



# Domino G20i **RS485 Guide**

**G20i**

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# DOMINO G20i RS485 GUIDE

This Guide, Domino Part No. EPT052026, describes how to send commands via RS485 to Domino G20i printers.

Users of this printer are warned that it is essential to read, understand and act according to the information given in the G20i Product Manual and User Guide.

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Domino Printing Sciences plc. has a policy of continuous product improvement, the company therefore reserves the right to modify the specification contained in this guide without notice.

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For technical support refer to [www.DominoCaseCoding.com](http://www.DominoCaseCoding.com) or contact you local Domino channel.

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# AMENDMENT RECORD

**Amendment**

All parts at Issue 1

**Date**

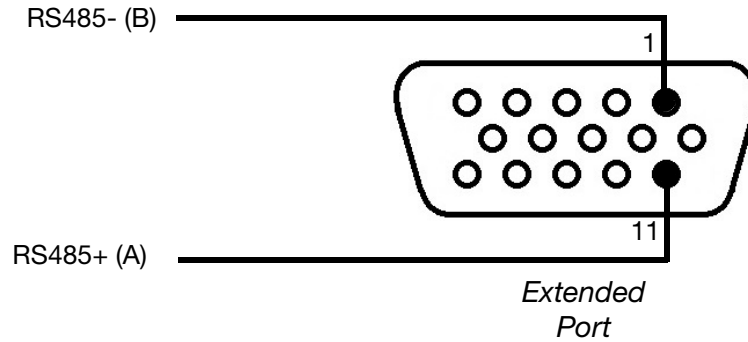
February 2019

# RS485 WIRING CONNECTION

## Extended Port Connection

RS485+ (A) connects to pin 11 on the printer's extended port.

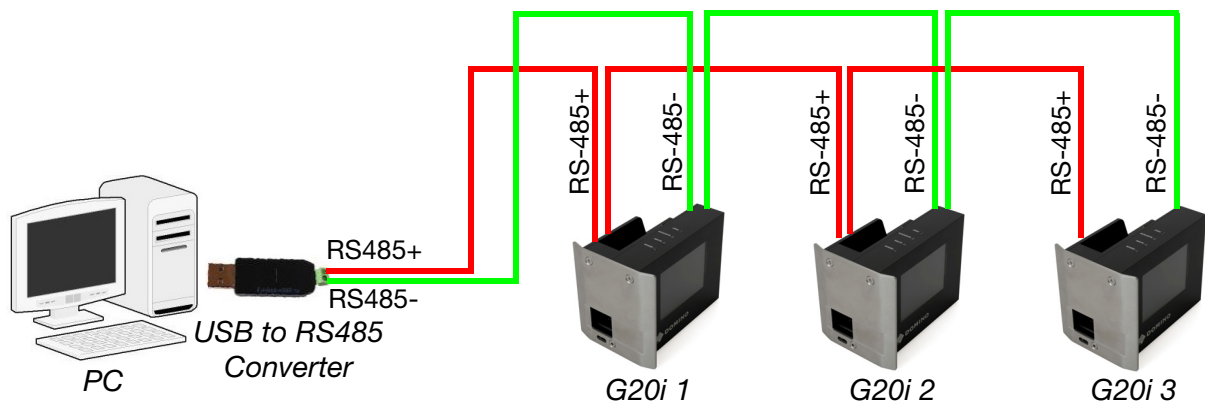
RS485- (B) connects to pin 1 on the printer's extended port.



Printer RS-485 Wiring Diagram

## Connecting Multiple Printers to a PC

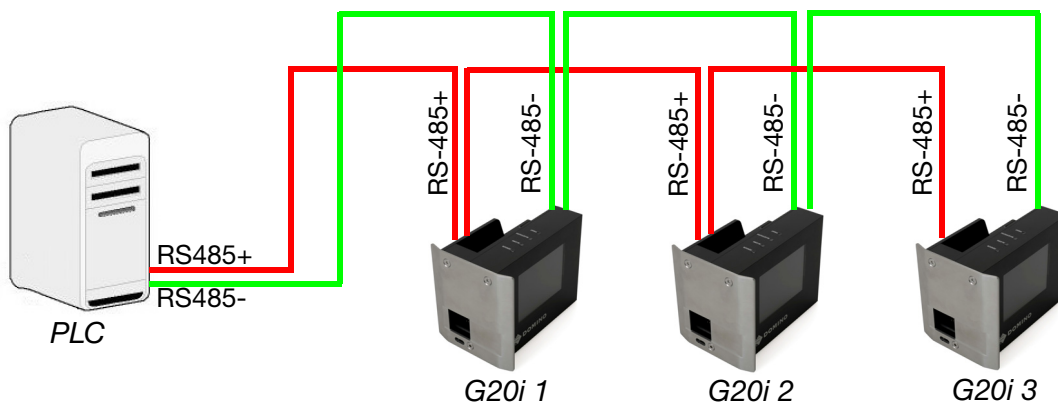
The diagram below illustrates how to connect more than 1 printer to a PC via RS485.



RS485 Connection Diagram - Multiple Printers to PC

## Connecting Multiple Printers to a PLC

The diagram below illustrates how to connect more than 1 printer to a PLC via RS485.



RS-485 Connection Diagram - Multiple Printers to PLC

# PRINTER SETTINGS

Notes: (1) A USB keyboard is required to setup the printer.

(2) Ensure the printer's RS485 settings and the PLC or PC's com port settings are set to the same values.

To configure the printer for RS485 communication:

- (1) From the main menu, highlight *Settings*.
- (2) Press the *Enter* button.
- (3) Move the cursor to highlight *RS485*.
- (4) Press the *Enter* button.
- (5) The following settings can now be configured:

Status:	Enable or Disable RS485 communication.
Address	Set a unique address for each printer. The value is set in decimal form from 1 to 255. <a href="#">See "DECIMAL/HEXADECIMAL CONVERSION TABLE" on page 35.</a>
Baud rate:	Set the speed of communication from 9600 to 115200.
Parity:	Set the protocol check sum: <ul style="list-style-type: none"><li>• Odd</li><li>• Even</li><li>• None</li></ul>
Data bits	Select 8 if Parity is set to None. Select 9 if Parity is set to Odd or Even.
Stop bits	Select 1 or 2

- (6) Press *ESC* to return to the main menu.

