

ADP200, INVERTER FAMILY

INVERTER FOR SERVOPUMP HYBRID INJECTION MACHINES



GEFRAN



Gefran, With forty years of experience, Gefran is the world's leading designer and producer of solutions for **measuring, controlling, and driving industrial production processes.**

We have branches in 14 countries and a network of over 80 worldwide distributors.

QUALITY AND TECHNOLOGY

Gefran components are a **concentration of technology**, the result of constant research and of **cooperation with major research centers.**

This makes Gefran synonymous with quality and expertise in the design and production of:

- **sensors** for measuring main variables such as **temperature, pressure, position and force**
- **state-of-the-art components and solutions for indication and control**, satisfying demands for optimization of processes and intelligent management of energy consumption
- **automation platforms** of various complexities
- **electronic drives and electric motors** in AC and DC for all industrial automation, HVAC, water treatment and lift needs.

Gefran's know-how and experience guarantee continuity and tangible solutions.

SERVICES

A team of Gefran experts works with each customer to select the ideal product for its application and to help install and configure devices (technohelp@gefran.com).

Gefran offers a wide range of courses at different levels for the technical-commercial study of its product as well as specific courses *on demand*.



APPLICATIONS



INJECTION



PLASTIC GRANULES



CLAMPING



PLASTIC PIPES

APPLICATION ORIENTED

Gefran forms partnerships with its customers to find the best way to optimize and boost the performance of applications.

For Gefran, plastics is a passion. Founded as a producer of electronic devices to control industrial process variables, Gefran entered the plastics processing market **40 years ago**, developing and delivering technological solutions for industrial processes.

This experience has given Gefran complete knowledge of the market's needs, making it a reliable and effective partner for plastics OEMs and end users.

HYBRID INJECTION MOLDING MACHINE WITH SERVOPUMP

Hybrid injection molding machines are a perfect combination of hydraulic system and AC servo drive technology.

Gefran's ADP200 is the right solution for servopump control, providing precise pressure and flow control and avoiding the energy waste typical of traditional hydraulic systems.

Oil flow and pressure can be set exactly as required by the machine, rather than at higher levels, without discharging oil as in conventional hydraulic machines.

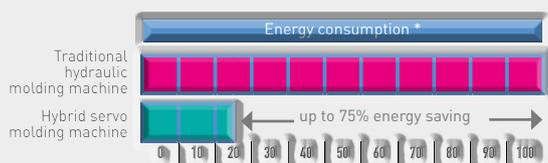
The ADP200 high-performance drive is perfectly in line with the innovative "green manufacturing" design of injection molding machines, creating real added value for customers in terms of energy efficiency and higher mold quality.

Gefran's specific PID algorithm manages both single servopump systems and multi-pump machines and covers a wide range of applications.

ECO-FRIENDLY

Energy saving by:

- > Using high-end servo systems
- > Reducing heat in hydraulic fluid
- > Low CO2 emissions



* Machine Builders estimation depending on system architecture, molding condition and application.

HIGH PRECISION

Great performing pressure and speed control

HIGH REPEATABILITY

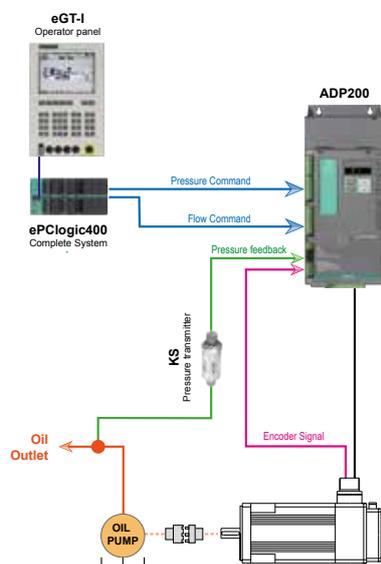
Advanced features of Servo Motor closed loop control

LOW NOISE

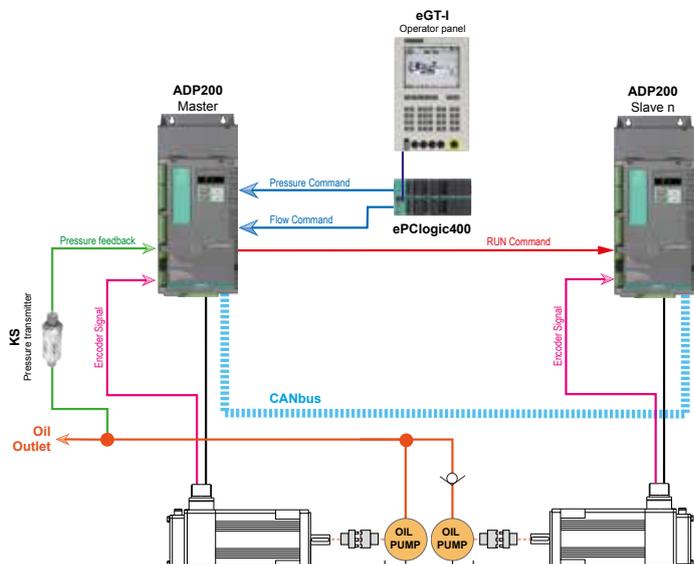
Quiet technological operation for a Better working environment

