



## COMBIVERT EtherNet/IP COMBIVIS Setup

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## Introduction

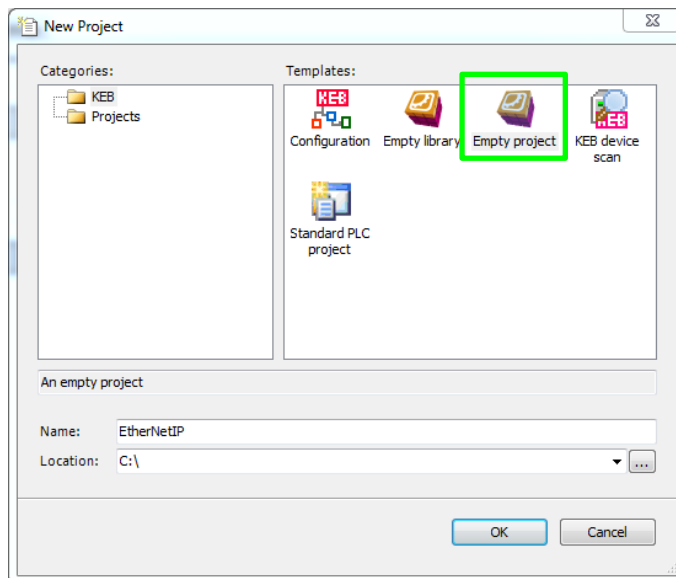
This document shows the steps to setup the EtherNet/IP communications for the S6-A and F6-A devices for firmware version 2.6.x and later. The device can be setup using COMBIVIS6. Using this program you can setup the IP Address and the Implicit data settings through the Fieldbus Wizard. You can use the default settings to get up and running. You can also customize your data if needed. Once the communications are setup it is advised to use the Application Programming Manual to learn how to control the drive.



- You can select the help tab in the menu to have a look at the COMBIVIS6 manual for a more detailed explanation on how to use the software.

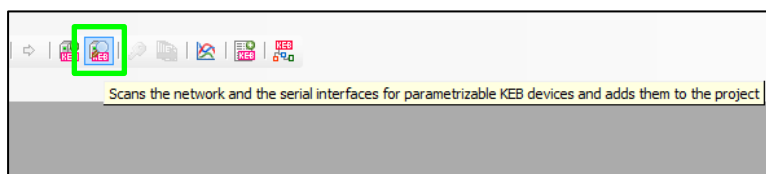
## COMBIVIS Diagnostic Communication Setup

- Verify hardware has been setup properly by following the guide. Connect the serial communication cable to X4A or the Ethernet cable to connector X4B or X4C and power up the device.
- Start up the KEB COMBIVIS6 program and create a new project. Give it a name and a Location to store it.



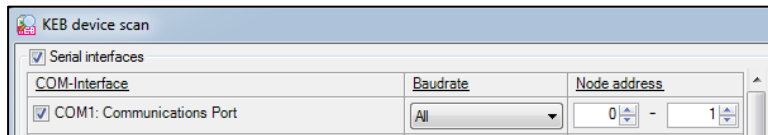
COMBIVIS New Project

- Select the magnifying glass on the menu to scan for devices.



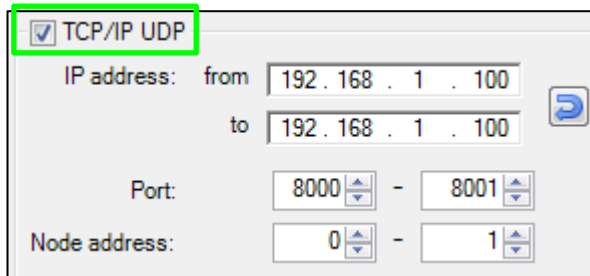
COMBIVIS Scan for Devices

- Verify the serial interface you have connected with or the Ethernet connection.