End of procedure.





# Update Message While Printing

During printing, users can send a new message to replace the current message that is being printed. The message can take between 3 and 5 seconds to update.

Note: Add 000s to the end of the command to make it 150 bytes in length.

<p><b>Command:</b></p> <p>Send SET MESSAGE WHILE PRINTING 150 bytes Delay at least 500ms</p>	<pre>00:0b01^1M03CS`@0`ABC`@1`XYZ`@2`IHG`@3`WER`@4`TUV`@5` OPQ&lt;NUL&gt;00 00</pre> <p>0b = Printer Address Number 11  1M03CS = Set Message Data While Printing Command  `@0`ABC = Print "ABC" on line 1  `@1`XYZ = Print "XYZ" on line 2  `@2`IHG = Print "IHG" on line 3  `@3`WER = Print "WER" on line 4  `@4`TUV = Print "TUV" on line 5  `@5`OPQ = Print "OPQ" on line 6</p>
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# COMMUNICATION PROTOCOL TABLES

There are two protocol tables. The list of protocols for PC to printer communication begins on this page. The list of protocols for PLC to printer communication begins on [page 23](#).

## PC to Printer

The table below lists RS485 communication commands for PC to printer connection.

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Start/Stop Print	^1R01CS*x\0	*x=1: Start print *x=0: Stop print	^1R01CS1\0 = Start printing.  ^1R01CS0\0 = Stop printing.	8080
Set Print Speed (inches/min)	^1S01CS*x*y\0	*x=1: Use encoder *x=0: Don't use encoder  *y: Print speed in inches (mandatory 5 characters).	^1S01CS101200\0 = Use encoder.  ^1S01CS001200\0 = Do not use encoder. Set print speed to 01200 inches/min.	8080
Set Resolution	^1O01CS*x\0	*x=7: 300x100 dpi *x=6: 300x150 dpi *x=5: 300x200 dpi	^1O01CS7\0 = Set resolution to 300x100 dpi  ^1O01CS6\0 = Set resolution to 300x150 dpi  ^1O01CS5\0 = Set resolution to 300x200 dpi	8080
Set Density	^1B01CS*x\0	*x=1: Set density to 1 *x=2: Set density to 2 *x=3: Set density to 3 *x=4: Set density to 4 *x=5: Set density to 5	^1B01CS1\0 = Set density to 1  ^1B01CS2\0 = Set density to 2  ^1B01CS3\0 = Set density to 3  ^1B01CS4\0 = Set density to 4  ^1B01CS5\0 = Set density to 5	8080
Set Print Side	^1Q01CS*x*y*z\0	*x=0: Set print side mode to manual. *x=1: Set print side mode to auto.  *y=0: Set cartridge side to even. *y=1: Set cartridge side to odd.  *z: Number of prints per side before switching. This value is passed if set to manual mode (mandatory 5 characters).	^1Q01CS1001000\0 = Set print side mode to Auto. After 1000 prints the print side will change.  ^1Q01CS0100000\0 = Set print side mode to Manual and print side to Odd.	

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Set print direction	^1V01CS*x\0	*x=0: Left to right normal. *x=1: Right to left normal. *x=2: Left to right inverted *x=3: Right to left inverted	^1V01CS0\0 = Left to right normal.  ^1V01CS1\0 = Right to left normal.  ^1V01CS2\0 = Left to right inverted.  ^1V01CS3\0 = Left to right inverted.	8080
Set print mode	^1W01CS*x*y*z*t\0	*x=0: Sensor mode. *x=1: Continuous mode.  *y: Number of prints for each time the sensor is triggered (mandatory 3 characters). This value is passed if using continuous mode.  *z: Space between prints, in inches (mandatory 5 characters).  *t:=0 Continuously print after the product detect sensor is triggered once. *t:=1 continuously print when the product detect sensor is continuously triggered. Stop printing when the product detect sensor is not triggered.	^1W01CS0002003930\0 = Print in sensor mode. Make 2 prints, each time the sensor is triggered. Set a 10cm space between prints. Continuously print after the product detect sensor is triggered once.	8080
Set print delay time	^1D01CS*x*y\0	*x= Delay before print, in inches. Range = 00039-39370 (mandatory 5 characters).  *y= Delay after print, in inches. Range = 00039-39370 (mandatory 5 characters).	^1D01CS0019600393\0 = Set a delay of 5cm before the print and 10cm after the print.	8080
Set sensor	^1H01CS*x\0	*x=0: Use internal product detect sensor. *x=1: Use external product detect sensor.	^1H01CS0\0 = Use the internal product detect sensor.  ^1H01CS1\0 = Use an external product detect sensor.	8080

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Set system clock	<code>^1I01CS*hh*m m*ss*dd*MM*yy yy\0</code>	<p><b>*hh:</b> Set hours, 24h format, maximum value 23 (mandatory 2 characters).</p> <p><b>*mm:</b> Set minutes, maximum value 59 (mandatory 2 characters).</p> <p><b>*ss:</b> Set seconds, maximum value 59 (mandatory 2 characters).</p> <p><b>*dd:</b> Set day of the month, maximum value 31 (mandatory 2 characters).</p> <p><b>*MM:</b> Set the month, maximum value 12 (mandatory 2 characters).</p> <p><b>*yyy:</b> Set year, maximum value 2037 (mandatory 4 characters).</p>	<code>^1I01CS12000001022030\0 =</code> Set the time to 12:00 and set the date to the 1st of February 2030.	
Set the printer name	<code>^1n01CS*x\0</code>	<b>*x:</b> Name of the printer (15 characters maximum).	<code>^1n01CSG20i\0 =</code> Set the printer's name to G20i.	
Set screen rotation	<code>^1e01CS*x\0</code>	<p><b>*x=1:</b> Set screen to horizontal, side of menu facing the printing side.</p> <p><b>*x=2:</b> Set screen to vertical, side of menu facing the top of the printer.</p> <p><b>*x=3:</b> Set screen to horizontal, side of menu facing the connection ports.</p> <p><b>*x=4:</b> Set screen to vertical, side of menu facing the bottom of the printer.</p> <p><b>*x=5:</b> Set screen to auto rotate.</p> <p><b>*x=6:</b> Lock screen rotation.</p>	<code>^1e01CS5 =</code> Set the screen to auto rotate.	
Set measurement units	<code>^1f01CS*x\0</code>	<p><b>*x=0:</b> Set the unit of measurement to millimetres.</p> <p><b>*x=1:</b> Set the unit of measurement to inches.</p>	<p><code>^1f01CS0\0 =</code> Set the unit of measurement to millimetres.</p> <p><code>^1f01CS1\0 =</code> Set the unit of measurement to inches.</p>	