ADP200 has a built-in dedicated PID function for efficient and high performing pump control both for single and multi pump machines:

• SINGLE HYDRAULIC PUMP CONTROL



• MULTI HYDRAULIC PUMP CONTROL: CONVERGENT SYSTEM



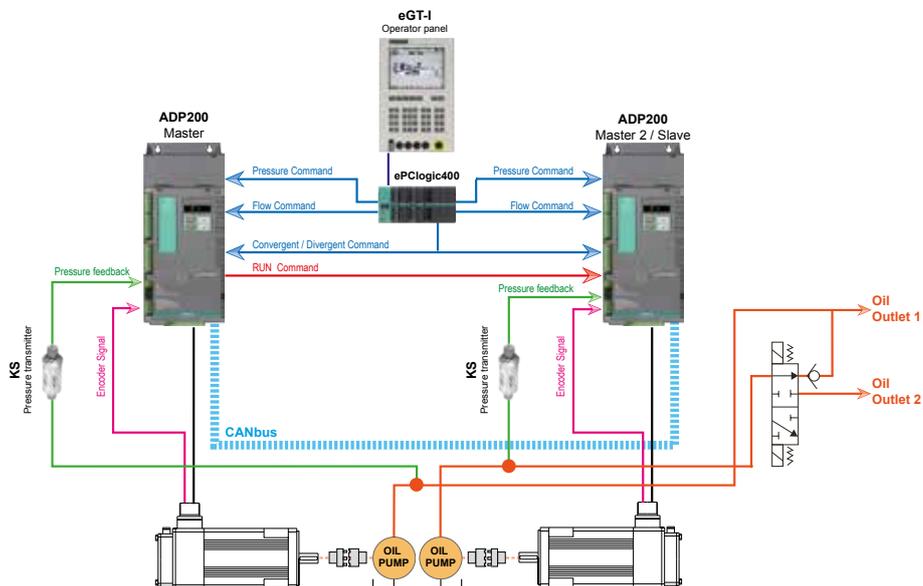


ADP200 INVERTER

- > From 7.5 to 75 kW
- > FOC closed loop
- > Single and multi-pump control
- > Precise pressure and flow control
- > Patented pressure oscillation damping algorithm for servopump



• MULTI HYDRAULIC PUMP CONTROL: CONVERGENT & DIVERGENT SYSTEM



DESCRIPTION



The new ADP200 inverter series represents an innovative concept in drive technology, the result of constant technological research and the know-how in plastics applications that the Gefran Group has acquired by working side by side with major sector players.

This new series has been engineered and developed to satisfy the real needs of plastics machine manufacturers and to provide them the best and most economically competitive innovations on international markets.

Based on full mechanical modularity, a powerful and "fully open" programming platform, and a specific PID algorithm for injection molding machine servo-pump control, the ADP200 offers completely flexible integration and high performance for plastics applications.

POWER RANGE

Models	Power (kW)									
	7.5	11	15	18.5	22	30	37	45	55	75
ADP200	Size 2		Size 3			Size 4			Sizes 5 and 5S	

DRIVE TYPE DESIGNATION

ADP200-X	XXX	-K	B	P	-F	-4	-C	-RS	-ER	-24	-I01		
												I/O card version:	[Empty] = standard I/O card EXP-I0-D8A4R2-ADP I01 = optional I/O card EXP-I0-D10A3R2-ADP
												24 VDC external power supply:	24 = included, [empty] = not included
												Encoder Repetition:	ER = with encoder repetition; [Empty] = not included
												Encoder card:	RS = Resolver (standard); ED = EnDat; SE = Sinusoidal Encoder; DE = Digital Encoder; HI = Hiperface; SC = Sinusoidal SinCos Encoder;
												CANbus:	C = included, [empty] = not included
												Rated voltage:	4 = 400 VAC, 3ph
												EMI filter:	F = included, [empty] = not included
												PID IMM application:	P = included
												Braking unit:	B = included, X = not included
												Keypad:	K = integrated (1-line x 4 characters alphanumeric LED display)
												Drive power, in kW:	075=7.5kW, 110=11kW, 150=15kW, 185=18.5kW, 220=22kW, 300=30kW, 370=37kW, 450=45kW, 550=55kW, 750=75kW
												Mechanical drive sizes:	2, 3, 4, 5, 5S
												Servodrive, ADP200 series	

