Telemotive AG

blue PiraT

User's Manual

Remote Control Monitor

Release: 1.3.1

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1 Introduction

1.1 Overview

With the remote control monitor function, it is possible to display current values of selected CAN signals immediately in the remote control unit. The remote Control Monitor ist part of the blue PiraT trigger function. The function is called as a trigger, when a defined event will cause a certain, singular action.

EVENT ⟹ **ACTION**
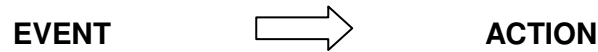
The user's manual describes the configuration and the overall functionality of the remote control monitor function.

1.2 System Requirements

The remote control monitor function works on any blue PiraT system with a remote control and a recent software. However, it is necessary to purchase a special license for this function. Please read the manual "blue PiraT - How to manage licenses" for more information about handling licenses.

This manual refers to the following software versions:

- Data logger firmware 6.0.1
  Client 3.5.1

Software updates are frequently available in the blue PiraT Service Center. Please make sure to have a current software installed.

1.3 Remote Control Monitor Functionality

The remote control unit has a four-line display of each 20 characters. The remote control monitor function is able to handle up to 10 different remote control monitor windows. A remote control monitor window (see Figure 1) is activated by pushing the related function button (F1…F10).

```
Temperature[°C] 35.5
FrontLeftPressur 2.6
LightStatus 11000101
Hexdata         7FA3
```

Figure 1: A sample remote control monitor

The window is closed by pushing the Stop (✖)-button or Status-button, causing the remote control display switching to the previous screen. The user can configure up to 20 different CAN-signals for each remote control monitor window. One CAN signal will be displayed in each line. Since the remote control display only contains four lines, it is possible to scroll the CAN signal entries with the up and down buttons.

For each CAN signal, the following information is displayed:

- CAN signal name
- If given, the physical unit of the CAN signal (i.e., mph)
- Value of the CAN signal

The signal name and the signal unit are displayed left-aligned, while the signal value is displayed right-aligned. If the 20 columns of the display are not sufficient to display all information (i.e., the signal name would overlap with the text or the unit), the signal name overwrites text and/or unit. The display automatically changes to floating point display if a CAN signal value exceeds the maximum number of displayable characters.

1.4 Connection

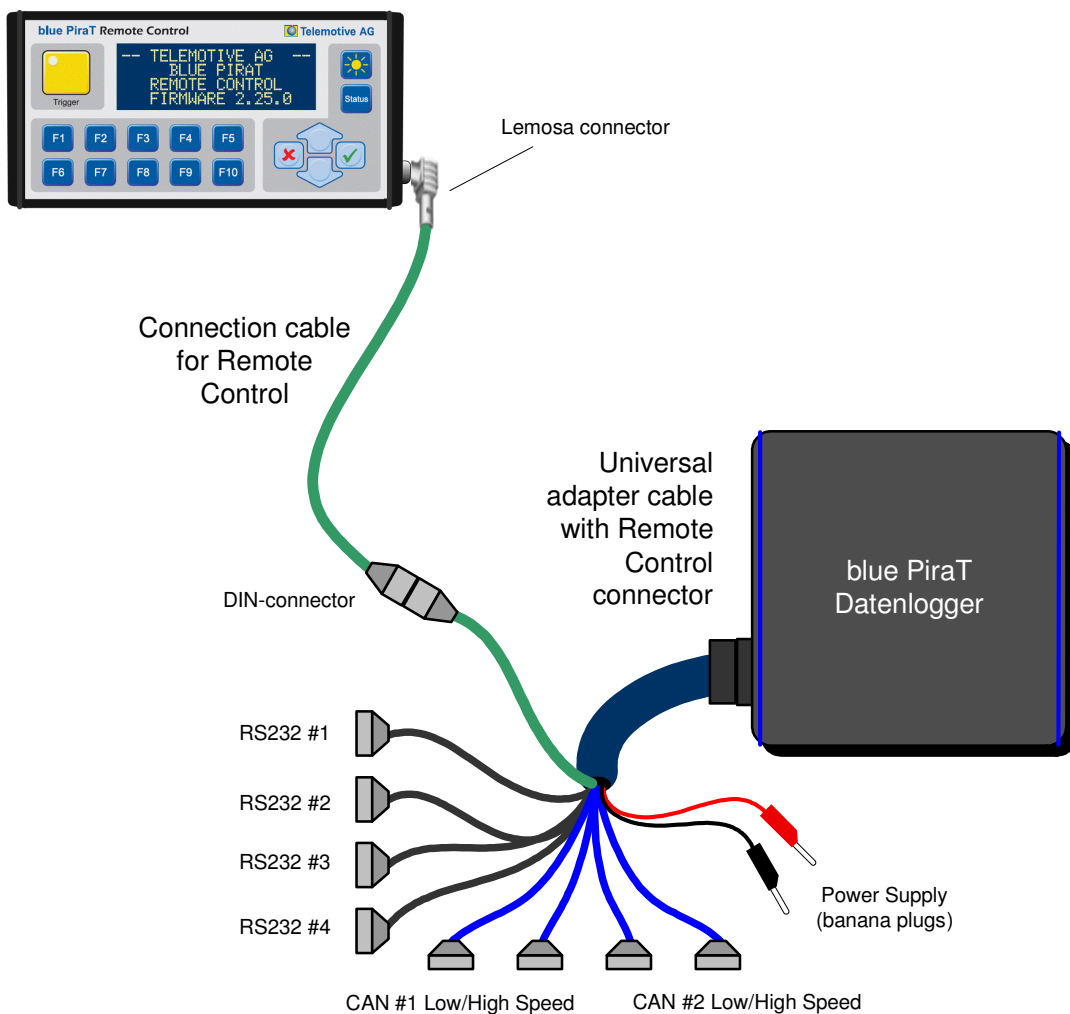To use the remote control monitor function, it is required to connect a remote control unit (see Figure 2).