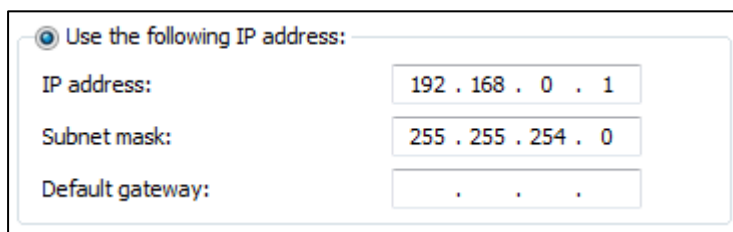
COMBIVIS Serial Interfaces

- Select the “TCP/IP UDP” option if using the Ethernet connection and fill in the parameters. The default IP address is 192.168.1.100 and is shown here:



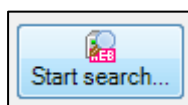
COMBIVIS TCP/IP UDP

- When connecting with Ethernet, verify that your PC's IP Address is setup on the same sub network. To access both the Diagnostic Ethernet connection and the Fieldbus Network from your PC statically set the following parameters in your Local Area Connection on your PC.



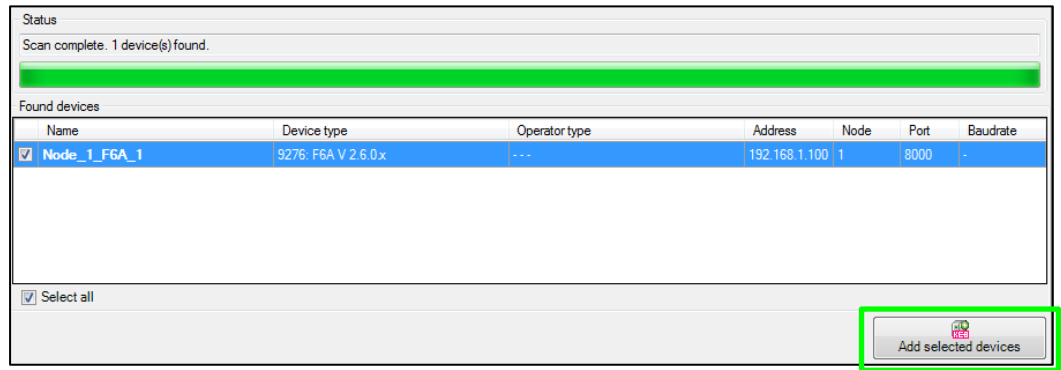
PC IP Address Setup

- Select “Start search...”



COMBIVIS Start search

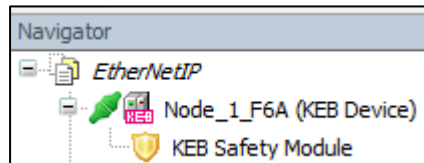
- Select the device and add it to the project by clicking the “Add selected devices” button.



COMBIVIS Add Device

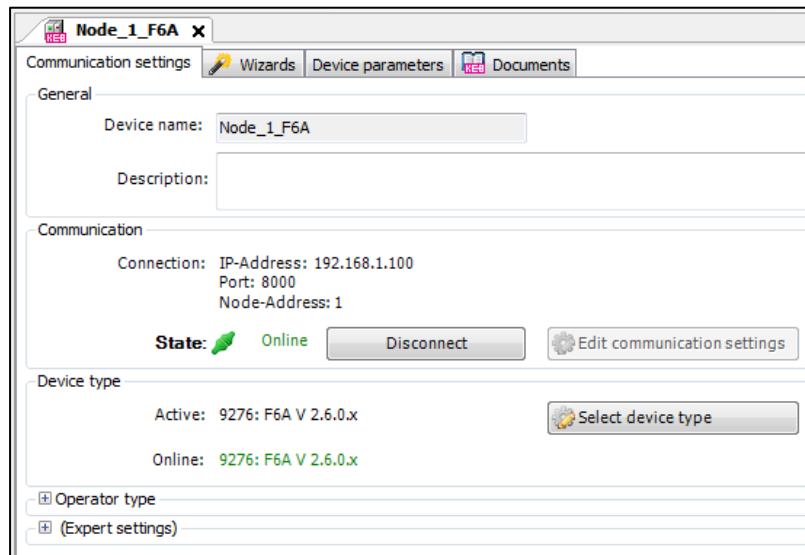
**i** ➤ If the device is not found, verify that the hardware connections are correct and that the device is powered on. Also, check to see if another program on your PC is currently using the desired COM port.