WEIGHTS AND DIMENSIONS

Sizes	Dimensions: Width x Height x Depth		Weight	
	mm	inches	kg	lbs
ADP200-2...	162 x 396 x 159	6.38 x 15.59 x 6.26	7.8	17.2
ADP200-3...	235 x 401 x 179.4	9.25 x 15.79 x 7.06	10.5	23.5
ADP200-4...	267.6 x 616 x 276	10.53 x 24.25 x 10.87	32	70.6
ADP200-5550-...	311 x 767 x 331.4	12.2 x 30.2 x 13.05	60	132.3
ADP200-5750-...	311 x 784 x 332.8	12.2 x 30.8 x 13.1	60	132.3
ADP200-5S...-	300 x 630 x 332	11.8 x 24.8 x 13.07	42	92.6

GENERAL CHARACTERISTICS

Power supply	3 x 230-400 -480 VAC, -15% +10%, 50/60 Hz, $\pm 5\%$
Motor type	Synchronous
Connection to TT and TN networks	yes
Power ratings	7.5 ... 75kW (10...100 Hp)
Maximum output voltage	0.98 x V_{in}
Max Switching frequency	8 kHz
Maximum output frequency f2	300Hz
Control mode	Vector control with feedback (Encoder expansion card mandatory) Precision Speed control accuracy ⁽¹⁾ : $\pm 0.01\%$ motor speed rating Control Range: 1:1500
EMI Filter	Integrated in -F models (EN61800-3 category C2 and C3)
Choke ⁽²⁾	DC side choke integrated in ADP200-4300...5750 models. AC side external choke mandatory in ADP200-5S550 and ADP200-5S750 models.
IGBT braking unit	Integrated with external resistor (except ADP200-5750 model), braking torque 150% max
Programming SW	GF-eXpress
PLC	PLC with advanced IEC61131-3 programming environment
Integrated keypad	1-line x 4-character alphanumeric LED display
Serial communication	RS485 serial line (Modbus RTU)
Fieldbus management	CANopen® (ADP200 version -C)

(1) Speed control accuracy may vary depending on motor type and installation condition.

(2) For use and connection of available AC and DC external optional choke, refer to the instruction manual.

Protections	Motor protection	Compatibility with KTY, PTC or Klixon
	Ground leakage current	Setting via parameter
	Overload Ability	170% x I_n (for 60 sec.), 200% x I_n (for 3 sec)
	Voltage protection	Overvoltage threshold: 820Vdc Undervoltage threshold: 225 Vdc (@ 230 Vac), 391 Vdc (@ 400 Vac), 450 Vdc (@ 460 Vac), 470 Vdc (@ 480 Vac)
	Mains Input Over-Voltage	Varistor
	Over-temperature	Built in temperature sensor
Other	Port for SD card	yes
	Functions	<ul style="list-style-type: none"> Self-tuning rotational and stand still of speed-current-flux regulators and motor data identification Torque control Simplified Start-up menu Motor, Drive and Braking resistor I2t thermal protection Multispeed function (16 programmable preset) 4 independent programmable Multi-ramp with jerks Jog function Motorpotentiometer function Drop function Double motor parameters setting Variable switching frequency Motor temperature monitoring Advanced programming via MDPLC tool (IEC 61131-3 standard environment) <ul style="list-style-type: none"> PID function block for injection molding machine application Flow and pressure limit control Pressure sensor status control Adaptive Feedforward Automatic switchover between closed-loop speed and pressure control Speed and pressure control loops tuning Pump Rotation direction identification Multipump convergent and divergent control
Environmental conditions	Immunity / emissions	In compliance with EN61800-3. Conducted emission C2 up to 11kW and C3 with "F" configuration. [External filter available for standard version, no filter inside].
	Climatic conditions	EN60721-3-3
	Protection class	IP20
	Cooling system	Forced-air
	Operating temperature	-10...+40°C (14°...104°F), +40°C...+50°C (+104 ... +122°F) with derating
Altitude	Max 2000 m (up to 1000 m without derating)	
Markings		Complies with the EC Directive concerning low voltage equipment (Directives LVD 2014/35/EC, EMC 2014/30/EC)

GENERAL CHARACTERISTICS

I/O CONFIGURATION

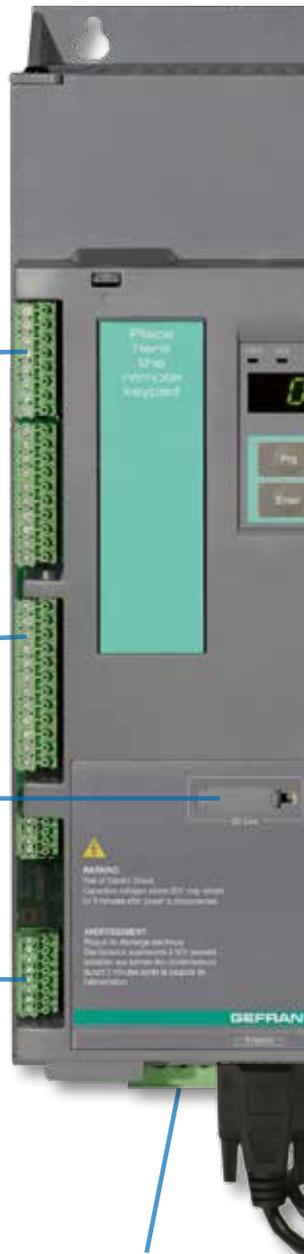
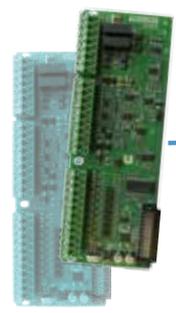
The ADP200 inverter features a new I/O card, as standard, specially developed to configure standard applications and to limit costs; optional card can be supplied on request for specific requirements:

> STANDARD: EXP-IO-D8A4R2-ADP

- 1 enable input (Enable);
- 6 digital inputs (DI);
- 2 digital outputs (DO);
- 3 differential analog inputs (AI):
 - 1 for pressure sensor:
 - Voltage: 0...10 V or 0.1...10.1 V (3 wires)
 - Current: 0...20 mA or 4...20mA (2 wires)
 - 2 for flow/pressure references or general purpose:
 - Voltage: +/- 10 V
 - Current: 0...20 mA or 4...20 mA
- 1 analog output (AO):
 - Voltage: 0...10 V
 - Current: 0...20 mA or 4...20mA
- 2 relay outputs (RO);
- 1 motor protection input (compatible with PTC, KTY, Klixon).

> OPTIONAL CARD: EXP-IO-D10A3R2-ADP

- 1 enable input (Enable);
- 8 digital inputs (DI);
- 3 differential analog inputs (AI);
- 2 digital outputs (DO);
- 2 relay outputs (RO);
- 1 motor protection input (compatible with PTC, KTY, Klixon).



Special adapter required (KIT KEY SD-CARD)

SD CARD

The SD memory card makes it very simple to save and load data and configurations with the ADP200.

ENCODER CONFIGURATION

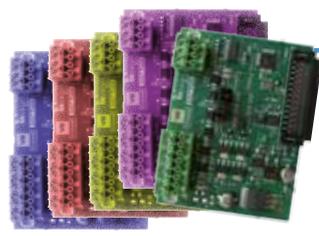
The ADP200 interfaces with all main feedback devices for field-oriented vector control (FOC) of synchronous motors:

> STANDARD: EXP-RES-I1-ADP

- Resolver
- Excitation Frequency: from 2.0 to 10 kHz
- Transformation ratio: from 0.1 to 1.0

> OPTIONAL CARDS*:

- EXP-RES-I1R1-ADP, Resolver + Repeat
- EXP-DE-I1R1F2-ADL, Incremental Digital encoder + Repeat + 2 Freeze
- EXP-SE-I1R1F2-ADL, Incremental Sinusoidal encoder + Repeat + 2 Freeze
- EXP-SESC-I1R1F2-ADL, Incremental Sinusoidal + SinCos encoder + Repeat + 2 Freeze.
- EXP-EN/SSI-I1R1F2-ADL, Incremental Sinusoidal + Absolute EnDat/SSI encoder + Repeat + 2 Freeze
- EXP-HIP-I1R1F2-ADL, Incremental Sinusoidal + Hiperface encoder + Repeat + 2 Freeze.



OPTIONAL 24 VDC
External power supply

* Specify desired drive configuration if it is different than standard drive configuration.

ADP200, INVERTER FAMILY

POWER RATINGS, EMI FILTER, CHOKE AND BU

Size	Build-in EMI Filter	Choke	Internal BU
2	Integrated on -F models	External optional	Integrated from 7.5 to 55 kW (75 kW external)
3			
4		Integrated DC choke	
5			
5S	External mandatory	Integrated	



Size 2: 7.5 to 11 kW

Size 3: 15 to 22 kW

Size 4: 30 to 45 kW

Size 5: 55 to 75 kW

INTEGRATED KEYPAD

The integrated programming keypad provide fast programming and immediate start-up.



OPTIONAL PROGRAMMING KEYPAD

The optional programming keypad with full display of parameters and variables in multiple languages, makes the ADP200 extremely intuitive and easy to use.

It has a strip of magnetic material on the back for attachment to the front of the drive or other metal surface (e.g. door of the electrical panel).

The keypad can be used remotely. Up to 5 sets of parameters can be saved with the keypad and sent to other drives.

FIELD BUS

The ADP200 integrates CAN fieldbus communication (in -C version). This feature is particularly useful for multi-pump control for master-slave interaction.

CANopen

SERIAL COMMUNICATION

The ADP200 integrates a standard RS485 serial line with Modbus RTU protocol, for peer-to-peer or multi-drop connections (with OPT-RS485-ADP).

Modbus

INPUT / OUTPUT DATA

The combinations of motor power ratings and inverters listed in the table shows the use of motors in which the voltage rating is equal to that of the mains power.

For motors with different voltage ratings the inverter must be chosen according to the current rating of the motor.

The combinations listed in the table thus show the current that can be delivered by the drive during continuous operation and overload conditions, according to the mains voltage.

