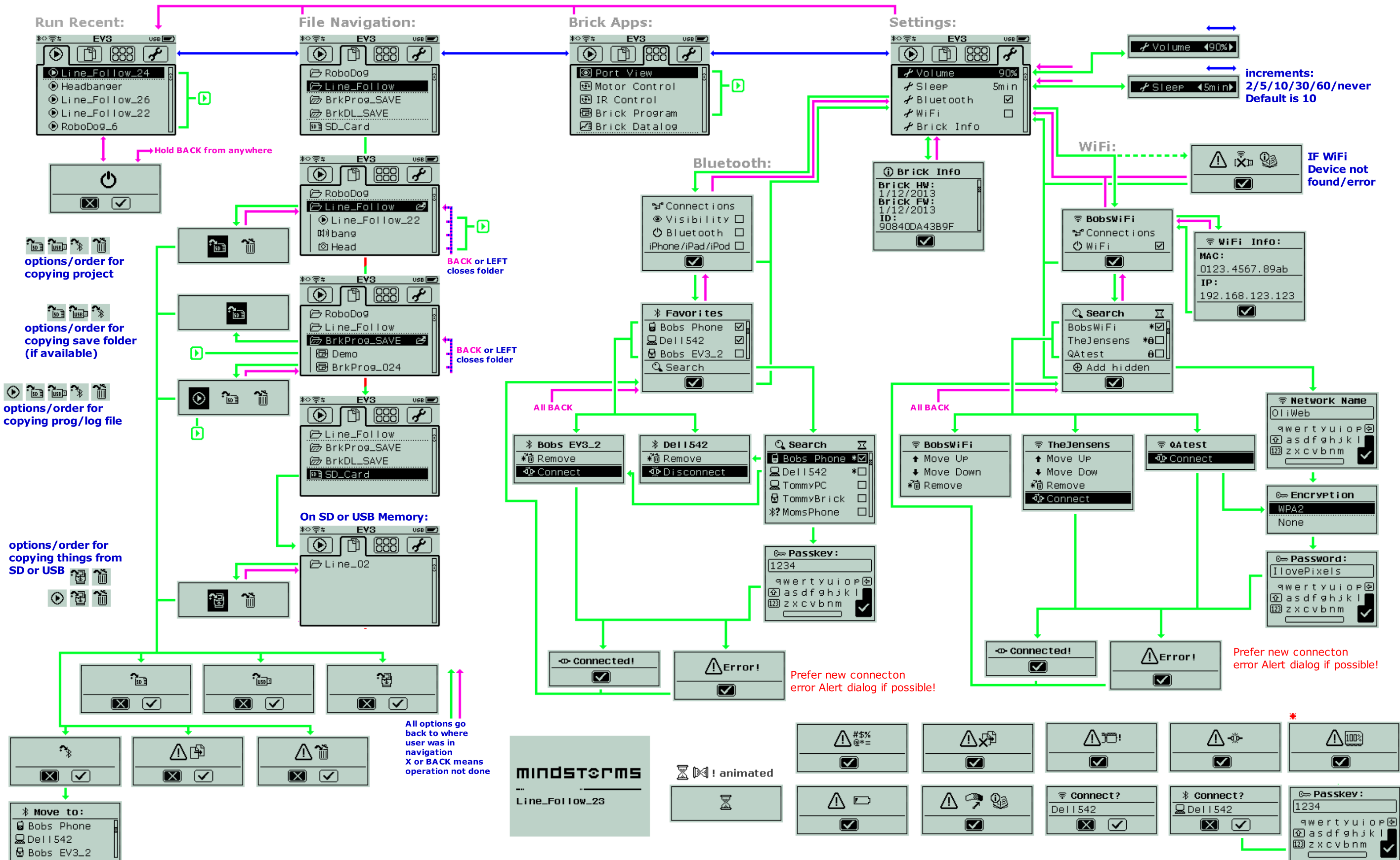


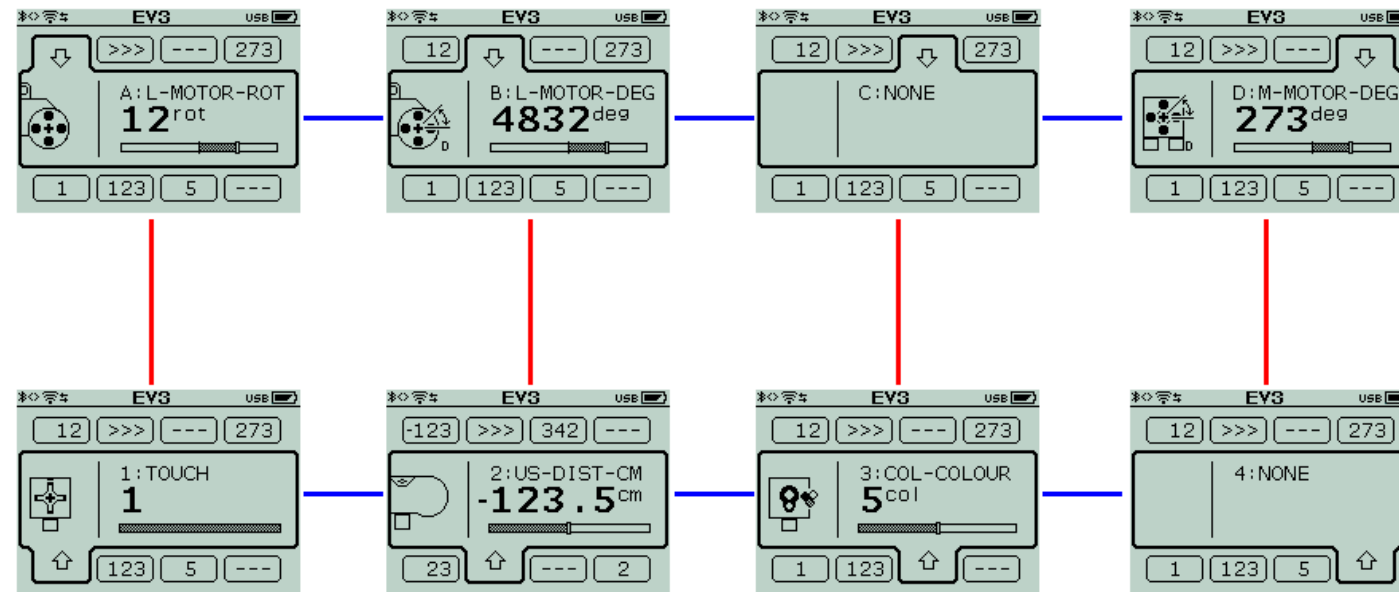
General Navigation: Flow (2 OCT)

* 2 OCT

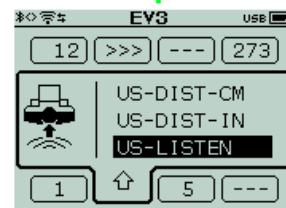
- iPhone/iPad/iPod option in Bluetooth
- Demo Prog in Brick Program folder
- Rename of "Play recent" to "run recent"
- Confirmed File Navigation behaviour
- USB icon when connected



VIEW: Flow (2 Oct)

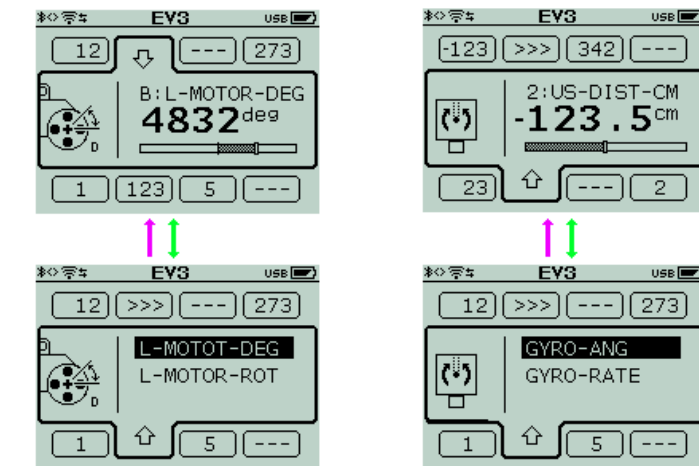


IF press "ok" on a ID'ed sensor/motor that has multiple modes:



30 MAR Outstanding

- Use LookUp for NXT elements
- Resst all accumulating sensors/motors when
 - Unplug/replug sensor
 - Comming into app
- Rollover on Bar Grapfic



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

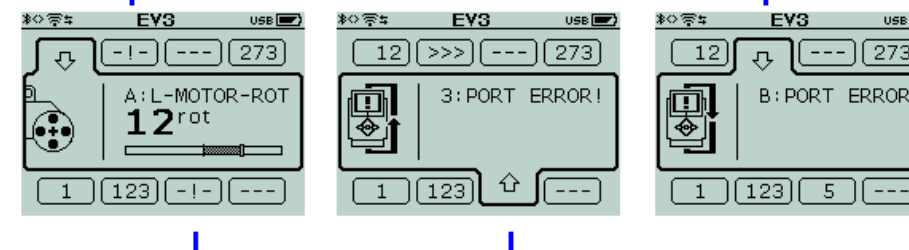
If press ok to sensor set up....