➤ The device will be added to the Navigator on the left as shown below. You can change the name of your device easily by clicking on the name to select it and clicking again to change it.



COMBIVIS Device in Navigator

➤ Double-click the device in the Navigator tree to open it in the Device Editor. From here you can adjust the settings of the device.

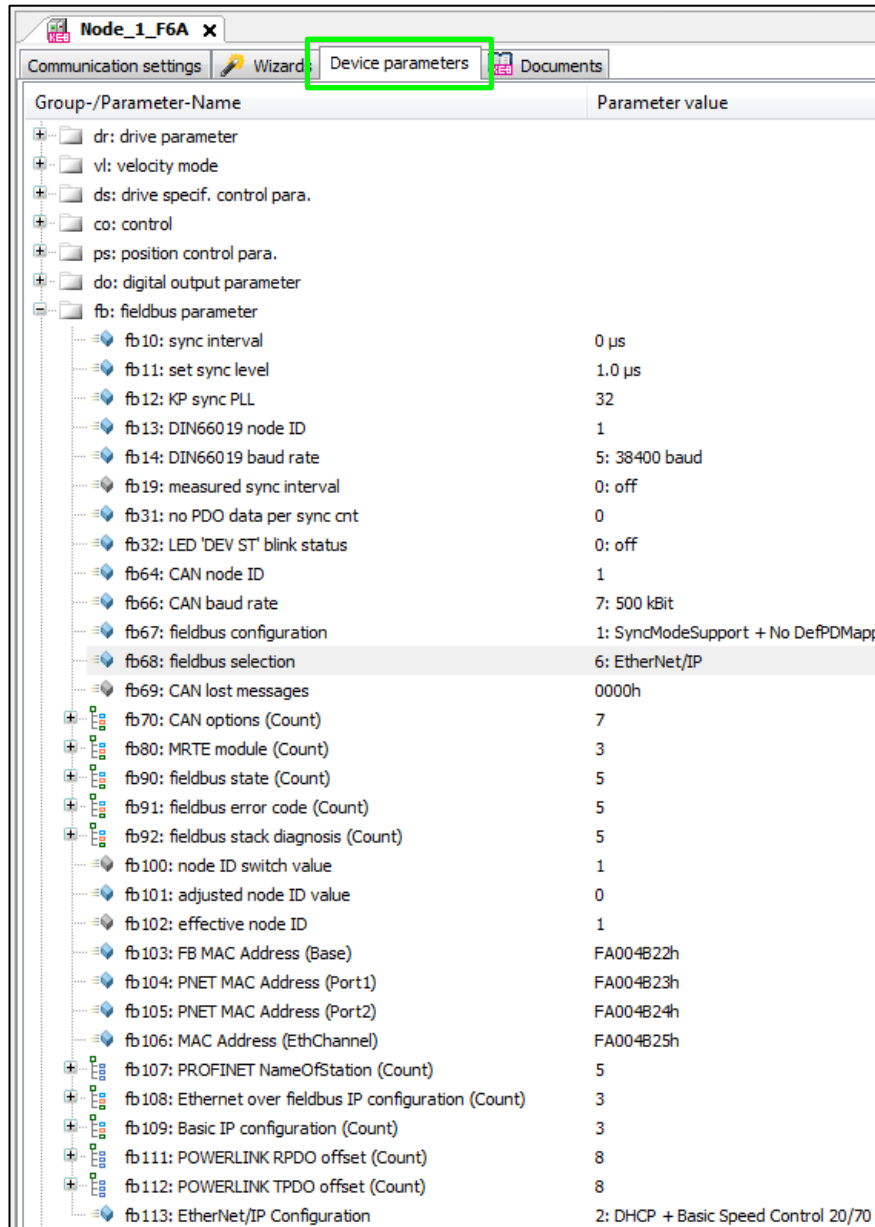


COMBIVIS Device Editor

## Parameter Setup

Once connected to the KEB drive the parameters can be changed for your application. COMBIVIS allows access to these drive parameters. Parameters are grouped together for different controls and modules. The most important parameters for the EtherNet/IP™ communication can be found in the Fieldbus parameter group.

- Click the “Device parameters” tab and locate the fb: fieldbus parameter group. You can type ‘f’ on the keyboard to use a shortcut to the group.



COMBIVIS Device Parameters

- Verify that **fb68** is set to 6:EtherNet/IP.
- Adjust your diagnostic IP configurations in parameter **fb108**. Fill in the IP address and subnet mask with the values you would like to use. Only static configuration is available for this.

# FAQ COMBIVERT



fb 108: Ethernet over fieldbus IP configuration (Count)	3
fb 108: IP address [1]	192.168.1.100
fb 108: subnet mask [2]	255.255.255.0
fb 108: gateway address [3]	0.0.0.0