Figure 2: Connection of the bluePiraT with the standard cable harness

2 Configuration

2.1 Configuration menu

The configuration application must be started to configure a remote control monitor. If the license has been installed correctly, the selection tree on the left hand side shows the entry 'Trigger'. The remote control monitor is defined as a trigger, i.e., a defined event (a function key) causes a unique action (the display of the remote control monitor).

With the selection of the "New Trigger.." button, it is possible to configure up to 100 different triggers.
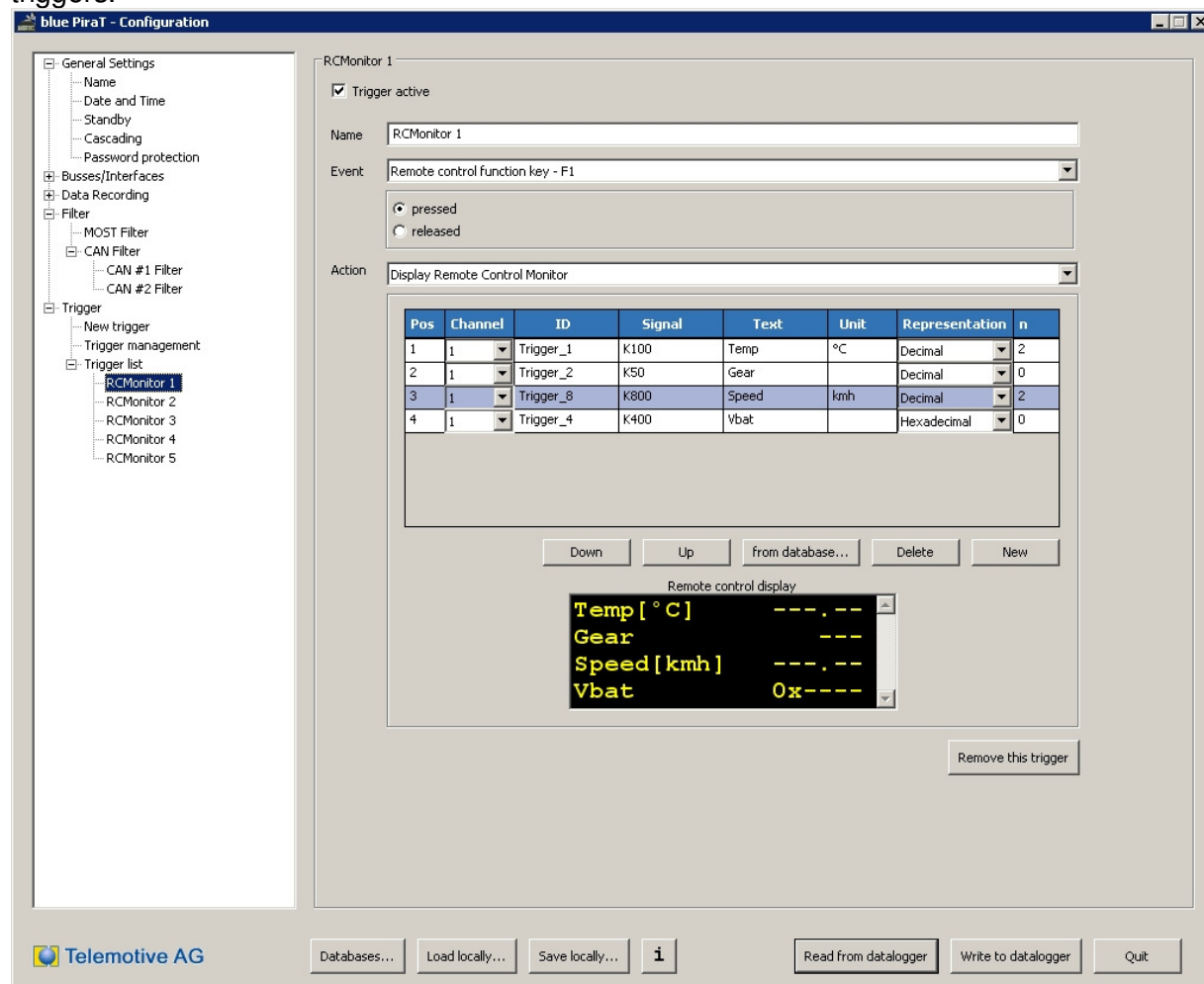

