

MOTION CONTROL



MOTION CONTROL

*INTELLIGENCE
MAKING MOTION*



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MOTORS

BRUSHLESS TECHNOLOGY

The brushless servomotor is a product of tried-and-tested success that manufacturers thanks to in-company know-how acquired during years of practical experience with motors designing and building.

TETRA COMPACT belongs to the low power range and stands out for its constructional shape, **TETRA** is the brushless servomotor with excellent efficiency along with high torque rate, thanks to the intrinsic technology that gets the most out of the magnetic material. The original construction of the patented rotor part permits two possible inertia executions on the same motor size by ensuring an optimum dynamic response even with different load masses. Featuring the newest engineering and manufacturing technology, produces the third generation of brushless servomotors: **TETRA COMPACT-ENHANCED**. These new servomotors provide high dynamic response for any automation need. A careful selection of components, highest quality standard and international certifications assure that this series is optimum for a responsive, accurate and reliable automation. All this servomotors are particularly suitable for positioning tasks in industrial robotic, machine tools, actuators and machine automation with demanding requirements in terms of dynamics and stability.

DIRECT DRIVE TECHNOLOGY

propose linear and torque direct drive solutions, providing versatile applications due to their backlash free structure.

Featuring a remarkable stall torque capacity plus high acceleration values **SKA DDR**, direct drive synchronous torque motors, and **SKA ROTARY TABLE**, direct drive rotary table, achieve efficiencies and precision positioning that are difficult to obtain with conventional systems. Advantages: full elimination of all transmission mechanical components, significant time and cost saving in machine maintenance and proven energy reduction.

SKA COMPACT combines the performance of linear direct drive technology with easy assembly in a complete, plug-and-play system, housed in an extruded aluminium body. This iron-core synchronous linear servomotor has a high force density, making it ideal for applications that need high reversal frequencies and positioning capacities. Advantages: total elimination of backlash and mechanical elasticity typical of conventional systems, and a lower energy consumption thanks to the higher overall efficiency. Its versatility allows a wide range of mounting configurations, even in combined axes.

BRUSHLESS

TECHNOLOGY



TETRA & TETRA COMPACT

FEATURES AND BENEFITS

Synchronous brushless servomotor, permanently excited

Rated output power from 60W to 8kW

Maximum servomotor speed up to 5000rpm

Insulation class F (155 °C)

IP 65 on motor body

Ral 9005 black powder coating

Temperature protection by KTY 84 (excluding TC 40)

Shaft balancing class G 2,5 according ISO 1940

Smooth or keyed shaft

Built-in feedback resolver 2 poles, TTL Encoder, Absolute Multiturn Encoder (Hiperface)

Cable flange with connectors for TC 40

90° round circular turnable connectors (IP 67) for all other models

Optional electromagnetic permanent-holding brake. Zero backlash

Optional shaft sealing

c **UL**[®] **US** **CE** **RoHS** **REACH**



TETRA COMPACT-ENHANCED **FEATURES AND BENEFITS**

Synchronous brushless servomotor, permanently excited

Flange dimensions: 40 - 60 - 80 - 100 - 130 - 180 mm

0.16 Nm to 45 Nm rated torque

50 W to 7 kW rated output power

Rated winding voltage 230 Vac and 400 Vac

Maximum servomotor speed up to 6000rpm

Built-in 20 bit proprietary absolute magnetic encoder

TTL encoder, absolute multiturn encoder (Hiperface), also available.

Insulation class F (155 °C)

IP 65 (with oil seal)

