

SERVO BRUSHLESS PRODUCTS

SERVO DRIVES PRODUCTS family offers to our customers deep reliability, maximum flexibility and highest performances in a wide range of motion control applications.

SCS has been designing and producing servo drives for more than 30 years, this is the base of our customers and partners trust in our deep knowledge and high service level.

SCS drives are designed to offer to our customers the maximum reliability, flexibility and customization: tailoring our product on your application is our first aim.

That's why **SCS** can

Drive your Solutions to Success.



If you need to **drive easy and safe**, **SCS** is the right partner for you.

SCS DIGITAL DRIVES

MOTION CONTROL: OUR WAY

Digital Servo Drives represents the key point of SCS in customer oriented solutions.

The three main issues of the product family are flexibility, connectivity and technical support.

Flexibility means bringing to the machine designer the maximum degree of customization in terms of functionalities and product configuration.

Connectivity means allowing the possibility of integrating the product in any of the existing fieldbus network.

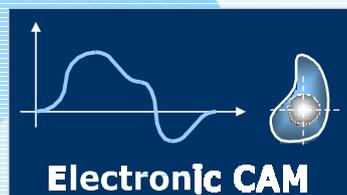
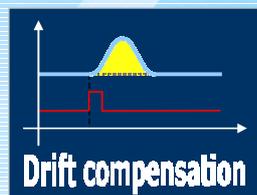
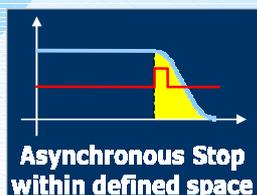
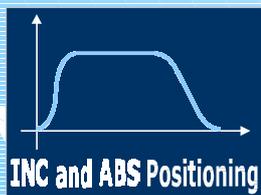
Technical Support means being a valuable help for our customers in design, startup and maintenance phases thanks to a professional and reliable service made of a thirty-years experience and know-how in industrial and process automation fields.

SCS servo drives allow you to easily realize any application in speed control, torque control or position tracking.

It is possible furthermore to customise the CVS thanks to a line of modules and technological options.

Expansion of I/O on board, dedicated application integrated from SCS into the drive, connection to main existing fieldbus and use of advanced positioning transducers (i.e. from absolute SSI encoder to sensorless mode) are available just for your purposes.

WideLoop control, designed by SCS, integrates in a single loop all of the typical servo drive control modes so that you can surf between them simply using the correspondent commands without modifying the drive parameters.



SOLUTION ORIENTED FEATURES

You can design positioning applications without any difficulty thanks to many integrated specific functions such as automatic homing, incremental or absolute positioning, even using an external encoder on your load as position feedback (for backlash or slip compensation).

SCS servo drives includes a set of functional features that allows to distribute the management of the application on the axes with a remarkable facilitation of the main control software of your machines.

The possibility of a separate power supply for logic and power sections allows to maintain an active control (I/O, position's counters, encoder simulator, communication) even in case of emergency or power supply's lack.

All of the available I/O can be indexed: it is possible to select and address the Inputs (commands) and the Output (monitors) and adapt them your applications needs.

You can store and select up to 4 parameters sets: you can change the drive configuration while passing through

your application operation modes and you can simplify the spare parts management by inserting at the same time the configurations used in your machines for different axes.

WideLoop will allow you to use the "Stop in the Space" function even while working in speed control mode or in electrical gearing mode. In such manner it is possible to easily design an assembling application with discontinuous input feed.

Furthermore is possible to move to a preset position an axes (absolute positioning) even while it is working in electrical gear control mode.

This is why you can quickly realize a simple "flying cut" application using **SCS** servo drives.

It is possible to download an updated or customised firmware for the drives so that you can manage your application maintenance or, thanks to SCS's support, leading an "on-site testing" activity in case of complex startup or commissioning issues.

DRIVE CONFIGURATOR

SCS developed **ScsComm**, a PC application to configure and manage all of the features of the servo drive product family.