Figure 3: Configuration of the remote control monitors

The complete datalogger configuration can be managed by following buttons:

„Databases…":	Open the dialog for configure the link to access a DBC database.
„Load locally…":	Data will be loaded by a local stored configuration file
„Store locally…":	Configuration data will be stored to a local file
„i":	Dialog with program information will be loaded
„Read from datalogger":	Configuration data will be loaded from the connected datalogger and displayed in the dialog
„Write to datalogger":	Configuration data will be sent to the connected datalogger. The configuration is active after data transfer
„Quit":	The quit button closes the configuration application

2.2 Trigger configuration

After selecting the option „New trigger", a panel for configuration of the trigger appears. The different options are described in the following chapters.

Figure 4: Configuration 'New trigger'

2.2.1 Trigger state

Each trigger can be configured to be active or inactive. If a trigger is inactive, its parameters are still kept in the configuration, but the data logger does not execute the trigger.

2.2.2 Trigger mode

Each trigger has two different modes of evaluation of the trigger condition:

Trigger at signal change: The trigger occurs only if there is a change in the signal value and the event conditions are met. This trigger condition mode is applicable for periodic signals (i.e. CAN signals), where only one trigger is required for the first time the event condition is true. (default trigger mode)

Trigger at message reception: The trigger occurs every time a signal message was received and the event conditions will be met. This trigger mode is applicable if every reception of a message should cause a new trigger.

2.2.3 Trigger name

The name of the trigger can changed by the user. The new trigger name is be displayed in the selection tree on the left hand side. The number of characters for the trigger name is limited to 50 characters.

2.2.4 Trigger event and action

The trigger function is defined by an event and a consecutive action. Events and actions can be defined and changed by the user in any sequence.

2.2.5 Removing the trigger

The button "Remote this trigger" deletes the entire trigger configuration.

2.3 Configuration Remote Control Monitor

Is there only a license Remote Control Monitor installed on the the datalogger, than only the function keys are configurable as an event in the configuration menu.

2.3.1 Event – Remote Control Function keys

The event 'Remote Control Function Key' is only able to trigger one action. However, different function keys can be assigned to different actions.

First, the user has to select one remote control function key from F1 to F10. The setting 'button pressed' or 'button released' is the second parameter which has to be selected by the user.

Figure 5: Event – Remote Control function key

The action is be triggered one time, when the event-requirement 'button pressed' or 'button released' switches into the status true.
A connected remote control is required for this event.

