VersaCount™ *XP*

Supplementary information relating to the users' manual

Interfaces USB/RS232

Versions 773/774

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Contents

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1 General

1.1 Information about the operating instructions

These operating instructions are intended to supplement the operating instructions for 0773xxx and 0774xxx counters, and describe the additional functions of the USB and RS232 interfaces. They contain important information for working with the multifunctional counter. This applies particularly to the section on security. Compliance with all of the security information and procedural instructions is essential to ensure work safety.

Information about liability restrictions, copyright protection, warranty provisions and customer service can be found in the operating instructions 2772058.

1.2 Explanation of symbols
Warnings

Symbols are used to denote warnings in these operating instructions. These warnings are introduced by signal words that describe the magnitude of the risk. Observance of these warnings is absolutely compulsory, and due caution must be exercised at all times to prevent accidents, injury and property damage.

Danger!
Indicates an immediate threat that will result in death or severe injury if not avoided.

Warning!
Indicates a possibly dangerous situation that can result in death or severe injury if not avoided.

Caution!
Indicates a possibly dangerous situation that can result in minor injury if not avoided.

Note!
Indicates a possibly dangerous situation that can result in property or environmental damage if not avoided.

Tips and recommendations
Highlights useful tips and recommendation, together with information for efficient, trouble-free operation.

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2 Security

2.1 Security

Operating instructions 2772058 form an integral part of these operating instructions and must be observed in full. They contain safety warnings and procedural instructions for the multifunction counter. These operating instructions address additional security aspects relating to the USB and RS232 interfaces.

⚠️ **Ignoring the procedural instructions and safety information in these instructions could produce extremely dangerous situations.**

⚠️ **Warning!**
Danger from ignoring the safety information! Any non-compliance with the safety information, and specifically with the warnings in this operating instructions, can produce dangerous situations.

2.2 Proper use of the interfaces

The interfaces can be used to configure the counter, read out or overwrite values, and perform functions. Values can be read out at any time. Values may only be overwritten or functions performed when the machine is stationary. If and to the extent that values have to be overwritten or functions performed during the process flow, the manufacturer of the control unit must ensure that these actions do not pose any risks for people or property.

⚠️ **Danger!**
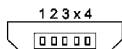**Writing values and performing function during an ongoing process can produce dangerous situations.**

3   Connection

USB - Ports

View of the Plug

1 2 3 x 4

| 1 | 2 | 3 | 4 |

USB-Stick   **USB-Cable**

2 772 060

1 = VBUS (4.75-5.25 volts)
2 = Data-
3 = Data+
4 = GND

USB

If both USB connectors on the counter are occupied, the host (USB cable) takes precedence. The drive (USB stick) is automatically deactivated in such cases.

S e r i a l   R S 2 3 2   P o r t

View of the Plug

2 772 061

TXD   **RXD**   **GND**

Baudrate: 38,4 kBD,   Bits: 8
Parity: even,   Stopbits: 1

(factory setting)

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4   Setting the additional function codes

These function codes apply for all basic functions, over and above the operating instructions 2772058. The factory setting is compulsory when using the USB stick and/or working with the programming assistant.

Programming mode	Change function settings:	Save, move to next function:	Return to display mode:
E + ▼	▲ o. ▼	▶	**E**
Keep pressed and turn on the voltage at the same time	press	press	press
Alternative display of function codes	▲ + ▼	The function codes are displayed in text form in row 1. Press both keys simultaneously to switch to numerical display F 0 to F 35. Press again to display the number of the selection options as well. These settings are saved.	

Function code F24, Display, row 1: b A U d

Function	No.	Display, row 2	
Baud rate interface	0	1200	1200
	1	2400	2400
	2	4800	4800
	3	9600	9600
	4	19200	19200
	5*	38400	38400

Function code F25, Display, row 1: P A r I t Y

Parity	0	No	none
	1*	E	even
	2	odd	odd

Function code F26, Display, row 1: S t o P b t

Stop bit	0	1	1 Stop bit
	1*	2	2 Stop bits

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5 Programming assistant
5.1 Programming assistant, general

Having decided to buy a VersaCount XP counter with interface, you now have the option of using our programming assistant to quickly program the counter. You can download the assistant free of charge from our home page at www.vr-versacount.com.

