

Open Source Documentation InterWrite Linux

Internal Links

[InterWrite SchoolPad/MeetingPad 100](#) (Serial and USB)
[InterWrite SchoolPad/MeetingPad 400](#) (Bluetooth)
[InterWrite WhiteBoards](#) (Serial, USB, and Bluetooth)

External Links

[BlueZ Bluetooth Stack Protocol](#)
<http://www.linux-usb.org/>
<http://www.x.org/>
<http://www.xfree86.org/>

*****Important Notes*****

1. Initially, the Bluetooth SchoolPads/MeetingPads will not support the Auto Connect and Link features.
2. When working on the USB module, use the native USB HID Parser

GTCO CalComp 36090 FUNCTIONAL SPECIFICATION

FEATURES

SP100 PRO 6X9

USB unit powers up as a digitizer: Inc run at 1000 LPI

RS232 powers up as:

19200 8 n 1 format 20 with extended data enabled, inc run, out of proximity data

OPERATING MODES

RUN MODE - The digitizer outputs coordinate data continuously.

INCREMENT MODE FILTER- Puts a movement filter on the data in any mode. The transducer must move N count before the data can be sent. Then both axis data are updated. If out of proximity data is enabled and in increment mode 1 data point may be sent on leaving proximity. Changes in Button State and pressure will also generate an Increment Event.

SEND DATA OUT OF PROXIMITY MODE MODIFIER- If this flag is set, coordinate data will be sent when it meets the output conditions in or out of the active area. Cordless units may not respond to button information until cursor is close to tablet. NOTE: This command should be sent after the mode commands.

BINARY FORMATS

20 format AFT

	7	6	5	4	3	2	1	0	
1	1	C4	C3	C2	C1	C0	X15	X14	PR 0= IN PROX 1= OUT OF PROX Sdf= 0 byte 10 is height data Sdf = 1 byte 10 is special data TILT 40 TO 3F HEX 00= VERT. PRESSURE 0 TO 127 HEIGHT 0 TO 127 OR SPECIAL DATA IT CAN FLAG TRANSDUCER TYPE AND PRESSURE LSBS
2	0	X13	X12	X11	X10	X9	X8	X7	
3	0	X6	X5	X4	X3	X2	X1	X0	
4	0	sdf	PR	(X17	X16	Y16)	Y15	Y14	
5	0	Y13	Y12	Y11	Y10	Y9	Y8	Y7	
6	0	Y6	Y5	Y4	Y3	Y2	Y1	Y0	
7	0	XT6	XT5	XT4	XT3	XT2	XT1	XT0	
8	0	YT6	YT5	YT4	YT3	YT2	YT1	YT0	
9	0	P6	P5	P4	P3	P2	P1	P0	
10	0	H6	H5	H4	H3	H2	H1	H0	
	0	0	0	0	0	0	p-1	p-2	extra pressure
	0	0	0	1	T3	t2	t1	t0	transducer type
	0	0	1	x	reserved				
	0	1	x	x	reserved				

Transducer type (While tilt and height data is being sent Transducer Type is not used)

- 00 pressure pen
- 01 Reserved (was 2 button mouse)
- 02 4-button cursor
- 03 16 button
- 04 unknown
- 05 click tip pen (Default Transducer shipped)
- 06 4-button cursor (diamond)
- 07 5-button mouse

Cursor Coding

PEN	7	20,23	5 BUTTON MOUSE	7	20,23
4button cursor					
Up	U	00000	LEFT(L)		XXXX1
TIP 0	0	0XXX1	RIGHT (R)		XXX1X
SW1 1	1	0XX1X	FRONT		XX1XX
SW2 2	3	0X1XX	BACK		X1XXX
SW13 3	7	01XXX	SIDE		1XXXX
CAN CORD			CAN CORD		
16 BUTTON CURSOR					
Up	U	00000			11000
0	0	10000	8	8	11001
1	1	10001	9	9	11010
2	2	10010	A	A	11011
3	3	10011	B	B	11100
4	4	10100	C	C	11101
5	5	10101	D	D	11110
6	6	10110	E	E	11111
7	7	10111	F	F	