The same engineering criteria apply for operations with additional derating factors (see drive instruction manual).

Sizes	Input data						Inverter output [KVA]	Output data					
	IN AC input current for continuous operation [Arms]							Pn mot (Recommended Synchronous motor rating, fsw = default)			I2N Rated output current (For Synchronous motors)		
	@ 230 Vac		@ 400 Vac		@ 480 Vac			@ 230 Vac	@ 400 Vac	@ 460 Vac	@ 230 Vac	@ 400 Vac	@ 460 Vac
	Without input choke	With input choke ⁽¹⁾	Without input choke	With input choke ⁽¹⁾	Without input choke	With input choke ⁽¹⁾		[kW]	[kW]	[Hp]	[A]	[A]	[A]
2075	24	20	24	20	21	19	13	4	7.5	10	18.5	18.5	16.7
2110	28	24	28	25	25	24	15	5.5	11	15	22	22	19.8
3150	40	34	40	35	35	33	22	7.5	15	20	32	32	28.8
3185	48	42	48	44	43	41	27	9	18.5	25	39	39	35.1
3220	51	45	51	47	46	44	29	11	22	30	42	42	37.8
4300	64	-	65	-	61	-	42	15	30	40	60	60	54
4370	79	-	80	-	75	-	52	18.5	37	50	75	75	67.5
4450	96	-	99	-	93	-	62	22.0	45	60	90	90	81
5550	112	-	116	-	109	-	73	30	55	75	105	105	94
5750	158	-	161	-	148	-	104	37	75	100	150	150	135
5S550 ⁽²⁾	-	113	-	120	-	114	73	30	55	75	105	105	94
5S570 ⁽²⁾	-	158	-	161	-	148	104	37	75	100	150	150	135

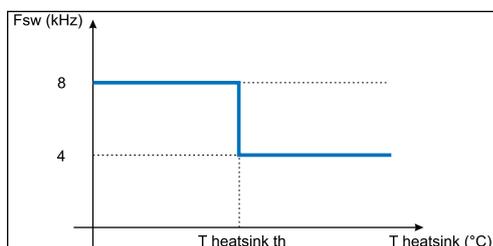
(1) ADP200-4300 ... 5750 models have DC side choke integrated. For use and connection of available external optional chokes, refer to the instruction manual.
 (2) ADP200-5S550 and 5S750 models: AC input external choke is mandatory.

Sizes	Switching frequency fsw ⁽⁴⁾		Reduction factor		
	Max [kHz]	Default [kHz]	Kt ⁽¹⁾	Kalt ⁽²⁾	Kv ⁽³⁾
2075	8	4	0.9	1.2	0.9
2110	8	4	0.9	1.2	0.9
3150	8	4	0.9	1.2	0.9
3185	8	4	0.9	1.2	0.9
3220	8	4	0.9	1.2	0.9
4300	8	4	0.9	1.2	0.9
4370	8	4	0.9	1.2	0.9
4450	8	4	0.9	1.2	0.9
5550-5S550	8	4	0.9	1.2	0.9
5750-5S570	8	4	0.9	1.2	0.9

(1) Kt: Derating factor with an ambient temperature of 50°C (1% every °C above 40°C).
 (2) Kalt : Derating factor for installation at altitudes above 1000 meters a.s.l. Value to be applied = 1.2% each 100 m increase above 1000 m (up to a maximum of 3000 m). For example: Altitude 2000 m, Kalt = 1.2% * 10 = 12% derating; In derated = 100 - ((12*100)/100) = 88 % In.
 (3) Kv : Derating factor for mains voltage at 460Vac.
 (4)The switching frequency is set by default to a fixed value. The dynamic switching frequency can be set by parameter.

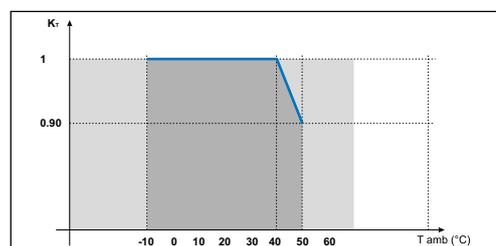
Derating values for switching frequency

In dynamic mode, the switching frequency is modified according to the temperature of the drive (measured on the heat sink), as shown in the figure below.



Ambient temperature reduction factor

Function not allowed
 Range of ambient temperatures allowed



DRIVE MODELS & CODES

SUPPLY 3 X 400VAC

- Internal led keypad
- Integrated CANBus
- Integrated Resolver card
- Optional programming Keypad
- Standards card on board:
 - > I/O = 6DI + Enable) + 2DO + 3AI + 1AO + 2RO + 1 motor protection.
 - > Transducer = Resolver