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Set roll over hour	^1T01CS*x*y00 \0	*x=0: Disable roll over hour. *x=1: Enable roll over hour.  *y: Set value for roll over hour. Range = 00-23 (mandatory 2 characters).	^1T01CS10900\0 = Set the roll over hour to 09:00 AM.	8080
Set random jet	^1P01CS*x*y0	*x=0: Disable random jet. *x=1: Enable random jet.  *y: Set the delay time in seconds. Range = 00001-36000 (mandatory 5 characters).	^1P01CS100060\0 = Enable random jet. Purge the print head every 60 seconds.	8080
Purge	^1G01CS\0		^1G01CS\0 = Immediately purge the print head.	8080
Reset counter	^1R02CS0\0		^1G01CS\0 = Reset the counter when printing stops.	
Set font type	^1u02CS*x\0	*x=0: Normal font. *x=1: Uppercase font.	^1U02CS0\0 = Set normal font.  ^1U02CS1\0 = Set uppercase font.  This command is acted on after the "set message" command is received.	8080
Set font size	^1U01CS*x\0	*x=0: 1 line font height. *x=1: 2 line font height. *x=2: 3 line font height. *x=3: 4 line font height. *x=4: 5 line font height. *x=5: 6 line font height.	^1U01CS0\0 = Set font height to 1 line.  ^1U01CS5\0 = Set font height to 6 lines.  This command is acted on after the "set message" command is received.	8080

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Set message	^1M01CS`@0`*x` `@1`*y`@2`*z`@3` *p`@4`*r`@5`*q`0	<p><b>*x</b>: Message string for line 1. Range = 0-100 characters.</p> <p><b>*y</b>: Message string for line 2. Range = 0-100 characters.</p> <p><b>*z</b>: Message string for line 3. Range = 0-100 characters.</p> <p><b>*p</b>: Message string for line 4. Range = 0-100 characters.</p> <p><b>*r</b>: Message string for line 5. Range = 0-100 characters.</p> <p><b>*q</b>: Message string for line 6. Range = 0-100 characters.</p> <p>To insert a variable item into the message:            Counter = C<b>x</b> with <b>x</b>: 0-5            Shift code = S<b>x</b> with <b>x</b>: 0-2            BoxLot = S<b>xy</b> with <b>x</b>: 0, <b>y</b>: 0-3            Time = T            Date = D<b>x</b> with <b>x</b>: 0-4            Expire date = E<b>x</b> with <b>x</b>: 0-4            Barcode = R            Logo = L<b>x</b> with <b>x</b>: 0-3</p>	<p><i>Note: Stop printing before sending the message.</i></p> <p>^1M01CS`@0`ABC`@1`XYZ`@2`IHG`@3`WER`@4`TUV`@5`OPQ`0            = Print "ABC" on line 1, "XYZ" on line 2, "IHG" on line 3, "WER" on line 4, "TUV" on line 5 and "OPQ" on line 6.</p> <p>To insert a counter to line 1 of message that has been setup with counter setup command, use this command:            ^1M01CS`@0`CounterSample:`C0`. Time: `T`. Date: `D0`. Expire date:            `E0``@1`XYZ`@2`IHG`@3`WER`@4`TUV`@5`OPQ</p>	8080

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Set message while printing	^1M03CS`@0`*x` `@1`*y`@2`*z`@3` *p`@4`*r`@5`*q`0	<p><b>*x:</b> Message string for line 1. Range = 0-100 characters.</p> <p><b>*y:</b> Message string for line 2. Range = 0-100 characters.</p> <p><b>*z:</b> Message string for line 3. Range = 0-100 characters.</p> <p><b>*p:</b> Message string for line 4. Range = 0-100 characters.</p> <p><b>*r:</b> Message string for line 5. Range = 0-100 characters.</p> <p><b>*q:</b> Message string for line 6. Range = 0-100 characters.</p> <p>To insert a variable item into the message:            Counter = Cx with x: 0-5            Shift code = Sx with x: 0-2            BoxLot = Sxy with x: 0, y: 0-3            Time = T            Date = Dx with x: 0-4            Expire date = Ex with x: 0-4            Barcode = R            Logo = Lx with x: 0-3</p>	<p><i>Note:</i> It can take between 3 and 5 seconds for the message to update.</p> <p>^1M03CS`@0`ABC`@1`XYZ`@2`IHG`@3`WER`@4`TUV`@5`OPQ`0            = Print "ABC" on line 1, "XYZ" on line 2, "IHG" on line 3, "WER" on line 4, "TUV" on line 5 and "OPQ" on line 6.</p> <p>To insert the counter to line 1 of message that has been setup with counter setup command, we use this command:            ^1M03CS`@0`CounterSample:`C0`. Time: `T`. Date: `D`. Expire date:            `E`@1`XYZ`@2`IHG`@3`WER`@4`TUV`@5`OPQ`0</p>	8080
Message name	^1M07CS*x0	<p><b>*x:</b> Message name. Range = 1-20 characters.</p>	<p><i>Note:</i> Send the "Message name" command before sending the "Set message" command.</p> <p>^1M07CSMessage 1`0 = Save message name as "Message 1".</p>	