The user can easily configure your drive changing a single parameter or loading, saving or restoring a complete set of parameters in order to satisfy your application needs.

The I/O configuration can also be performed in a very easy way using the I/O Mapping window.

The startup and maintenance of your application has never been so easy: you can read all the measures you need and you can monitor the speed, current, status and any of the monitors of the drive control, the motor and the environment of your application.

In addition both the status and the alarms can be read and analyzed so that the troubleshooting of your application is made easier than ever.

ScsComm includes dedicated plugins to expand your analysis and debugging power and to manage special features or custom applications.

In fact you can use the integrated digital oscilloscope to trace all of the monitors you need.

You can use the integrated **Cam Builder** in order to easily and quickly design, test and download to the drive the electronic cam that suits your machine synchronization cycle.

Configuring and testing your fieldbus node is also quick and easy thanks to the **Fieldbus Configurator**. You can shape the bus exchange memory as you like, selecting the monitors and commands that you need for your applications.



DIGITAL OSCILLOSCOPE

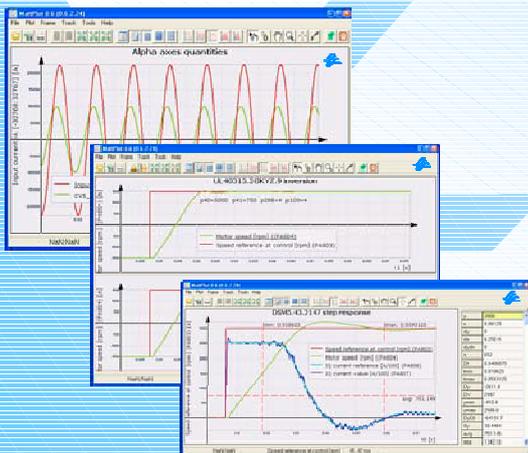
The integrated digital oscilloscope developed by **SCS** can be fully customized in order to let you set the trigger functions and parameters, the acquisition memory size, the acquisition time steps, the traces source and characteristics.

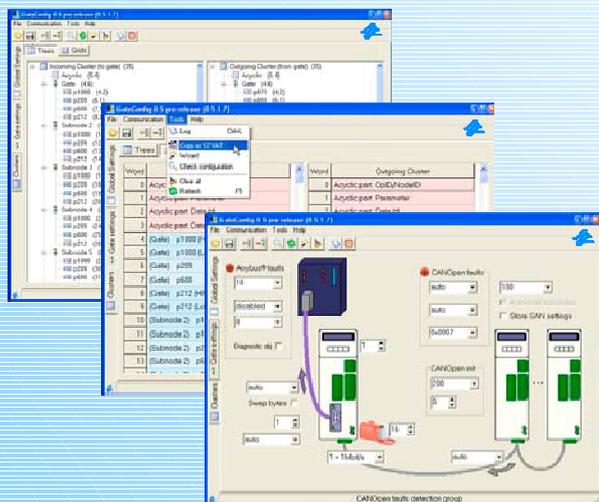
You can choose to acquire and analyse any of the drive variables, grouping them in a single plot and using the scaling functions to let them fit the plotting window in order to easily compare their behaviour.

You can easily tune the drive gains in order to compensate speed ripple or position oscillations by tracing, changing and plotting the drive measures.

ScsComm digital oscilloscope can boost the timing of your startup and commissioning phases allowing you to install and tune the machine easily and quickly.

You can also use the integrated oscilloscope in order to efficiently troubleshoot your application by triggering on a specific alarm or monitor transition.





FIELDBUS GATE CONFIGURATOR

In order to let the overall system be simpler and cheaper, SCS developed a special feature in its servo drives: the **fieldbus gate**. You can connect an array of drives to your fieldbus using the first node as the main target.

This drive will take care of managing the communication between the main fieldbus and the CANopen subnet made of the others drives working as a gate.

This means you can use only one fieldbus option distributing the cost on all of the drives in your application, reducing the cost per axes of your system.

