Appendix D:
BASIC Command Summary

Command	Usage
Adin ( )	Variable = ADIN (Channel) Variable : Variable to store results (No String or Single) Channel : AD Channel Number (not I/O Pin Number)
Alias	ALIAS Registername = AliasName Registername : Register name such as P0, M0, T0 *(Do not use D area)* AliasName : An Alias for the Register chosen *(up to 32 character)*
Arc	ARC x, y, r, start, end
Bcd2bin	Variable = BCD2BIN (bcdvalue) Variable : Variable to store results (Returns LONG) bcdvalue : BCD value to convert to binary
Bclr	BCLR channel, buffertype channel : RS232 Channel *(0 to 3)* buffertype : 0=Receive, 1=Send, 2=Both
Beep	BEEP Port, Length Port : Port number *(0 to 255)* Length : Pulse output period *(1 to 65535)*
Bfree	Variable = BFREE (channel, buffertype) Variable : Variable to store results (No String or Single) channel : RS232 Channel number *(0 to 3)* buffertype: 0=Receive Buffer, 1=Send Buffer
Bin2bcd	Variable = BIN2BCD (binvalue) Variable : Variable to store results (Returns Long) binvalue : Binary value to be converted
Blen	Variable = BLEN (channel, buffertype) Variable : Variable to store results (No String or Single) channel : RS232 Channel number *(0 to 3)* buffertype: 0=Receive Buffer, 1=Send Buffer
Bmp	BMP x, y, filenumber, layer X, y : x,y position to display BMP Filenumber : BMP File number Layer : Layer to display BMP

Box	BOX x1, y1, x2, y2
Boxclear	BOXCLEAR x1, y1, x2, y2
Boxfill	BOXFILL x1, y1, x2, y2,logic logic : 0=OR, 1=AND, 2=XOR
Bytein	Variable = BYTEIN (PortBlock) Variable : Variable to store results (No String or Single) PortBlock : I/O Port Block Number *(0 to 15)*
Byteout	BYTEOUT PortBlock, value PortBlock : I/O Port Block Number. *(0 to 15)* value : Value to be outputted between 0 and 255.
Circle	CIRCLE x, y, r
Circlefill	CIRCLEFILL x, y, r
Checkbf	Variable = CHECKBF (channel) Variable : Variable to store results (No String or Single) channel : RS232 Channel *(0 to 3)*
Color	COLOR value
Cls	CLS
Clear	CLEAR layer
Cmode	CMODE value value : 0=BOX type, 1=Underline type
Compare	COMPARE channel, target#, port, targetstate Channel : High Counter channel Target# : Target # of Pulses (CH0: 0 to 65535, CH1: 0 to 255) Port : Output Port (DO NOT USE Input-only Ports) Targetstate : Target Output Port State
Const	CONST name [as type] = value
Const (Array)	CONST type name [as type] = value [,value, value, value…] Type = Byte, Integer, Long, String Single
Contrast	CONTRAST value value : Contrast Value
Count	Variable = COUNT (channel) Variable : Variable to store results. (No String or Single) Channel : Counter Channel number *(0 to 1)*

Countreset	COUNTRESET channel Channel : Counter Channel *(0 to 1)*
Csroff	CSROFF
Csron	CSRON
Dcd	Variable = DCD source Variable : Variable to store results. (No String or Single) Source : source value
Debug	DEBUG data data : data to send to PC
Decr	DECR variable Variable : Variable for decrementing. (No String or Single)
Defchr	DEFCHR code, data Code : Custom character code (&hdb30 to &hdbff) Data : 32byte bitmap data
Delay	DELAY time Time : interval variable or constant
Dim	DIM variable As variabletype [,variable As variabletype] Variabletype : Byte, Integer, Long, Single, String
Dotsize	DOTSIZE value, style
Dp	Variable = DP(Variable, Decimal Places, ZeroPrint) ZeroPrint :If ZeroPrint is set to 1, zeros are substituted for blank spaces.
Dprint	DPRINT string
Dtzero	DTZERO variable Variable : Variable for decrement. (No String or Single)
Eadin	Variable = EADIN (mux) Variable : Variable to store results (No String or Single) mux : AD input Port Combination MUX *(0 to 21)*
Eeread	Variable = EEREAD (Address, ByteLength) Variable : Variable to store result (No String or Single) Address : 0 *to 40*95 ByteLength : Number of Bytes to read *(1 to 4)*
Eewrite	EEWRITE Address, Data, ByteLength Address : 0 to 4095 Data : Data to write to EEPROM (*up to Long type values*) ByteLength : Number of Bytes to write *(1 to 4)*