USB FORMATS

1001 MeetingPad

1002 SchoolPad

Tablet HID Report Details

Report I.D. **# Purpose**
 1 16- Button Cursor

0	0	0	0	0	0	0	1
X7	X6	x5	x4	x3	x2	x1	x0
X15	x14	x13	x12	x11	x10	x9	x8
Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
Y15	Y14	Y13	Y12	Y11	Y10	Y9	Y8
0	0	IN	B4	B3	B2	B1	B0
RANGE							

3 Four button cursor

0	0	0	0	0	0	1	1
X7	x6	x5	x4	x3	x2	x1	x0
x15	x14	x13	x12	x11	x10	x9	x8
Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
Y15	Y14	Y13	Y12	Y11	Y10	Y9	Y8
0	0	IN	0	B3	B2	B1	B0
RANGE							

4 CalComp 3 Button Click Tip Pen (with tilt)
 * Default Transducer shipped

0	0	0	0	0	1	0	0
X7	x6	x5	x4	x3	x2	x1	x0
x15	x14	x13	x12	x11	x10	x9	x8
Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
Y15	Y14	Y13	Y12	Y11	Y10	Y9	Y8
0	0	IN	0	0	B2	B1	B0
RANGE							
TX7	TX6	TX5	TX4	TX3	TX2	TX1	TX0
TY7	TY6	TY5	TY4	TY3	TY2	TY1	TY0

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CalComp Pressure Tip Pen (with tilt)

0	0	0	0	0	1	0	1
X7	x6	x5	x4	x3	x2	x1	x0
x15	x14	x13	x12	x11	x10	x9	x8
Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
Y15	Y14	Y13	Y12	Y11	Y10	Y9	Y8
0	0	IN	0	0	B2	B1	B0
		RANGE					
Tx7	TX6	TX5	TX4	TX3	TX2	TX1	TX0
P0	TY6	TY5	TY4	TY3	TY2	TY1	TY0
P8	P7	P6	P5	P4	P3	P2	P1

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Unknown Transducer Type (defaults to four buttons)

0	0	0	0	0	0	0	1
X7	X6	x5	x4	x3	x2	x1	X0
x15	x14	x13	x12	x11	x10	x9	X8
Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
Y15	Y14	Y13	Y12	Y11	Y10	Y9	Y8
0	0	IN	0	B3	B2	B1	B0
		RANGE					

GTCO CalComp MeetingPad III BT FUNCTIONAL SPECIFICATION

InterWrite MeetingPad/SchoolPad 400 With BlueTooth

FEATURES

Powers up as: format 20, inc run, out of proximity data

RESOLUTION

1000 LPI

OPERATING MODES

RUN MODE - The digitizer outputs coordinate data continuously.

INCREMENT MODE FILTER- Puts a movement filter on the data in any mode. The transducer must move N count before the data can be sent. Then both axis data are updated. If out of proximity data is enabled and in increment mode 1 data point may be sent on leaving proximity. Changes in Button State and pressure will also generate an Increment event.

PROMPT MODE MODIFIER- Places the additional restriction on data transmission that the host must transmit a prompt character to the tablet for each data point output. All other rules of normal operation apply. The prompt character is "?". Prompting is a feature that operates in conjunction with any of the above standard modes.

BINARY FORMATS

20 format AFT

	7	6	5	4	3	2	1	0	
1	1	C4	C3	C2	C1	C0	X15	X14	PR 0= IN PROX 1= OUT OF PROX Sdf= 0 byte 10 is height data Sdf = 1 byte 10 is special data TILT 40 TO 3F HEX 00= VERT. PRESSURE 0 TO 127 HEIGHT 0 TO 127 OR SPECIAL DATA IT CAN FLAG TRANSDUCER TYPE AND PRESSURE LSBS
2	0	X13	X12	X11	X10	X9	X8	X7	
3	0	X6	X5	X4	X3	X2	X1	X0	
4	0	sdf	PR	(X17	X16	Y16)	Y15	Y14	
5	0	Y13	Y12	Y11	Y10	Y9	Y8	Y7	
6	0	Y6	Y5	Y4	Y3	Y2	Y1	Y0	
7	0	XT6	XT5	XT4	XT3	XT2	XT1	XT0	
8	0	YT6	YT5	YT4	YT3	YT2	YT1	YT0	
9	0	P6	P5	P4	P3	P2	P1	P0	
10	0	H6	H5	H4	H3	H2	H1	H0	
	0	0	0	0	0	0	p-1	p-2	extra pressure
	0	0	0	1	T3	t2	t1	t0	transducer type
	0	0	1	m4	m3	m2	m1	m0	menu block
	0	1	x	x					reserved