Cod.	Model	P _n @ 400 Vac Sync. motor	Configuration
S9ADP01	ADP200-2075-KBP-4-C-RS	7.5 kW	Internal Braking Unit – Without EMI filter
S9ADP02	ADP200-2110-KBP-4-C-RS	11 kW	Internal Braking Unit – Without EMI filter
S9ADP03	ADP200-3150-KBP-4-C-RS	15 kW	Internal Braking Unit – Without EMI filter
S9ADP04	ADP200-3185-KBP-4-C-RS	18.5 kW	Internal Braking Unit – Without EMI filter
S9ADP05	ADP200-3220-KBP-4-C-RS	22 kW	Internal Braking Unit – Without EMI filter
S9ADP06	ADP200-4300-KBP-4-C-RS	30 kW	Internal Braking Unit – Without EMI filter - Integrated DC choke
S9ADP07	ADP200-4370-KBP-4-C-RS	37 kW	Internal Braking Unit – Without EMI filter - Integrated DC choke
S9ADP08	ADP200-4450-KBP-4-C-RS	45 kW	Internal Braking Unit – Without EMI filter - Integrated DC choke
S9ADP09	ADP200-5550-KBP-4-C-RS	55 kW	Internal Braking Unit – Without EMI filter - Integrated DC choke
S9ADP10	ADP200-5750-KXP-4-C-RS	75 kW	Without EMI filter - Integrated DC choke
S9ADP22	ADP200-55550-KBP-4-C-RS	55 kW	Internal Braking Unit – Without EMI filter - Compact size
S9ADP21	ADP200-55750-KBP-4-C-RS	75 kW	Internal Braking Unit - Without EMI filter - Compact size
S9ADP11	ADP200-2075-KBP-F-4-C-RS	7.5 kW	Internal Braking Unit – EMI filter Integrated
S9ADP12	ADP200-2110-KBP-F-4-C-RS	11 kW	Internal Braking Unit – EMI filter Integrated
S9ADP13	ADP200-3150-KBP-F-4-C-RS	15 kW	Internal Braking Unit – EMI filter Integrated
S9ADP14	ADP200-3185-KBP-F-4-C-RS	18.5 kW	Internal Braking Unit – EMI filter Integrated
S9ADP15	ADP200-3220-KBP-F-4-C-RS	22 kW	Internal Braking Unit – EMI filter Integrated
S9ADP16	ADP200-4300-KBP-F-4-C-RS	30 kW	Internal Braking Unit – EMI filter Integrated - Integrated DC choke
S9ADP17	ADP200-4370-KBP-F-4-C-RS	37 kW	Internal Braking Unit – EMI filter Integrated - Integrated DC choke
S9ADP18	ADP200-4450-KBP-F-4-C-RS	45 kW	Internal Braking Unit – EMI filter Integrated - Integrated DC choke
S9ADP19	ADP200-5550-KBP-F-4-C-RS	55 kW	Internal Braking Unit – EMI filter Integrated - Integrated DC choke
S9ADP20	ADP200-5750-KXP-F-4-C-RS	75 kW	EMI filter Integrated - Integrated DC choke
S9ADP23	ADP200-55550-KBP-F-4-C-RS	55 kW	Internal Braking Unit – EMI filter Integrated - Compact size
S9ADP24	ADP200-55750-KBP-F-4-C-RS	75 kW	Internal Braking Unit – EMI filter Integrated - Compact size

OPTIONS AND ACCESSORIES

Models	Note	Dimensions: WxHxd mm (inches)	Weight kg (lbs)
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AC INPUT CHOKE *



LR3y-2075	AC input choke for 7.5kW	150 [5.9] x 155 [6.1] x 79 [3.1]	4.9 [10.8]
LR3y-3110	AC input choke for 11kW	150 [5.9] x 155 [6.1] x 79 [3.1]	5 [11]
LR3y-3150	AC input choke for 15kW	150 [5.9] x 169 [6.7] x 85 [3.3]	5.5 [12.1]
LR3-022	AC input choke for 18.5kW - 22kW	180 [7.1] x 182 [7.2] x 130 [5.1]	7.8 [17.2]
LR3-055	AC input choke for 5S550 model	180 [7.1] x 185 [7.3] x 180 [7.1]	12 [26.5]
LR3-090	AC input choke for 5S750 model	300 [11.8] x 265 [10.4] x 205 [8.1]	30 [66.1]

Note: ADP200-4300 ... 5750 have integrated DC choke.

BRAKING RESISTOR *



SRF 600 T 68R	Braking resistor for 7.5kW	320 [12.6] x 27 [1.06] x 36 [1.42]	0.65 [1.4]
SRF 600 T 40R	Braking resistor for 11kW	320 [12.6] x 27 [1.06] x 36 [1.42]	0.65 [1.4]
SRF 600 T 26R	Braking resistor for 15kW	300 [11.8] x 30 [1.18] x 35 [1.38]	0.65 [1.4]
SRF 600 T 18R	Braking resistor for 18.5kW - 22kW	320 [12.6] x 27 [1.06] x 35 [1.38]	0.65 [1.4]
SRF 1K0 T 12R	Braking resistor for 30kW - 37kW	320 [12.6] x 100 [3.93] x 30 [1.18]	2.35 [5.2]
SRF 1K0 T 10R	Braking resistor for 45kW	320 [12.6] x 100 [3.93] x 30 [1.18]	2.35 [5.2]
SRF 1K0 T 8R	Braking resistor for 55kW - 75kW	320 [12.6] x 100 [3.93] x 30 [1.18]	2.35 [5.2]