Shaft balancing class G 2,5 according ISO 1940

Ambient operation temperature from -20° C to +40° C

Optional holding brake

Optional shaft sealing

Ral 9005 black powder coating

UL [UL 1004], CSA, CE, Rohs certified

Reach compliance



RoHS REACH

DIRECT DRIVE

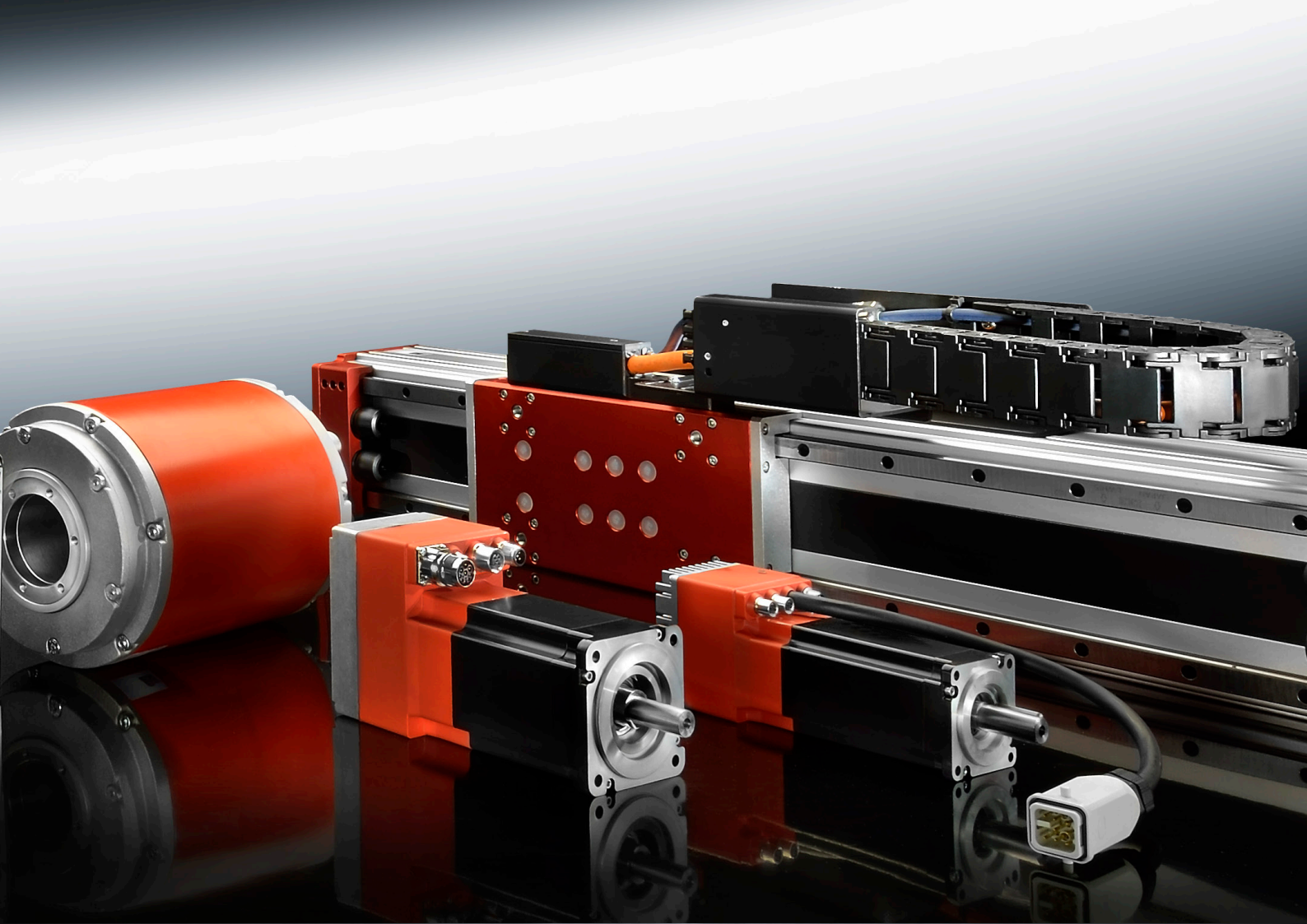
TECHNOLOGY



SKA ROTARY TABLE, SKA DDR, SKA COMPACT ***FEATURES AND BENEFITS***

- Linear and rotative motors based on iron-core technology
- Direct drive powerful solution with higher position accuracy
- Remarkable stall torque capacity plus high acceleration values
- No backlash for a high-precision, high-speed operation with shorter settling time
- High accuracy
- Resolver, incremental and absolute encoders for torque motors
- SinCos, TTL optical and magnetic encoder, Hall Sensors for linear motors
- Absolute encoder
- Uncomplicated and trouble-free mounting
- Reduction and control of energy costs
- Energy efficiency
- Compact design for reduced space requirements

c  [®] **US** **CE** **RoHS** **REACH**





DRIVES

LITE PRO

The LITE PRO series is represented by the extremely compact 4-quadrants drives perfect matched to control the brushless servomotors TC 40. This series features as standard CanOpen interface and a complete programmable version with integral Motion Process Unit, that allows stand alone and network architecture operation.

FLEXI PRO

This drive family is particularly versatile and allows wide opportunity for parameterization; customization based on application requirements is simple and intuitive. Suitable for both brushless and direct drive motors, extremely flexible handles a wide range of encoders and field busses (**CANopen, EtherCAT**). Unmatched ease of connectivity with the motor, the drive incorporates braking module, in addition to safety features. The range covers power ratings up to 9kW.

DRIVES PORTFOLIO

	LITE PRO	FLEXI PRO
Input voltage	48Vdc	120/480 Vac
Minimum power output (W)	200	350
Maximum power output (W)	400	11000
Digital input	5	11
Digital output	1	6
Analog input $\pm 10V$	1	2
Canopen	✓	✓
Profinet		✓
Ethercat		✓
RS232		✓
USB		✓
Internal script	✓	

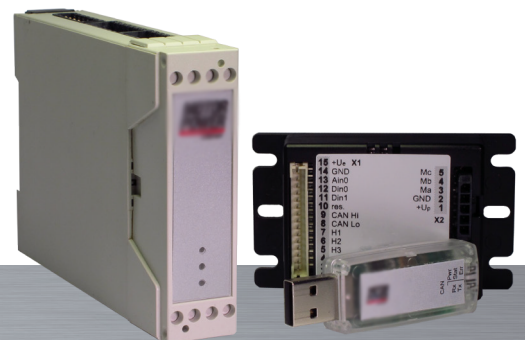
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FEATURES

- > 2 MODELS
- > STANDARD FEEDBACK TTL ENCODER AND HALL SENSOR
- > DIGITAL I/O: 4-5 DIGITAL INPUTS AND 1 DIGITAL OUTPUT CUSTOMIZABLE WITH SEVERAL BUILT-IN FUNCTIONS
- > CONTROL: STANDARD PI CONTROL LOOP
- > SERVO MODES: TORQUE, VELOCITY AND POSITION WITH S-CURVE PROFILE
- > INTERNAL SCRIPT
- > EXTREME COMPACT DESIGN
- > USB PROGRAMMING KEY

INTERFACE

- > ANALOG VELOCITY AND TORQUE COMMAND $\pm 10V$
- > CANopen



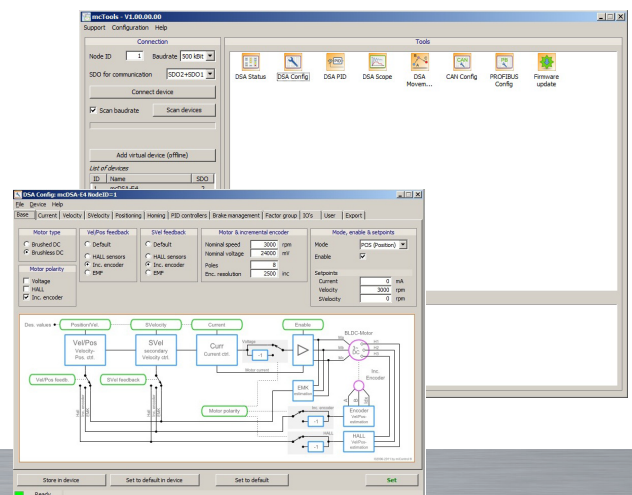
COMPACT AND PROFITABLE

PRODUCT DATA

FEATURE	UNITS	LPRO E65	LPRO E40
Input voltage	VDC	48	
Max continuous power output	W	200	400
Efficiency at rated power	%	>95	
Auxiliary supply voltage	VDC	10 ... 30	
Continuous current	Arms	4	8
Peak current	Arms	12	24
Ambient operating temperature	°C	0 to + 40°	
Maximum humidity	%	80% not condensing	
Vibration		0.6G 10-60 Hz	
Shock		1G	
Mounting method		Wall mounting /DIN Rail	
Dimensions	WxDxH mm	74x14x45,5	22,5x75x110
Weight	gr	50	110

LITE PRO USER INTERFACE

- > EASY AND INTUITIVE PC SOFTWARE ALLOWS A FAST PARAMETERIZATION OF THE LITE PRO
- > SIMPLE SCOPE
- > SCRIPT EDITING



The FLEXI PRO series features a high-performance digital servo drive offering advanced functionality, high power density and seamless commissioning in a superior package. The innovative hardware design and software algorithms boast outstanding performance in one of the smallest footprints in the market.