**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Set counter	^1C01CS*x*y*z* a*b*c*d*e\0	<p><b>*x:</b> Counter number. Range = 0-5. This is the name of the counter that will be stored on the printer.</p> <p><b>*y=0:</b> Count upwards. <b>*y=1:</b> Count downwards.</p> <p><b>*z=0:</b> Do not fill zeros. <b>*z=1:</b> Fill zeros.</p> <p><b>*a:</b> Counter steps. Range = 000-250 (mandatory 3 characters).</p> <p><b>*b:</b> Counter start value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*c:</b> Current counter value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*d:</b> Counter reset value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*e:</b> Current repeat value. Range = 0000000000-0010000000 (mandatory 10 characters).</p>	<p>1C01CS0010010000000001000 00000010000000999\0</p> <p>=</p> <p>Counter number: 0 Count direction: Upwards Fill zeros: Enabled Counter steps: 1 Start value: 1 Current value: 1 Reset value: 999</p>	8080

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Set Box/Lot Counter	<code>^1k01CS*x*y*z*a*b*c*d\0</code>	<p><b>*x:</b> Counter number. Range = 00-03. This is the name of the counter that will be stored on the printer. Each box/lot uses 2 counters.</p> <p><b>*y=0:</b> Count upwards. <b>*y=1:</b> Count downwards.</p> <p><b>*z=0:</b> Do not fill zeros. <b>*z=1:</b> Fill zeros.</p> <p><b>*a:</b> Counter steps. Range = 000-250 (mandatory 3 characters).</p> <p><b>*b:</b> Counter start value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*c:</b> Current counter value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*d:</b> Counter reset value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*e:</b> Current repeat value. Range = 0000000000-0010000000 (mandatory 10 characters).</p>	<p><i>Note:</i> A pair of counters is required for a box/lot. The command will need to be sent twice.</p> <p>1k01CS00010010000000001 00000000010000000999\0 = Set counter 0 of box/lot1.</p> <p>1k01CS01010010000000001 00000000010000000999\0 = Set counter 1 of box/lot1</p>	
Set date format	<code>^1A*x1CS*y\0</code>	<p><b>*x:</b> The number of the date format. Range = 0-4. The printer supports up to 5 date formats.</p> <p><b>*y:</b> Date format string. Maximum length = 13 characters Valid characters = (D,d,M,m,Y,y,J,j, -, /, ., ., _ ,  , SPACE)]</p>	<p><code>^1A01CSDDMMYY\0 =</code> The printer will print the date as 11Sep2019</p>	8080
Set time format	<code>^1I01CS*x\0</code>	<p><b>*x:</b> The time format string. Maximum length = 12 characters Valid characters = (H, h, m, s, t, :, - , . , _ ,  , SPACE)]</p>	<p><code>^1I01CSHh:mm tt\0 =</code> The printer will print the time as 10:30 PM</p> <p><code>^1I01CSHH:mm\0 =</code> The printer will print the time as 22:30</p>	8080

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Set expire date	<code>^1Z*x1CS*y*z* abc\0</code>	<p><b>*x:</b> the number of the expire date item. Value: 0-4. The printer supports up to 5 expire dates.</p> <p><b>*y:</b> expire date number, maximum value is 20 years. Always fill zeros to 4 characters.</p> <p><b>*z:</b> expire date offset. Value `0, `1, `2            `0 is day: maximum 7300 date            `1 is month: maximum 240 month            `2 is year: maximum 20 years</p> <p><b>*abc:</b> expire date format string. The same with date format string. 13 characters</p>	<p><code>^1Z01CS0012`1dd-mm-yy\0 =</code>            Set the expiry date at 12 months. Set the date format as dd-mm-yy.</p>	8080
Set shift code	<code>^1J01CS*x*y*A A*hh*mm\0</code>	<p><b>*x:</b> the number of the shift code item. Value: 0-2. The printer supports up to 3 shift code items.</p> <p><b>*y:</b> the number of codes used in the shift code element. Value: 1-5.</p> <p><b>*AA:</b> the name of the shift. Mandatory 2 characters, if a one character name is required, use ` for the first character, for example: `A, `B, AA, BB</p> <p><b>*hh:</b> The hour that the shift will be active from (mandatory 2 characters).</p> <p><b>*mm:</b> The minute of the hour that the shift will be active from (mandatory 2 characters).</p>	<p><code>^1J01CS04AB1200AC1500 AD1730`E2210\0</code>            =            4 shifts:            AB, active from 12:00            AC, active from 15:00            AD, active from 17:30            E, active from 22:10</p>	8080

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Static barcode setup	^1g01CS*x*y*z*w*p\0	<p>*x=0: Set the barcode type to Code39.                      *x=1: Set the barcode type to Code2of5.                      *x=2: Set the barcode type to Code128.                      *x=3: Set the barcode type to Code93.                      *x=4: Set the barcode type to CodeUPC-A                      *x=5: Set the barcode type to CodeEAN.                      *x=6: Set the barcode type to CodaBar.                      *x=7: Set the barcode type to Code11.</p> <p>*y: Set the barcode width, range 1-4.                      *z: Set the barcode height, range 1-3.                      *w=0: Disable human readable text.                      *w=1: Enable human readable text.</p> <p>*p = barcode data.                      Maximum length, 30 characters.</p>	<p>^1g01CS0331BARCODE39\0                      =                      Set barcode type as Code39.                      Set barcode width to 3.                      Set barcode height to 3.                      Enable human readable text.                      Barcode data is "BARCODE39".</p>	8080

