

# CasPPer

## Generic Cash Register - Carwash Controller Interface

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## 1 Introduction

This document specifies the functionality of CasPPer. CasPPer is a successor to ACE's ProgramPasser. Its purpose is to provide a generic interface to carwash controllers.

Its main functions are

- Selecting wash programs on the controller that are sold on a cash register
- Fetching counters from the controller for verification of sales

The first chapters deal with the program's external interfaces. The last two describe functionality of internal components and implementation details.

## 2 Controller interfaces

- KesselTronics rTC
- Bock
- ACE Control
- Generic IO

### 2.1 KesselTronics rTC

Interface that passes programs to the KesselTronics rTC controller and fetches counters through an XML interface. See [1] and [2]

### 2.2 Bock Omron PLC

Interface that passes programs to the Bock controller and fetches counters by reading PLC memory locations through the Omron FINS protocol over ethernet. See [5] and [3].

### 2.3 ACE Control

Interface that places a file in a specified location for signaling program input and reads transactions from a specified directory for fetching counters.

### 2.4 Generic IO

Interface that triggers a DO for signaling a program and accepts DI for program acceptance. Optionally this can be coupled to the Conveyor component for program acceptance.

## 3 Cash register interface

- XML-RPC interface that can be used to manipulate the Queue or fetch counters from the controller. See [4]

## 4 Hardware interfaces

- Decision USB 16 DI / 16 DO interface card.
- Serial barcode reader

## 5 Web interface

CasPPer has a web interface. The web interface provides an xml or xhtml (through xslt) record of all Queues and Conveyors as well as an IO overview.

## 6 Internals

The main internal components of the application are Queue and Conveyor.

### 6.1 Queue

The queue holds wash program entries, until they are accepted. When a program becomes the first one in the queue, it will be activated on the controller. The queue can be manipulated by digital IO, barcode scanner, or the RPC interface [4]

#### 6.1.1 IO functions

- Clear the queue
- Add program

#### 6.1.2 Barcode scanner

A barcode scanner can be used to scan specially crafted barcodes, see [4]. These code translate to wash programs to be added the queue.

#### 6.1.3 RPC functions

See [4].

#### 6.1.4 Chaining

Queues can be chained together. When a program is accepted it is passed on to the next queue. This can be used to implement e.g. a barrier. Instead of activating a wash program the cash register id is used for output. This signal can be used to open a barrier at the right cash register. When an accept signal is received, e.g. from an eye or induction loop behind the barrier, the program is transferred to the next queue (that of the controller) and a new program on this on is activated (opening a barrier for the next car).

### 6.2 Conveyor

The conveyor is a small internal controller. When gate and pulse signals of the carwash are connected these can be used to accept a program. The cars are then tracked and functions can be activated at designated locations in the wash tunnel.

#### 6.2.1 Program acceptance

An accept signal is generated by the conveyor when:

- The gate opens after having been closed for at least a specified number of pulses
- The gate has been closed for a specified number of pulses

#### 6.2.2 Functions

To be specified. Ideas are:

- DO
- Remote call
- Output message to ticker (lichtkrant)

### 6.2.3 Warnings

Warnings are generated and logged to file and system logs when:

- The gate has been closed for at least the specified number of pulses (long car)

## 7 Software details

### 7.1 Service

The application will be running as a service, automatically starting when the computer starts.

### 7.2 Application settings

The application settings in a single file in windows ini-file format.

- IO port configuration: NO/NC, RE/FE
- Controller settings
- Conveyor IO ports

### 7.3 Activation

The service requires activation over the internet in order to operate:

- ➔ It gets a license for operation from a license server.
- ➔ The license is valid for one month, so the computer that runs the software must be internet connected at least once a month.
- ➔ The license request will be used to determine software usage for billing purposes. No user interaction is required for this process.

### 7.4 Platform

CasPPer runs on MS Windows and Linux.

## Abbreviations

CasPPer	Carwash application server Program Passer
XML-RPC	eXtended Markup Language – Remote Procedure Calling <a href="http://www.xml-rpc.com/">http://www.xml-rpc.com/</a>
DI	Digital Input
DO	Digital Output
NO	Normally Open
NC	Normally Closed
RE	Rising Edge
FE	Falling Edge
GUI	Graphical User Interface

## References

- |   |                |   |
|---|----------------|---|
| 1 | KesselTronics1 | "r-TC Interface Control Document 2009.pdf"  |
| 2 | KesselTronics2 | "rTC ICD New Functions Proposal"            |
| 3 | Omron1         | "W342-E1-14+CJ-CS_ComCommand+RefManual.pdf" |
| 4 | Versteegh1     | "ACE_ProgramPasser_RPC.pdf",                |
| 5 | Versteegh2     | "Bock_Omron_PLC.pdf"                        |