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

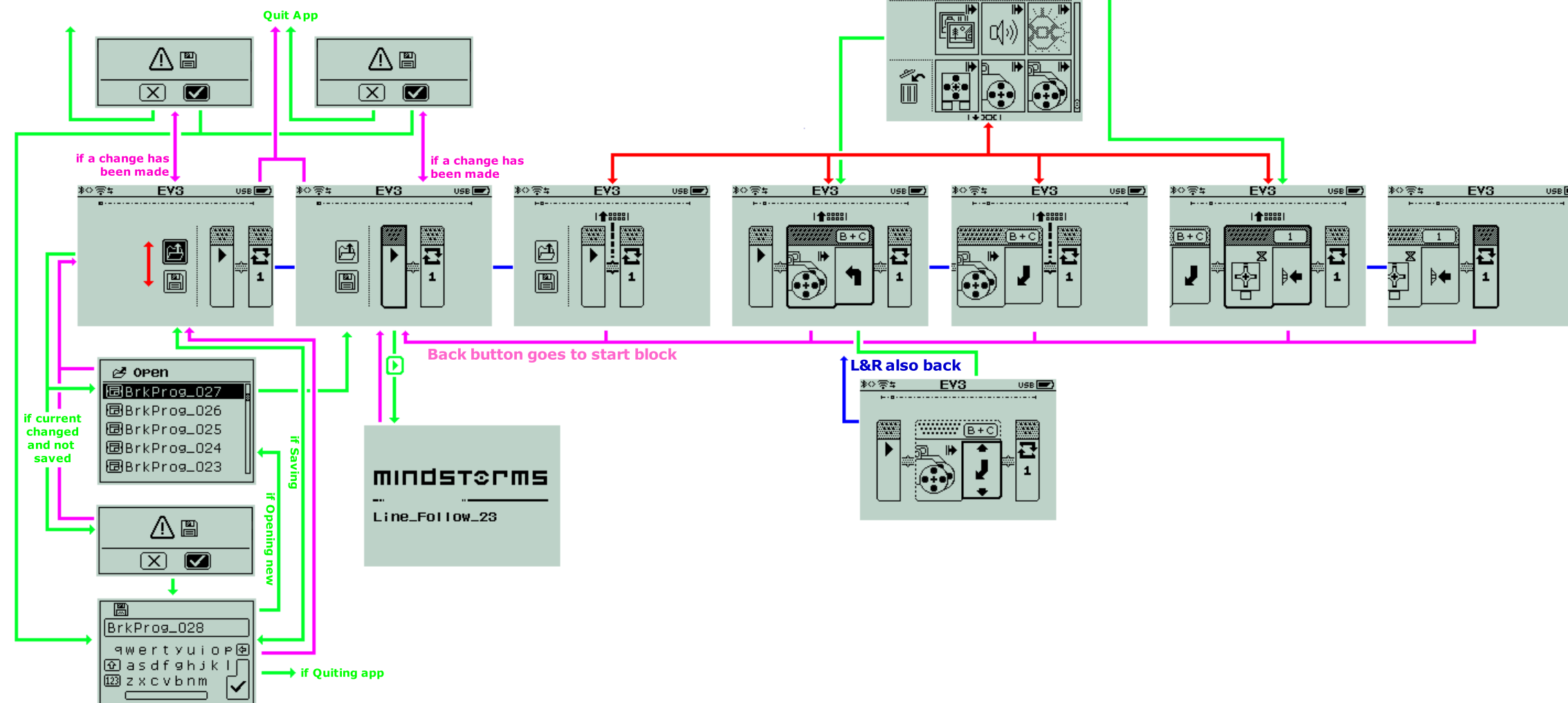
Navigating sensors does not resset to Zero

App restart and disconnect sensor does resset to zero

IF sensor/motor plugged into wrong side:



Brick Program: Flow (2 Oct)



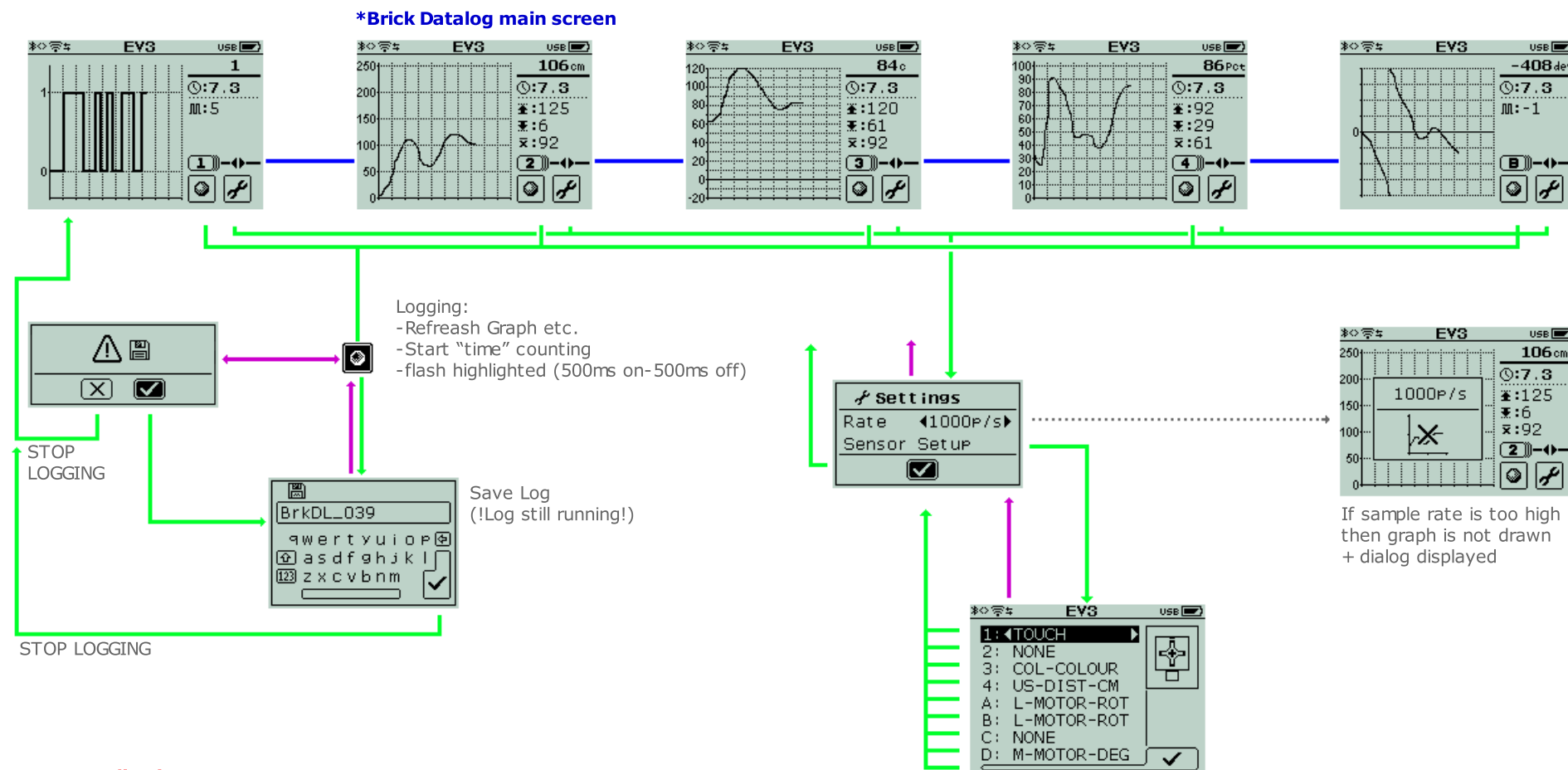
15 JUNE outstanding issues:
 - "OK" to also go to library?

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

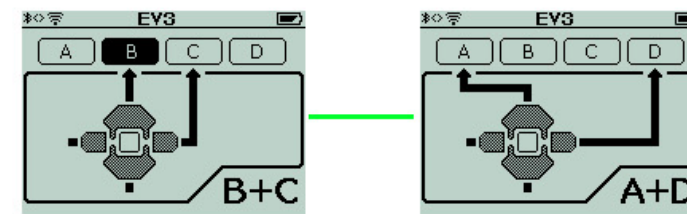
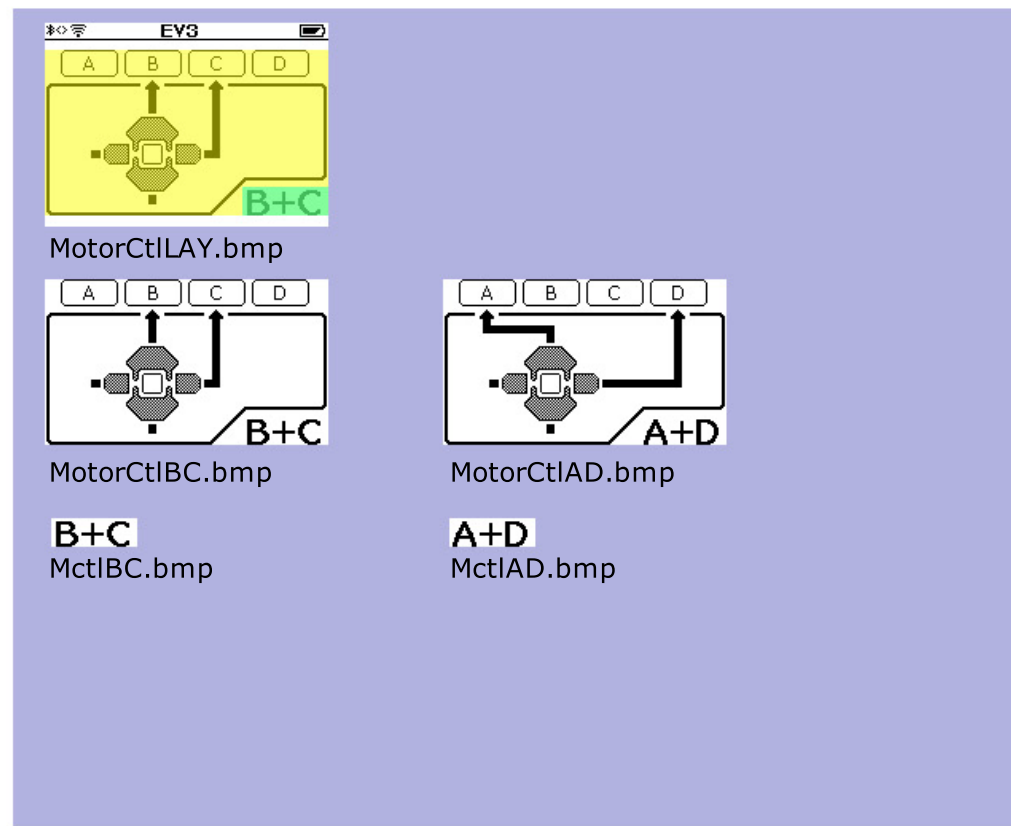
Graph on screen is always running 10 pixels per sec



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)



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

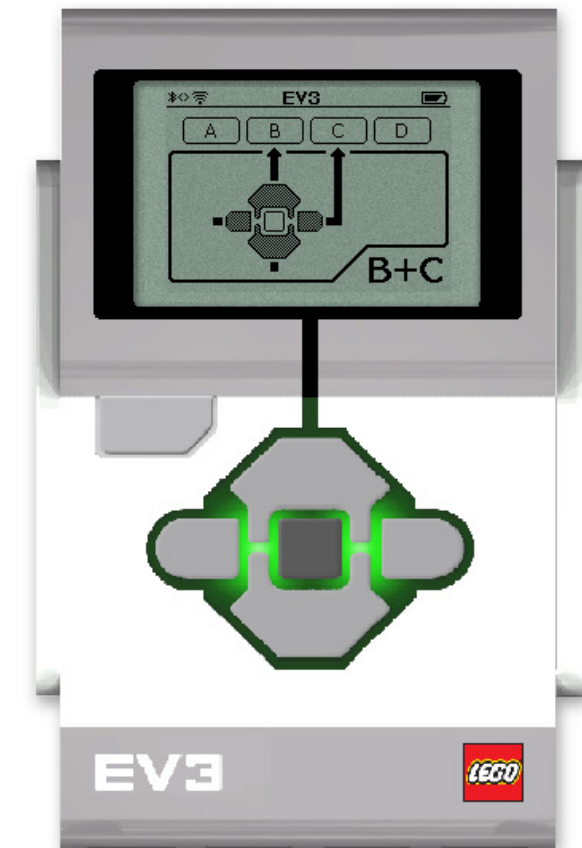
P-Brick Buttons:

Center= Toggle Ports between BC and AD
(also changes graphic)