2.3.2 Action – Remote Control Monitor

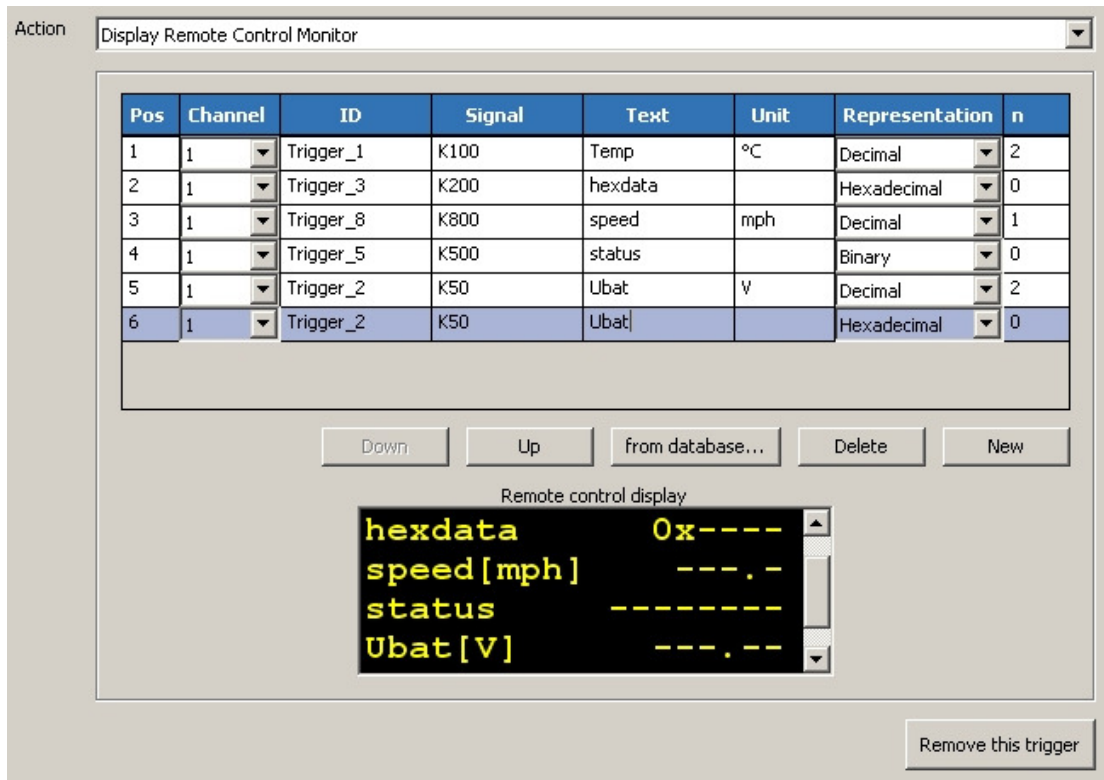In the second configuration step, the user has to select the action 'Remote Control Monitor'.

Figure 6: Action – Remote Control Monitor

2.3.2.1 New signal

A new line is added to the existing CAN signal list if the user selects the "New" button. It is possible to add up to 20 CAN signals for each remote control monitor window. Each new line is added to the end of the list.

2.3.2.2 Signal selection

Initially, a new signal in the signal list has no CAN signal parameters associated with it. The user has to select those via the button "from database..". A signal selection window appears, which contains a list of CAN signals read from the chosen CAN database (see Figure 7).
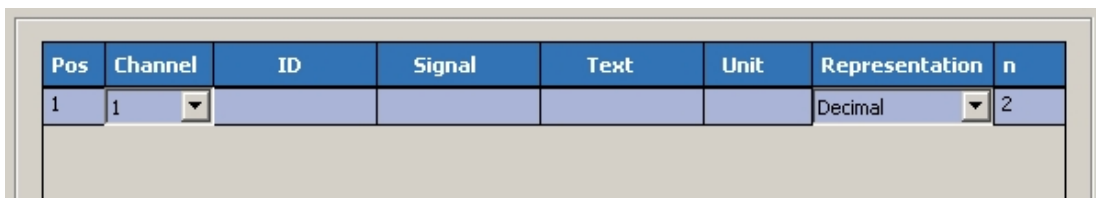