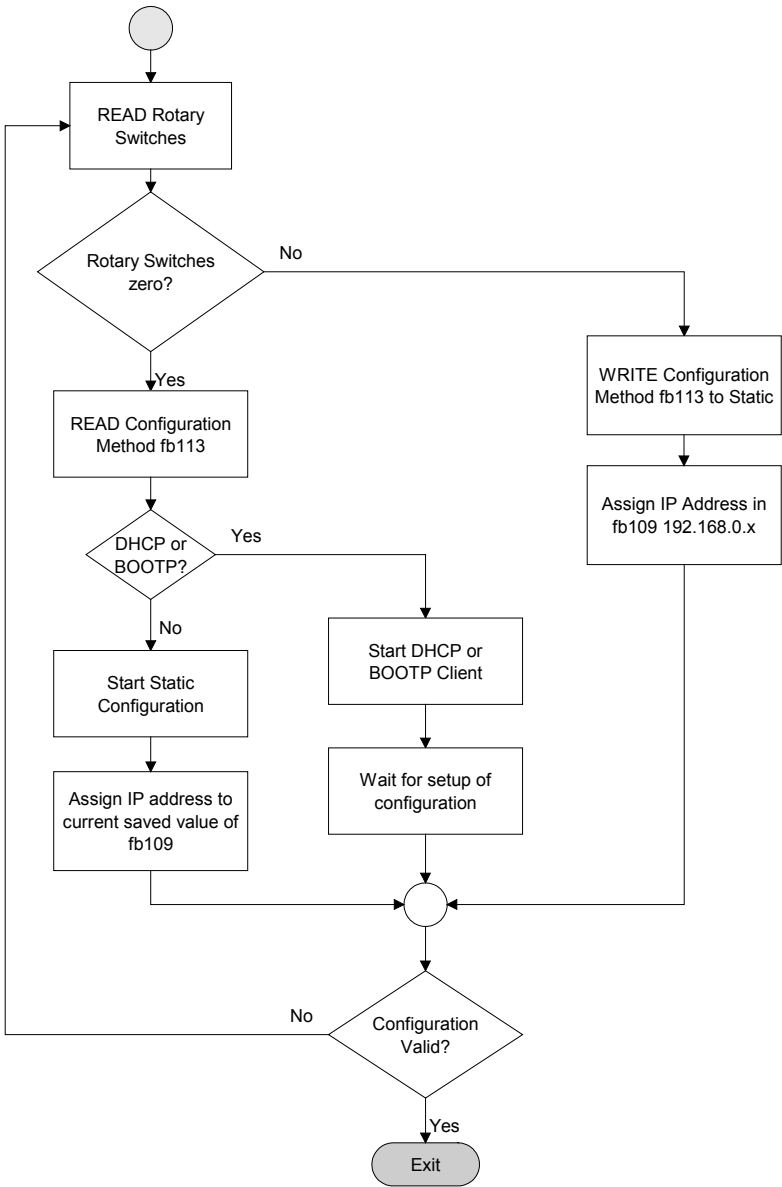
COMBIVIS Diagnostic IP Configuration

- Adjust your fieldbus address in parameter **fb109** if your configuration mode is static and the rotary switches are set to zero. By default the assignment is done via DHCP and will display the currently assigned values.

fb 109: Basic IP configuration (Count)	3
fb 109: IP address [1]	192.168.0.100
fb 109: subnet mask [2]	255.255.255.0
fb 109: gateway address [3]	0.0.0.0

COMBIVIS Fieldbus IP Configuration

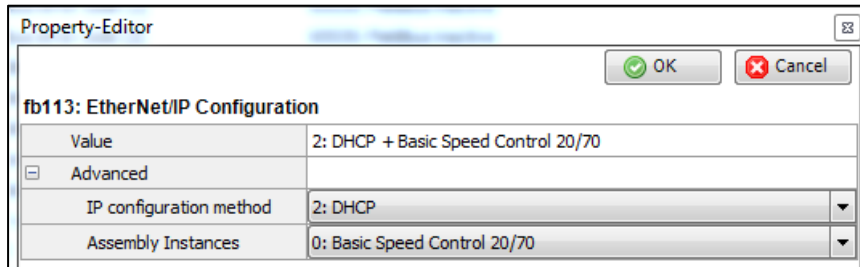
- IP Address configuration follows the flow chart shown below:



Fieldbus IP Configuration

- Adjust the configuration method and select your assembly for control in [fb113](#).





COMBIVIS Configuration Method & Assembly

- Reboot the device for the new values to become active.