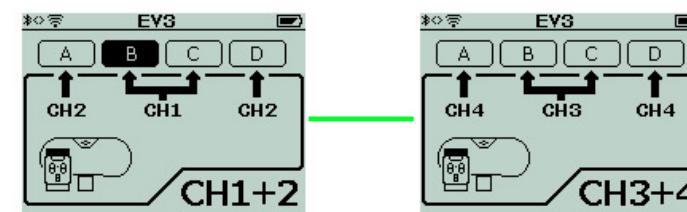
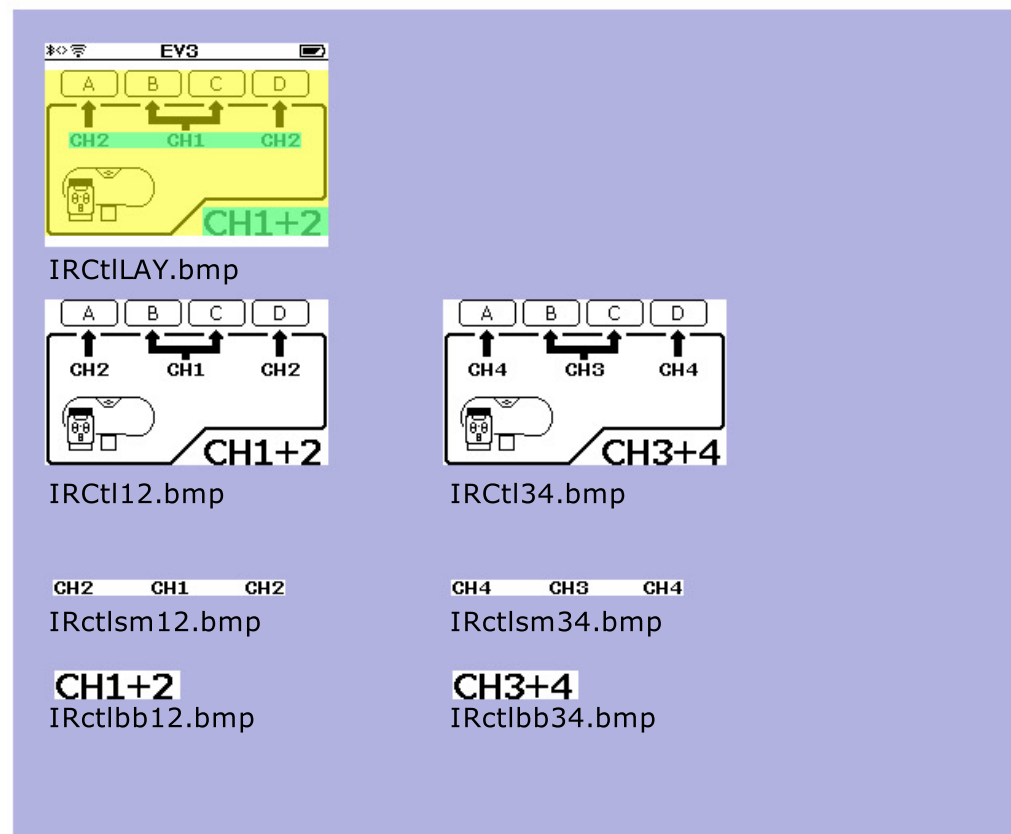
Up/Down = Motor B or A Fwd/Back

Right/Left = Motor C or D Fwd/Back

Highlight active port (highlight while motor ON)



IR Control: Flow + Assets (11 May)



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:

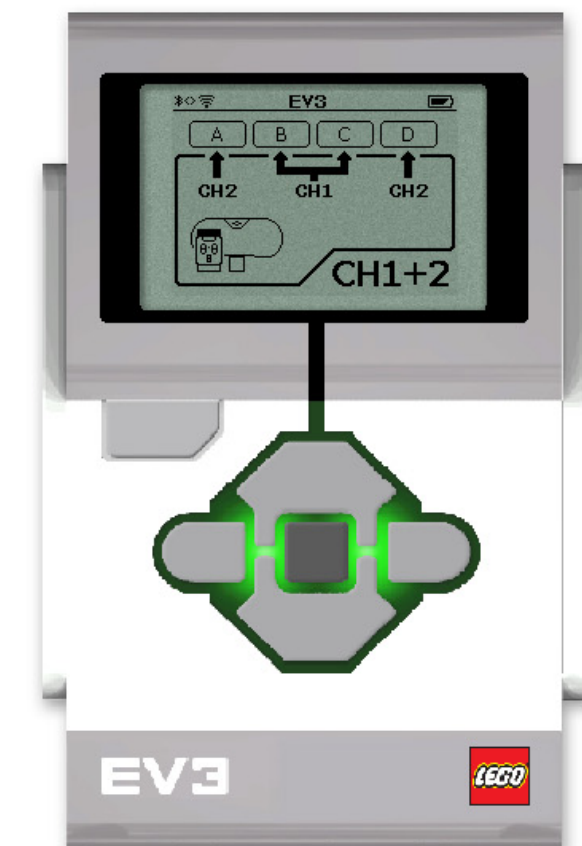
Channel 1: If Brick CH 1+2 - Beacon Buttons mapped to Port B and C

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

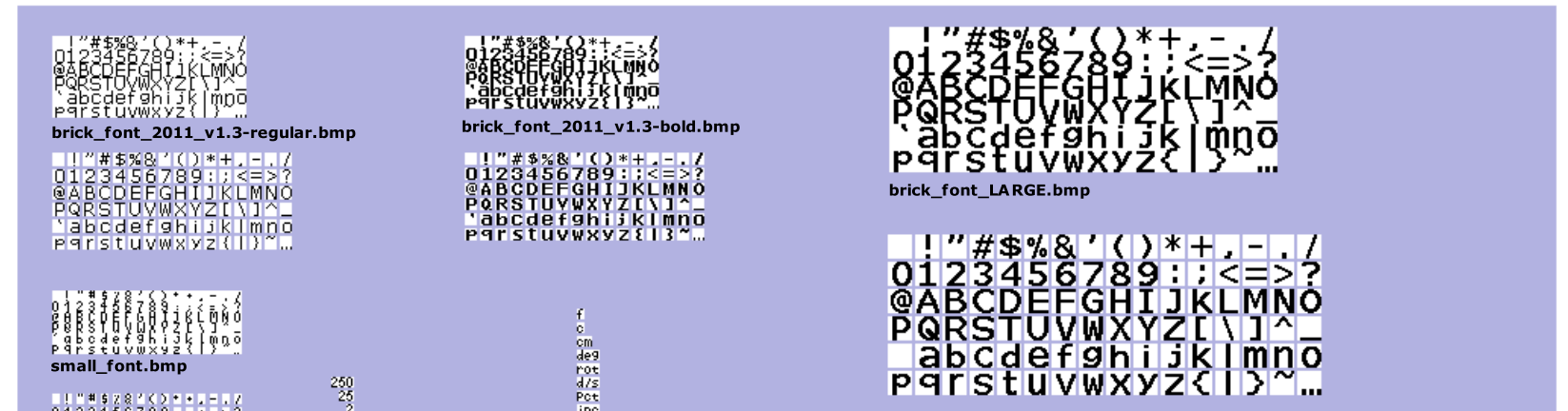
Channel 4: If Brick CH 3+4 - Beacon Buttons mapped to Port A and D

Highlight active port (highlight while motor ON)

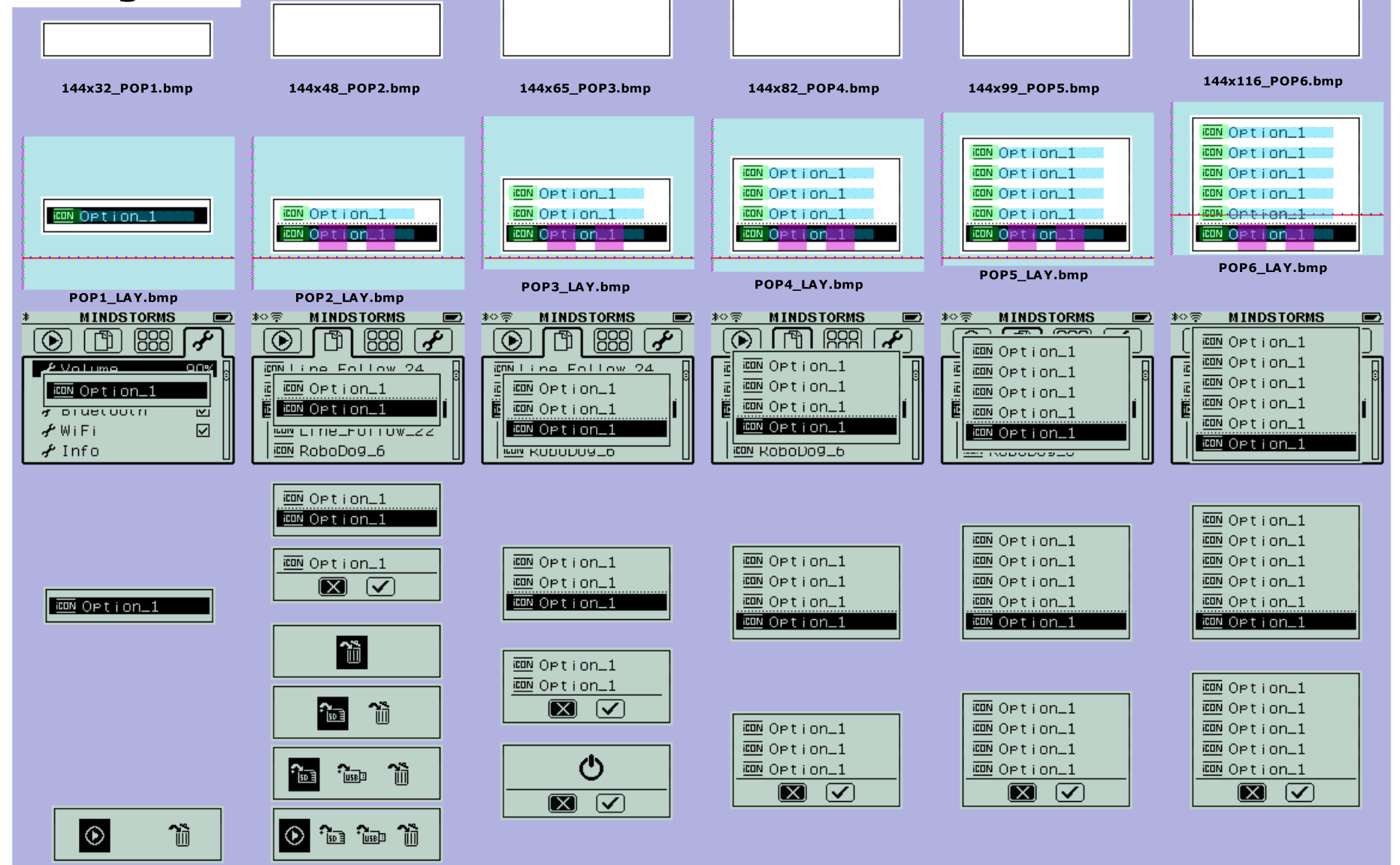


Common Assets (13 FEB)