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Dynamic barcode setup	^1h01CS*x*y*z* a*b*c*d*e*f#g## f\0	<p><b>*x:</b> Set the barcode type. 0=Code39, 1=Code2of5, 2=Code128, 3=Code93, 4=CodeUPC-A, 5=CodeEAN, 6=CodaBar, 7=Code11.</p> <p><b>*y:</b> Set the barcode width, range 1-4.</p> <p><b>*z:</b> Set the barcode height, range 1-3.</p> <p><b>*w=0:</b> Disable human readable text. <b>*w=1:</b> Enable human readable text.</p> <p><b>*a=0:</b> Count upwards. <b>*a=1:</b> Count downwards.</p> <p><b>*b=1:</b> Fill zeros (always = 1).</p> <p><b>*c:</b> Counter steps. Range = 000-250 (mandatory 3 characters).</p> <p><b>*d:</b> Counter start value. Range = 0000000001- 2000000000 (mandatory 10 characters).</p> <p><b>*e:</b> Current counter value. Range = 0000000001- 2000000000 (mandatory 10 characters).</p> <p><b>*f:</b> Counter reset value. Range = 0000000001- 2000000000 (mandatory 10 characters).</p> <p><b>*g:</b> Prefix of barcode, maximum 10 characters.</p> <p><b>*f:</b> Suffix of barcode, maximum 10 characters.</p>	<p>1h01CS0131010020000000000 00000000020000010000AB##\ 0 = Set barcode type as Code39. Set barcode width to 1. Set barcode height to 3. Enable human readable text. Count upwards. Fill zeros. Count in steps of 2. Counter start value: 0000000000. Current counter value: 0000000002. Counter reset value: 0000010000. Prefix: AB. No suffix.</p>	8080

**Table 1: PC to Printer**

Operation	Command	Parameter	Examples	UDP Port
Set repeat counter, spacing barcode.	^1q01CS*x*y*z\ 0	<p><b>*x</b>: Position, value is 1 (mandatory 1 character).</p> <p><b>*y</b>: Repeat dynamic counter. Maximum value is 10000000 times, (mandatory 10 characters).</p> <p><b>*z</b>: Spacing for barcode. Maximum value is 50pt (mandatory 3 characters).</p>	<p><i>Note:</i>      <i>The repeat value applies to single counters and dynamic barcodes. The spacing value applies to static barcodes and dynamic barcodes.</i></p> <p>^1q01CS10000000000025\0 = Repeat 0 and Spacing 25pt.</p>	
Do not beep	#NOBEEP#		After this command is sent, the printer will not beep when it receives commands.	
Search for printer	#PRINTER:WHE RE-ARE-YOU?#		Listen on port 8888 after sending this command, to receive the name and IP address of printer.	8888
Use message	^1u01CS*x\0	<b>*x</b> : Message number to use. Maximum 3 characters. Range: 1-100	^1u01CS1 = Use message 1. The new message will be used after printing the current message is stopped.	

# PLC to Printer

The table below lists RS485 communication commands for PC to printer connection.

**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Start/Stop Print	^1R01CS*x\0	*x=1: Start print *x=0: Stop print	^1R01CS1\0 = Start printing. ^1R01CS0\0 = Stop printing.
Set Print Speed (inches/min)	^1S01CS*x*y\0	*x=1: Use encoder *x=0: Don't use encoder  *y: Print speed in inches (mandatory 5 characters).	^1S01CS101200\0 = Use encoder.  ^1S01CS001200\0 = Do not use encoder. Set print speed to 01200 inches/min.
Set Resolution	^1O01CS*x\0	*x=7: 300x100 dpi *x=6: 300x150 dpi *x=5: 300x200 dpi	^1O01CS7\0 = Set resolution to 300x100 dpi  ^1O01CS6\0 = Set resolution to 300x150 dpi  ^1O01CS5\0 = Set resolution to 300x200 dpi
Set Density	^1B01CS*x\0	*x=1: Set density to 1 *x=2: Set density to 2 *x=3: Set density to 3 *x=4: Set density to 4 *x=5: Set density to 5	^1B01CS1\0 = Set density to 1  ^1B01CS2\0 = Set density to 2  ^1B01CS3\0 = Set density to 3  ^1B01CS4\0 = Set density to 4  ^1B01CS5\0 = Set density to 5
Set Print Side	^1Q01CS*x*y*z\0	*x=0: Set print side mode to manual. *x=1: Set print side mode to auto.  *y=0: Set cartridge side to even. *y=1: Set cartridge side to odd.  *z: Number of prints per side before switching. This value is passed if set to manual mode (mandatory 5 characters).	^1Q01CS1001000\0 = Set print side mode to Auto. After 1000 prints the print side will change.  ^1Q01CS0100000\0 = Set print side mode to Manual and print side to Odd.

**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Set print direction	^1V01CS*x\0	<p>*x=0: Left to right normal.                      *x=1: Right to left normal.                      *x=2: Left to right inverted                      *x=3: Right to left inverted</p>	<p>^1V01CS0\0 = Left to right normal.                      ^1V01CS1\0 = Right to left normal.                      ^1V01CS2\0 = Left to right inverted.                      ^1V01CS3\0 = Left to right inverted.</p>
Set print mode	^1W01CS*x*y*z*t\0	<p>*x=0: Sensor mode.                      *x=1: Continuous mode.</p> <p>*y: Number of prints for each time the sensor is triggered (mandatory 3 characters). This value is passed if using continuous mode.</p> <p>*z: Space between prints, in inches (mandatory 5 characters).</p> <p>*t:=0 Continuously print after the product detect sensor is triggered once.                      *t:=1 continuously print when the product detect sensor is continuously triggered. Stop printing when the product detect sensor is not triggered.</p>	<p>^1W01CS0002003930\0 = Print in sensor mode. Make 2 prints, each time the sensor is triggered. Set a 10cm space between prints. Continuously print after the product detect sensor is triggered once.</p>
Set print delay time	^1D01CS*x*y\0	<p>*x= Delay before print, in inches. Range = 00039-39370 (mandatory 5 characters).</p> <p>*y= Delay after print, in inches. Range = 00039-39370 (mandatory 5 characters).</p>	<p>^1D01CS0019600393\0 = Set a delay of 5cm before the print and 10cm after the print.</p>
Set sensor	^1H01CS*x\0	<p>*x=0: Use internal product detect sensor.                      *x=1: Use external product detect sensor.</p>	<p>^1H01CS0\0 = Use the internal product detect sensor.                      ^1H01CS1\0 = Use an external product detect sensor.</p>



