L'interface avec le contrôleur de transporteur CB07FPL

Les registres d'échange

Les registres de commande et de statut sont définis comme suit:

Registre	Type	Direction	Description
0	DWORD	VK->PLC	Hoist command: Bit 0 : Hoist command Bit 1 : Hoist command Bit 2 : Hoist command Bit 3 : Hoist command Bit 4 : ON if next movement is a lift command (UP or DOWN movement). Bit 5 : ON when horizontal movement is without rack holder (jig). Bit 6 : (reserve) Bit 7 : Movement data Bit 8 : Movement data Bit 9 : Movement data Bit 10 : Movement data Bit 11 : Movement data Bit 12 : Movement data Bit 13 : Movement data Bit 14 : Movement data Bit 15 : Trigger new command Bit 16 : Reset buffer Bit 17 : Program is in AUTO mode Bit 18.. Bit 20..Bit 27 : Temps d'égouttage en secondes (spécial) Bit 31 : (reserve)

1	DWORD	VK->PLC	Hoist equipement command : Bit 0 : Barrel rotation type Bit 1 : Barrel rotation type Bit 2 : Barrel rotation type Bit 3 : Barrel rotation type Bit 4 : ON if drip tray must be in closed position Bit 5.. Bit 31 : (reserve)

2	DWORD	PLC->VK	Hoist Status : Bit 0 : Hoist mode Bit 1 : Hoist mode Bit 2 : Hoist mode 0=OFF 1=Manual 2=Semi-auto 4=Automatic Bit 3 : ON when hoist is ready to accept new command Bit 4 : ON when a blocking alarm is pending (register 3 is not empty) Bit 5 : ON when drip tray is in closed position Bit 6 : ON when hoist is moving horizontaly Bit 7..14 : Logical horizontal position of the hoist (0..255) Bit 15 : Trigger command terminated Bit 16 : ON when lift 1 is in low vertical position Bit 17 : ON when lift 1 is in upper vertical position Bit 18 : ON when lift 1 is lowering Bit 19 : ON when lift 1 is lifting Bit 20 : ON when lift 1 is in intermediate vertical position Bit 21 : ON when clip on lift 1 is closed (clipped) Bit 22 : ON when hoist is agitating Bit 23 : ON when lift 1 is in HLiftout vertical position Bit 24 : ON when lift 2 is in low vertical position Bit 25 : ON when lift 2 is in upper vertical position Bit 26 : ON when lift 2 is lowering Bit 27 : ON when lift 2 is lifting Bit 28 : ON when lift 2 is in intermediate vertical position Bit 29 : (reserve) Bit 30 : (reserve) Bit 31 : (reserve)

3	DWORD	PLC->VK	Alarm bits. Program should go to STOP mode: Bit 0..31 : Alarm indication
4	DWORD	PLC->VK	Warning bits. Program continue in AUTO mode: Bit 0..31 : Warning indication

Commands to hoist

Check <Ready state>

In order to send a new command to hoist, VKQV will check the following conditions :
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1. Hoist mode is in Auto (Reg2 Bit 0-2 == 4)
2. Hoist is ready to accept new command (Reg2 Bit 3 == ON)
3. Hoist has no blocking alarm activated (Reg2 Bit 4 == OFF)
4. Command trigger = status trigger (Reg0 Bit 15 == Reg2 Bit 15)

If all of those conditions are verified than a new command can be send.

Sending a new command

VKQV writes a new command in the register #0. In this new command, the Bit15 will be inverted from its last value, telling to the PLC that a new command has been written.

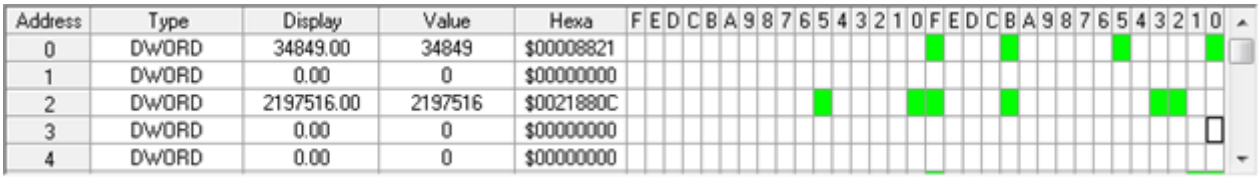
When the PLC see that Reg0 Bit15 is different than Reg2 Bit15, it knows that a new command is pending. The Reg2 Bit4 should go Off telling to VKQV that the command is being executed. When the command is terminated (hoist is in destination), Reg2 Bit4 should go ON again and Reg2 Bit15 must be set with the content of Reg0 Bit15.