SCS developed an **ScsComm** plugin that provides a simple graphical interface to configure the Fieldbus Gate features.

It allows you to quickly set up the data exchange with fieldbus, mapping the incoming and outgoing buffers by means of choosing the read/write parameters and the destination drive (gate itself or subnode connected via CANOpen).

A step by step wizard guides the user to choose proper settings (ex. bus faults timeouts) in order to let the whole system be set up and properly configured for the specific application's needs.

CAM BUILDER

SCS servo drives can be controlled in Electronic Cam mode, this means you can synchronise your application cycle simply using a single tick time (i.e. a master encoder).

You can design your Electronic Cam in a very flexible way, by means of number of nodes, interpolation functions and relative strokes.

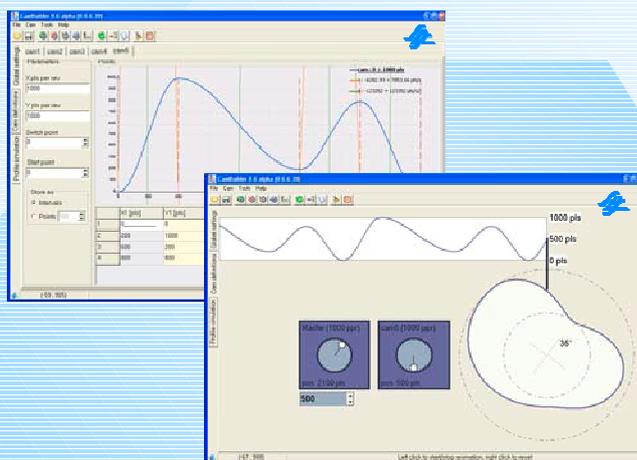
You can design and store multiple cams in your drive so that you can select or switch (even on-the-fly) from one to another in the different operational modes of your machine.

The shape and characteristics of each of your Electronic Cams is stored in a proper table that is kept in the drive flash memory.

In order to ease your job in designing and testing the cam shape **SCS** developed a special plugin inside the **ScsComm** PC application.

The **CAM Builder** plugin provides a design environment to build a set of cam profiles and directly download them into the drive.

Main features are speed and acceleration checking, automatic interval joints, cam simulation.



SERVO DRIVES

CVS_{II}

DIGITAL SERVO BRUSHLESS DRIVE

CVS_{II} DIGITAL SERVO DRIVE FOR SINUSOIDAL BRUSHLESS MOTORS

GENERAL DESCRIPTION

- Programmable I/O
 - WideLoop
 - Jog
 - ABS e INC moves
 - Homing auto
 - Electronic Gear
 - Position offset
 - Electronic CAM
- all of the I/O are indexed
the SCS design for total control
manual control mode
integrated positioner
automatic zero pos procedure
multi-ratio on-the-fly change
on-the-fly shifting
graphical design wizard

CHARACTERISTICS

- Pulse train input
 - Encoder Input
 - Encoder Simulator
 - Auxiliary Power Supply
 - Operator keypad
 - Digital I/O
 - Analog I/O
 - Digital I/O expansion
- freq+dir/ quadrature/ CW-CCW
5V line-driver
programmable resolution and zero
optional +24V for control supply
optional and remotable (RS485)
8IN / 4OUT optoisolated
3 references / 3 outputs
14IN / 4OUT optoisolated

CUSTOMIZATION

- Parameter Set
 - Download FW
- up to four parameter sets saved on FLASH
remote update of firmware/applications



CVS_{II} is the servo drive that makes your motion solutions flexible, integrated and reliable.

MAIN FEATURES

Standard

- Diagnostic
 - 2nd Encoder Input
 - Debug/Startup
 - Protection
 - I/O Extension
- last alarm memory
maximum precision on the load side
integrated digital oscilloscope
temporary password generation
put your I/O on CANopen, it's free!