Ekeypad	Variable = EKEYPAD (portblockIn, portblockOut) Variable : Variable to store results (Returns Byte) PortblockIn : Port Block to receive input (*0 to 15*) PortblockOut : Port Block to output (*0 to 15*)
Ellipse	ELLIPSE x, y, r1, r2
Elfill	ELFILL x, y, r1, r2
Freepin	FREEPIN I/O I/O : I/O PORT Number
Font	FONT fontsize, efontwidth fontsize : 0 to 8 Font Selection efontwidth : 0 = fixed width, 1=variable width
Fp	Variable = FP (Value, , Whole Number Digits, Fractional Number Digits)
Freqout	FREQOUT Channel, FreqValue Channel : PWM Channel *(0 to 15)* FreqValue : Frequency value between 1 and 65535
Get	Variable = GET (channel, length) Variable : Variable to store results (Cannot use String, Single) channel : RS232 Channel *(0 to 3)* length : Length of data to receive (1 *to* 4)
Getcrc	GETCRC Variable, ArrayName, Bytelength variable : String Variable to store results (Integer type) ArrayName : Array with data(Must be a Byte array) Bytelength : # of bytes to calculate CRC
Getstr	Variable = GETSTR (channel, length) Variable : String Variable to store results channel : RS232 Channel length : Length of data to receive
Getstr2	Variable = GETSTR (channel, length, stopchar) Variable : String Variable to store results channel : RS232 Channel length : Length of data to receive Stopchar : Stop character ascii code
Geta	GETA channel, ArrayName, bytelength channel : RS232 Channel *(0 to 3)* ArrayName : Array to store Received data (No String or Single) Bytelength : Number of Bytes to store *(1 to 65535)*

Geta2	GETA channel, ArrayName, bytelength, stopchar channel : RS232 Channel *(0 to 3)* ArrayName : Array to store Received data (No String or Single) Bytelength : Number of Bytes to store *(1 to 65535)* Stopchar : Stop character ascii code
Glayer	GLAYER layernumber Layernumber : Set the graphic layer. (0,1,2)
Glocate	GLOCATE x, y
Gpaste	GPASTE x, y, layer, logic logic =0 : OR logic =1 : AND logic =2 : XOR logic =3 : Clear screen then pop
Gprint	GPRINT string
Gpush	GPUSH x1, y1, x2, y2, layer
Gpop	GPOP x, y, layer, logic logic =0 : OR logic =1 : AND logic =2 : XOR logic =3 : Clear screen then pop
Heap	Variable = HEAP (Address) Variable : Variable to store results Address : HEAP memory address
Heapclear	HEAPCLEAR
Heapw	HEAPW Address, Data Address : HEAP memory address Data : Constant or Variable with data (Byte only)
Hread	Variable = HREAD (Address, ByteLength) Variable : Variable to store results Address : HEAP memory address ByteLength : # of bytes to read, constant or variable
Hwrite	HWRITE Address, Data, ByteLength Address : HEAP memory address Data : Constant or Variable with data (whole numbers only) ByteLength : # of bytes to write
High	HIGH Port Port : I/O Port number
Hpaste	HPASTE x, y, layer