Move horizontal command

A move horizontal command is specified by writting the value 1 in the Reg0 HoistCommand bits. The Reg0 Bit4 is set to ON if the next movement is a vertical lift. This is used by the PLC to activate some equipement command (open tank cover, or turn on spray, or etc.). The Reg0 Bit5 is set to ON when the horizontal movement is done without rack holder (jig) on the hoist. This is also an information used by the PLC to not activate some equipement command because the hoist is empty. The destination logical position is written in Reg0 Bit7-14. This is corresponding to the horizontal destination of the hoist. The Reg0 Bit15 is inverted from its previous state. And the Reg0 Bit 17 is set to ON telling to the PLC that VKQV program mode is in AUTO (set to OFF if the program mode is in STOP. This is corresponding in a command done by the remote control of the hoist).

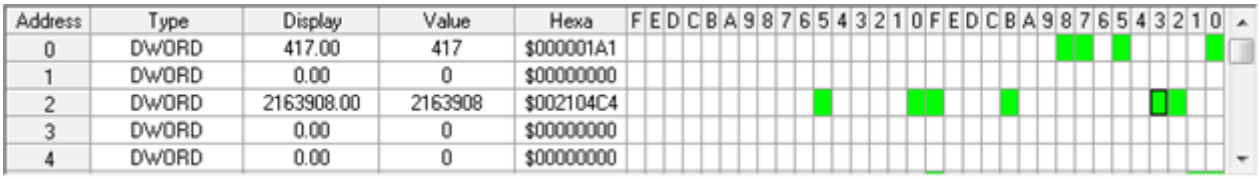
Example of horizontal command:

Hoist is located in logical position #16 in lower vertical position:



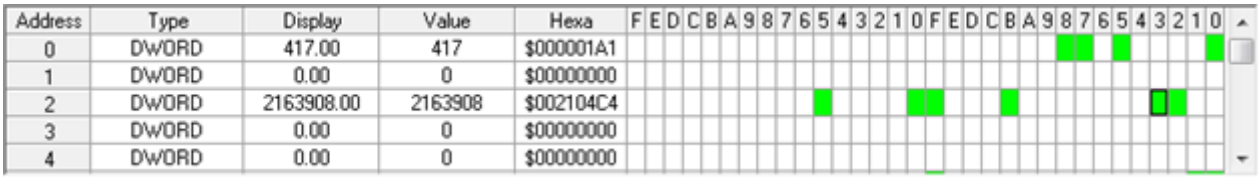
Address	Type	Display	Value	Hexa
0	DWORD	34849.00	34849	$00008821
1	DWORD	0.00	0	$00000000
2	DWORD	2197516.00	2197516	$0021880C
3	DWORD	0.00	0	$00000000
4	DWORD	0.00	0	$00000000

Move to logical position #3, program mode = STOP, there is no rack holder on the hoist:



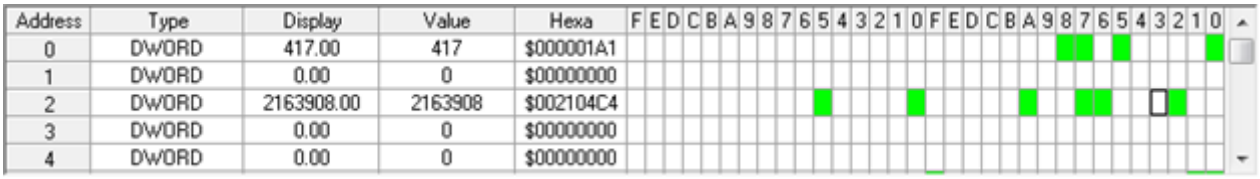
Address	Type	Display	Value	Hexa
0	DWORD	417.00	417	$000001A1
1	DWORD	0.00	0	$00000000
2	DWORD	2163908.00	2163908	$002104C4
3	DWORD	0.00	0	$00000000
4	DWORD	0.00	0	$00000000

