PUH/CDA Cash Drawer Application Guide V0.4

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Contents

1. Cash Drawer Port Pinout	1
Cash drawer port type is RJ12 with 6 pinouts	.1
2. How to Access Cash Drawer	1
Install Driver	. 1
PUH / PUH3	.1
CDA	.1
Find COM port	.2
PUH / PUH3	.2
CDA	.2
Read FW Command	.3
Open Command	.3
Status Command	.4
Read Drawer Status	.4
ASB Command (Automatic Status Back)	.4
Enable ASB function	.4
Disable ASB function	.4
ASB Message - Status Report	.4
How to access Cash Drawer in Windows	.5
Start COMMTest	.5
Setup COM port	.5
Read FW Version	.5
Open Drawer	.6
Read Drawer Status	.6
Enable ASB	.6
Disable ASB	./
How to access Cash Drawer in Ubuntu	.8
Find PUH CD port	8. 0
Find CDA CD port	ð. o
Start cutocom	ο. Ω
Setup COM port	0. Q
Open COM port	. J 9
Read FW Version	10
Open Drawer	10
Read Drawer Status	10
Enable ASB	11
Disable ASB	11

1. Cash Drawer Port Pinout

• Cash drawer port type is RJ12 with 6 pinouts



Pin	Description				
1	GND				
2	Drawer 1 kick out				
3	Drawer open/close status				
4	PUH/PUH3 12V/24V				
	CDA 24V				
5	Drawer 2 kick out				
6	GND				

2. How to Access Cash Drawer

The cash drawer port of PUH/CDA is control by MCU through RS232 COM port. You need install USB-to-Serial driver to create a virtual COM port.

Install Driver

• PUH / PUH3

Windows 10 will auto detect it and install driver for PUH/PUH3. If not please install Prolific PL2303 driver to create virtual COM port.

• CDA

Windows 10 will auto detect it and install driver for PUH/PUH3. If not please install Nuvoton driver to create virtual COM port.

• Find COM port

• PUH / PUH3

Please check the Device Manager after you installed Prolific PL2303 driver. You will find a "Prolific USB-to-Serial Comm Port (COM*)" like below picture. This need to know this COM port number and use it to commutation with MCU.



• CDA

Please check the Device Manager after you installed Nuvoton driver.

You will find a "Nuvoton Virtual Com Port (COM*)" like below picture.

This need to know this COM port number and use it to commutation with MCU.



Read FW Command

You can send below command sequence to get MCU FW version

Read FW Version0x1D0x410x30

You can read FW version after "Read FW" command. The FW version is a ASCII string.

• Open Command

You can send below command sequence to COM port to open drawer.

ESC p m t1 t2

Name	Specify p	ulse					
Code	ASCII	ESC	р	m	t1	12	
	Hex.	1B	70	m	t1	12	
	Decimal	27	112	m	t1	12	
Defined Region	$0 \leq m \leq 1, 48 \leq m \leq 49$						
	0 ≦ t1 ≦ 255						
	0 ≦ t2 ≦ 2	255					
Function	This outp	uts a si	gnal sp	pecifie	d by th	and t2 to the connector pin specified by m.	

m	Connector Pin
0,48	Drawer kick connector pin #2
1,49	Drawer kick connector pin #5

Details

Drawer kick on time is set to t1 x 2 ms; off time is set to t2 x 2 ms.



When t1 > t2, the value of t2 is processed as t2 = t1.

Drawer 1 Kick Out	0x1B	0x70	0x00	T1	T2
Drawer 2 Kick Out	0x1B	0x70	0x01	T1	T2

T1 / T2 : Drawer kick on time is set to T1 x 2 ms, off time is set to T2 x 2 ms.

The best value for T1/T2 is 7D(125 * 2ms = 250ms)

Note : CDA CD port need to charge power after each time open drawer. The charge time about 600ms, please wait 600ms at least between two open drawer command.

Status Command

You can send below command sequence to COM to read drawer status.

GSrn

Name	Transmiss	sion of	status				
Code	ASCII	GS	r	n			
	Hex.	1D	72	n			
	Decimal	29	114	n			
Defined Region	n = 2, 50						
Function	Sends the	speci	fied sta	tus.			
	Drawer Ki	ck Cor	nnector	Status (n = 2, 50)		
						-	

Status	"0"	"1"

Read Drawer Status

Read Status	0x1D	0x72	0x02
-------------	------	------	------

You can read drawer status after "Read Drawer Status" command.