FEATURES

- > **INNOVATIVE AND PATENTED 20 BIT ABSOLUTE MAGNETIC ENCODER**
- > **MULTIFEEDBACK**
- > **DIGITAL I/O: 11 DIGITAL INPUT AND 6 OUTPUT CUSTOMIZABLE WITH SEVERAL BUILT-IN FUNCTIONS AND INTERNAL SCRIPT**
- > **CONTROL: HD ADVANCED CONTROL LOOP WITH ADAPTIVE GAINS**
- > **SERVO MODES: TORQUE, VELOCITY AND POSITION WITH S-CURVE PROFILE**
- > **STO SIL 2**
- > **INTEGRATED SUPPORT FOR EXTERNAL BRAKING RESISTOR**
- > **COMPLETE MOTOR DATABASE**

BENEFITS

- > **INTELLIGENT AUTO-TUNING - MINIMIZES POSITION ERROR AND SETTLING TIME TO ALMOST ZERO**

Engineering experience and expertise has been implemented in a sophisticated Auto-Tuning function that performs optimal configurations for a difference-making performance

- > **NEW CURRENT LOOP DESIGN - ACHIEVES AN INDUSTRY-LEADING FREQUENCY RESPONSE OF UP TO 3.0 KHZ**

Rapid control loop sample rates and flexible filtering options provide a faster response, and ensure maximum machine accuracy and throughput

- > **INNOVATIVE ANTI-VIBRATION ALGORITHM - ELIMINATES MECHANICAL RESONANCE**

An active-non-linear algorithm eliminates vibration in highly flexible resonant systems. Commissioning is easy since only few gain parameters are required



INTERFACE

- > **USB WITH DAISY CHAIN CAPABILITY**
- > **PULSE & DIRECTION**
- > **ANALOG VELOCITY AND TORQUE COMMAND $\pm 10V$**
- > **CANopen**
- > **EtherCAT**

FLEXIBLE AND COMPREHENSIVE

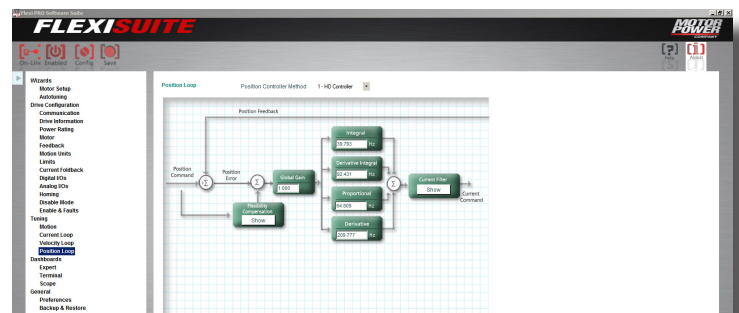
PRODUCT DATA

FEATURE	UNITS	FPRO 1D5	FPRO 003	FPRO 4D5	FPRO 006	FPRO 008	FPRO 010	FPRO 013	FPRO 020	FPRO 024	FPRO 003	FPRO 006	FPRO 012	FPRO 024	FPRO 030			
Input Voltage	VAC	120/240 VAC Single Phase			240 VAC Single or Three Phase				120/240 VAC Three Phase			400/480 VAC Three Phase						
Max Continuous power output	W	350	700	1000	1400	1800	2300	3000	4500	5500	1100	2200	4400	9000	11000			
Efficiency at rated Power	%	> 90																
Auxiliary Supply Voltage		120 .. 240 Vac									24 Vdc							
Continuous current rms	A rms	1,5	3	4,5	6	8	10	13	20	24	3	6	12	24	30			
Peak current	A rms	4,5	9	18	18	28	28	28	48	48	9	18	24	72	90			
Ambient Operating Temperature	°C	0 to + 45																
Maximum Humidity	%	90% not condensing																
Vibration		0.6G 10-60 Hz																
Shock		1 G																
Mounting Method		Wall Mount																
Dimensions	WxDxH mm	43x144x150			55x167x150			62x182x170			117x194x234			110x193x163			FPRO 012 117x194x234	
																FPRO 024 - FPRO 030 147x209x353		
Weight	Kg	0,7	0,75	0,97	0,97	1,15	1,15	1,15	3,2	3,2	2,1	2,1	3,2	10,5	10,5			

FLEXI PRO SUITE

> SIMPLIFIES SETUP, TESTING AND TUNING

User-friendly FLEXI SUITE software provides step-by-step guidance through the setup and tuning process. Setup and testing are intuitive thanks to auto-tuning functions and graphic representations of control loops