You must install Microsoft .Net Frame Work 3.5 before you can use the programming assistant. The needed files are part of the installation file.

Depending on the version, the counter can be connected to a PC and programmed using a USB or RS232 cable, the USB version of the counter can also be programmed using a USB stick. The program can be used, both to transfer the programming to the counter, and to read out the counter's current programming.

The programming assistant maps all of the function codes and their values that are also set in the counter. The clear structuring of the screen allows you to save considerable time compared with conventional programming using the counter keypad.

In addition, the program offers various help functions to aid you in correctly programming your counter.

Apart from help texts, you will also find preset programs for standard applications, which you can simply adjust to your specific application.

In addition to easily programming the counter, you also have the option to archive your various program settings in electronic or hard copy format.

Linking the program settings to the serial number of the counter allows you to avoid mistakenly using the wrong program settings when operating several counters.

So why not visit our home page now (www.vr-versacount.com.) and download your free copy of the programming assistant.

5.2 Installing the programming assistant
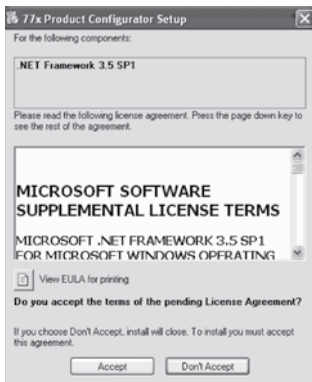
When you start installing the program, it will first check whether you have installed .Net Framework. If not, you will see the following message: To install .Net Framework please accept the license terms. Once you have read through the terms carefully, please click on Accept. .Net Framework is then installed automatically, you do not need to do anything else. Once the installation is complete, you will see the following window:

Please click "Next" to start the installation.

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5 Programming assistant
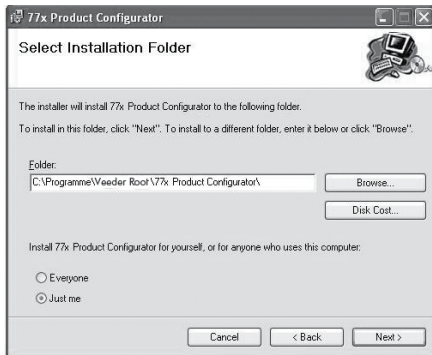
Use the "Browse..." button to select the installation path. Once you are happy with the installation path, click "Next".
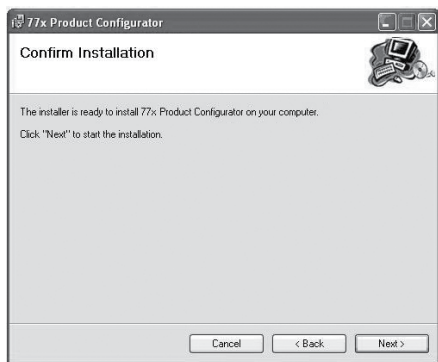
You will be asked again if you really want to install the program; confirm by clicking "Next" again to start the installation.

Installation has been successfully completed if you see this window. You can now connect your counter and start programming.
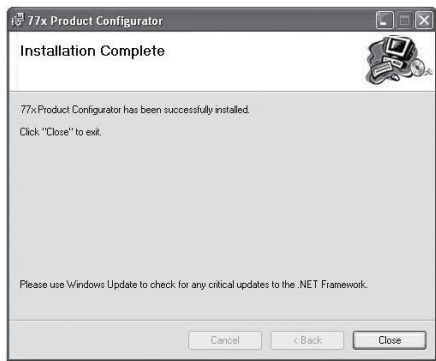
5.3 Counter connection

Once you have installed the programming assistant, you can connect the counter to the computer for installation purposes. The following window should appear about 10 seconds after connecting the counter by USB. Click "Yes, just this once" and then "Next" to start driver installation.

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5 Programming assistant

Then click "Automatically install software (recommended)", followed by "Next".
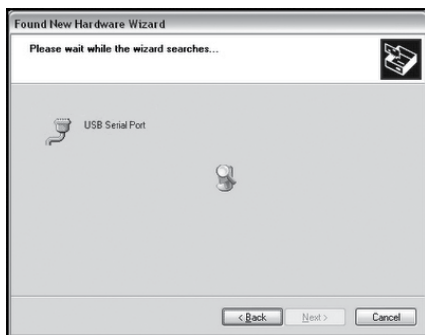
The necessary drivers will then be installed.