Hp	Variable = DP(Variable, Heximal Places, ZeroPrint) ZeroPrint :If ZeroPrint is set to 1, zeros are substituted for blank spaces.
Hpop	HPOP x, y, layer
Hpush	HPUSH x1, y1, x2, y2, layer
I2cstart	I2CSTART
I2cstop	I2CSTOP
I2cread	Variable = I2CREAD (dummy) Variable : Variable to store results. (No String or Single) dummy : dummy value. *(Normally 0)*
I2creadna	Variable = I2CREADNA (dummy) Variable : Variable to store results. (No String or Single) dummy : dummy value. *(Normally 0)*
I2cwrite	Variable = I2CWRITE data Variable : Acknowledge (*0*=Acknowledged, *1*=No Acknowledgement) data : data to send (Byte value : 0 to 255)
In	Variable = IN (Port) Variable : The variable to store result (No String or Single) Port : I/O Port number *(0 to 255)*
Incr	INCR variable Variable : Variable for increment. (No String or Single)
Input	INPUT Port Port : I/O Port number *(0 to 255)*
Keyin	Variable = KEYIN (Port, debouncingtime) Variable : Variable to store results (No String or Single) Port : Input Port *(0 to 255)* debouncingtime : Debouncing Time *(1 to 65535)*
Keyinh	Variable = KEYINH (Port, debouncingtime) Variable : Variable to store results (No String or Single) Port : Input Port *(0 to 255)* debouncingtime : Debouncing Time *(0 to 65535)*
Keypad	Variable = KEYPAD (PortBlock) Variable : Variable to store results (Returns Byte, No String or Single) PortBlock : Port Block *(0 to 15)*

Layer	LAYER layer1mode, layer2 mode, layer3 mode Layer1mode : Set Layer 1 mode (0=off, 1=on, 2=flash) Layer2mode : Set Layer 2 mode (0=off, 1=on, 2=flash) Layer3mode : Set Layer 3 mode (0=off, 1=on, 2=flash)
Ladderscan	LADDERSCAN
Light	LIGHT value value : Back light 0=OFF, 1=ON
Line	LINE x1, y1, x2, y2
Linestyle	LINESTYLE value
Lineto	LINETO x, y
Low	LOW Port Port : I/O Port number *(0 to 255)*
Locate	LOCATE X,Y
Menu	Variable = MENU (index, pos) Variable : Variable to store results (1 = selected, 0 = unselected) Index : Menu Index pos : Position (0=x1, 1=y1, 2=x2, 3=y2)
Memadr	Variable = MEMADR (TargetVariable) Variable : Variable to store results (No String or Single) TargetVariable : Variable to find physical memory address
Menucheck	Variable = MENUCHECK (index, touchx, touchy) Variable : Variable to store results (1 if selected, 0 if unselected) Index : Menu Index Number Touchx : Touch pad x axis point Touchy : Touch pad y axis point
Menu Reverse	MENUREVERSE index Index : Menu index number
Menuset	MENUSET index, style, x1, y1, x2, y2 Index : Menu Index Number Style : Button Style; 0=none, 1=Box, 2=Box with Shadow X1,y1,x2,y2 : Menu Button location
Menutitle	MENUTITLE index, x, y, string Index :Menu index number X,y : Title location based on left upper corner of button string : Name of the menu

Ncd	Variable = NCD source Variable : Variable to store results. (No String or Single) Source : source value *(0 to 31)*
Nop	NOP
Offset	OFFSET x, y
On int	ON INTx GOSUB label x : 0 to 3, External Interrupt Channel
On ladderint	ON LADDERINT GOSUB label
On pad	ON PAD GOSUB label
On recv	ON RECV1 GOSUB label
On timer	ON TIMER (interval) GOSUB label Interval : Interrupt Interval 1=10ms, 2=20ms……65535=655350ms 1 to 65535 can be used
Opencom	OPENCOM channel, baudrate, protocol, recvsize, sendsize channel : RS232 Channel (0 to 3) Baudrate : Baudrate (Do not use variable) protocol : Protocol (Do not use variable) recvsize : Receive Buffer Size (Max. 1024, Do not use variable) sendsize : Send Buffer Size (Max. 1024, Do not use variable)
Out	OUT Port, Value Port : I/O Port number *(0 to 255)* Value : Value to be outputted to the I/O Port (1 or 0)
Output	OUTPUT Port Port : I/O Port number *(0 to 255)*
Outstat	Variable = OUTSTAT (Port) Variable : Variable to store results. (No String or Single) Port : I/O Port Number *(0 to 255)*
Overlay	OVERLAY overmode overmode : Logical Mode (0=or, 1=and, 2=xor)
Paint	PAINT x, y
Pause	PAUSE value