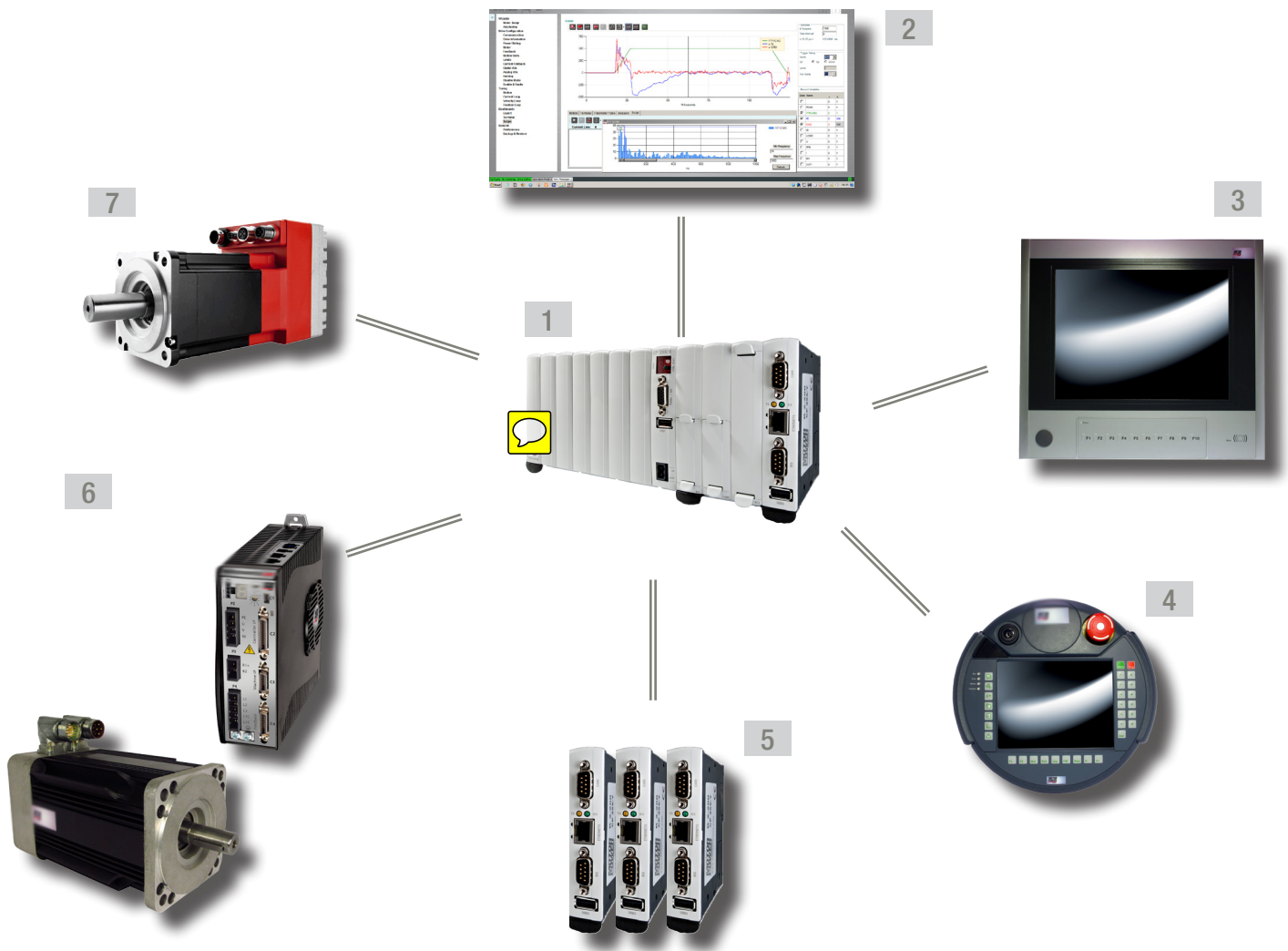
CONTROLLERS



Full architecture solutions featuring the supply of comprehensive automation packages is now possible thanks to the introduction of the CORE Pro controller line.

Extensive industrial applications, including full task capabilities on robotic devices, are perfectly accomplished thanks to the cutting edge technology provided by this innovative and flexible system, which ensures extreme modularity based on its standardized interfaces design.

Its full and perfect harmonization with our complete series of motors and drives makes of this motion control bundle an optimized total solution for any application and ensures highest efficiency in performances and time to market.



1. Control with various CPU modules

2. Toolsuite for automation challenges

3. Stationary operating panels

4. Mobile handheld terminals

5. Modular I/O system with mountable modules (bus link modules allow decentralized placement of the modules)

6. Drive technology

7. Duet & Duet Flexi for integrated servomotor

Reliability, flexibility and modularity are ensured either in applications characterized by basic control tasks requirement up to more sophisticated demanding industrial duties.

The control range consists of three CPU series providing processor speed capability from 600MHz up to 1.4GHz, with different industrial standard fieldbus protocols (CAN Open, Ethercat and Ethernet) available in the standard configuration. Expandability is easy and quick with simple plug in modules addition.

FEATURES

> USE OF MARKET STANDARDS

The CORE PRO control platform is based on the CoDeSys project design and run-time system, the market standard among PLC programming tools. As a result of the systematic use of industrial standards, CORE PRO furnishes straightforward enlargement. EtherCAT is available for real-time Ethernet applications along with CANopen for Motion application. Ethernet TCP/IP for uncomplicated networking with any peripheral connecting. Profibus expansions modules (master and slave) are available for different interfacing. Motion functionalities are managed via PLC Open standards.

> LOW TRAINING EXPENDITURE

Use of the CoDeSys industrial standard facilitates control system operation. Anyone who has already worked with CoDeSys can start immediately and utilize all the CORE PRO functions in the familiar CoDeSys development environment. This greatly reduces training expenditure.



SCALABLE PERFORMANCES

> CPU-MODULES

A CPU module is a intelligent processing unit, which is responsible for the execution of the automation programs. CPU modules are available in the following performance levels.

PRODUCT DATA

CP 240/A

The entry level CPU for general pourpose applications

CanOpen and EtherCAT on board up to 8 axis*

*Depending by fieldbus

CP 242/A

Best compromise between price and performance. Ideal for a wide range of industrial appli-cations

CanOpen and EtherCAT on board up to 16 axis*

*Depending by fieldbus

CP 255/X

Ideal for Robotics applica-tion and perfect in industrial automation tasks

CanOpen on board up to 64 axis*

*Depending by fieldbus

Name	Performances	Interfaces
CP 240/A	Intel ATOM 600MHZ, 512MB RAM	1xCAN, 2xUSB, 1xEthernet, 1xEtherCAT, 1xDVI
CP 242/A	Intel ATOM 1,1GHZ, 512MB RAM	1xCAN, 2xUSB, 1xEthernet, 1xEtherCAT, 1xDVI
CP 255/X	Intel Pentium 1,4GHz, 512MB RAM	1xCAN, 2xUSB, 1xEthernet, 1xDVI



EXTENSION MODULES

The CPU devices provide different slots for extension modules (additional CAN-, Ethernet- or serial connections) on the front side. The following table shows the available extension modules, which can be inserted into the CPU (depending on the availability of slots)



Model	Description	CP 24X	CP 25X
FX 200/A	CAN interface module		✓
FX 271/A	Sercos III interface module, 2 additional Ethernet interfaces 100MBit		✓
NX 252/A	Ethernet interface module, 1x100MBit	✓	✓
SX 210/A	Serial interface module, RS232-C, full duplex		✓
SX 220 /A	Serial interface module, CL (20mA)		✓
SX 230/A	Serial interface module, RS485/422-A		✓

EXPANSION MODULES

> EXTENSIVE MODULE UNIT RANGE

The functional scope of the control system can be enlarged by means of a selection from an extensive product range. CORE PRO extensions include standard, technological and communications modular units, which are easily configured via CoDeSys.