Installation is complete; you can click "Finish" and start setting your counter with the aid of the programming assistant.

6   Configuring with the programming assistant
6.1   Writing and reading configuration data

The counter can be programmed straight from a computer using the programming assistant. The counter must be connected to the computer. Click the button "Begin transfer" in the File/Transfer menu to transfer the configuration data to the counter. Click the button "Read" to read out the configuration data on the computer.

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6 Configuring with the programming assistant

6.2 Configuring via USB stick

The USB stick can contain one global file or any number of individual configuration files. Any counter can be programmed with a global configuration file, whereas single files can only be used for the counter with the matching serial number. The files must be stored in the "VersaCount XP" folder on the stick.

If the USB stick is inserted or if the voltage is turned on when the USB stick is inserted, the counter automatically starts configuring and looks for configuration files. The display first shows: *USB search*, followed by *USB Single* or *USB Global*. Single or Global are displayed for about 10s. If E is pressed on the keyboard during this period, the new configuration file is read and saved. The display then shows *USB Config* followed by *USB done*.

If E is not pressed within 10s, the configuration is aborted, the previous configuration remains active and the display shows *USB abort*.

6.3 Text messages

Description of the text messages generated by the USB interface on the counter.

USB SEArCH	**Searching drive** Once a USB drive is inserted, it is checked for the existence of the "VersaCount XP" directory and the configuration file(s) in the directory. • Global file: T_000000.CFG (irrespective of serial number) • Single file: T_003231.CFG (only for use with the counter bearing serial number 3231)
USB no dir	**No directory found** The interface has not found a directory called „VersaCount XP". The configuration process has been aborted. The display returns to standard view after a couple of seconds.

USB noFILE	**No file found** Neither a global nor single configuration file has been found. The configuration process has been aborted. The display returns to standard view after a couple of seconds.
USB GLObAL	**Global configuration file found** A global configuration file has been found. Press "E" to confirm and start the configuration process. Press any other key to abort the process. If no keys are pressed within 10 seconds, the process is, again, automatically aborted.
USB SInGLE	**Single configuration file found** A single configuration file has been found. Press "E" to confirm and start the configuration process. Press any other key to abort the process. If no keys are pressed within 10 seconds, the process is, again, automatically aborted.
USB COnFIG	**Counter is being configured** The counter is configured using the file it has found.
USB no CFG	**No configuration command executed** A configuration file has been found and the configuration started, but no command has been executed. Very probably, the file does not contain any configuration commands (comments not excluded).
USB donE	**Configuration complete** The configuration was completed without error. In order to re-configure the counter, remove the USB drive and insert again.
USB E1	**Error 1: Drive was removed before configuration started** A configuration file was found, but the interface could no longer detect a drive when the configuration process was started manually. The process is aborted and a restart prevented since no configuration has taken place. The display returns to standard view after a couple of seconds.

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rESEt E2	**Error 2: Drive was removed during the configuration process** The USB drive was removed during configuration. The process is aborted. The counter must be restarted to reset any possible errors in the configuration. This is shown by the message "rE-SEt" on the display. Press any key on the counter to restart it. In order to reconfigure the counter, remove the USB drive and insert again.
rESEt E3 XXX	**Error 3: A configuration command has produced an error message** A command error has occurred during configuration of the counter, i.e., one of the commands in the configuration file reported an error. The digits shown here as XXX (e.g., 014) refer to the command error in the configuration file. It represents the sequential number of the executed commands, not the row number. Example: If error "14" is displayed, the error is contained in the 14th command in the configuration file, irrespective of how many comments are noted.
USB Abort	**Configuration has been aborted** This message appears in the display if the configuration process is not started within the specified time after finding the configuration file, or if the process is manually aborted. The display returns to standard view after a couple of seconds.

7 Communication interface

7.1 Definition of the communication interface

Generic Interface for VersaCount 77x

General:
Explanation of the term "Generic Interface"

The generic interface provides basic functions for reading/writing counter values and function settings to/from the counter. An ASCII protocol is used for communication, but other, higher protocols can be set. This documentation describes the functionality of the **generic interface** between the counter and the interface PCB.

