Application note
WPS Professional – Adjustment of container data Modbus TCP

Purpose of the document
This application note describes how to read and write the container data via Modbus TCP. In addition, the procedure of the external adjustment of container data is explained.

Vaildity of the document
WPS-2-P and WPS-3-P

Introduction
The feature “container data entry” allows the user to enter the media type and the batch number of his media. To do this, the user is prompted to scan the corresponding bar codes on the container using a scanner when changing the container. The user can only continue with the container change if the media type is the same as the previously stored media type. It is also possible to access and write the container data via the bus system.

To use the bundle data acquisition feature, the hand scanner and an activation code must be purchased. If this is ordered directly at the time of purchase, the pump system comes ready set up with scanner and activated feature. However, this feature can also be ordered later. For this purpose, only the following additional information is required: serial number, size and version.

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Reading out container data via Modbus

The WPS offers the possibility to read out the recorded container data (media type and batch) via Modbus TCP.

If the user scans media type and batch number during the pack change, a flag is set in the Modbus TCP registers "10009" for new media type and in "10010" for new batch number which signals that new container data is available. It is important that the flags can only be reset by the user (Modbus master). The WPS does not reset the flags!

To reset the flags, the value "1" must be written into the respective reset coil. For media type it`s coil 00017 and for batch number coil 00018.

The media type can be read out in registers 30031 to 30051 and the batch number in 30053 to 30073 with function code 0x04.

The acquired container data (media type and batch) are stored as ASCII characters in the registers. Since Modbus registers are always 16-bit large, two ASCII characters are stored in a Modbus register. If a captured number is not 42 characters long, the remaining registers are filled with the value "0x20" (ASCII for "Space")

Writing the target media type

The default value for the media type can be written via Modbus. This value then applies as the default for the media type that the WPS accepts during the container change. The default value can be read in registers 40061 - 40081 with function code 0x03 and written with function code 0x10.

The target media type must be stored in ASCII characters in the registers. Since Modbus registers are always 16-bit in size, two ASCII characters are stored in a Modbus register. If a captured number is not 42 characters long, the remaining registers must be filled with the value "0x20" (ASCII for "Space")! Only this way the WPS can match the media type correctly.

External adjustment of the media type

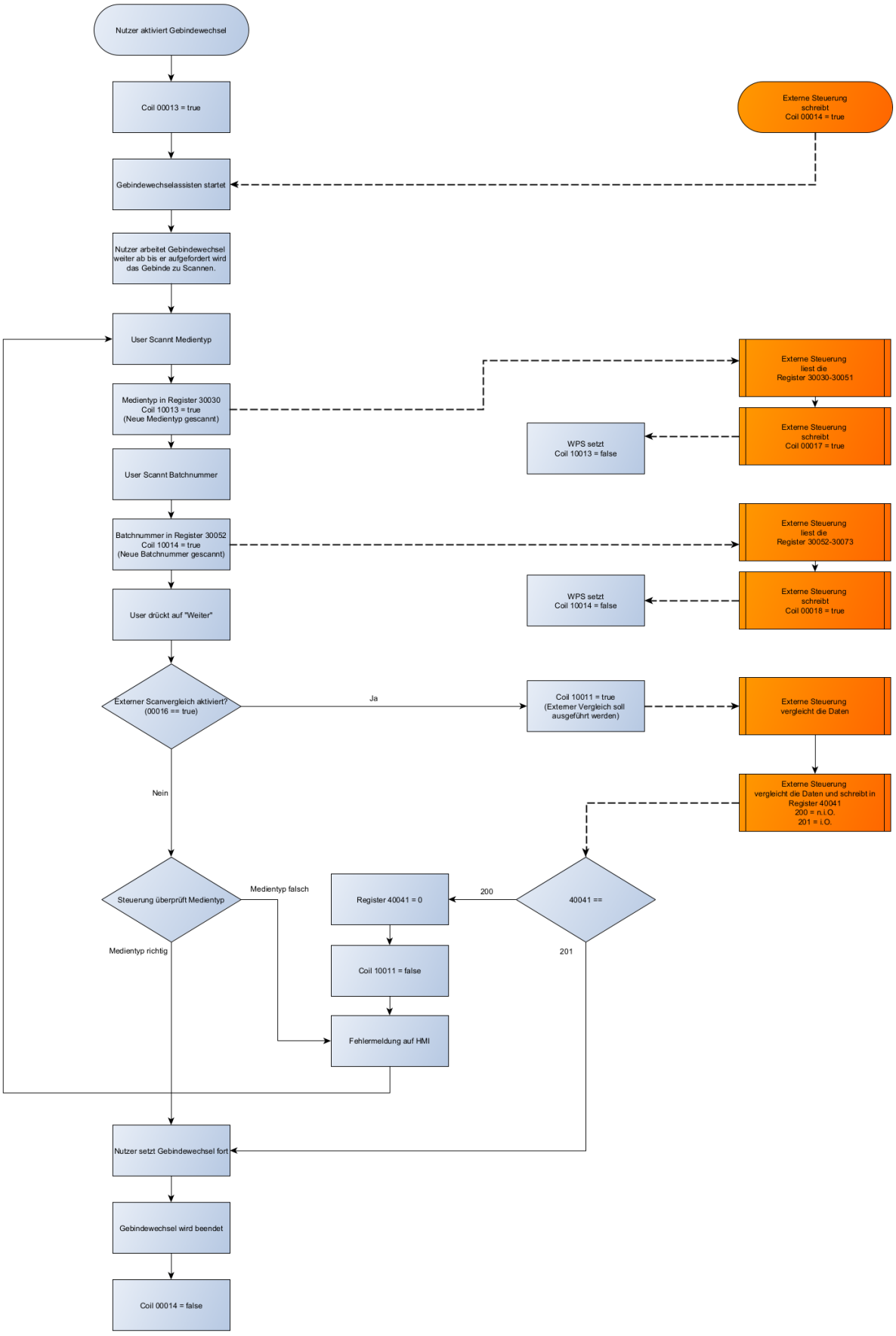
The WPS offers the option of capturing the container data via the scanner and having the comparison of the container data performed by a higher-level controller (Modbus master). For this purpose, the setting "External adjustment" must be activated in the settings under "Batch data acquisition" and the system must be in the operating mode "Remote".

If the user starts the container change assistant at the WPS, the Modbus Coil 00013 is set to "0x01". The container change assistant can also be started via the Modbus register 00014 by writing the value "0x01" or can be aborted by the value "0x00".

If the user reaches the point "Acquire container data" and scans in the media type and batch, the corresponding flags (10009 and 10010) are set. This signals to the higher-level control that the captured batch data (depending on the flags 10009 / 10010) should be read. In addition, the control should reset the flags via the corresponding coils (00017 / 00018) after reading.

If the user confirms the captured command data in the wizard with "Ok", register 10016 is set to the value "0x01". Now, the higher-level controller has to compare the captured batch data and write the result of the check into register 40041.

If the result is that the acquired batch data is wrong, value "0xC8" (200) is written into the register. The WPS then resets the value of register 40041 to "0x00". The user gets an error popup and has to repeat the process of capturing.

If the container data has been entered correctly, the value "0xC9" (201) is written to the register. The user can continue the container change. If the user ends the container change successfully or cancels it during this process, the coil 00013 is reset to the value "0x0".

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