> SIMPLE AND UNLIMITED POSSIBILITIES FOR EXPANSION

Depending on the machine situation, the I/Os can be arranged in any order. The enlargements can either be attached directly to the control module unit, or operated decentrally via bus coupling module groups. This provides an effective reduction in product variations.

SCALABLE PERFORMANCES

EXPANSION MODULES

DIGITAL IN/OUT MODULES

Name	IN	OUT	Description
DI260/A	16		2 DI Interrupt able
DO272/A		14	2A at 50%, short-circuit proof
DM272/A	8	8	2xDI interrupt able, DO's 2A at 50%, short-circuit proof
DM276/A	6	8	2xDI interrupt able, DO's 2A at 50%, short-circuit proof,output against ground

ANALOG IN/OUT MODULES

Name	IN	OUT	Description
AI 240/A	4		0..10V,+/-10V, 14Bit
AO 240/A		4	+/-10V, 12Bit
AM 280/A	4	4	IN: +/-10V, 14Bit OUT: +/-10V, 12Bit
AM 280/B	4	4	IN: 0/4..20mA, 14Bit OUT: 0/4..20mA, 12Bit

TEMPERATURE MODULES

Name	IN	OUT	Description
TM 225/A	4		PRT100, 2- and 4-wired, 14Bit
TM 240/A	6		Thermocouple type J,K,L, 14 Bit, galvanic Insolation

ENCODER INTERFACE MODULES

Name	IN	OUT	Description
MM 240/A	2		Incremental Encoder, 32Bit, 2 additional latch inputs

SERIAL INTERFACE MODULES

Name	IN	OUT	Description
SM 210/A	2		RS232-C, full duplex
SM 220/A	2		CL (20mA)
SM 230/A	2		RS485/422-A
SM 250/A	4		SSI-Encoder inputs

FIELD BUS MODULES

Name	CONNECTORS	Description
FM 200/A	2	CAN module for IOs
SM 220/A	1	Profibus Master module, DPV1
SM 230/A	1	Profibus Slave module, DPV1

The range of high-contrast and high-resolution stationary panels includes display diagonals from 8.4, 12.1 and 15 inches. In order to better integrate the operating device into the overall design, its appearance can be matched to that of the machine.



FEATURES

> TOOL LESS MOUNTING

Complete installation of the operating devices is possible without any special tool. The panel simply needs to be locked into the rectangular recess and screwed in place.

> EASY CONNECTION

A single cable is sufficient for connection of display, touch screen and function keys.

Panel	Description
OP 430-LD/A-0000	8,4" TFT, 800x600 pixel, 10 keys with LED, 16 digital inputs
OP 430-LD/A-0010	8,4" TFT, 800x600 pixel, 10 keys with LED, 16 digital inputs, RFID
OP 450-LD/A-0000	12,1" TFT, 800x600 pixel, 10 keys with LED, 16 digital inputs
OP 450-LD/A-0010	12,1" TFT, 800x600 pixel, 10 keys with LED, 16 digital inputs, RFID
OP 460-LD/A-0000	15" TFT, 1024x768 pixel, 10 keys with LED, 16 digital inputs
OP 460-LD/A-0010	15" TFT, 1024x768 pixel, 10 keys with LED, 16 digital inputs, RFID

HUMANE MACHINE INTERFACE

MOBILE PANEL

Mobile operating devices are extremely well protected against damage through robust housing design. Sensitive components are safeguarded by a special shell, which ensures that the mobile panel remain intact even when dropped from a height of 1.5 m and have an extremely long service life.

The handhelds are equipped with two, three-level enabling keys, as well as an emergency stop button, as standard features. All the safety functions possess two-circuit design and therefore the mobile panel corresponds with the machine guideline.



ADVANTAGES

- > **EXCELLENT DAMAGE PROTECTION**
- > **HIGHEST SAFETY STANDARDS IN SERIES**
- > **HMI READY-TO-USE SPECIAL ROBOTIC SOLUTION**

Mobile Panel	Description
MP T50 RVx	6,5" TFT, 640x480 pixel, 64MB Flash, 64MB DRAM, robotic keyboard (31 keys), key switch, emergency stop switch, two 3-position enabling switches, Java VM

MOTION CONTROL

SOLUTION BUNDLE

THE PERFECT MATCH

chooses the best combinations among its motors and drives, for guaranteeing high performances and efficiency of the system. Our bundles assure high dynamic response for any automation need, thanks to a careful selection of components manufactured with high quality standard.