**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Set system clock	$\wedge 1101CS*hh*m$ $m*ss*dd*MM*yy$ $\backslash 0$	<p><b>*hh:</b> Set hours, 24h format, maximum value 23 (mandatory 2 characters).</p> <p><b>*mm:</b> Set minutes, maximum value 59 (mandatory 2 characters).</p> <p><b>*ss:</b> Set seconds, maximum value 59 (mandatory 2 characters).</p> <p><b>*dd:</b> Set day of the month, maximum value 31 (mandatory 2 characters).</p> <p><b>*MM:</b> Set the month, maximum value 12 (mandatory 2 characters).</p> <p><b>*yyyy:</b> Set year, maximum value 2037 (mandatory 4 characters).</p>	$\wedge 1101CS12000001022030\backslash 0 =$ Set the time to 12:00 and set the date to the 1st of February 2030.
Set the printer name	$\wedge 1n01CS*x\backslash 0$	<b>*x:</b> Name of the printer (15 characters maximum).	$\wedge 1n01CSG20i\backslash 0 =$ Set the printer's name to G20i.
Set screen rotation	$\wedge 1e01CS*x\backslash 0$	<p><b>*x=1:</b> Set screen to horizontal, side of menu facing the printing side.</p> <p><b>*x=2:</b> Set screen to vertical, side of menu facing the top of the printer.</p> <p><b>*x=3:</b> Set screen to horizontal, side of menu facing the connection ports.</p> <p><b>*x=4:</b> Set screen to vertical, side of menu facing the bottom of the printer.</p> <p><b>*x=5:</b> Set screen to auto rotate.</p> <p><b>*x=6:</b> Lock screen rotation.</p>	$\wedge 1e01CS5 =$ Set the screen to auto rotate.
Set measurement units	$\wedge 1f01CS*x\backslash 0$	<p><b>*x=0:</b> Set the unit of measurement to millimetres.</p> <p><b>*x=1:</b> Set the unit of measurement to inches.</p>	<p><math>\wedge 1f01CS0\backslash 0 =</math> Set the unit of measurement to millimetres.</p> <p><math>\wedge 1f01CS1\backslash 0 =</math> Set the unit of measurement to inches.</p>
Set roll over hour	$\wedge 1T01CS*x*y00$ $\backslash 0$	<p><b>*x=0:</b> Disable roll over hour.</p> <p><b>*x=1:</b> Enable roll over hour.</p> <p><b>*y:</b> Set value for roll over hour. Range = 00-23 (mandatory 2 characters).</p>	$\wedge 1T01CS10900\backslash 0 =$ Set the roll over hour to 09:00 AM.

**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Set random jet	^1P01CS*x*y\0	<p>*x=0: Disable random jet.                      *x=1: Enable random jet.</p> <p>*y: Set the delay time in seconds. Range = 00001-36000 (mandatory 5 characters).</p>	^1P01CS100060\0 = Enable random jet. Purge the print head every 60 seconds.
Purge print head	^1G01CS\0		^1G01CS\0 = Immediately purge the print head.
Reset counter	^1R02CS0\0		^1G01CS\0 = Reset the counter when printing stops.
Set font type	^1u02CS*x\0	<p>*x=0: Normal font.                      *x=1: Uppercase font.</p>	<p>^1U02CS0\0 = Set normal font.                      ^1U02CS1\0 = Set uppercase font.</p> <p>This command is acted on after the “set message” command is received.</p>
Set font size	^1U01CS*x\0	<p>*x=0: 1 line font height.                      *x=1: 2 line font height.                      *x=2: 3 line font height.                      *x=3: 4 line font height.                      *x=4: 5 line font height.                      *x=5: 6 line font height.</p>	<p>^1U01CS0\0 = Set font height to 1 line.                      ^1U01CS5\0 = Set font height to 6 lines.</p> <p>This command is acted on after the “set message” command is received.</p>

**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Set message	<code>^1M01CS`@0`*x`  `@1`*y`@2`*z`@3`  *p`@4`*r`@5`*q\0</code>	<p><b>*x:</b> Message string for line 1. Range = 0-100 characters.</p> <p><b>*y:</b> Message string for line 2. Range = 0-100 characters.</p> <p><b>*z:</b> Message string for line 3. Range = 0-100 characters.</p> <p><b>*p:</b> Message string for line 4. Range = 0-100 characters.</p> <p><b>*r:</b> Message string for line 5. Range = 0-100 characters.</p> <p><b>*q:</b> Message string for line 6. Range = 0-100 characters.</p> <p>To insert a variable item into the message:  Counter = C<b>x</b> with <b>x</b>: 0-5  Shift code = S<b>x</b> with <b>x</b>: 0-2  BoxLot = S<b>xy</b> with <b>x</b>: 0, <b>y</b>: 0-3  Time = T  Date = D<b>x</b> with <b>x</b>: 0-4  Expire date = E<b>x</b> with <b>x</b>: 0-4  Barcode = R  Logo = L<b>x</b> with <b>x</b>: 0-3</p>	<p><i>Notes: (1) Stop printing before sending the message.</i></p> <p><i>(2) Ensure the command is not longer than 150 characters.</i></p> <p><code>^1M01CS`@0`ABC`@1`XYZ`@2`IHG`@3`WER`@4`TUV`@5`OPQ\0</code>  = Print “ABC” on line 1, “XYZ” on line 2, “IHG” on line 3, “WER” on line 4, “TUV” on line 5 and “OPQ” on line 6.</p> <p>To insert a counter to line 1 of message that has been setup with counter setup command, use this command:  <code>^1M01CS`@0`CounterSample:`C0`. Time: `T`. Date: `D0`. Expire date: `E0``@1`XYZ`@2`IHG`@3`WER`@4`TUV`@5`OPQ</code></p>