EXTERNAL EMI FILTER *



EMI FTF-480-16	External EMI filter for 7.5kW	250 [9.84] x 45 [1.77] x 70 [2.76]	0.8 [1.8]
EMI FTF 480-30	External EMI filter for 11kW - 15kW	270 [10.63] x 50 [1.97] x 85 [3.35]	1 [2.2]
EMI FTF 480-42	External EMI filter for 18.5kW - 22kW	310 [12.20] x 50 [1.97] x 85 [3.35]	1.3 [2.9]
EMI FTF-480-55	External EMI filter for 30kW	250 [9.84] x 90 [3.54] x 85 [3.35]	1.9 [4.2]
EMI FTF-480-75	External EMI filter for 37kW	270 [10.63] x 80 [3.15] x 135 [5.31]	2.6 [5.7]
EMI FTF-480-100	External EMI filter for 45kW - 55kW	270 [10.63] x 90 [3.54] x 150 [5.91]	3 [6.6]
EMI FTF-480-130	External EMI filter for 75kW	270 [10.63] x 90 [3.54] x 150 [5.91]	3.6 [7.9]

(*) These options are specific for Injection Molding Machine application, for other application refer to Gefran Commercial Department.

Models	Note
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I/O CARDS



EXP-IO-D10A3R2-ADP	8DI + Enable + 2DO + 3AI + 2RO + 1 motor protection
EXP-IO-D8A4R2-ADP	6DI + Enable + 2DO + 3AI + 1AO + 2RO + 1 motor protection

ENCODER CARDS



Models	Note
EXP-RES-I1-ADP	Resolver
EXP-RES-I1R1-ADP	Resolver + Repeat
EXP-DE-I1R1F2-ADL	Incremental Digital encoder + Repeat + 2 Freeze
EXP-SE-I1R1F2-ADL	Incremental Sinusoidal encoder + Repeat + 2 Freeze
EXP-SESC-I1R1F2-ADL	Incremental Sinusoidal + SinCos encoder + Repeat + 2 Freeze.
EXP-EN/SSI-I1R1F2-AD	Incremental Sinusoidal + Absolute EnDat/SSI encoder + Repeat + 2 Freeze
EXP-HIP-I1R1F2-AD	Incremental Sinusoidal + Hiperface encoder + Repeat + 2 Freeze

VARIOUS



Models	Note
Kit power shield size 2	Power cable shielding kit for size 2
Kit power shield size 3	Power cable shielding kit for size 3
Kit power shield size 4	Power cable shielding kit for size 4
Kit power shield size 5	Power cable shielding kit for size 5
BUy 1050	Braking unit for 230Vac...480Vac lines. In= 50Arms, UL mark. Dimensions WxHxd: 149 mm (5.87") x 318 mm (12.52") x 216 mm (8.50"). Weight: 6 kg (13.2 lbs)
Kit RS485 - PCI-COM	Universal kit for RS485 serial line (PCI COM + connection cables)
Shielded cable for PCI 485	RS-485 serial interface cable (L = 4.5 m)
OPT-RS485-ADP	Optoisolator for RS485 for Multidrop connections
PCI COM	Universal RS-232 / RS-485 serial interface
KB-ADV100	Optional programming Alphanumeric keypad (5 line x 21 character display)
KIT KEY SD-CARD	Adapter for SD card (data loading memory)
USB-RS232 1.0M Cable Converter	Cable Converter USB-RS232 (L = 1.0 m)

SOFTWARE

GF-eXpress PROGRAMMING SOFTWARE

Applications

- > Configuring parameters of Gefran devices (Instruments, Drives, Sensors)
- > Tuning control parameters with on-line tests and trends
- > Managing parameter archive for multiple configuration.

Features

- > Guided product selection
- > Multiple languages
- > Creation and storage of recipes
- > Oscilloscope
- > Simplified settings
- > Parameter printout
- > Network autoscan

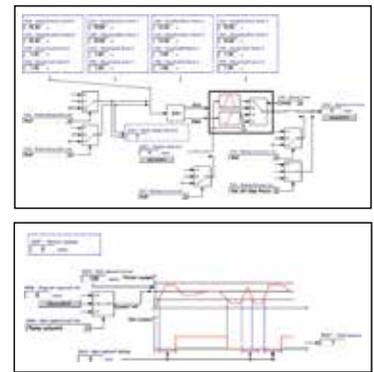
GF_eXpress software configures the parameters of the automation components, drives and sensors in the Gefran catalogue.

The graphic interface makes selecting and configuring parameters easy and intuitive. Devices are grouped according to product type and functions.

Products are searched by means of a context search and a display of product photos.