MOTION CONTROL SOLUTION BUNDLE



Servomotor Type	Nominal Power P	Nominal Torque M_n	Peak Torque M_{max}	Nominal Working Speed nM	Maximum Working Speed nMa	Moment of inertia	Drive type 230 Vac	Drive type 400 Vac
	[W]	[Nm]	[Nm]	[min ⁻¹]	[min ⁻¹]			
TC-E 40 1A	50	0,16	0,48	3000	6000	Medium	FLEXI PRO 1D5	FLEXI PRO 003
TC-E 40 1B	100	0,32	0,96	3000	6000	Medium	FLEXI PRO 1D5	FLEXI PRO 003
TC-E 60 2A	200	0,64	1,92	3000	6000	Low	FLEXI PRO 1D5	FLEXI PRO 003
TC-E 60 2B	400	1,27	3,81	3000	6000	Low	FLEXI PRO 003	FLEXI PRO 003
TC-E 80 3A	400	1,27	3,81	3000	6000	Low	FLEXI PRO 003	FLEXI PRO 003
TC-E 80 3B	750	2,39	7,16	3000	6000	Low	FLEXI PRO 4D5	FLEXI PRO 003
TC-E 100 4A	1000	3,18	9,54	3000	6000	Low	FLEXI PRO 006	FLEXI PRO 006
TC-E 100 4B	2000	6,37	19,11	3000	6000	Low	FLEXI PRO 010	FLEXI PRO 012
TC-E 130 5A	500	2,39	7,16	2000	3000	Medium	FLEXI PRO 003	FLEXI PRO 003
TC-E 130 5B	300	2,86	8,59	1000	2000	Medium	FLEXI PRO 003	FLEXI PRO 003
TC-E 130 5C	950 1000	4,77	14,3	2000	3000	Medium	FLEXI PRO 006 FLEXI PRO 010	FLEXI PRO 003
TC-E 130 5D	810 850	5,39	13,8	1500	3000	Medium	FLEXI PRO 006 FLEXI PRO 010	FLEXI PRO 006
TC-E 130 5E	600	5,73	17,19	1000	2000	Medium	FLEXI PRO 006	FLEXI PRO 003
TC-E 130 5F	870 900	8,59	25,77	1000	2000	Medium	FLEXI PRO 006 FLEXI PRO 010	FLEXI PRO 006
TC-E 130 5G	1350 1500	7,16	21,48	2000	3000	Medium	FLEXI PRO 006 FLEXI PRO 010	FLEXI PRO 006
TC-E 130 5H	2000	9,55	28,65	2000	3000	Medium	FLEXI PRO 013	FLEXI PRO 012
TC-E 180 6A	2000	9,55	28,65	2000	3000	Medium	FLEXI PRO 010	FLEXI PRO 012
TC-E 180 6B	3000	14,32	42,97	2000	3000	Medium	FLEXI PRO 020	FLEXI PRO 012
TC-E 180 6C	3000	19,1	57,29	1500	3000	Medium	FLEXI PRO 020	FLEXI PRO 024
TC-E 180 6D	3500	16,7	50,3	2000	3000	Medium	FLEXI PRO 024	FLEXI PRO 012
TC-E 180 6E	4500	28,65	71,62	1500	3000	Medium	FLEXI PRO 024	FLEXI PRO 024
TC-E 180 6F	5500	35,01	87,53	1500	2700	Medium	-	FLEXI PRO 024
TC-E 180 6G	7000	44,6	119,36	1500	2700	Medium	-	FLEXI PRO 030

MOTION CONTROL SOLUTION BUNDLE



BRUSHLESS SERVOMOTORS AND DRIVES

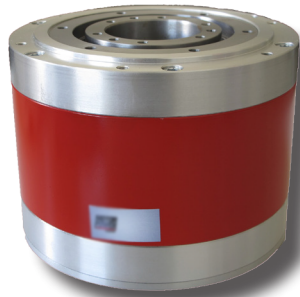
Servomotor Type	Rated Output Power	Rated Torque	Peak Torque	Rated Voltage	Rated Speed	Drive Type
	[W]	[Nm]	[Nm]	[V]	[rpm]	
TC 40 0,16 32	60	0,19	0,48	24 Vdc	3000	LITE PRO E 65 C
TC 40 0,16 01	60	0,19	0,48	48 Vdc	3000	LITE PRO E 65 C
TC 40 0,32 01	100	0,32	0,96	48 Vdc	3000	LITE PRO E 65 C
TC 40 0,32 21	100	0,32	0,96	230 Vac	3000	FLEXI PRO 1D5 2 A
TC 60 0,65 21	200	0,64	1,95	230 Vac	3000	FLEXI PRO 1D5 2 A
TC 60 1,3 21	370	1,18	3,9	230 Vac	3000	FLEXI PRO 003 2 A
TC 60 1,3 15	370	1,18	3,9	400 Vac	3000	FLEXI PRO 003 4 D
TC 80 1,5 21	480	1,53	4,5	230 Vac	3000	FLEXI PRO 4D5 2 A
TC 80 1,5 15	480	1,53	4,5	400 Vac	3000	FLEXI PRO 003 4 D
TC 80 2,8 21	800	2,55	8,4	230 Vac	3000	FLEXI PRO 006 2 A
TC 80 2,8 15	800	2,55	8,4	400 Vac	3000	FLEXI PRO 006 4 D
TC 80 4 15	1068	3,4	12,0	230 Vac	3000	FLEXI PRO 4D5 2 A
TC 80 4 17	1068	3,4	12,0	400 Vac	3000	FLEXI PRO 003 4 D
TC 100 3,2 21	820	2,61	11,0	230 Vac	3000	FLEXI PRO 006 2 A
TC 100 3,2 15	820	2,61	11,0	400 Vac	3000	FLEXI PRO 006 4 D
TC 100 5,6 15	1320	4,2	22,0	400 Vac	3000	FLEXI PRO 012 4 A
TC 100 8 15	1570	5,0	33,0	400 Vac	3000	FLEXI PRO 012 4 D