Figure 7: New CAN-signal

The user can define the associated CAN-database for each CAN channel and select the required signal.
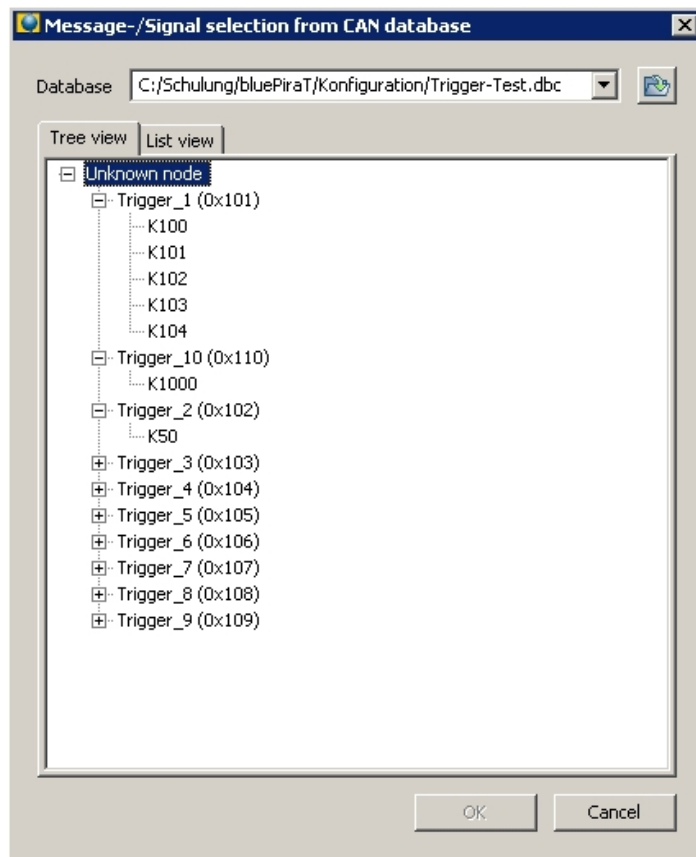
Figure 8: Signal selection from CAN-database

CAN-signals with the value type 'IEEE float' and 'IEEE double' will be supported.

2.3.2.3 Signal order
The display order of the CAN signals can be adjusted by pressing the "up"- and "down"-buttons. Before the user has to select the CAN signal that has to be moved.

2.3.2.4 Signal delete
The user can delete single CAN signals from the signal list via the "Delete" button after selecting the desired signal.

2.3.3 Signal display parameters
All display parameters of a selected CAN signal are initially loaded from the CAN-database. They are partly displayed in signal list of the configuration program. In the remote control monitor window the following CAN signals are displayed:

- Signal name
- Signal unit
- Signal value

The parameters signal name and signal unit can be modified by the user.

Figure 9: CAN-signal editing

2.3.3.1 Signal name

The remote control monitor uses the signal name loaded from the CAN-database as the default value. The user can edit the signal name in the column 'text' (see Figure 9).

2.3.3.2 Signal unit

The remote control monitor uses the signal unit loaded from the CAN-database as default value. The user can edit or delete the signal unit in the column 'unit' (see Figure 9).

2.3.3.3 Signal value

The column "Representation" allows choosing one of three possible number formats in which the CAN signals are interpreted:

Scaled decimal format: The signal value is displayed as an integer value or as floating point value with up to (max.) 7 decimal places. If a signal value exceeds the maximum number of displayable characters, the display automatically changes to floating point display.

Hexadecimal format: The signal value is displayed as a hexadecimal raw value up to the CAN signal bit length of 32 bit. For CAN signal values that are greater than 32 bit, only the scaled decimal format is available.

Binary format: The signal value is displayed as a binary raw value up to the CAN signal bit length of 8 bit. For CAN signal value greater than 8 bit only the scaled decimal or the hexadecimal format is available.

The user can select the format in the column 'Representation' (see Figure 9).

The remote control monitor function automatically calculates the number of the required decimal places from the database's CAN signal parameters 'bit length', 'value range', 'factor' and 'offset' and put this value into the column 'n' as the default.
The user can change the number of the decimal places in the range from 0 to 7 in the column 'n' (see Figure 9).

2.3.4 Remote control monitor preview

The remote control monitor preview allows to check how the current configuration will look like in the remote control display. This feature simplifies adjusting the parameters for a proper display within the 20 columns.
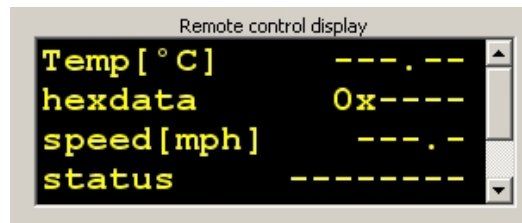

Figure 10: Remote control monitor preview

Since the actual values of the CAN signals are not known at this point, default value lengths are used for the preview.