**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Set message while printing	^1M03CS`@0`*x` `@1`*y`@2`*z`@3` *p`@4`*r`@5`*q`0	<p>*x: Message string for line 1. Range = 0-100 characters.</p> <p>*y: Message string for line 2. Range = 0-100 characters.</p> <p>*z: Message string for line 3. Range = 0-100 characters.</p> <p>*p: Message string for line 4. Range = 0-100 characters.</p> <p>*r: Message string for line 5. Range = 0-100 characters.</p> <p>*q: Message string for line 6. Range = 0-100 characters.</p> <p>To insert a variable item into the message: Counter = Cx with x: 0-5 Shift code = Sx with x: 0-2 BoxLot = Sxy with x: 0, y: 0-3 Time = T Date = Dx with x: 0-4 Expire date = Ex with x: 0-4 Barcode = R Logo = Lx with x: 0-3</p>	<p><i>Note:</i> It can take between 3 and 5 seconds for the message to update.</p> <p>^1M03CS`@0`ABC`@1`XYZ`@2`IHG`@3`WER`@4`TUV`@5`OPQ`0 = Print “ABC” on line 1, “XYZ” on line 2, “IHG” on line 3, “WER” on line 4, “TUV” on line 5 and “OPQ” on line 6.</p> <p>To insert the counter to line 1 of message that has been setup with counter setup command, we use this command: ^1M03CS`@0`CounterSample:`C0`. Time: `T`. Date: `D`. Expire date: `E``@1`XYZ`@2`IHG`@3`WER`@4`TUV`@5`OPQ`0</p>
Message name	^1M07CS*x`0	*x: Message name. Range = 1-20 characters.	<p><i>Note:</i> Send the “Message name” command before sending the “Set message” command.</p> <p>^1M07CSMessage 1`0 = Save message name as “Message 1”.</p>

**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Set counter	^1C01CS*x*y*z* a*b*c*d*e\0	<p><b>*x:</b> Counter number. Range = 0-5. This is the name of the counter that will be stored on the printer.</p> <p><b>*y=0:</b> Count upwards. <b>*y=1:</b> Count downwards.</p> <p><b>*z=0:</b> Do not fill zeros. <b>*z=1:</b> Fill zeros.</p> <p><b>*a:</b> Counter steps. Range = 000-250 (mandatory 3 characters).</p> <p><b>*b:</b> Counter start value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*c:</b> Current counter value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*d:</b> Counter reset value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*e:</b> Current repeat value. Range = 0000000000-0010000000 (mandatory 10 characters).</p>	<p>1C01CS0010010000000001000 00000010000000999\0</p> <p>=</p> <p>Counter number: 0 Count direction: Upwards Fill zeros: Enabled Counter steps: 1 Start value: 1 Current value: 1 Reset value: 999</p>

**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Set BoxLot	<code>^1k01CS*x*y*z*a*b*c*d\0</code>	<p><b>*x:</b> Counter number. Range = 00-03. This is the name of the counter that will be stored on the printer. Each boxlot uses 2 counters.</p> <p><b>*y=0:</b> Count upwards. <b>*y=1:</b> Count downwards.</p> <p><b>*z=0:</b> Do not fill zeros. <b>*z=1:</b> Fill zeros.</p> <p><b>*a:</b> Counter steps. Range = 000-250 (mandatory 3 characters).</p> <p><b>*b:</b> Counter start value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*c:</b> Current counter value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*d:</b> Counter reset value. Range = 0000000001-2000000000 (mandatory 10 characters).</p> <p><b>*e:</b> Current repeat value. Range = 0000000000-0010000000 (mandatory 10 characters).</p>	<p><i>Note:</i> A pair of counters is required for a boxlot. The command will need to be sent twice.</p> <p>1k01CS00010010000000001 00000000010000000999\0 = Set counter 0 of boxlot1.</p> <p>1k01CS01010010000000001 00000000010000000999\0 = Set counter 1 of boxlot1</p>
Set date format	<code>^1A*x1CS*y\0</code>	<p><b>*x:</b> The number of the date format. Range = 0-4. The printer supports up to 5 date formats.</p> <p><b>*y:</b> Date format string. Maximum length = 13 characters Valid characters = (D,d,M,m,Y,y,J,j, -, /, ., ., .,  , SPACE)]</p>	<p><code>^1A01CSDDMMYYYY\0</code> = The printer will print the date as 11Sep2019</p>
Set time format	<code>^1I01CS*x\0</code>	<p><b>*x:</b> The time format string. Maximum length = 12 characters Valid characters = (H, h, m, s, t, :, - , . , . , _ ,  , SPACE)]</p>	<p><code>^1I01CSHh:mm tt\0</code> = The printer will print the time as 10:30 PM</p> <p><code>^1I01CSHH:mm\0</code> = The printer will print the time as 22:30</p>

**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Set expire date	<code>^1Z*x1CS*y*z* abc\0</code>	<p><b>*x:</b> the number of expire date item. Value: 0-4. The printer supports up to 5 expire dates.</p> <p><b>*y:</b> expire date number, maximum value is 20 years. Always fill zeros to 4 characters.</p> <p><b>*z:</b> expire date offset. Value `0, `1, `2  `0 is day: maximum 7300 date  `1 is month: maximum 240 month  `2 is year: maximum 20 years</p> <p><b>*abc:</b> expire date format string. The same with date format string. 13 characters</p>	<code>^1Z01CS0012`1dd-mm-yy\0 =</code> Set the expiry date at 12 months. Set the date format as dd-mm-yy.
Set shift code	<code>^1J01CS*x*y*A A*hh*mm\0</code>	<p><b>*x:</b> the number of the shift code item. Value: 0-2. The printer supports up to 3 shift code items.</p> <p><b>*y:</b> the number of codes used in the shift code. Value: 1-5.</p> <p><b>*AA:</b> the name of the shift. Mandatory 2 characters, if a one character name is required, use ` for the first character, for example: `A, `B, AA, BB</p> <p><b>*hh:</b> The hour that the shift will be active from (mandatory 2 characters).</p> <p><b>*mm:</b> The minute of the hour that the shift will be active from (mandatory 2 characters).</p>	<code>^1J01CS04AB1200AC1500 AD1730`E2210\0</code> = 4 shifts: AB, active from 12:00 AC, active from 15:00 AD, active from 17:30 E, active from 22:10

**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Static barcode setup	^1g01CS*x*y*z*w*p\0	<p>*x=0: Set the barcode type to Code39.                      *x=1: Set the barcode type to Code2of5.                      *x=2: Set the barcode type to Code128.                      *x=3: Set the barcode type to Code93.                      *x=4: Set the barcode type to CodeUPC-A                      *x=5: Set the barcode type to CodeEAN.                      *x=6: Set the barcode type to CodaBar.                      *x=7: Set the barcode type to Code11.</p> <p>*y: Set the barcode width, range 1-4.                      *z: Set the barcode height, range 1-3.</p> <p>*w=0: Disable human readable text.                      *w=1: Enable human readable text.</p> <p>*p = barcode data. Maximum length, 30 characters.</p>	<p>^1g01CS0331BARCODE39\0                      =                      Set barcode type as Code39.                      Set barcode width to 3.                      Set barcode height to 3.                      Enable human readable text.                      Barcode data is "BARCODE39".</p>