Transducer type (While tilt and height data is being sent Transducer Type is not used)

- 00 pressure pen
- 01 IW transducers (310 only)
- 02 4-button cursor
- 03 16 button
- 04 unknown
- 05 click tip pen
- 06 4-button cursor (diamond)
- 07 5-button mouse

Cursor Coding

PEN	7	20,23	5 BUTTON MOUSE	7	20,23
4button cursor					
Up	U	00000	LEFT(L)		XXXX1
TIP 0	0	0XXX1	RIGHT (R)		XXX1X
SW1 1	1	0XX1X	FRONT		XX1XX
SW2 2	3	0X1XX	BACK		X1XXX
SWI3 3	7	01XXX	SIDE		1XXXX
CAN CORD			CAN CORD		
16 BUTTON CURSOR					
Up	U	00000	8	8	11000
0	0	10000	9	9	11001
1	1	10001	A	A	11010
2	2	10010	B	B	11011
3	3	10011	C	C	11100
4	4	10100	D	D	11101
5	5	10101	E	E	11110
6	6	10110	F	F	11111
7	7	10111			

Menu blocks

Starting at top right and going down 0 to 9

Starting at top left and going down 16 to 25

Special block codes

- Block 28 is sent about once every 18 seconds, as a tick while the unit is awake and connected.
- With this data x tilt data (byte 7) holds the sleep counter (number of 18 sec from last in proximity).
- Y-tilt data holds battery voltage (about 2 hours per count give or take a hour).
- Pressure holds the pen charge voltage
- Block 29 is sent 20 min in to no activity to warn that it will be going to sleep soon

Commands (Bluetooth)

ESC%BTSCR	dump device address, host address and user name.
ESC%BWTWCR	clear sleep timer. Delay going to sleep for about 30 min
ESC%BTTZCR	set sleep timer so unit will power down.
ESC%BTTXCR	Discontent request from host

Button Functions

Sleep (only works if no power plug and power switch is on)

Wakes up the tablet if asleep

Pen must be in block for 10 seconds with tip down to put the tablet to sleep.

Tablet sleep (Sequence)

1. Disconnect if connected
2. Power down radio
3. Power down unit
4. Go to deep sleep mode

Connect

- If address is stored, try to connect to host
- If connected do nothing.
- If not connected, send menu button 0x1f.

Disconnect

If connected disconnect

LEDs

Power/Status LED

ON Solid – Unit ON, Pen In Proximity
ON Flash – Unit ON, Pen Out of Proximity
OFF – Unit OFF, Proximity is irrelevant

Connected LED

ON Flash – Unit ON, Link un link function in process
ON flash – tones
OFF – Unit is ON
OFF – Unit is OFF

Tablet Charge LED

ON Solid – Charger plugged in (ON/OFF button state either position)
ON Flash – Unit ON, Low Power Condition, Charger not plugged in.
OFF – Batteries fully charged (ON/OFF Button state either position)
OFF – No Charger plugged in (ON/OFF Button state either position)

Pen Charge LED

ON Solid – Charger plugged in (ON/OFF button state either position)
OFF – Batteries fully charged (ON/OFF Button state either position)
OFF – No Charger plugged in (ON/OFF Button state either position)
Flash if pen in backwards with error tone.

Tones

Note One of the LEDs will be on while tones are being made

- Power on 3 beep + 1 high beep if Bluetooth found
- Power on 3 beep + 1 low beep (did not see Bluetooth module)
- Low to high – connect
- High to low – disconnect.
- Turning off
 - If connected clicks till disconnected
 - If disconnected turns off
 - Give high to low tone
- Good beep on ^g
- Click on menu block pick
- Tone on Link + menu blocks test functions

GTCO CalComp InterWrite™ MeetingBoard™ InterWrite™ SchoolBoard InterWrite™ MeetingBoard II RoHS FUNCTIONAL SPECIFICATION

Menu Blocks

- Projection (MB, SB)
- Whiteboard (MB, SB)
- Save (MB, SB)
- Clear (MB, SB)

RESOLUTION

1000 LPI

RS232C Serial Interface

The WB has one RS232C serial interface to a PC.