MOTION CONTROL SOLUTION BUNDLE

BRUSHLESS SERVOMOTORS AND DRIVES

Servomotor Type	Rated Output Power	Rated Torque	Peak Torque	Rated Voltage	Rated Speed	Drive Type
	[W]	[Nm]	[Nm]	[V]	[rpm]	
T 115 3 21	840	2,7	9,0	230 Vac	3000	FLEXI PRO 006 2 A
T 115 3 15	840	2,7	9,0	400 Vac	3000	FLEXI PRO 006 4 D
T 115 5,2 14	1300	4,1	15,6	230 Vac	3000	FLEXI PRO 010 2 A
T 115 5,2 15	1300	4,1	15,6	400 Vac	3000	FLEXI PRO 006 4 D
T 115 7 15	1650	5,3	21,0	230 Vac	3000	FLEXI PRO 008 2 A
T 115 7 17	1650	5,3	21,0	400 Vac	3000	FLEXI PRO 006 4 D
T 115 9,2 15	2000	6,4	27,6	230 Vac	3000	FLEXI PRO 013 2 A
T 115 9,2 17	2000	6,4	27,6	400 Vac	3000	FLEXI PRO 006 4 D
T 115 11 15	2300	7,3	33,0	230 Vac	3000	FLEXI PRO 013 2 A
T 115 11 17	2300	7,3	33,0	400 Vac	3000	FLEXI PRO 012 4 D
T 142 12 15	2700	8,6	31,0	230 Vac	3000	FLEXI PRO 020 2 A
T 142 12 17	2700	8,6	31,0	400 Vac	3000	FLEXI PRO 012 4 D
T 142 16,5 15	3500	11,1	42,0	230 Vac	3000	FLEXI PRO 020 2 A
T 142 16,5 17	3500	11,1	42,0	400 Vac	3000	FLEXI PRO 012 4 D
T 142 21 15	4100	13,1	55,0	230 Vac	3000	FLEXI PRO 020 2 A
T 142 21 17	4100	13,1	55,0	400 Vac	3000	FLEXI PRO 012 4 D
T 142 25,5 15	5000	15,9	65,0	230 Vac	3000	FLEXI PRO 024 2 A
T 142 25,5 17	5000	15,9	65,0	400 Vac	3000	FLEXI PRO 024 4 D
T 180 22,5 17	4700	15,0	63,0	400 Vac	3000	FLEXI PRO 024 4 D
T 180 35 17	6600	21,0	95,0	400 Vac	3000	FLEXI PRO 024 4 D
T 180 47 17	8380	40,0	130,0	400 Vac	2000	FLEXI PRO 024 4 D

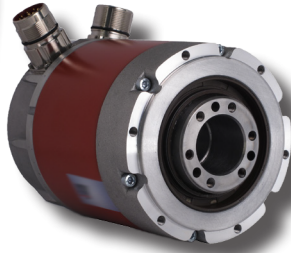
MOTION CONTROL SOLUTION BUNDLE



DIRECT DRIVE ROTARY TABLE AND DRIVES

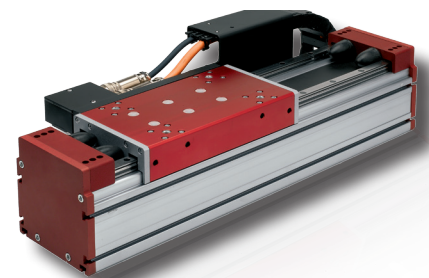
	STALL TORQUE (Nm)	PEAK TORQUE (Nm)	SPEED (Rpm)	POLES (nr)	INERTIA (kg cm ²)	WEIGHT (kg)	EXTERNAL DIAMETER D (mm)	HOLE DIAMETER d (mm)	HEIGHT H (mm)	RATED VOLTAGE (Vac)	DRIVE TYPE
SKA RT 148.30	8	35	900	14	68,5	15,3	179	60	127,5	230	FPRO 4D5 2 A
SKA RT 148.60	14	68	900	14	91,8	18,1	179	60	157,5	230	FPRO 4D5 2 A
SKA RT 148.90	20	103	900	14	114,2	22	179	60	187,5	230	FPRO 006 2 A
SKA RT 148.120	26	141	630	14	137,1	26,1	179	60	217,5	230	FPRO 006 2 A
SKA RT 245.30	41	128	600	28	542,1	42,9	290	135	136,5	400	FPRO 006 4 D
SKA RT 245.60	70	241	600	28	651,0	55,4	290	135	166,5	400	FPRO 012 4 D
SKA RT 245.90	93	330	600	28	777,8	67,8	290	135	196,5	400	FPRO 012 4 D
SKA RT 245.120	115	410	500	28	904,2	80,3	290	135	226,5	400	FPRO 012 4 D
SKA RT 335.30	100	290	350	42	2847,0	73,1	390	190	138	400	FPRO 012 4 D
SKA RT 335.60	164	585	350	42	3629,1	94,1	390	190	168	400	FPRO 012 4 D
SKA RT 335.90	220	800	350	42	4411,0	115	390	190	198	400	FPRO 030 4 D
SKA RT 335.120	270	975	350	42	5193,0	136,1	390	190	228	400	FPRO 030 4 D
SKA RT 335.150	320	1200	300	42	5975,1	157	390	190	258	400	FPRO 030 4 D
SKA RT 430.30	210	458	300	56	8698,7	105,7	490	290	150	400	FPRO 030 4 D
SKA RT 430.60	340	800	300	56	10637,8	133,7	490	290	180	400	FPRO 030 4 D
SKA RT 430.90	450	1200	250	56	12577,0	161,1	490	290	210	400	FPRO 030 4 D
SKA RT 430.120	560	1600	150	56	14516,0	188,7	490	290	240	400	FPRO 030 4 D
SKA RT 430.150	660	1950	150	56	16455,8	215,7	490	290	270	400	FPRO 030 4 D
SKA RT 430.180	760	2400	100	56	18394,7	243,3	490	290	300	400	FPRO 030 4 D

MOTION CONTROL SOLUTION BUNDLE



DIRECT DRIVE TORQUE MOTORS AND DRIVES

	STALL TORQUE (Nm)	PEAK TORQUE (Nm)	SPEED (Rpm)	POLES (nr)	RATED VOLTAGE (Vac)	DRIVE TYPE
SKA DDR 090.30	2	15,9	800	14	230	FPRO 1D5 2 A
SKA DDR 090.60	3,5	28	800	14	230	FPRO 1D5 2 A
SKA DDR 090.90	4,7	38	800	14	230	FPRO 003 2 A
SKA DDR 148.30	8	35	900	14	230	FPRO 4D5 2 A
SKA DDR 148.60	14	68	900	14	230	FPRO 4D5 2 A
SKA DDR 148.90	20	103	900	14	230	FPRO 006 2 A
SKA DDR 148.120	26	141	630	14	230	FPRO 006 2 A
SKA DDR 245.30	41	128	600	28	400	FPRO 006 4 D
SKA DDR 245.60	70	241	600	28	400	FPRO 012 4 D
SKA DDR 245.90	93	330	600	28	400	FPRO 012 4 D
SKA DDR 245.120	115	410	500	28	400	FPRO 012 4 D
SKA DDR 335.30	100	290	350	42	400	FPRO 012 4 D
SKA DDR 335.60	164	585	350	42	400	FPRO 012 4 D
SKA DDR 335.90	220	800	350	42	400	FPRO 030 4 D
SKA DDR 335.120	270	975	350	42	400	FPRO 030 4 D
SKA DDR 335.150	320	1200	300	42	400	FPRO 030 4 D
SKA DDR 430.30	210	458	300	56	400	FPRO 030 4 D
SKA DDR 430.60	340	800	300	56	400	FPRO 030 4 D
SKA DDR 430.90	450	1200	250	56	400	FPRO 030 4 D
SKA DDR 430.120	560	1600	150	56	400	FPRO 030 4 D
SKA DDR 430.150	660	1950	150	56	400	FPRO 030 4 D
SKA DDR 430.180	760	2400	100	56	400	FPRO 030 4 D