Command is accepted by the PLC:



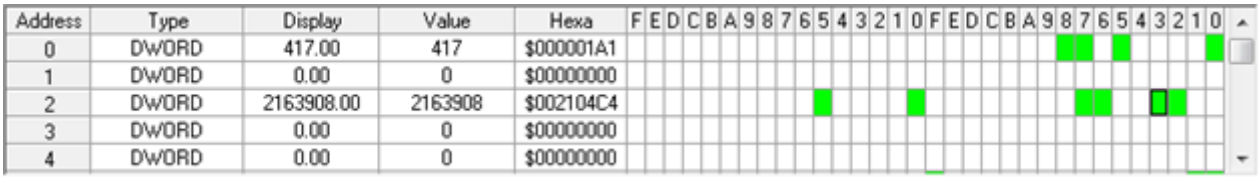
Address	Type	Display	Value	Hexa
0	DWORD	417.00	417	$000001A1
1	DWORD	0.00	0	$00000000
2	DWORD	2163908.00	2163908	$002104C4
3	DWORD	0.00	0	$00000000
4	DWORD	0.00	0	$00000000

Hoist is moving horizontally and is actually in logical position #9:



Address	Type	Display	Value	Hexa
0	DWORD	417.00	417	$000001A1
1	DWORD	0.00	0	$00000000
2	DWORD	2163908.00	2163908	$002104C4
3	DWORD	0.00	0	$00000000
4	DWORD	0.00	0	$00000000

Hoist is in the logicial position 3 and is ready to accept a new command:



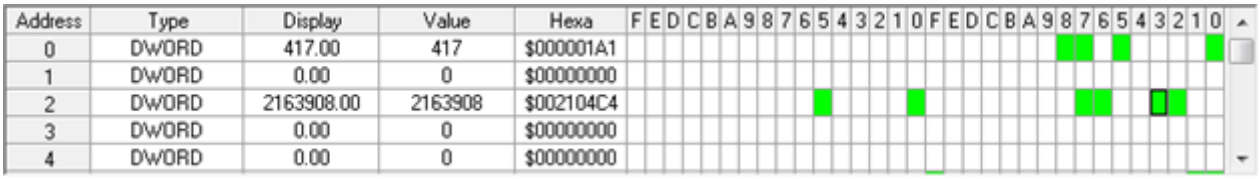
Address	Type	Display	Value	Hexa
0	DWORD	417.00	417	$000001A1
1	DWORD	0.00	0	$00000000
2	DWORD	2163908.00	2163908	$002104C4
3	DWORD	0.00	0	$00000000
4	DWORD	0.00	0	$00000000

Move vertical command

A move vertical command is specified by writting 2 in the Reg0 HoistCommand bits. The Reg0 Bit5 is set to ON when the movement is done without rack holder (jig) on the hoist. The type of vertical movement is specified in the Reg0 Bit8-11 (1=go up to top, 2=go down to bottom, 3=go up to intermediate high, 4= go up to top from the intermediate high, 5=go down to bottom from the intermediate high, 6=go down from top to intermediate high, 7=go up to HLiftout, 8=go up from HLiftout to top, 9= go down from top to HLiftout, 10= do down from HLiftout to bottom). The speed to be use is specified in the Reg0 Bit12-14 (0..7).

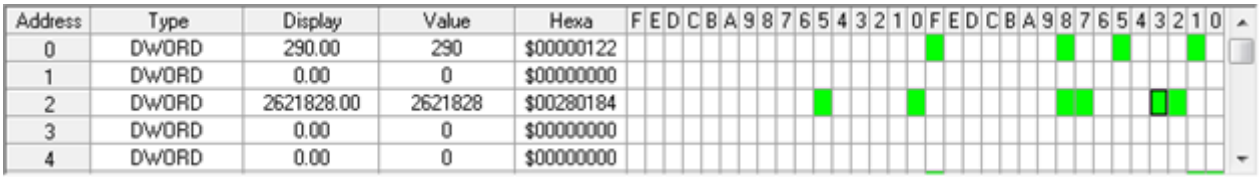
Example of vertical command:

Hoist is in the logicial position #3 in lower vertical position:



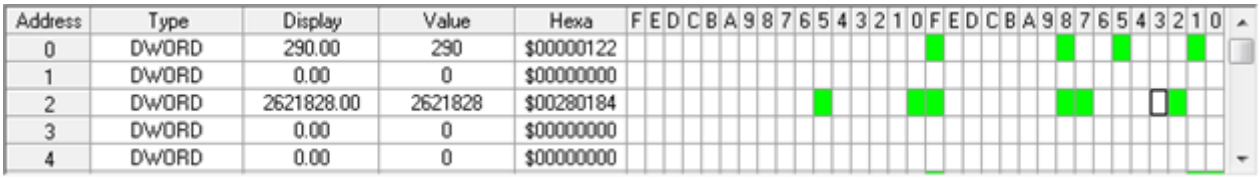
Address	Type	Display	Value	Hexa
0	DWORD	417.00	417	$000001A1
1	DWORD	0.00	0	$00000000
2	DWORD	2163908.00	2163908	$002104C4
3	DWORD	0.00	0	$00000000
4	DWORD	0.00	0	$00000000

Move to top:



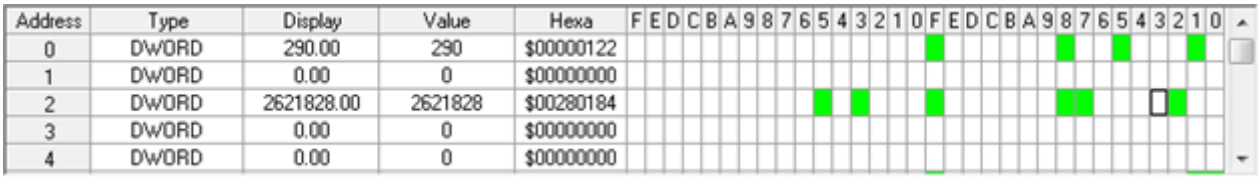
Address	Type	Display	Value	Hexa
0	DWORD	290.00	290	$00000122
1	DWORD	0.00	0	$00000000
2	DWORD	2621828.00	2621828	$00280184
3	DWORD	0.00	0	$00000000
4	DWORD	0.00	0	$00000000

Command is accepted by the PLC:



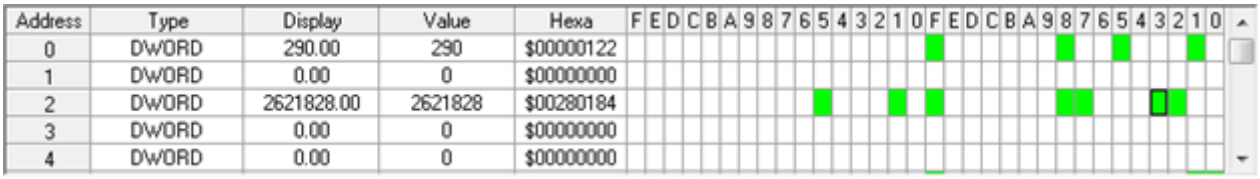
Address	Type	Display	Value	Hexa
0	DWORD	290.00	290	$00000122
1	DWORD	0.00	0	$00000000
2	DWORD	2621828.00	2621828	$00280184
3	DWORD	0.00	0	$00000000
4	DWORD	0.00	0	$00000000

Hoist is moving vertically. It is in logical position #3 and is clipped:



Address	Type	Display	Value	Hexa
0	DWORD	290.00	290	$00000122
1	DWORD	0.00	0	$00000000
2	DWORD	2621828.00	2621828	$00280184
3	DWORD	0.00	0	$00000000
4	DWORD	0.00	0	$00000000

Hoist is in logical position #3 in upper vertical position and is ready to accept a new command:



Address	Type	Display	Value	Hexa
0	DWORD	290.00	290	$00000122
1	DWORD	0.00	0	$00000000
2	DWORD	2621828.00	2621828	$00280184
3	DWORD	0.00	0	$00000000
4	DWORD	0.00	0	$00000000

Hoist agitation command

A hoist agitation command is specified in writting 4 in the Reg0 HoistCommand bits. This command tells to the hoist controller to agitate a load. The hoist must be in lower position and centered. When the controller receive this command, it starts to agitate while a time defined in the controller. It must stop in lower position. While the hoist is agitating, the bit22 of status register is set by the controller. QuickView will not pick/drop load while this bit is activated.

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