Following is only an overview of the generic interface. For detailed view, please visit our webpage www.vr-versacount.com.

Hardware protocol:
The generic interface is based on RS232.
Baud rate: 38.4 kBd
Bits: 8
Parity: even
Stop bits: 1
Software protocol:

The generic interface between VersaCount 77x and the interface PCB is based on ASCII commands and data values in ASCII format.

The internal counter structure of the values is binary and optimized for high counting speeds. The values exchanged via the generic interface are ASCII values. The counter converts the values into its internal format.

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7 Communication interface

7.2 Overview of generic interface functions:

Basic functions:
1. Read / write the basic counter functions
2. Read / write the function codes
3. Read / write the USER monolayer times

Read / write values:
1. Read / write the preset values
2. Read / write the prescaler value
3. Read / write the counter values
4. Read the tachometer value

Special functions:
1. Reset the counting values
2. Reset the counter
3. Activate/deactivate status reports (changes in preset status)
4. Read the software version
5. Read the software number
6. Save all values to the EEPROM
7. Direct access to the display, e.g., for messages

7.3 List of commands:

Command	R / W / F	Value	Description
BFN	R/W	0..4	Set the basic function
F00	W	0 / 1	Set the default values
F01	R / W	See Manual	Function code 1 (F01)
::	R / W	::	::
F35	R / W	::	Function code 35 (F35)
UT1	R / W	000.01 to 599.99	Output user monolayer time 1

UT2	R / W	000.01 to 599.99	Output user monolayer time 2
UT3	R / W	000.01 to 599.99	Output user monolayer time 3
PR0	R / W	-999999 .. .999999	Value for preselect 0
PR1	R / W	-999999 .. .999999	Value for preselect 1
PR2	R / W	-999999 .. .999999	Value for preselect 2
PSC	R / W	000001 .. 999999	Prescaler value
CNT	R / W	-999999 .. 999999	Counting value
TAV	R	-999999 .. 999999	Tachometer value
TOT	R / W	000000 .. 999999	Totalizer
BAT	R / W	000000 .. 999999	Batch counter
SU1	R / W	000000 .. 999999	Sub-total 1
SU2	R / W	000000 .. 999999	Sub-total 2
SWR	R	YYYY	Software version
SWP	R	XXXXXX	Software number
SNR	R	XXXXXX	Counter serial number
OST	R	XYZ	Starting status X,Y,Z = P0,P1,P2
RST	F		Reset counter device
RSC	F		Reset counting values
MON	F		Output monitoring ON
MOF	F		Output monitoring OFF
STV	F		Save values to EEPROM
NOP	F		No function
PNG	F		Ping ->response = "VersaCount 772"

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CSE	F		Checksum enable
CSD	F		Checksum disable
BLI	R / W	0 .. 15	Brightness setting for display illumination
REM	W	0 .. 99	Function for display access
WFK	W	0 .. 99	Wait for key to be pressed by operator
D00	W	0 .. 255	Delete display when accessing display
D01-D15	W	0 .. 255	Write sample to display

R = Read
W = Write
F = Function

7.4 Syntax for read, write and function commands

Syntax for read commands:

The commands are comprised of the command name (3 characters) followed by a space and the code for read ("R"). The command ends with CR (0Dh). (0Dh)

C	M	D		R	CR

The counter responds by repeating the command name and indicates the return value, separated by a space. The response ends with CR

C	M	D		–	1	2	3	4	5	6	CR

Unknown (incorrect) commands generate the following response:

E	R	R	CR

Syntax for write commands:

The commands are comprised of the command name (3 characters) followed by a space and the code for write ("W") and the value to be written, which consists of up to 6 digits and the algebraic sign. The command ends with CR (0Dh).

C	M	D		W		–	1	2	3	4	5	6		CR

The counter responds by repeating the name of the command, followed by "OK" if the command has been executed or "ER" if the command could not be executed, e.g., because of an invalid value. The response ends with CR.

Command has been executed:

C	M	D		O	K	CR

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Command error:

C	M	D		E	R	CR

Syntax for function commands:

Function commands are commands for calling up functions within the counter, without reading or writing values.