**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Dynamic barcode setup	^1h01CS*x*y*z* a*b*c*d*e*f*g##* f0	<p><b>*x:</b> Set the barcode type. 0=Code39, 1=Code2of5, 2=Code128, 3=Code93, 4=CodeUPC-A, 5=CodeEAN, 6=CodaBar, 7=Code11.</p> <p><b>*y:</b> Set the barcode width, range 1-4.</p> <p><b>*z:</b> Set the barcode height, range 1-3.</p> <p><b>*w=0:</b> Disable human readable text. <b>*w=1:</b> Enable human readable text.</p> <p><b>*a=0:</b> Count upwards. <b>*a=1:</b> Count downwards.</p> <p><b>*b=1:</b> Fill zeros (always = 1).</p> <p><b>*c:</b> Counter steps. Range = 000-250 (mandatory 3 characters).</p> <p><b>*d:</b> Counter start value. Range = 0000000001- 2000000000 (mandatory 10 characters).</p> <p><b>*e:</b> Current counter value. Range = 0000000001- 2000000000 (mandatory 10 characters).</p> <p><b>*f:</b> Counter reset value. Range = 0000000001- 2000000000 (mandatory 10 characters).</p> <p><b>*g:</b> Prefix of barcode, maximum 10 characters.</p> <p><b>*f:</b> Suffix of barcode, maximum 10 characters.</p>	<p>1h01CS0131010020000000000 00000000020000010000AB##\ 0 = Set barcode type as Code39. Set barcode width to 1. Set barcode height to 3. Enable human readable text. Count upwards. Fill zeros. Count in steps of 2. Counter start value: 0000000000. Current counter value: 0000000002. Counter reset value: 0000010000. Prefix: AB. No suffix.</p>

**Table 2: PLC to Printer**

Operation	Command	Parameter	Examples
Set repeat counter, spacing barcode.	^1q01CS*x*y*z\ 0	<p><b>*x:</b> Position, value is 1 (mandatory 1 character).</p> <p><b>*y:</b> Repeat dynamic counter. Maximum value is 10000000 times, (mandatory 10 characters).</p> <p><b>*z:</b> Spacing for barcode. Maximum value is 50pt (mandatory 3 characters).</p>	<p><i>Note:</i> The repeat value applies to single counters and dynamic barcodes. The spacing value applies to static barcodes and dynamic barcodes.</p> <p>^1q01CS10000000000025\0 = Repeat 0 and Spacing 25pt.</p>
Use message	^1u01CS*x\0	<p><b>*x:</b> Message number to use. Maximum 3 characters. Range: 1-100</p>	<p>^1u01CS1 = Use message 1. The new message will be used after printing the current message is stopped.</p>

# DECIMAL/HEXADECIMAL CONVERSION TABLE

DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC	HEX
0	00	32	20	64	40	96	60	128	80	160	A0	192	C0	224	E0
1	01	33	21	65	41	97	61	129	81	161	A1	193	C1	225	E1
2	02	34	22	66	42	98	62	130	82	162	A2	194	C2	226	E2
3	03	35	23	67	43	99	63	131	83	163	A3	195	C3	227	E3
4	04	36	24	68	44	100	64	132	84	164	A4	196	C4	228	E4
5	05	37	25	69	45	101	65	133	85	165	A5	197	C5	229	E5
6	06	38	26	70	46	102	66	134	86	166	A6	198	C6	230	E6
7	07	39	27	71	47	103	67	135	87	167	A7	199	C7	231	E7
8	08	40	28	72	48	104	68	136	88	168	A8	200	C8	232	E8
9	09	41	29	73	49	105	69	137	89	169	A9	201	C9	233	E9
10	0A	42	2A	74	4A	106	6A	138	8A	170	AA	202	CA	234	EA
11	0B	43	2B	75	4B	107	6B	139	8B	171	AB	203	CB	235	EB
12	0C	44	2C	76	4C	108	6C	140	8C	172	AC	204	CC	236	EC
13	0D	45	2D	77	4D	109	6D	141	8D	173	AD	205	CD	237	ED
14	0E	46	2E	78	4E	110	6E	142	8E	174	AE	206	CE	238	EE
15	0F	47	2F	79	4F	111	6F	143	8F	175	AF	207	CF	239	EF
16	10	48	30	80	50	112	70	144	90	176	B0	208	D0	240	F0
17	11	49	31	81	51	113	71	145	91	177	B1	209	D1	241	F1
18	12	50	32	82	52	114	72	146	92	178	B2	210	D2	242	F2
19	13	51	33	83	53	115	73	147	93	179	B3	211	D3	243	F3
20	14	52	34	84	54	116	74	148	94	180	B4	212	D4	244	F4
21	15	53	35	85	55	117	75	149	95	181	B5	213	D5	245	F5
22	16	54	36	86	56	118	76	150	96	182	B6	214	D6	246	F6
23	17	55	37	87	57	119	77	151	97	183	B7	215	D7	247	F7
24	18	56	38	88	58	120	78	152	98	184	B8	216	D8	248	F8
25	19	57	39	89	59	121	79	153	99	185	B9	217	D9	249	F9
26	1A	58	3A	90	5A	122	7A	154	9A	186	BA	218	DA	250	FA
27	1B	59	3B	91	5B	123	7B	155	9B	187	BB	219	DB	251	FB
28	1C	60	3C	92	5C	124	7C	156	9C	188	BC	220	DC	252	FC
29	1D	61	3D	93	5D	125	7D	157	9D	189	BD	221	DD	253	FD
30	1E	62	3E	94	5E	126	7E	158	9E	190	BE	222	DE	254	FE
31	1F	63	3F	95	5F	127	7F	159	9F	191	BF	223	DF	255	FF

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