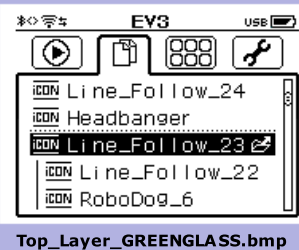
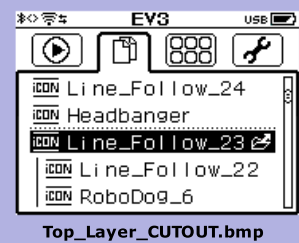
Fonts:



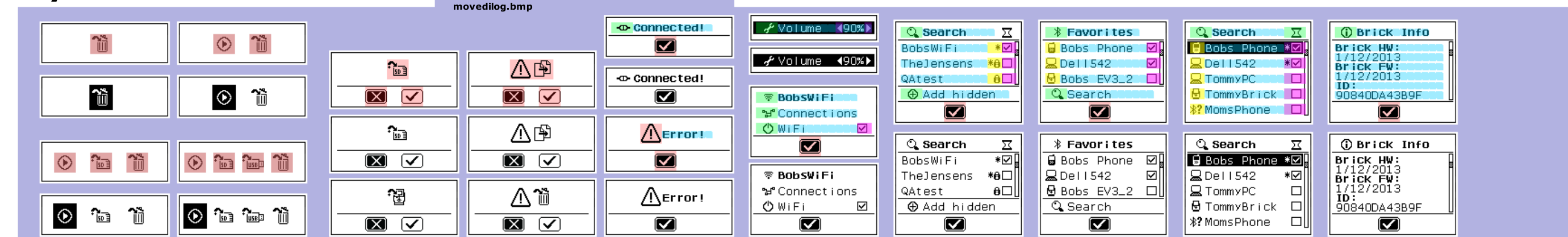
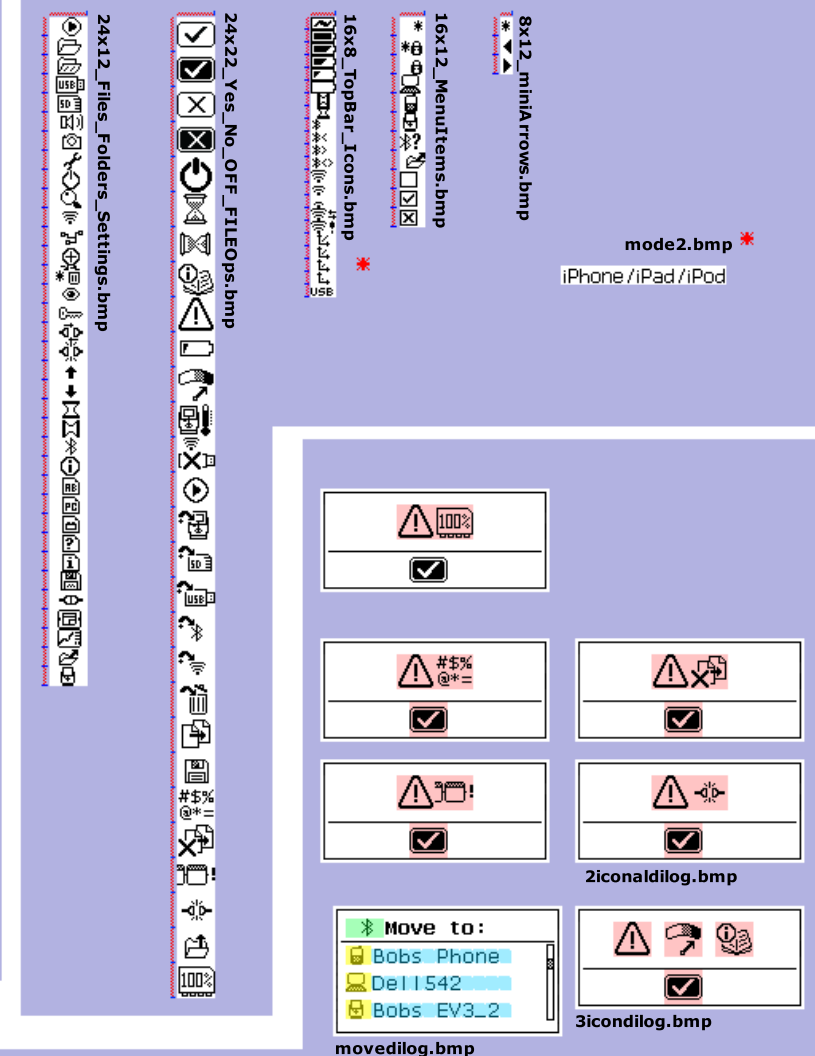
Dialog:



Top Layer menus:

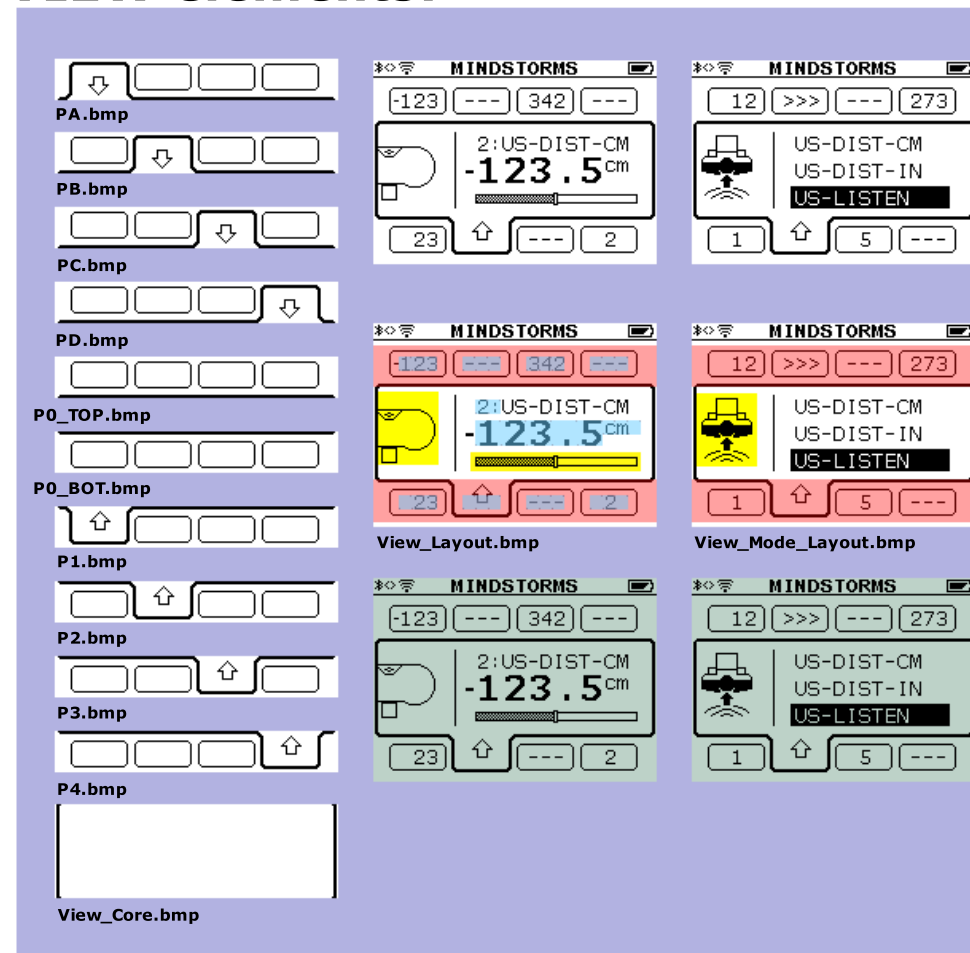


Layouts:



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

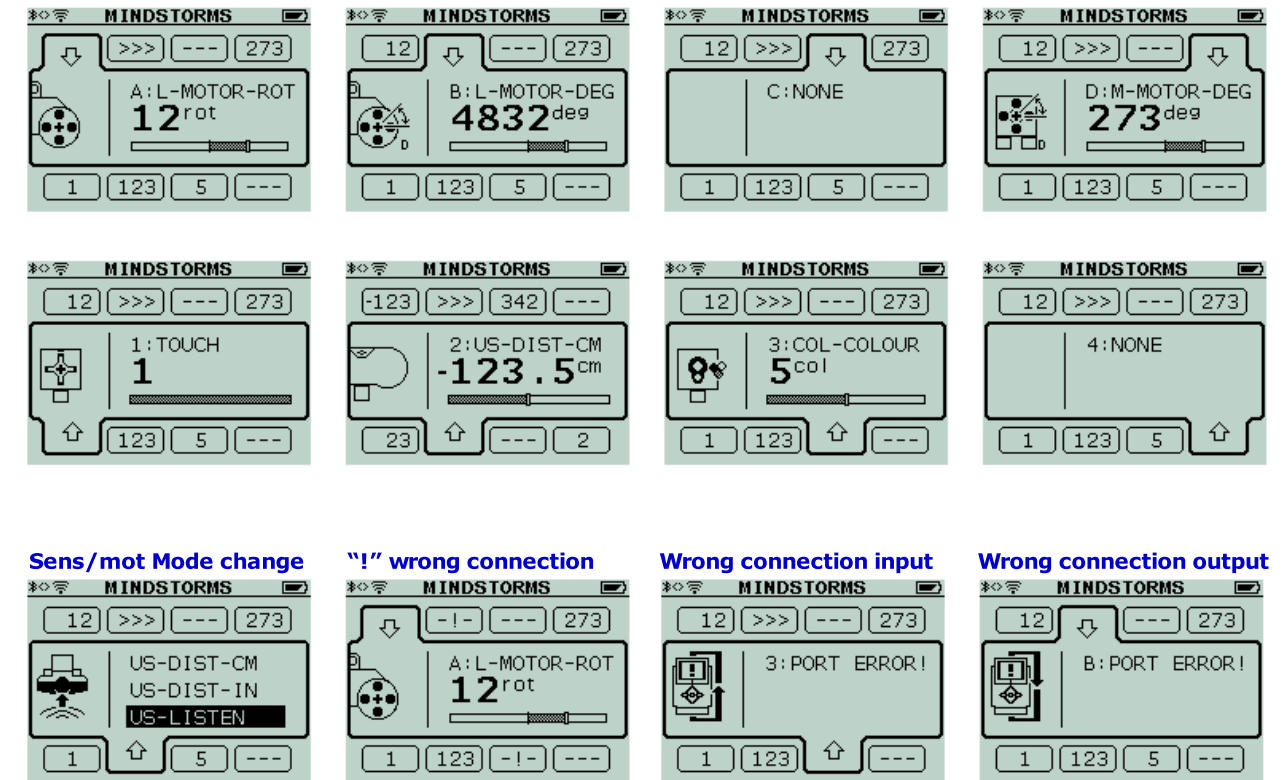
- **NXT:** Use Lookup table for name/scale