C	M	D	CR

Response:
Command has been executed:

C	M	D		O	K	CR

Command error:

C	M	D		E	R	CR

7.5   Sequence for setting and altering

Sequence for setting values

Some values / settings can be transferred whenever you like, others require adherence to a specific sequence.

1. If the basic function of the counter is altered, the default values assigned to the basic function are automatically loaded. As such, function codes must always be changed after altering the basic function. Otherwise the counter will overwrite the changes made to the function codes.

2. All counting values are automatically deleted if the prescaler is altered. So changes to the prescaler must always be made before altering the counting values.

3. Initially, all values are altered only in the working memory. Once the values have been transferred, they must be saved to the EEPROM using the STV command. Changes to function codes do not become effective until the counter has been restarted/reset ("RST").

The following sequence should be adhered to when changing values:
  - Set basic function (BFN)
  - Set default values (F00)
  - Set function codes (F01 ... F35)
  - Save values to EEPROM (STV)
  - Reset/restart counter to activate the changes (RST)
  - Set the prescaler (PSC)
  - Set the preselect values (PR0 .. PR2)
  - Set the counting values (CNT, TOT, SU1, SU2)
  - Save all values to EEPROM (STV)

Any function not mentioned here does not have to adhere to a specific sequence. All read functions can be used at any time.

8   Technical data

These operating instructions only contain the supplementary technical data for the interfaces. Further technical data can be found in the operating instructions 0772058.

RS-232 interface (VersaCount 774)	Also known as EIA-232, it is one of the standards for serial interfaces.
Socket on the counter:	Micro Fit 3.0 from Molex, 3-pin
Data cable:	Micro Fit 3.0 socket to 9-pin D-Sub connector (S/UTP CAT-5 cable)
Cable length:	max.15 m
Baud rate:	38.400 baud / Parity: even / 8 bit / Stop bits: 1 **(factory setting, see section 4 for setting options)**
USB interface (VersaCount 773)	The Universal Serial Bus (USB 2.0) is a serial bus system for connecting external appliances during operation.
Socket on the counter:	for USB stick: Type A for USB stick: Type Mini AB
Data cable:	A connector to B-Mini connector, 5-pin
Cable length:	max. 3 m Use USB cables with noise filters to suppress interference. **For a failure-free operation we recommend our USB-cable No. 3 539 835**

9   Ordering information

Display	Relay	USB 12 – 30 VDC	USB 100 – 240 VAC
LCD reflective	1	VC773–101	VC773–141
LCD reflective	2	VC773–102	VC773–142
LCD transflective positive	1	VC773–201	VC773–241
LCD transflective positive	2	VC773–202	VC773–242
LCD transmissive white	1	VC773–301	VC773–341
LCD transmissive white	2	VC773–302	VC773–342
LCD transmissive red	1	VC773–401	VC773–441
LCD transmissive red	2	VC733–402	VC773–442
LCD transmissive green	1	VC773–501	VC733–541
LCD transmissive green	2	VC773–502	VC773–542
Display	Relay	RS232 12 –30 VDC	RS232 100 – 240 VAC
LCD reflective	1	VC774–101	VC774–141
LCD reflective	2	VC774–102	VC774–142
LCD transflective positive	1	VC774–201	VC774–241
LCD transflective positive	2	VC774–202	VC774–242
LCD transmissive white	1	VC774–301	VC774–341
LCD transmissive white	2	VC774–302	VC774–342
LCD transmissive red	1	VC774–401	VC774–441
LCD transmissive red	2	VC774–402	VC774–442
LCD transmissive green	1	VC774–501	VC774–541
LCD transmissive green	2	VC774–502	VC774–542

Reflective: Black digits, light reflection background
Transflective positive: Black digits, illuminated background
Transmissive white: White lit digits, black background
Transmissive red: Red lit digits, black background
Transmissive green: Green lit digits, black background

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10 Accessories

Accessories

USB cable, ASS 3953 CA / 1.5 m	G3539835
"USB stick 2.0 - 2GB (includes the software for the programming assistant)"	G3539839
Cable RS232 3m	G1774001
Cable RS232 5m	G1774002
Cable RS232 10m	G1774003
Cable RS232 15m	G1774004

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