Peek	Variable = PEEK (Address, Length) Variable : Variable to Store Result. (No String or Single) Address : RAM Address. length : Length of Bytes to read *(1 to 4)*
Poke	POKE Address, Value, Length Address : RAM Address Value : Variable to store results *(up to Long type value)* length : length of bytes to read *(1 to 4)*
Print	PRINT String / Variable String : String Variable : When using variables/constants, String representation of the variable/constant will be printed.
Pset	PSET x, y
Pulsout	PULSOUT Port, Period Port : Output Port *(0 to 255)* Period : Pulse Period *(1 to 65535)*
Put	PUT channel, data, bytelength channel : RS232 Channel *(0 to 3)* Data : Data to send (up to Long type value) Bytelength : Length of Data *(1 to 3)*
Puta	PUTA channel, ArrayName, bytelength channel : RS232 Channel. *(0 to 3)* ArrayName : Array Name Bytelength : Bytes to Send *(1 to 65535)*
Puta2	PUTA2 channel, ArrayName, bytelength, Stopchar channel : RS232 Channel. (0 to 3) ArrayName : Array Name Bytelength : Bytes to Send (1 to 65535) Stopchar : Stop character ascii code
Putstr	PUTSTR channel, data… channel : RS232 Channel. (0 to 3) Data : String Data (String variable or String constant)
Pwm	PWM Channel, Duty, *Period* Channel : PWM Channel Number *(0 to 15)* Duty : Duty Value, must be less than the Width. *Period* : Maximum of 65535
Pwmoff	PWMOFF Channel Channel : PWM Channel. (0 to 15)
Ramclear	RAMCLEAR

Reset	RESET
Reverse	REVERSE Port Port : I/O Port Number. *(0 to 15)*
Set display	SET DISPLAY type, method, baud, buffersize type : 0=*Rs232*LCD, 1=GHLCD GHB3224, 2=CLCD Method : Communication Method 0=CuNET, 1=COM1 baud : Baud rate (CuNET Slave address) Buffersize : Send Buffer Size
Set debug	SET DEBUG On[/Off]
Set i2c	SET I2C DataPort, ClockPort DataPort : SDA, Data Send/Receive Port. *(0 to 255)* ClockPort : SCL, Clock Send/Receive Port. *(0 to 255)*
Set ladder	SET LADDER On [/Off]
Set modbus	S*et* MODBUS mode, slaveaddress, returninterval mode : 0=ASCII, 1=RTU slaveaddress : Slave Address (1 to 254) returninterval : return interval value (1 to 255, default value is 1)
Set outolny	SET OUTONLY On[/Off]
Set Pad	SET PAD mode, packet, buffersize mode : Bit Mode (0 to 255) packet : Packet Size (1 to 255) buffersize : Receive Buffer Size (1 to 255)
Set rs232	SET RS232 channel, baudrate, protocol channel : RS232 Channel (0 to 3) Baudrate : Baudrate (Do not use variable) protocol : Protocol (Do not use variable)
Set until	SET UNTIL channel, packetlength, stopchar channel : RS232 Channel. *(0 to 3)* packetlength : Length of packet *(0 to 255)* stopchar : Character to catch
Set Int	SET INTx mode x : 0 to 3, External Interrupt Channel mode : 0=Falling Edge, 1=Rising Edge, 2=Changing Edge
Set Onglobal	SET ONGLOBAL On[/Off]
Set onint	SET ONINTx On[/Off]
Set onladderint	SET ONLADDERINT On[/Off]