This provides a single device library for all Gefran products.

Complete configuration information for every device is given in XML format to facilitate expansion of the catalogue and parameters.



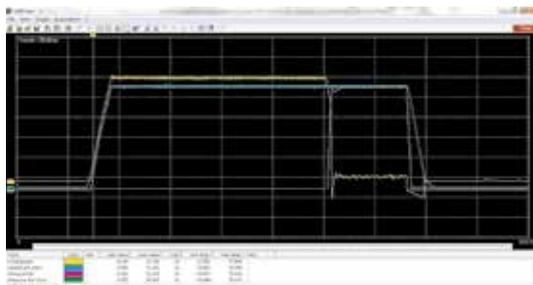
SOFTSCOPE

SoftScope is a software oscilloscope with synchronous sampling (buffered with a minimum sampling time of 1ms).

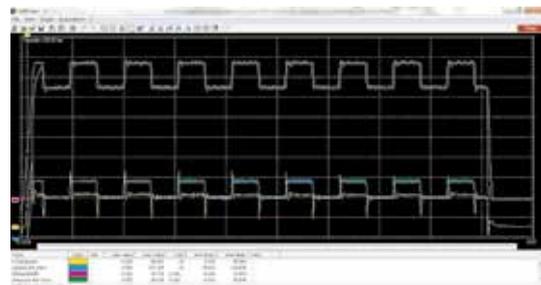
With SoftScope, the user can easily and quickly display a number of specific variables, such as commissioning variables, variables for testing performance levels achieved or for tuning control loops, etc.

SoftScope can be used to define the following parameters:

- > Trigger conditions (e.g. climbing leading edge of a specific signal)
- > Recording quality (a multiple of the basic clock at 1ms)
- > Recording duration period
- > System sizes to be recorded.



Softscope Acquisition during injection



Example of Pressure Tuning

APPLICATION PID FOR INJECTION MOLDING MACHINE

Applications

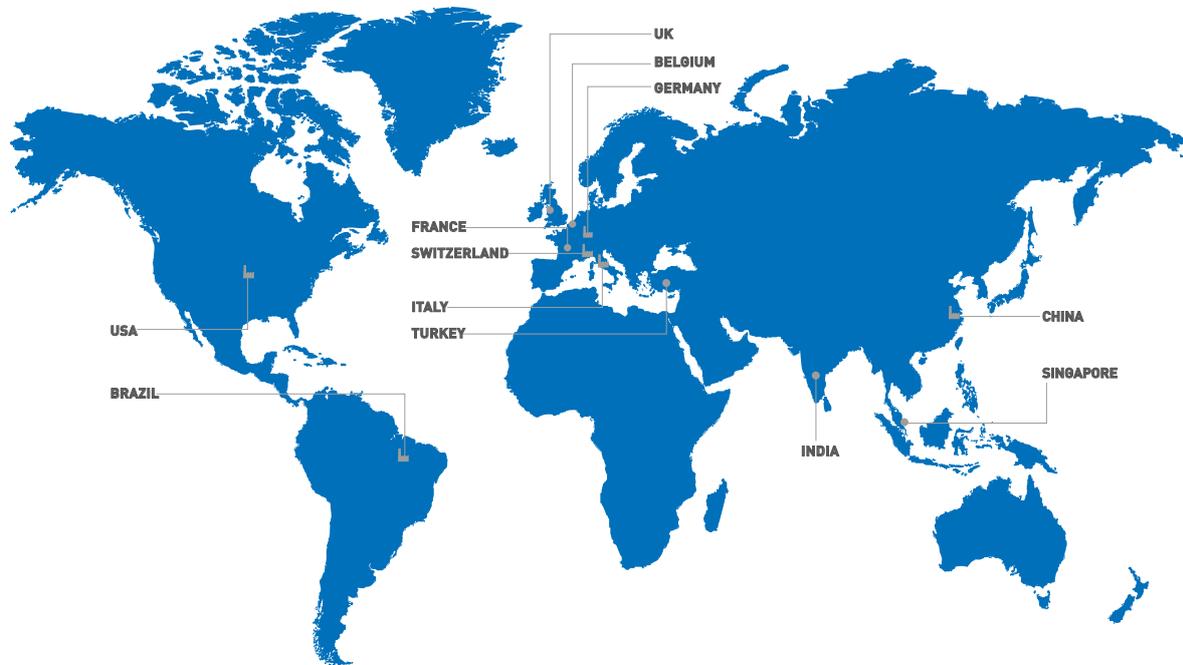
ADP200 has a Built-in PID function for both flow and pressure limit control. This SW has been especially optimized for the requirements of the injection molding machine with single and multi servopump.

The control needs as input the Pressure feedback measured from external sensor, the pressure reference and the speed reference. These information are processed to meet typical pattern of the flow (speed) and pressure references during a complete machine cycle.

Features

- > Flow and pressure limit control
- > Single pump control
- > Multi pump convergent control
- > Multipump divergent/convergent control





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