (default) 9: >= 90 clockwise 10: >= 180 clockwise 11: >= 270 clockwise 12: >= 360 clockwise	0	0x13 0x08 0x00	No additional default values associated within this block (Reset?)
20	Wait for Brick buttons (Pressed)	N/A	1 - 5 0: None / all up (yellow: 15 JUNE) 1: Center (default) 2: Up 3: Down 4: Left 5: Right	0	0x14 0x01 0x00	No additional default values associated within this block (Pressed)
21	Wait for time	N/A	1 - 8 1: 0.25 Sec 2: 0.5 Sec 3: 1 Sec 4: 2 Sec (default) 5: 5 Sec 6: 10 Sec 7: 20 Sec 8: 60 Sec	0	0x15 0x04 0x00	No additional default values associated within this block