Set onpad	SET ONPAD On[/Off]
Set onrecv	SET ONRECV0 On[/Off] SET ONRECV1 On[/Off] SET ONRECV2 On[/Off] SET ONRECV3 On[/Off]
Set Ontimer	SET ONTIMER On[/Off]
Set SPI	SET SPI clk, mosi, miso, mode clk : port for clock output. mosi : port for data (Master output Slave input). miso : port for data (Master input Slave output). mode : communication mode bit 3: 0= MSB start, 1=LSB star.t bit 2: 0=wait at the clock LOW, 1=wait at the clock HIGH. bit 1: OUTPUT sampling point; 0=before rising edge, 1=after falling edge. bit 0: INPUT sampling point; 0=before rising edge, 1=after falling edge.
Shiftin	Variable = SHIFTIN (clock, data, mode, bitlength) Variable : Variable to store results. (No String or Single) Clock : Clock Port. *(0 to 255)* Data : Data Port. *(0 to 255)* Mode : 0 = LSB First (Least Significant Bit First), After Rising Edge 1 = MSB First (Most Significant Bit First), After Rising Edge 2 = LSB First (Least Significant Bit First), After Falling Edge 3 = MSB First (Most Significant Bit First), After Falling Edge 4 = LSB First (Least Significant Bit First), Before Rising Edge 5 = MSB First (Most Significant Bit First), Before Rising Edge bitlength : Length of bits (8 to 16)
Shiftout	SHIFTOUT clock, data, mode, variable, bitlength Clock : Clock Port. *(0 to 255)* Data : Data Port. *(0 to 255)* Mode : 0 = LSB First (Least Significant Bit First) 1 = MSB First (Most Significant Bit First) 2 = MSB First(Most Significant Bit First) , Create ACK (For I2C) variable : Variable to store data *(up to 65535)* bitlength : Bit Length (8 to 16)
SPI	*Indata = SPI (Outdata, Bits)* *Indata : input data* *Outdata : output data,* *bits : Number of bits (1 to 32)*

Stepaccel	STEPACCEL Channel, Port, FreqBASE, FreqTOP, FreqACCEL, Qty *Channel : StepPulse Channel (Stepaccel supports only 0)* *Port : Output Port* *FreqBASE : The starting stepper frequency (Up to FreqTOP)* *FreqTOP : The frequency after acceleration is finished (Up to 3.3KHz)* *FreqACCEL : The acceleration in steps per second* *Qty : # of pulses to output (up to 2147483647)*
Steppulse	STEPPULSE Channel, Port, Freq, Qty Channel : StepPulse Channel(0 or 1) Port : Output Port Freq : Output Frequency (Up to 15kHz) Qty : # of pulses to output (up to 2147483647)
Stepstat	Variable = STEPSTAT (Channel) Variable : Variable to store results Channel : StepPulse Channel(0 or 1)
Stepstop	STEPSTOP Channel Channel : StepPulse Channel (0 or 1)
Style	STYLE bold, inverse, underline bold : 0=Normal, 2 or 3 =Bold inverse : 0=Normal, 1=Inverse underline : 0=Normal, 1=Underline
Sys	Variable = SYS (address) Variable : Variable to store results. (No String or Single) address : Address. *(0 to 255)*
Tadin	Variable = TADIN (Channel) Variable : Variable to store results. (No String or Single) Channel : AD Channel Number (Not Port number, *0 to 15)*
Time	Variable = TIME (address) Variable : Variable to store results. (No String or Single) address : Address of time value (0 to 6)
Timeset	TIMESET address, value address : Address of time value (0 to 6) value : time value. *(0 to 255)*
Udelay	UDELAY time time : interval (1 to 65535)
Usepin	USEPIN I/O, In/Out, AliasName I/O : I/O Port Number. *(0 to 255)* In/Out : "In" or "Out" AliasName : Alias for the port (Optional)

Utmax	UTMAX variable Variable : Variable for decrement. (No String or Single)
Wait	WAIT time time : delay time (mS) 10 to 2147483640
Waittx	WAITTX channel channel : RS232Channel. *(0 to 3)*
Wmode	WMODE value value : 0=FAST, 1=SLOW