9600 8 n 1 binary format 20, inc run, out of proximity data

USB Interface

The WB has one USB interface to a PC.

Bluetooth

The Bluetooth interface is optional via a BTCOM module and an RJ12 Jack. School boards and MB2 have the rf connector (RJ12) to support the Bluetooth module. Please turn power off before plugging or unplugging BTCOM. Do not try to use BTCOM and USB (or RS232) at the same time.

NOTE: The system is designed to use one interface at a time. I.e. RS232, USB, or Bluetooth. Using more than one may not work as expected.

RS232 Data format: GTCO binary

Front panel switches/menu blocks flagged by:

button = 00001

X data = 10 0000 0000 0000 0000

Y data = 10 0000 0000 xxxx xxxx

xxxx xxxx = 0000 0000 for save
 xxxx xxxx = 0000 0010 for clear
 xxxx xxxx = 0000 0011 for print
 xxxx xxxx = 0000 1000 for Projection
 xxxx xxxx = 0000 1001 for Whiteboard

Five menu blocks, centered on the right extrusion are reserved for the above codes.

Binary Format

	7	6	5	4	3	2	1	0	
1	1	C4	C3	C2	C1	C0	X15	X14	PR0 = in proximity PR1 = out of proximity
2	0	X1	X1	X1	X1	X9	X8	X7	
		3	2	1	0				
3	0	X6	X5	X4	X3	X2	X1	X0	
4	0	0	PR	X1	X1	Y1	Y15	Y14	
				7	6	6			
5	0	Y1	Y1	Y1	Y1	Y9	Y8	Y7	
		3	2	1	0				
6	0	Y6	Y5	Y4	Y3	Y2	Y1	Y0	

Button Codes

C4-C0	Function/colors
00000	No buttons pressed
00001	Tip on non inking wb pen mp400 pen
00010	Lower side switch on pens,
00100	Upper side switch on pens
01000	.7 " Eraser on back of pens
01001	3" eraser
10000	Black pen tip switch
10001	Red pen tip switch
10010	Green pen tip switch
10011	Blue pen tip switch
10100	Yellow pen tip switch*
10101	Orange pen tip switch*
10110	Brown pen tip switch *
10111	Purple pen tip switch *
11xxx and others	Reserved

Note: cording is not returned from all pens. All Rosh pens will have cording.

Note: 2/15/2002 new Dry Erase and non-inking pens cord.

00011	Lower side switch on DBi pen+ tip
00101	Upper side switch on DBi pen+ tip

* Currently only making four- color pens (Black, Red, Green and Blue)

USB INTERFACE SPECIFICATIONS

USB FORMAT

TABLET DATA

Report ID 1

BYTE 1 0 0 0 0 0 0 0 1
 BYTE 2 X lsb
 BYTE 3 X msb
 BYTE 4 Y lsb
 BYTE 5 Y msb
 BYTE 6 0 0 P 0 E US LS T
 BYTE 7 Transducer Type

Switch Status (Byte 6)

P= Proximity Bit, 1 = in proximity
 E= Eraser, 1 = eraser active
 US= Upper Side Switch, 1 = active
 LS= Lower Side Switch, 1 = active
 T = Tip Switch, 1=active

Transducer Type (Byte 7)

00010000 black marker
 00010001 red marker
 00010010 green marker
 00010011 blue marker
 00001001 3 inch eraser
 00000001 non-inking pen

FRONT PANEL/MENU BLOCK SWITCH DATA

Report ID 2

BYTE 1 0 0 0 0 0 0 1 0
 BYTE 2 Front Panel Switch Code

\$01 SAVE
 \$03 CLEAR—Clears bit map
 \$04 PRINT—Prints bit map
 \$09 INTERACTIVE—Activates Projector Mode
 \$0A PC WHITEBOARD—Activates White Board Mode

The following soft menu codes were added for BK1.3 and above

\$0C Center block of old soft menu (for RM)

\$0D- \$FF New soft menu blocks around tablet perimeter

NOTE: Each switch code is one higher than the codes transmitted by the RS232 interface.