- **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

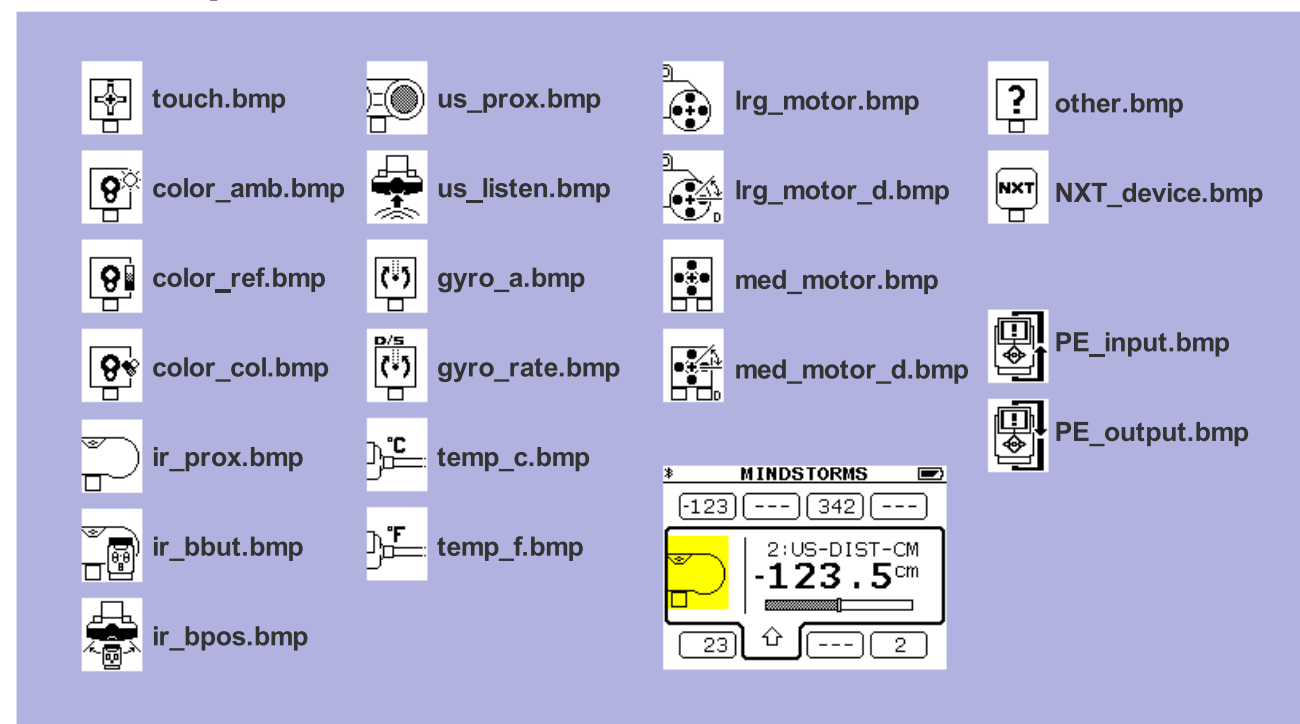
View Key Screens:



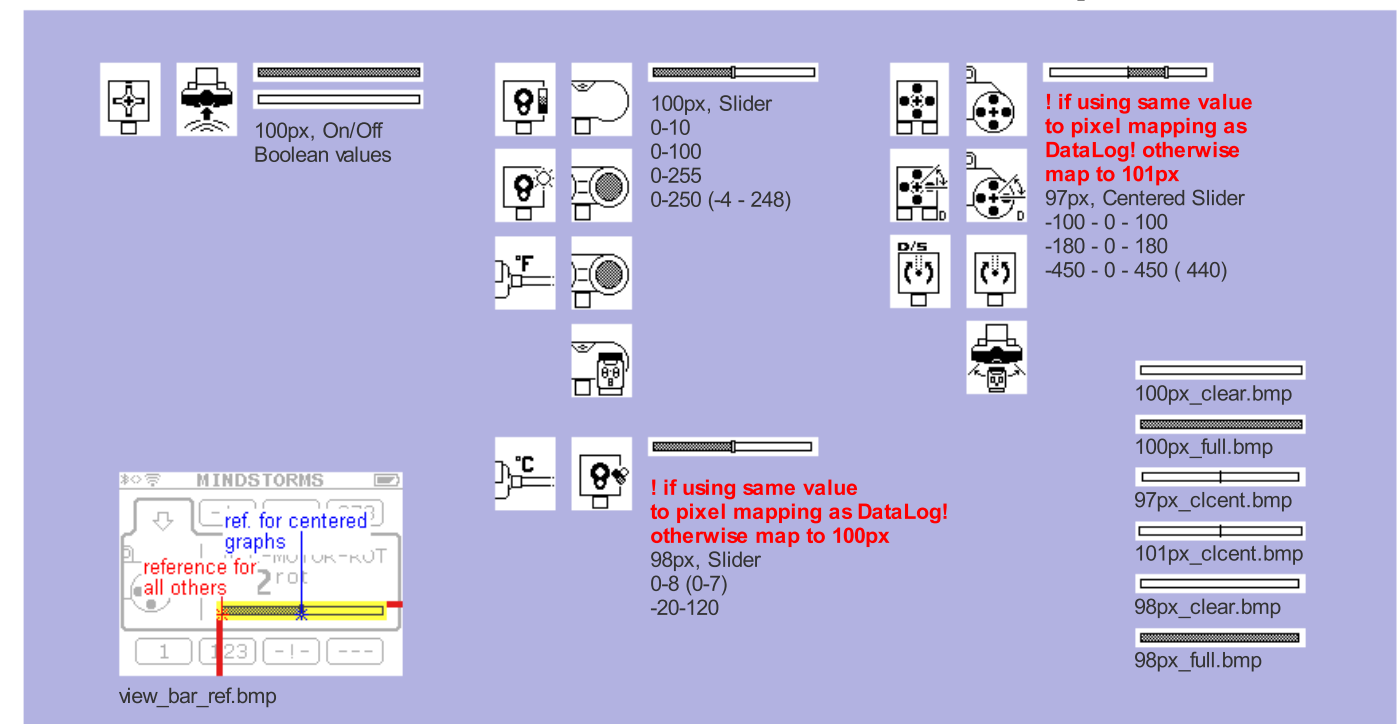
30 MAR Outstanding

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

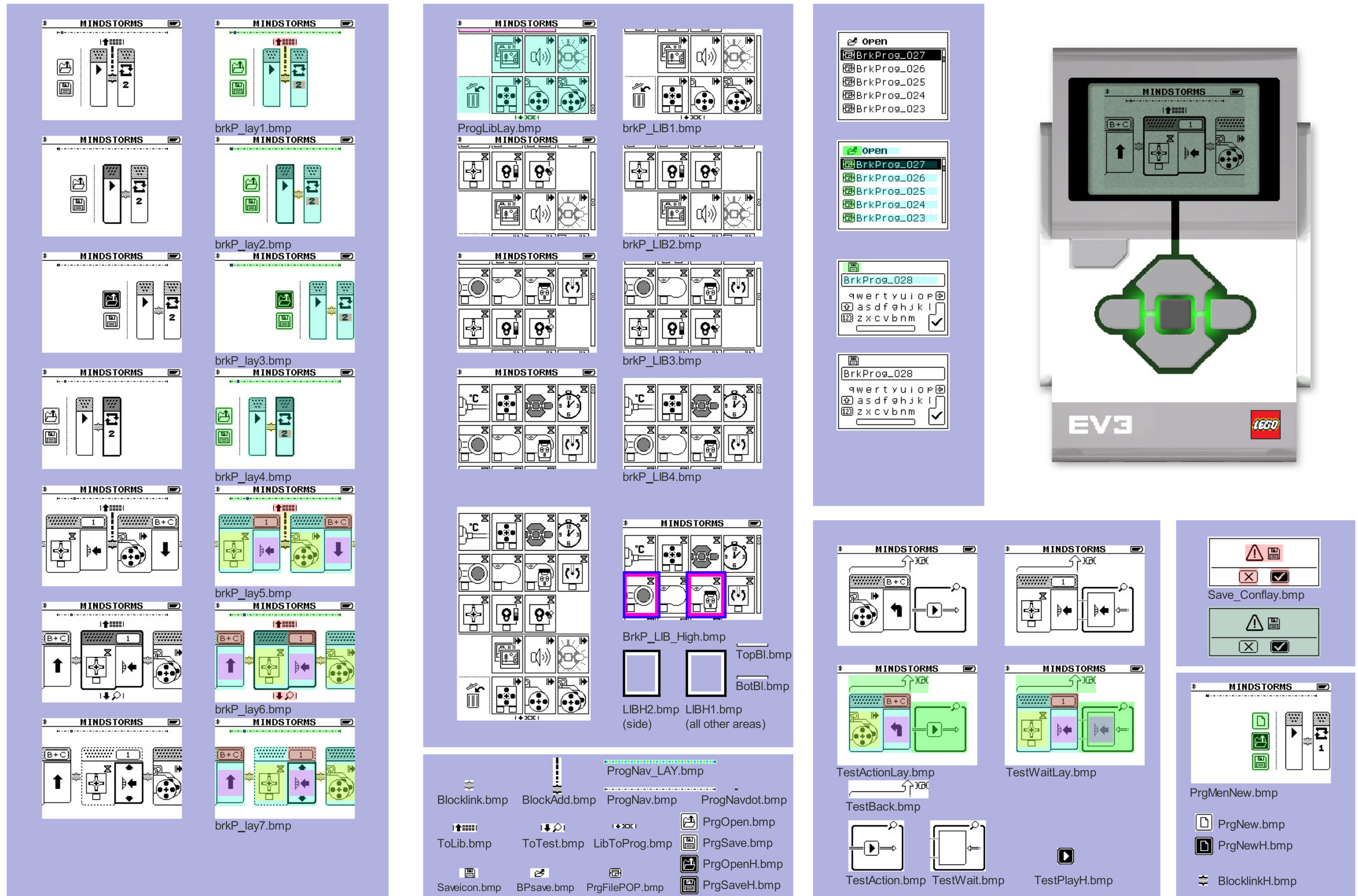
Sensor/Mode elements:



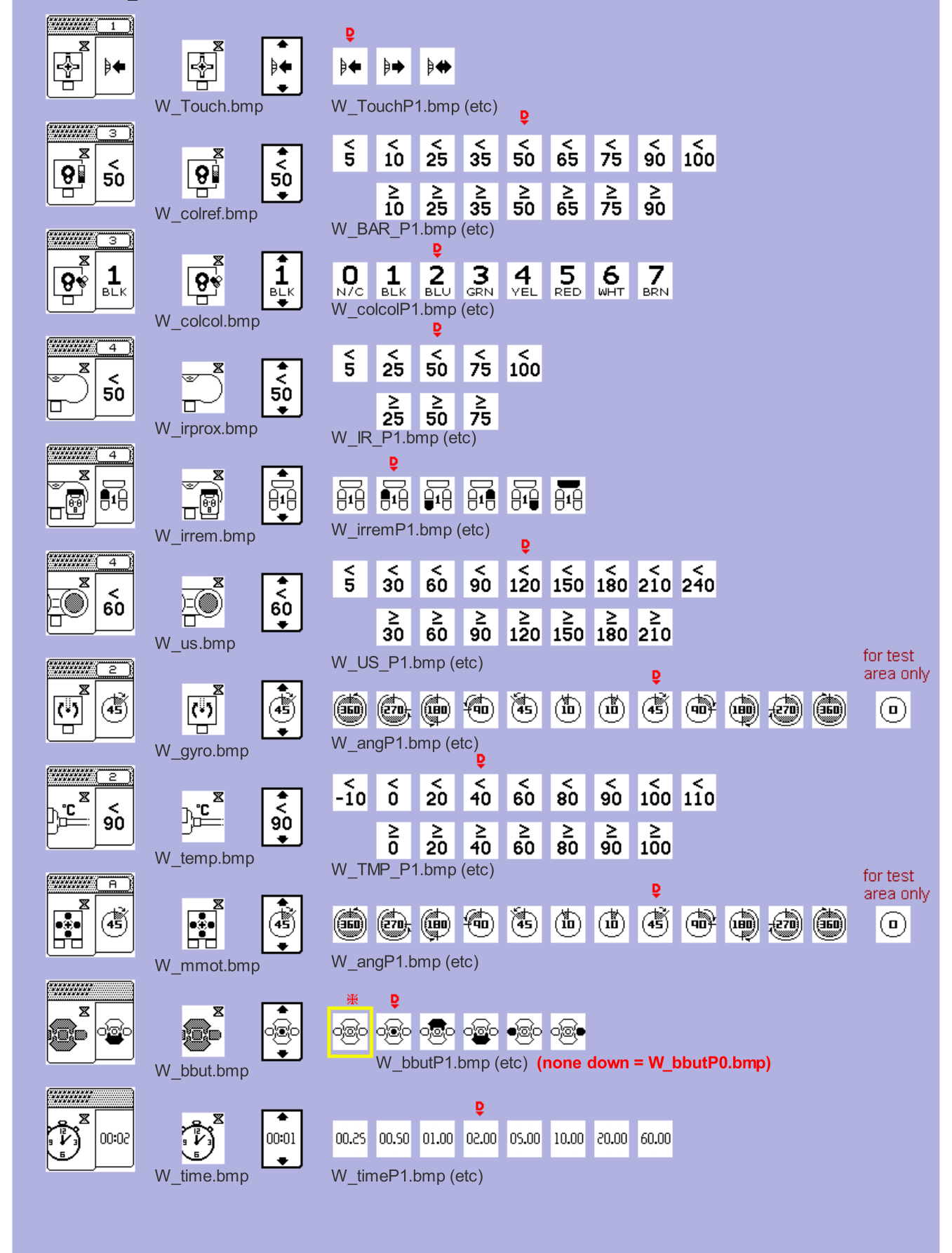
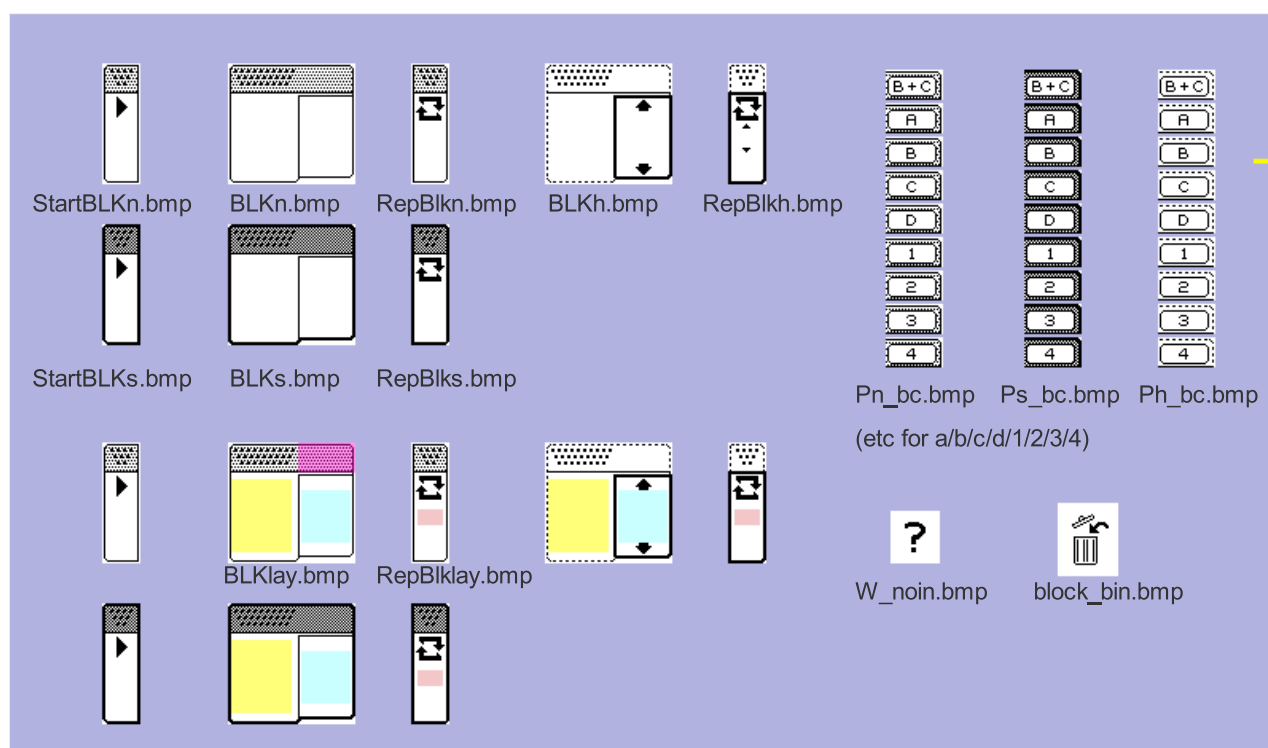
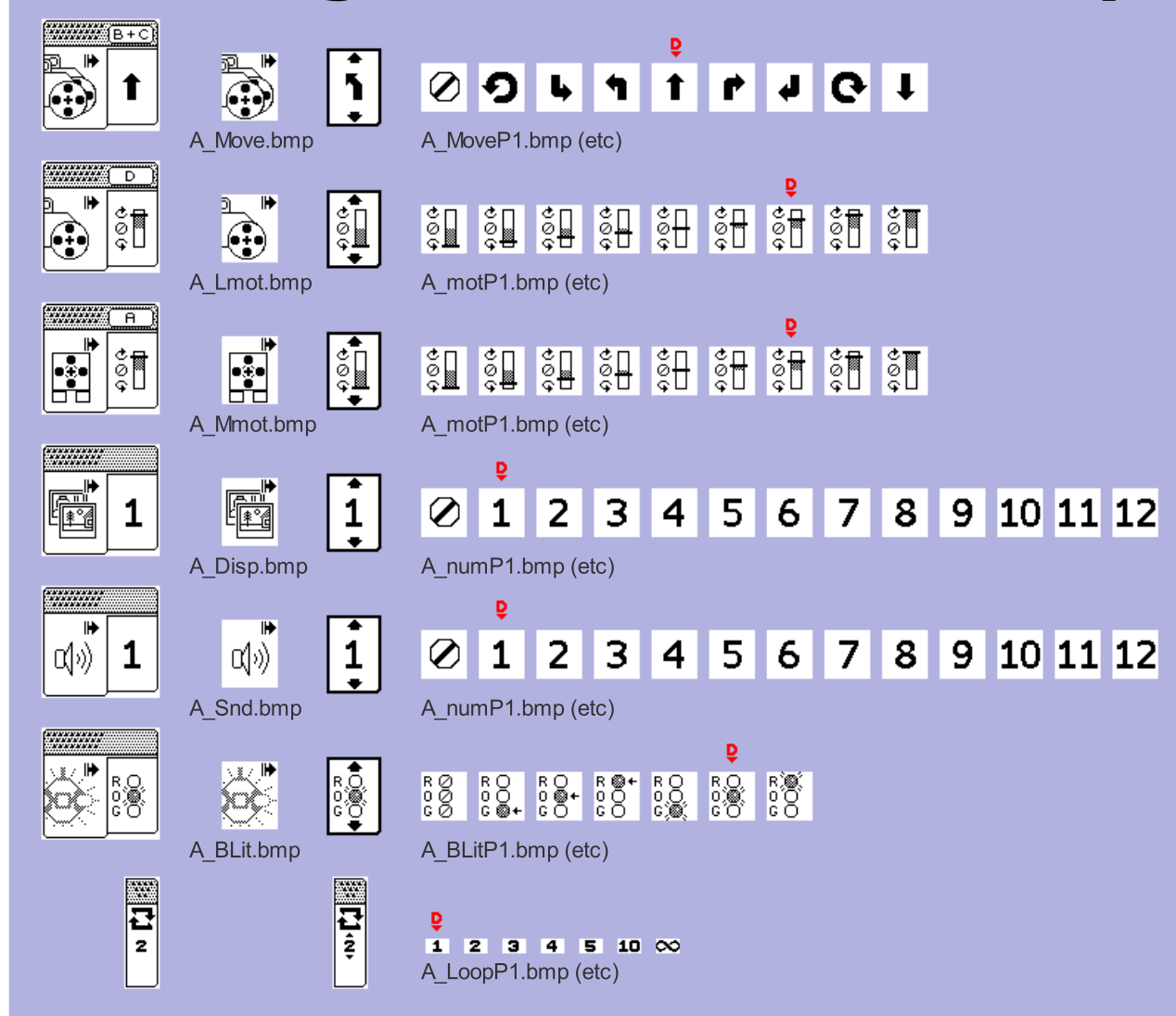
Bar details / elements:



Brick Program: General Assets/Layout (30 MAR)

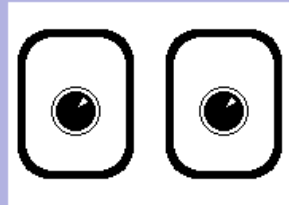


Brick Program: Block Assets (15 June)

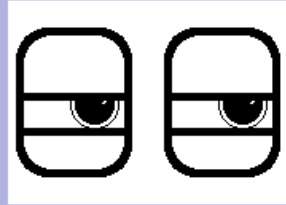


※ 15 JUNE
- EV3 Buttons - Added no button parameter (Yellow Feature)

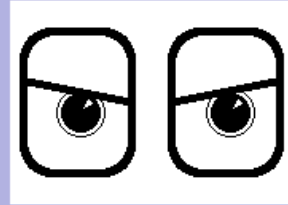
Brick Program: Image Assets (2 Oct)