Drawer Status	0x01	Drawer Opened
	0x00	Drawer Closed

ASB Command (Automatic Status Back)

If ASB mode is activated, the PUH will report status if drawer status has changed.

You can use command to enable or disable this function.

The ASB is disabled by default when PUH power on. You need to enable ASB after each time power on.

• Enable ASB function

• Disable ASB function

Enable ASB	0x1D	0x61	0x00
------------	------	------	------

• ASB Message - Status Report

The ASB message are always 4 bytes with some fixed bits which can be used to identify the message as an ASB message. Bit 2 of the first byte signals the drawer state.

Drawer Opened	0x10	0x00	0x00	0x0F
Drawer Closed	0x14	0x00	0x00	0x0F

How to access Cash Drawer in Windows

You can use COMMTest to access cash drawer. The application can download at here http://www.cppfans.com/software/communication/serailassistant.asp

Start COMMTest

Right click on COMMTest.exe and select "Run as Administrator" to start COMMTest.



• Setup COM port

The MCU is commutation through Prolific virtual COM port. Please find out the COM port number first than setup the COM port and baud rate to "115200, N, 8, 1".

Port		Modem
COM port	СОМ20	Flow Contro None
Baud	115200	Auto Answe
Parity	No parity	Buffer
Byte Size	8	Input Buf. 8192
Stop Bits	1	Output Buf. 8192

Read FW Version

Input "Read FW" command "1D 41 30" than enter, this command will return MCU FW version.



• Open Drawer

Input "Open Drawer" command "1B 70 00 7F 7F" than enter, this command will open drawer.

🚆 Serial Port Assistant			• 🗙
<u>File Comm</u> Options <u>H</u>	elp Send LpSnd F	Recv Set	Clear
Send 18 70 00 7F 7F			-
Send<-18 70 00 7F 7F	Open Drawer Co	ommand	

• Read Drawer Status

Input "Read Drawer Status" command "1D 72 02" to read status. The status will return and display after read command.



- Enable ASB
 - Input "Enable ASB" command "1D 61 01". The drawer will automatic report drawer status when drawer open/close status changed.



• Disable ASB

Input "Disable ASB" command "1D 61 00". The drawer will not report drawer status. You need to use read status to read drawer status.

🗟 Serial Port Assistant		
File Comm Options Help	Send LpSnd Recv	Set Clear
Send<- 1D 61 01 Recv-> 14 00 00 0F Recv-> 10 00 00 0F Send<- 1D 61 00 ASB Off	Command	
Welcom to use Serial Port	🔽 RTS CTS DSR F	RING RLSD 🐠 🗣



You can access Cash Drawer port through USB-to-Serial port. You can use cutecom to access it.

• Find PUH CD port

You can list all "/dev/ttyUSB*" by Is command. There are total 5 COM ports for PUH. The CD port will be the last port, like "/dev/ttyUSB4" .

user@D18:~\$ ls /dev/ttyUSB* /dev/ttyUSB0 /dev/ttyUSB1 /dev/ttyUSB2 /dev/ttyUSB3 /dev/ttyUSB4

• Find CDA CD port

You can list all "/dev/ttyACM*" by ls command. You may find more than one devices, like "/dev/ttyACM0", "/dev/ttyACM1", if you install more than one CDA.

The CDA port will like "/dev/ttyACM0" for one CDA installed.

user	@D18	3:~\$	ls	/dev	/tt
/dev	/ttv	ACM	9		

Install cutecom

You can install cutecom by "sudo apt install cutecom". user@D18:~\$ sudo apt install cutecom [sudo] password for user:

ACM*

• Start cutecom

You can use "sudo cutecom" to start cutecom.

user@D18:~\$ sudo cutecom

CuteCom - Default	
S <u>e</u> ssions <u>H</u> elp	
Open Device: /dev/ttyACM0 -	ings
Input: LF Char delay: 0 ms Send file Plain	•
Clear Hex output Logging to: /root/cutecom.log	
Device: Connection: 115200 @ 8-N-1	

• Setup COM port

The MCU is commutation through virtual COM port. Please find out the PUH/CDA port name first than setup the COM port baud rate to "115200, N, 8, 1".

Click "Setting" to display COM port setting.