- When making adjustments to the fieldbus parameters, always perform a restart of the device to ensure the correct fieldbus system and parameters get loaded for your application.

## Fieldbus Wizard

The Fieldbus Wizard can be used to setup the Process data mapping for the Implicit Data communications on the fieldbus system. A default data mapping or a custom data mapping can be used. Follow the sections below for setup:

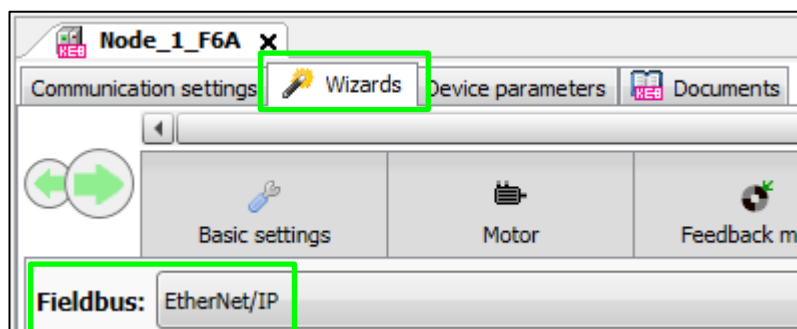
### Default Mapping

The default settings are recommended for first time users. Follow the steps below to setup a default mapping.



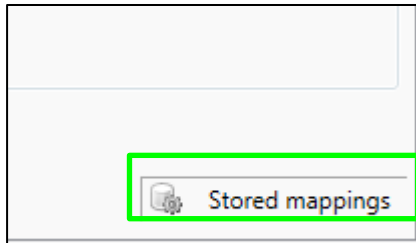
- When using default mappings, it is the customer's responsibility to verify that the data to and from the KEB device matches that of the PLC program. Verify data parameters, size, and data types before running an application.

- Click on the "Wizards" tab in the Device Editor window. Verify that your Fieldbus selection is set to EtherNet/IP.