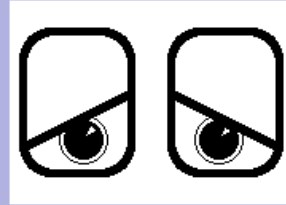
1.bmp



2.bmp



3.bmp



4.bmp



5.bmp



6.bmp



7.bmp



8.bmp



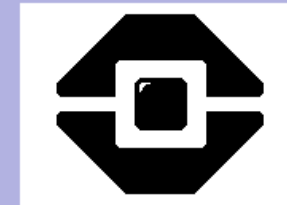
9.bmp



10.bmp



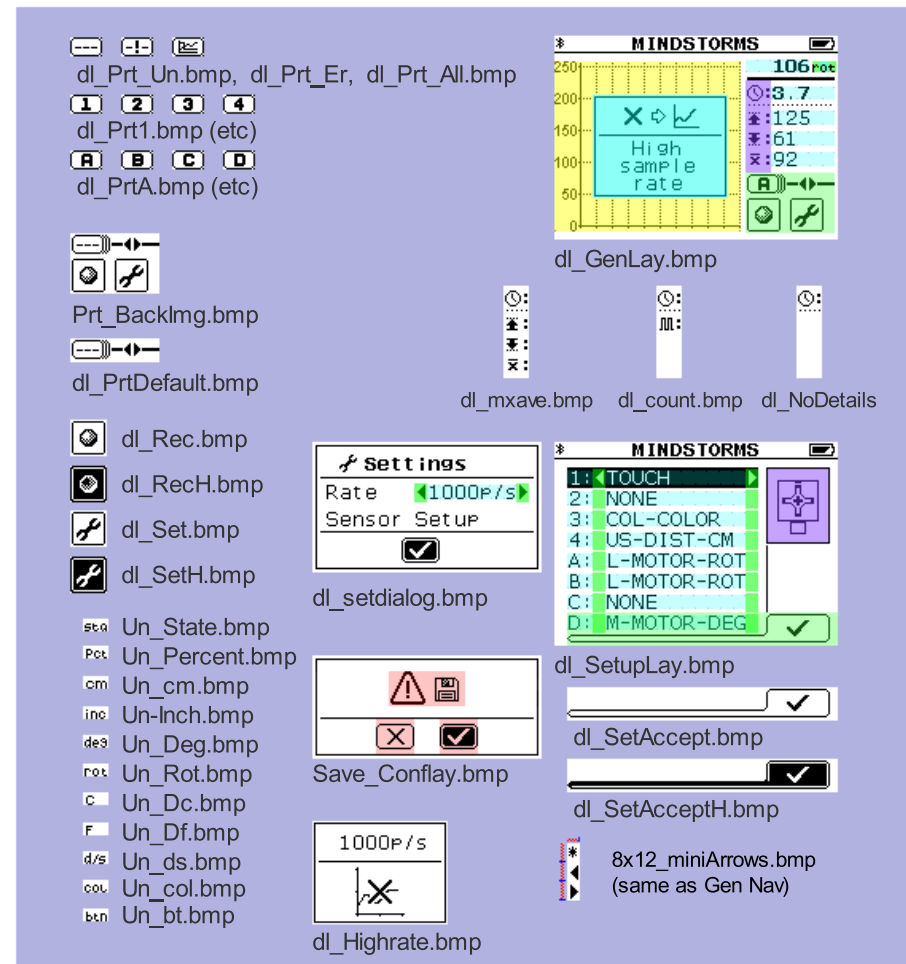
11.bmp



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**

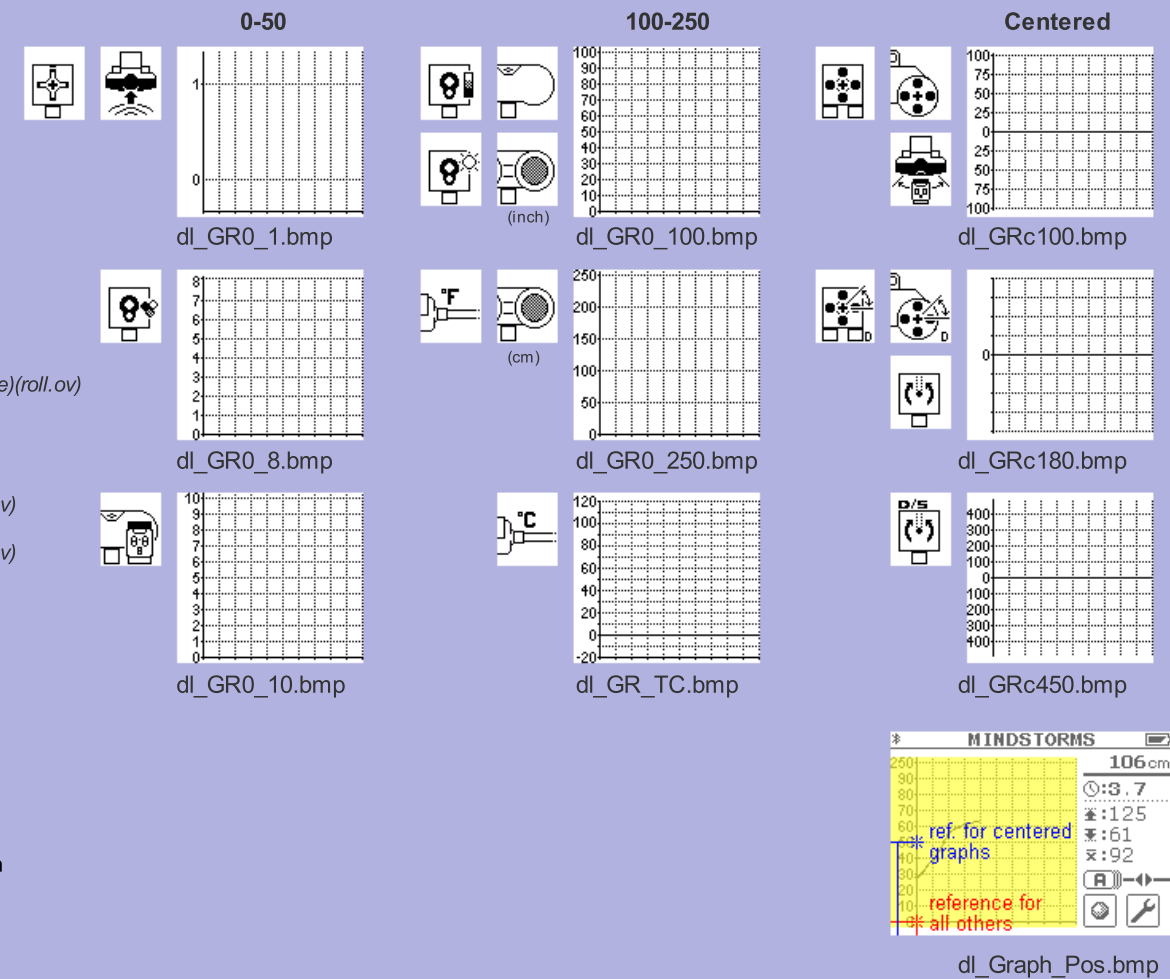
- **UNKNOWN** (0-100) pct (max,min,ave)

- **PORT ERROR!** NO VALUE (dont navigate to port)

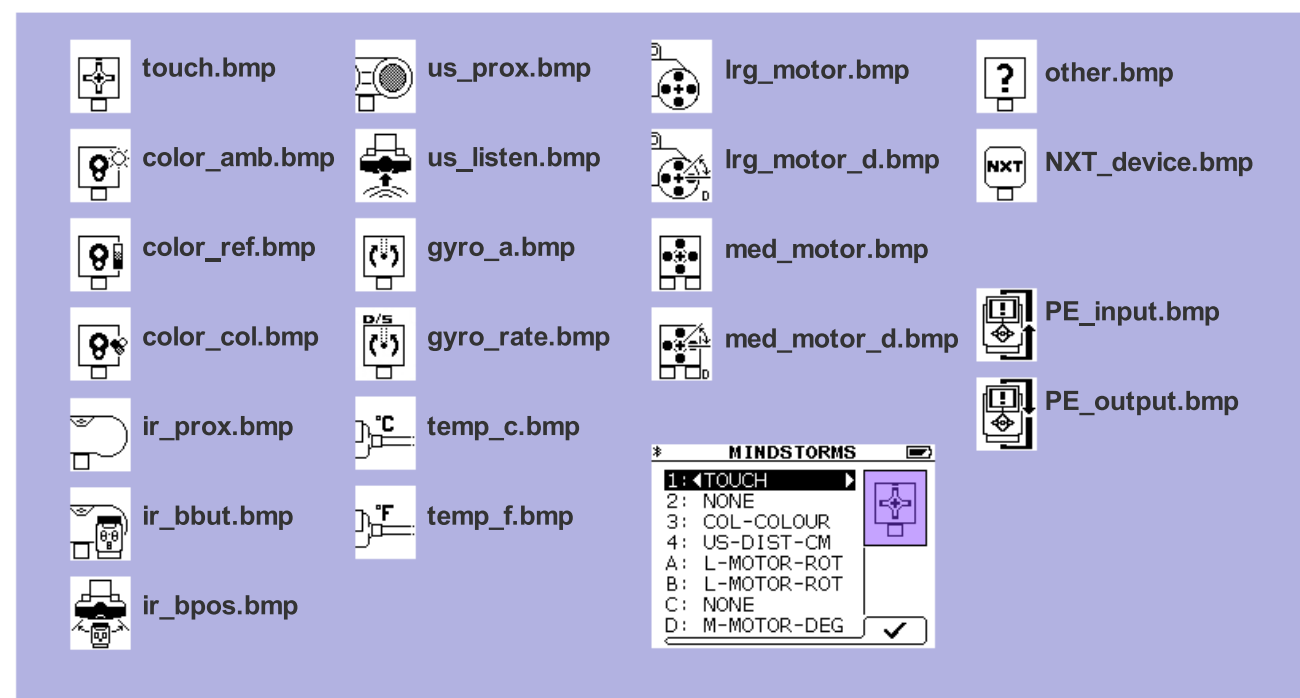
- **NONE** NO VALUE (dont navigate to port)