		Cute	Com -	Def	ault 😑 🗐 😣
S <u>e</u> ssions <u>H</u> el	р				
<u>B</u> audrate	115200 -	D <u>a</u> ta Bits	8	•	Display <u>C</u> trl characters
Flo <u>w</u> Control	None 🔹	<u>P</u> arity	None	•	Show <u>T</u> imestamp
Open <u>M</u> ode	Read/Write 🝷	Stop Bits	1	•	Logfile: /cutecom.log 🛄 🗆 Append
<u>Open</u>	evice: /dev/tty	ACM0 👻			^
Clear Hex output Logging to: /home/user/cutecom.log					
Device: /dev/ttyACM0 Connection: 115200 @ 8-N-1					

• Open COM port

Select which device for access "/dev/ttyACM0". Then click "Open" to open device for access.

CuteCom - Default	-
Sessions Help	
Open Device: /dev/ttyACM0 👻	<u>S</u> ettings
Input: LF Char delay: 0 ms Send file Pl	lain 👻
Clear Hex output Logging to: /root/cutecom.log	
Device: Connection: 115200 @ 8-N-1	

Please select input/output to "Hex" for later access. All command is HEX value.

CuteCom - Default	
S <u>e</u> ssions <u>H</u> elp	
Close Device: /dev/ttyACM0 -	<u>S</u> ettings
	-
Input: Hex Char delay: 0 ms Send file Plain	•
Clear V Hex output Logging to: /home/user/cutecom.log	
Device: Nuvoton IO41 MCU Com Port @ttyACM0 Connection: 115200 @ 8-N-1	

• Read FW Version

Input "Read FW" command "1D 41 30" than enter, this command will return MCU FW version.

CuteCom - Default	
S <u>e</u> ssions <u>H</u> elp	
Close Device: /dev/ttyACM0 -	<u>S</u> ettings
1D 41 30	
Input: 1D 41 30 Read FW Hex Char delay: 0 ms Send file Plai	in 👻
00000000 44 30 30 32 D002 FW version	
Clear V Hex output Logging to: /home/user/cutecom.log	

• Open Drawer

Input "Open Drawer" command "1B 70 00 7F 7F" than enter, this command will open drawer.

CuteCom - Default	- • •
S <u>e</u> ssions <u>H</u> elp	
Cl <u>o</u> se <u>D</u> evice: /dev/ttyACM0 -	<u>S</u> ettings
1D 41 30	
1B 70 00 7F 7F	
	•
Input: 1B 70 00 7F 7F Hex - Char delay: 0 ms - Send file Plain	n 👻
Open Drawer	
00000000 44 30 30 32 D002	
Clear 🗸 Hex output 🗌 Logging to: /home/user/cutecom.log	
Device: Nuvoton 1041 MCU com Port @ttyACM0_Connection: 115200 @ 8-N-1	

Read Drawer Status

Input "Read Drawer Status" command "1D 72 02" to read status. The status will return and display after read command.

CuteCom - Default	
Sessions Help	
Close Device: /dev/ttyACM0 -	<u>S</u> ettings
1D 41 30 1B 70 00 7F 7F	
1D 72 02	×
Input: 1D 72 02 Read Status Hex Char delay: 0 ms Send file Plair	n 🔻
0000000 01 Drawer Opened 00000000 00 Drawer Closed	
Clear V Hex output Cogging to: /home/user/cutecom.log Device: Nuvoton IO41 MCU Com Port @ttyACM0 Connection: 115200 @ 8-N-1	

• Enable ASB

Input "Enable ASB" command "1D 61 01". The drawer will automatic report drawer status when drawer open/close status changed.

CuteCom - Default	
S <u>e</u> ssions <u>H</u> elp	
Close Device: /dev/ttyACM0 -	<u>S</u> ettings
1D 41 30 1B 70 00 7F 7F 1D 72 02 1D 61 01	
Input: 1D 61 01 ASB ON Hex Char delay: 0 ms Send file Plain	n v
00000000 10 00 00 0f Drawer Opened 00000000 14 00 00 0f Drawer Closed	
Clear V Hex output Logging to: /home/user/cutecom.log	
Device: Nuvoton IO41 MCU Com Port @ttvACM0_Connection: 115200 @ 8-N-1	

Disable ASB

Input "Disable ASB" command "1D 61 00". The drawer will not report drawer status. You need to use read status to read drawer status.

CuteCom - Default	
S <u>e</u> ssions <u>H</u> elp	
Close Device: /dev/ttyACM0	<u>S</u> ettings
1D 41 30	
1B 70 00 7F 7F	
1D 72 02	
	•
Input: 1D 61 00 ASB OFF Hex Char delay: 0 ms Send file Plain	•
Clear Hex output Logging to: /home/user/cutecom.log	
Device: Nuvoton IO41 MCU Com Port @ttvACM0_Connection: 115200 @ 8-N-1	