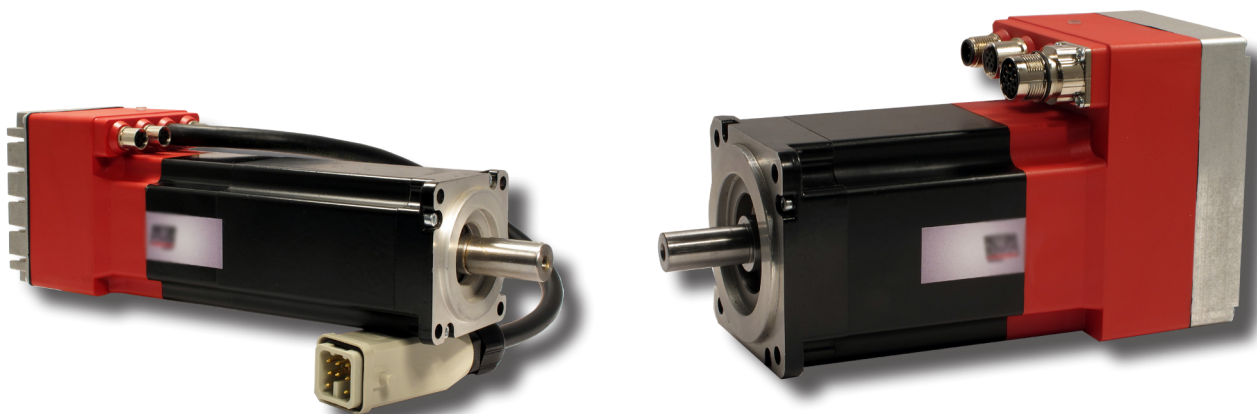
Servomotor Type	Rated Power (W)	Stall Force (Nm)	Peak Force (Nm)	Rated Speed (m/s)	Drive Type
SKA C 140.275	1375	275	825	5.0	FPRO 003 4 A
SKA C 140.550	1650	550	847	4.0	FPRO 006 4 A

DUET AND DUET FLEXI

LOW VOLTAGE INTEGRATED BRUSHLESS DRIVE

Cutting edge technology for decentralized architecture: **drive integrated servomotor DUET** series is the result of the wide-ranging experience that has built over more almost 25 years as marketing oriented player in the motion control market, gathering exceptional expertise in understanding and fulfilling customer needs. Everything you need for moving and controlling an axis is built directly into these highly compact single component: servomotor, feedback and intelligent servo drive featuring CANopen or Ethercat networking.

Either **Duet and Duet Flexi** include user friendly software tools enabling easy set up and tuning, ensure huge room saving in cabinet along with cables cutback between motor and drive and offer fast connectivity with plug in power connectors.



DUET AND DUET FLEXI FEATURES AND BENEFITS

- > Synchronous brushless servomotor, permanently excited
- > Built-in digital drive
- > Rated output power from 60W to 520W
- > Supply voltage 48 Vdc
- > Maximum servomotor speed up to 5000rpm
- > Torque, velocity and position mode
- > User programmability
- > Insulation class F (155 °C)
- > IP 65 on motor body
- > Ral 9005 black powder coating
- > Shaft balancing class G 2,5 according ISO 1940
- > Built-in feedback 2 poles resolver, absolute multiturn encoder (Hiperface), incremental encoder
- > Optional electromagnetic permanent-holding brake. Zero backlash
- > Optional shaft sealing

> ACCESSORIES FOR ALL DUET MODELS :

- > **CABLES**
- > **CONNECTORS**



DUET HV

HIGH VOLTAGE INTEGRATED BRUSHLESS DRIVE

DUET HV is the new high voltage DUET series, a line consisting of brushless servomotor with integrated drive - featuring 2,8Nm, 4Nm, 5,6Nm and 8Nm models - incorporating as well absolute encoder for uncompromised precision in positioning.

This device can either work via Ethercat connectivity through the control of a master controller or as a stand alone unit wherever synchronized motion between axes is not mandatory for application operation. When used in this configuration, DUET HV can manage machine cycle with its internal PLC. Full programmability allows to perform application in a very efficient way and permits the creation of sophisticated architectures with complex trajectories, allowing decentralized motion distribution and high optimization in cabling and cabinet design.



DUET HV FEATURES AND BENEFITS

- > Synchronous brushless servomotor permanently excited
- > Nominal power supply 560Vdc
- > Stall torque 2,8 - 4 - 5,6 - 8 Nm
- > Nominal speed 3000 rpm
- > Absolute multi and singleturn encoder
- > STO SIL 3 (safe torque off)
- > IP65 protection
- > Internal optional brake
- > Integrated movement features: device profile DS402, interpolated mode, positioning, extended gearing function, homing, capture
- > Stand alone programmability according to the standard IEC61131, ST language
- > Capture input
- > PC parametrization tool
- > I2t, Overload, Short circuit, Overtemperature, Overvoltage Protection
- > Optional cables, power supply
- > On board I/Os:
 - 4 digital IN 24Vdc general purpose, configurable as PSTOP, NSTOP, Enable, Home, Capture, Step/Direction
 - 3 digital OUT 24Vdc 250mA, general purpose
 - 2 digital IN 24Vdc or 1 RTO OUT
 - 1 digital IN/OUT 24Vdc with configurable function
 - 3 differential I/O's configurable as master incremental encoder or absolute encoder input
 - Encoder emulation output
 - PWM IN or OUT
 - Auxiliary rs485
 - I/O extension port
 - 1 Analogue IN $\pm 10V$