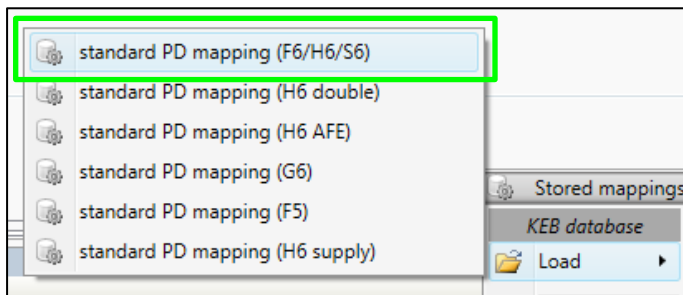
COMBIVIS Fieldbus Wizard

- Click on the “Stored mappings” button on the lower right side of the Wizard screen.



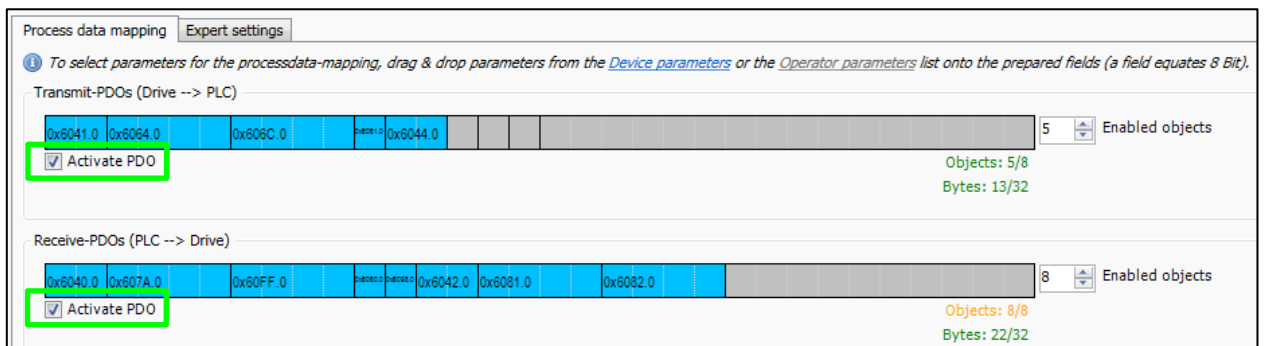
COMBIVIS Stored Mappings

- Load the standard PD mapping (F6/H6/S6)



COMBIVIS Load Mapping

- The mappings are displayed as follows:



COMBIVIS Process Data Mappings

- When the “Activate PDO” check boxes are filled, the process data is ready to transmit and receive.
- The standard default mapping is the following. It is used by both Assembly Instances Basic Speed Control 20/70 and KEB Control 100/101. This can be selected in [fb113](#).

Process Data Input (Data going from Drive to PLC)			
Index	Size (Bytes)	Name	Description
0x6041	2	statusword	Current status of KEB device
0x6064	4	position actual value	Position value according to CiA402
0x606C	4	velocity actual value	Scaled velocity actual value
0x6061	1	modes of operation display	Shows the mode. Velocity mode is default.
0x6064	2	vl velocity actual value	Velocity Mode actual value

COMBIVIS PDIN Default

Process Data Output (Data going from PLC to Drive)			
Index	Size (Bytes)	Name	Description
0x6040	2	controlword	Control of device according to CiA402
0x607A	4	target position	Target position in position profile mode
0x60FF	4	target velocity	Target velocity
0x6060	1	modes of operation	Select mode of operation
0x6098	1	homing method	Select homing method
0x6042	2	vl target velocity	Target velocity in velocity mode
0x6081	4	profile velocity	Profile velocity value
0x6082	4	end velocity	Profile end velocity value

COMBIVIS PDOOUT Default

## Custom Mapping

Experienced users with familiarity of KEB devices have the option to setup custom data mappings. These can be saved, imported, and exported.



