

ATV930 drive + Profinet option card set up using Telegram 1

This Telegram does not support IO profile mode in control mode.

You must use somove to configure the drive.

Connect to Somove 1st

Go to the Parameter List tab

Choose Fieldbus then go to Slot A Profinet

Set up your **IP Mode as Fixed** (it may reset back to DCP) this is ok if the IP address and Gate address do not change.

Uncheck the EWE enable web box unless they are going to use it.

Uncheck the IPAR enable IPR

Check the ICFG enable local or server config ICFG

The screenshot displays the Somove configuration software interface. On the left, a tree view under 'Drive' shows the navigation path: 'Fieldbus' > 'Port - Modbus TCP/EthernetIP' > 'Slot A - Profinet'. A red arrow points to this path. The main area is divided into two panels. The 'Profinet Setting Parameters' panel on the left contains the following settings: 'Device Name (PAN)' is 'profinet example'; 'IP Mode (IPM)' is set to 'Fixed address' (indicated by a red arrow); 'IP Card (IPC)' is '123 . 255 . 23 . 1'; 'IP Mask (IPM)' is '255 . 255 . 255 . 0'; 'IP Gate (IPG)' is '123 . 255 . 23 . 0'; 'IPAR Time (IPAT)' is '10'. Below these, there are four checkboxes: 'Enable Web Service (EWE)' (unchecked and circled in red), 'Enable IPAR Service (IPAV)' (unchecked), 'Enable Auto Save Service (IPAS)' (unchecked), and 'Enable local or server config (ICFG)' (checked with a blue checkmark). The last checkbox, 'Enable IPAR fault management (IPAF)', is also unchecked and circled in red. The 'Profinet Monitoring Parameters' panel on the right shows: 'IPAR Status (IPAE)' as 'Idle State'; 'IPAR Error code (IPAD)' as '0'; 'PPO profile used (PRFL)' as 'Not configured'; 'Ethernet Error code (ERR)' as an empty field; and 'MAC address (MAC)' as '00-00-00-00-00-00'.

Programming drives Command and Frequency Reference

Freq ref (Fr1) = Com module

Control mode (CHCF) = Not separate

CMD channel 1 (CD1) = Com module

Code	Long Label	Current Value	
FR1	Configuration reference frequency 1	Reference Frequency via Com Mod	↗
FR1B	Configuration ref. 1B	Not configured	
RCB	Select switching (1 to 1B)	Reference frequency channel 1	
RIN	Reverse direction disable	No	
CHCF	Control mode configuration	Combined channel mode	
CCS	Command switching	Command channel 1	
CD1	Command channel 1 assign	Ext. communication Module	↗

Done with the drives programming.

PLC configuration (PLC Siemens Side)

Set up the table and configure for Telegram 1 ProfiDrive

Add the GSDML files for the Drives Profinet card.

You can find the GSDML files on the Schneider Electric web site.

https://www.schneider-electric.us/en/download/document/PROFINET_GSDML_VW3A3627/

PLC will now automatically set up 2 words for the PLCs input table and the PLCs output table.

A: Output table words

CMD and Speed reference

B: Input table words

ETA status and motor speed.

Done with the PLC

Now you are ready to command the drive and give it a speed reference.

Writing and speed control via Profinet to the drive

Output table on the master all words are #16-bit words.

Word 1 CMD Command word

Write 0406 hex = NST drive status

Write 0407 hex = RDY drive status

Write 040F hex = Run drive status and motor will start.

Word 2 speed reference

Write 4000 hex = 100% speed or 60hz

Write C000 hex= -100% or -60hz (This is also how you make the motor go into reverse since there is not a separate reverse command.)

Reading Drive status and motor speed (Operating State Word)

Input table on the PLC

Word 1 is the status word (table below for list of bits) example bit 2 is enable operation or drive running.

Word 2 is the motor speed as 4000 hex which is 60hz and 2000 hex is 30hz

Troubleshooting notes

If the goes back to defaults after 10 mins, shut down the IPAR or make sure IPAR is disabled.

If the PLC is not getting the correct data make sure that they are set up with the correct Telegram on the PLC side to match the telegram tables from the drive.

Command Word and Operating State Word

Overview

The table lists the command wording from PROFIdrive application profile class 1:

STW1							
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Fault reset	–	–	–	Enable operation	Quick stop	Coast stop	ON/OFF
Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
–	–	–	–	–	Control and reference by PLC	–	–

The table lists the status from PROFIdrive application profile class 1:

ZSW1							
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Warning	Switching inhibited	Quick stop not activated	Coast stop not activated	Error detected	Operation enabled	Ready to operate	Ready to switch ON
Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8
–	Reserved	Reserved	Reserved	Reserved	F or n reached or exceeded	Control requested	Speed error found within tolerance range