The display of the signal value has always a higher priority as the display of the signal name and the signal unit. The signal value will overwrite the signal unit and the signal name, if 20 characters for a line is not enough to display all parameters.

2.3.5 Database Change

Is there a change of the CAN-database during the configuration or before loading a configuration, the display of the signal parameters will be updated to the new CAN-database.
The signals will be displayed as follows, if there is no matching between new CAN-database and selected signal or the CAN-database is completely deactivated.

Pos	Channel	ID	Signal	Text	Unit	Representation	n
1	1	0x101	?????	Temp	°C	Decimal	2
2	1	0x103	?????	hexdata		Hexadecimal	0
3	1	0x108	?????	speed	mph	Decimal	1
4	1	0x105	?????	status		Binary	0
5	1	0x102	?????	Ubat	V	Decimal	2
6	1	0x102	?????	Ubat		Hexadecimal	0

Figure 11: Change of CAN-database

ID: CAN-ID of the original CAN-signal in hexadecimal format

Signal: '?????' instead of the original CAN signal name

Text, unit , representation and decimal places don't change.

3 Trigger management

There is an option 'trigger management' in the configuration menu. Selecting this option, a list of all triggers and the possible management functions appears.
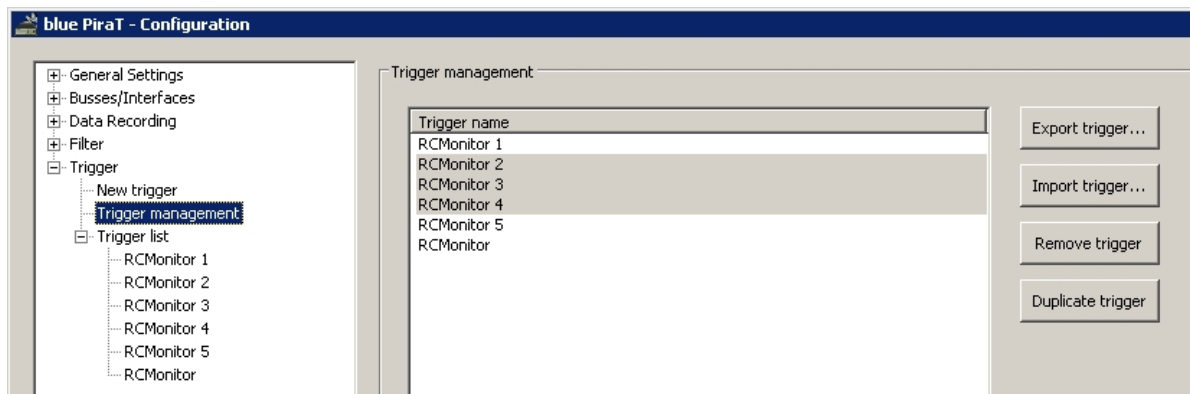

Figure 12: Trigger management

It is possible to select one or more triggers from the list. The selected triggers can be managed by the function buttons on the right side.

The following management functions are available:

"Export trigger…"   Selected trigger configurations will be stored in an external trigger file (.tri)
"Import trigger…"   Trigger configurations will be loaded from an external trigger file and added to the existing trigger list.
"Remove trigger…"   Selected trigger configurations will be removed from the list.
"Dublicate trigger…"   Selected trigger configurations will be duplicated and added to the existing trigger list. The duplicated trigger will be renamed by the extension "Copy_". The trigger name can be changed by the user.

Appendix A: Remote control unit character set

The following characters from the windows-1254 character set table are supported by the remote control monitor function:

	-0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-A	-B	-C	-D	-E	-F
0-																
1-																
2-	SP	!		#	$	%	&	'	(	)	*	+	,	−	.	/
3-	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4-	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5-	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
6-	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7-	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	
8-																
9-																
A-		¡	¢	£		¥		§	¨		ª	«				⁻
B-	°	±	²	³		µ	¶	·				»	¼	½		¿
C-				Ã	Ä	Å	Æ	Ç		É						Ï
D-		Ñ				Õ	Ö	×	Ø				Ü			ß
E-	à	á	â	ã	ä	å	æ	ç	è	é	ê	ë	ì	Í	î	ï
F-		ñ	ò	ó	ô	õ	ö	÷	ø	ù	ú	û	ü			ÿ