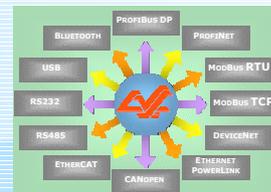
COMMUNICATION

Standard

- RS232/RS485
 - ModBus RTU
 - CANopen (DS301 v.4.0)
- serial communication made easy
standard HMI interface
standard open fieldbus included

Optional

- ProfiBus DP
- ModBus TCP
- DeviceNet
- Industrial Ethernet (PowerLink)
- EtherCAT
- ProfiNet



Passive options

- USB
 - BlueTooth
- no more need for serial converters
connection wire-less = limit-less

USER APPLICATION LIBRARY

Put your most time-critical machine functions inside our drive!

Dimensioni e Pesi		CVS23				CVS46				CVS46M	
		03	07	12	18	10	15	20	27	04	06
Weight	[Kg]	4	4	4.2	4.2	7.2	10.9	11.5	11.5	4.1	4.3
A	[mm]	70	70	70*	70*	106	156	156	156	70	70*
B	[mm]	284	284	284	284	360	360	360	360	284	284
C	[mm]	255	255	255	255	300	300	300	300	255	255
Note		* +33mm fan version									

HW Specifications		
Switching Frequency	8KHz centered (16KHz)	
Temperature	Nominal: 0° + 40°C (S1 Service) MAX: 65°C (-1.3% per degree over 40°C)	
Analog References	Three inputs: ±10V @ 12bit (one of which differential)	
Analog Output	3 x ±10V not isolated @ 12bit+sign	
Digital I/O	8 input opto-isolated PNP (7mA) @ 24V 4 output opto- isolated PNP (50mA)	
Position Sensor	Resolver, Incremental Encoder ABZ, FA-Coder, Hall Sensors, Absolute SSI Encoder	
Emulated Encoder Output	Programmable pulse/turn Programmable offset for zero marker posizione Output mirror of motor encoder signals	
Comunicazione	RS232 / RS485, ModBus RTU, CANopen	
Options	FieldBus: ModBus TCP, ProfiBus DP, DeviceNet, ProfiNet, Industrial Ethernet (PowerLink), EtherCAT, ... Passive: USB, BlueTooth I/O Extention Second encoder input	
Control Modes	Current, Speed, Position, Electrical Gear, Electrical Cam, WideLoop	
Protection Level	IP20	
European Standards	EN 60146-1-1	
EMC	Emissions	EN 50071-2
	Immunity	EN 50082-2

Product Family				
CVS23	CVS23-03	CVS23-07	CVS23-12	CVS23-18
Nominal Current [A]	3	7	12	18
Peak Current [A]	6	14	24	36
Power [KW]	1.5	3	5	7.5
OverCharge	200% for 1s @ duty cycle 1/20			
Power Supply	3 x 220Vac±230Vac (-30% ÷ +10%)		@	50Hz / 60Hz (±10%)
Bus DC Voltage	200V÷355V			
CVS46	CVS46-10	CVS46-15	CVS46-20	CVS46-27
Nominal Current [A]	10	15	20	27
Peak Current [A]	20	30	40	54
Power [KW]	5.0	8.0	11.0	15.0
OverCharge	200% per 1s @ duty cycle 1/20			
Power Supply	3 x 400Vac±460Vac (-20% ÷ +10%)		@	50Hz / 60Hz (±10%)
Bus DC Voltage	400V÷715V			
CVS46M	CVS46M-04		CVS46M-06	
Nominal Current [A]	4		6	
Peak Current [A]	8		12	
Power [KW]	3		4.2	
OverCharge	200% for 1s @ duty cycle 1/20			
Power Supply	3 x 400Vac±460Vac (-20% ÷ +10%)		@	50Hz / 60Hz (±10%)
Bus DC Voltage	400V÷715V			

Ordering code:

CVS XX M YY SC

Family name

Mains voltage (**23** for 230VAC, **46** for 400VAC)
Note : **46M** for compact 400VAC family, see table

Nominal current (23 from 03A to 18A)
 (46M from 02A to 06A)
 (46 from 10A to 27A)

If present means "CAN option not included"