- When using custom mappings, it is the customer's responsibility to verify that the data to and from the KEB device matches that of the PLC program. Verify data parameters, size, and data types before running an application.
- The [fb113](#) Assembly Instance must be KEB Control 100/101 for custom mappings to be used. Basic Speed Control 20/70 does not support this.

Parameters can be dragged and dropped into the wizard. More info can be found in the application programming manual.

## Application Assembly Parameters

### KEB Control 100/101

The control and status word bits of the drive are shown below. They are explained in detail in chapter 4

Motion Control in the Application Programming Manual.

co00		controlword			0x2500
Bit	Function	Value	Plaintext	Description	
x	None	0	empty controlword	Waiting for control command	
0	Switch on	1	switch on	State change to switch on in state machine	
1	Enable Voltage	2	enable voltage	State change to enable voltage in state machine	
2	No Quick Stop	4	no quick stop	Value of 0 activates quickstop	
3	Enable Operation	8	enable operation	State change to enable operation to move the motor.	
4	Operation Mode Specific	16	op. mode spec. 4	Definition depends upon the operating modes	
5	Operation Mode Specific	32	op. mode spec. 5	Definition depends upon the operating modes	
6	Operation Mode Specific	64	op. mode spec. 6	Definition depends upon the operating modes	
7	Fault Reset	128	fault reset	Activates a reset to clear a drive error	
8	Stop	256	halt	Stop is not supported in most operating modes	
9	Operation Mode Specific	512	op. mode spec. 9	Definition depends upon the operating modes	
10	Reserved	1024	Reserved	Reserved	
11	Manufacturer Specific	2048	manufacturer spec. 11	Manufacturer specific use	
12	Manufacturer Specific	4096	manufacturer spec. 12	Manufacturer specific use	
13	Manufacturer Specific	8192	manufacturer spec. 13	Manufacturer specific use	
14	Manufacturer Specific	16384	manufacturer spec. 14	Manufacturer specific use	
15	Brake Control	32768	brake ctrl 15	Activates brake functions depending on co21 brake control mode settings	

### Control Word

st00		statusword			0x2100
Bit	Function	Value	Plaintext	Description	
x	None	0	empty statusword	Waiting for status	
0	State Machine	1	ready to switch on	Display of state in State Machine	
1	State Machine	2	switched on	Display of state in State Machine	



2	State Machine	4	operation enabled	Display of state in State Machine
3	Fault	8	fault	1 = fault
4	State Machine	16	voltage enabled	1 = Operating voltage in power circuit is OK
5	Quick Stop	32	no quick stop	1 = quick stop not active / 0 = quick stop active
6	State Machine	64	switch on disabled	Display of state in State Machine
7	Warning	128	warning	1 = There is a warning status
8	Synchronous	256	synchron	Indicates drive synchronous to fieldbus
9	Remote	512	remote	1 = Drive is controlled via bus
10	Target Reached	1024	target reached	1 = Target position or speed reached
11	Internal Limit	2048	internal limit active	1 = A limit has been reached
12	Mode Specific	4096	op. mode spec. 12	Setpoint acknowledge in pp-mode
13	Mode Specific	8192	op. mode spec. 13	Following error for positioning
14	Manufacturer Specific	16384	manufacturer spec. 14	Manufacturer specific use
15	Manufacturer Specific	32768	manufacturer spec. 15	Braking state for brake control

### Status Word

### Basic Speed Control 20/70

The breakdown of the CIP Basic Speed Control is shown below. It is a simple application setup for stop and go commands and setting the reference speed.

Instance	Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
20	0						Fault Reset		Run Fwd
	1								
	2	Speed Reference (Low Byte)							
	3	Speed Reference (High Byte)							
70	0						Running1		Faulted
	1								
	2	Speed Actual (Low Byte)							
	3	Speed Actual (High Byte)							

### Assembly Basic Speed Control 20/70



## Disclaimer

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