- 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



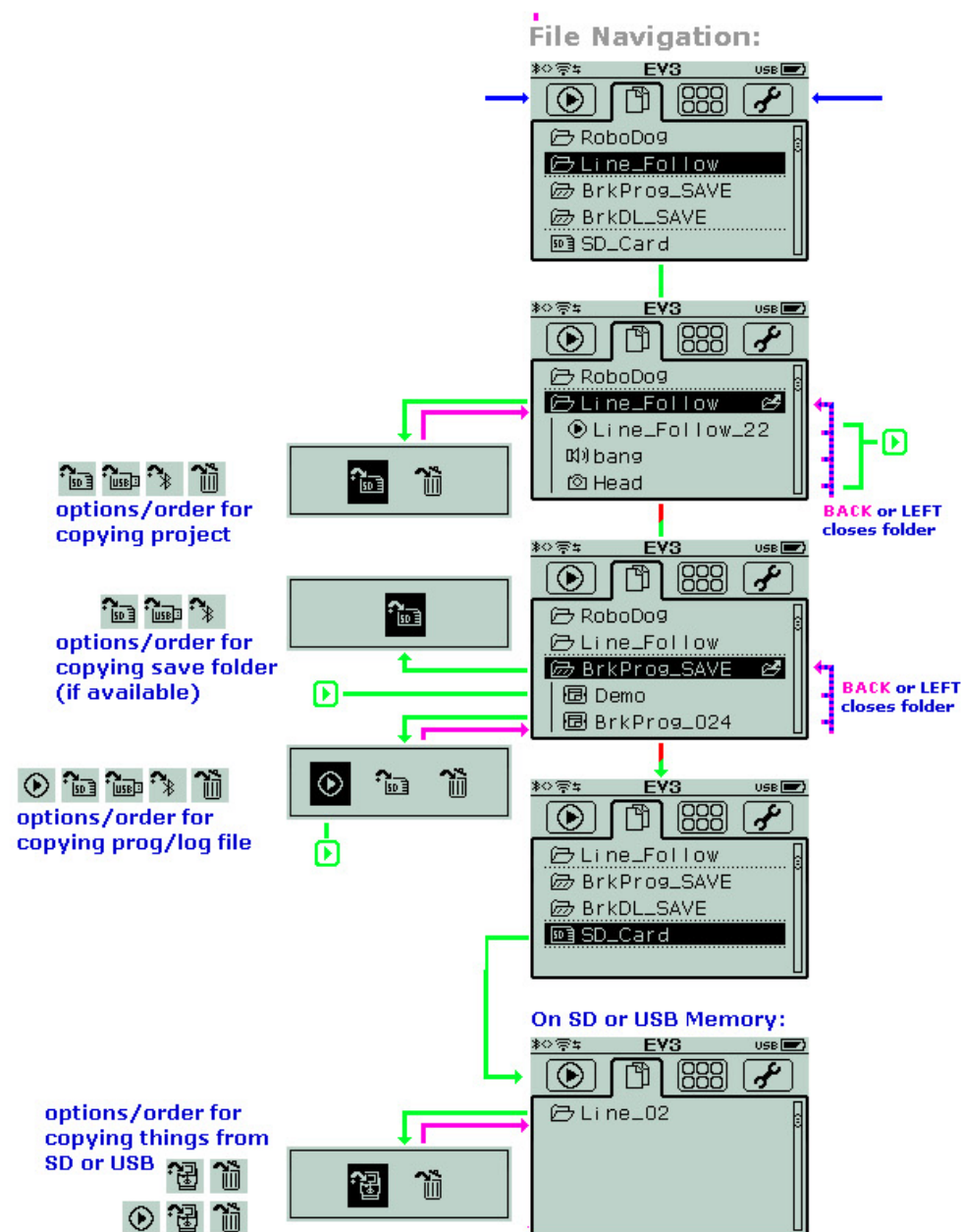
Sensor/Mode elements:



30 MAR outstanding issues:

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

Detail: File Navigation behaviour (2 Oct)

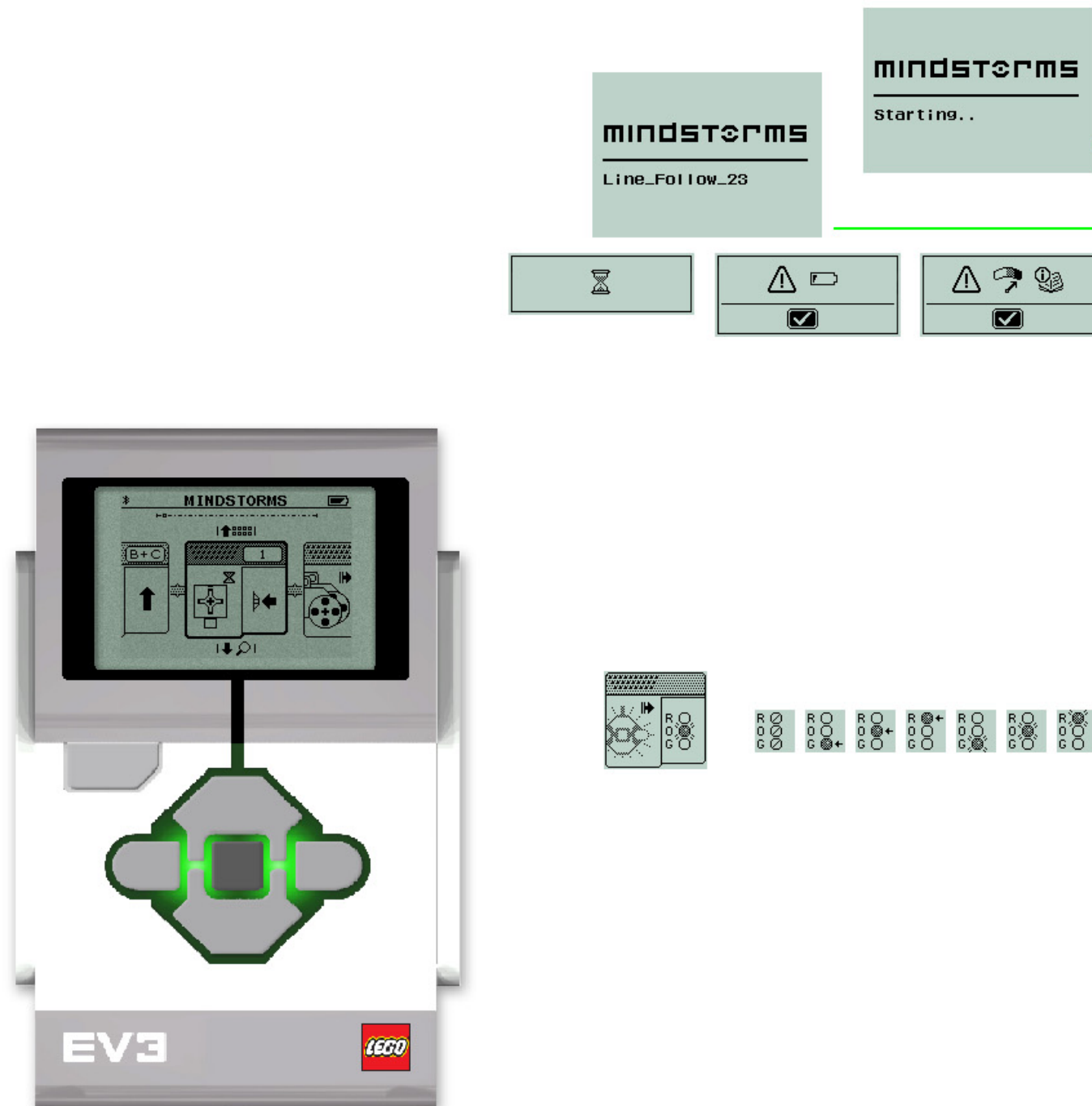


Brick File Navigation Behaviour:

- 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 |
| Brick ProgramSave | |
| 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) |
| Brick Datalog Save | |
| 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) |
| Other | |
| 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 |

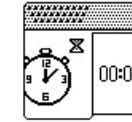
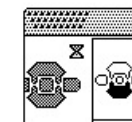
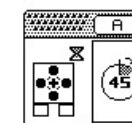
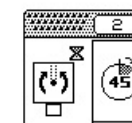
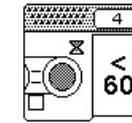
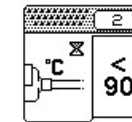
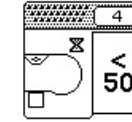
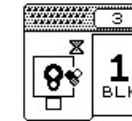
Common: Button Light behaviour (13FEB)



| General UI actions: | Light behavior: |
|--|---|
| Starting Up: | Red |
| Updating: | Red |
| Busy: (non responsive UI) | Red Pulse (A2: 250 on, 250 off) |
| Ready: | Green |
| Running: | Green Pulse (A1: 150 on, 50 off, 150 on, 650 off) |
| Alert ready: (ie battery low etc..responsive UI) | Orange |
| Alert Running: (ie battery low etc..responsive UI) | Orange Pulse (A1: 150 on, 50 off, 150 on, 650 off) |
| Apps actions: | |
| View | Green |
| Motor Control (un active motors/control) | Green |
| Motor Control (active) | Green Pulse (running) (A1: 150 on, 50 off, 150 on, 650 off) |
| Brick Program (editing) | Green (ready) |
| Brick Program (running program) | Green Pulse (running) (A1: 150 on, 50 off, 150 on, 650 off) |
| Brick Datalog (scope/not logging) | Green (ready) |
| Brick Datalog (logging) | Green Pulse (running) (A1: 150 on, 50 off, 150 on, 650 off) |
| Programming actions: (in order..all use A2) | |
| All Off | |
| Green continuous | Green |
| Orange continuous | Orange |
| Red continuous | Red |
| Green Pulse | Green Pulse (A2: 250 on, 250 off) |
| Orange Pulse | Orange Pulse (A2: 250 on, 250 off) |
| Red Pulse | Red Pulse (A2: 250 on, 250 off) |
| (note: same parameters for PC program Block) | |
| Overview of all states: | |
| Green | |
| Orange | |
| Red | |
| Green Pulse (A1: 150 on, 50 off, 150 on, 650 off) | |
| Orange (A1: 150 on, 50 off, 150 on, 650 off) | |
| Green pulse (A2: 250 on, 250 off) | |
| Orange (A2: 250 on, 250 off) | |
| Red pulse (A2: 250 on, 250 off) | |

Brick Program: Block Spec (15 JUNE)

| Block ID number | Functionality / UI Block | Port | Parameter One | Parameter Two | OnBrick Storage | Default values |
|-----------------|---|------|---|---------------|--|--|
| 2 | Start block | NA | 0 | 0 | 0x02 0x00 0x00 | No additional default values associated within this block |
| 3 | Loop block | NA | 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 dependent loops. Is forever loop a different block than counted loops?? |
| 4 | Empty Block | NA | 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 0x05 0x00 aligned to mail Fri 30/03/2012 15:53 | Default values: Run-forever, Parmaters 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 | NA | 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 | NA | 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) | NA | 1 - 7 1: Off 2: Green 3: Orange 4: Red 5: Green Flashing 6: Orange Flashing (default) 7: Red Flashing Flashing period 1/5 sec (ie: on= 0.25) | 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 aligned to mail Thu 12/04/2012 13:47 | Default value: Generate light = TRUE |



| | | | | | | |
|----|---|-----|--|---|--|--|
| 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: Brun | 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 aligned to mail Thu 12/04/2012 13:47 | 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 aligned to mail Thu 12/04/2012 13:47 | Default value: Mode = Celcius 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 aligned to mail Thu 12/04/2012 13:47 | Default value: Mode = Continuesly, 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 |