

ENG

# ADP200 INVERTER FAMILY

## INVERTER FOR SERVOPUMP APPLICATION



COD. 82221G

**GEFRAN**  
BEYOND TECHNOLOGY

# GEFRAN

BEYOND TECHNOLOGY

Over fifty years of experience, an organisation highly focused on the customer's needs and constant technological innovation make Gefran a benchmark in the design and production of sensors and components for industrial process automation and control.

Expertise, flexibility and process quality are the factors that distinguish Gefran in the production of integrated tools and systems for specific applications in various industrial fields, with consolidated know-how in the plastics, mobile hydraulics, heating and lift sectors.

Technology, innovation and versatility represent the catalogue's added value in addition to the ability to create specific application solutions in association with the world's leading machine manufacturers.



# APPLICATIONS



PLASTIC AND RUBBER  
INJECTION MOLDING MACHINES



DIE CASTING MACHINES



HYDRAULIC PRESSES



HYDRAULIC BENDING  
MACHINES

## 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 50 years ago, developing and delivering technological solutions for plastics processing machinery market, in which the use of servopump systems started to spread more and more in new machines and revamping solutions.

The proven benefits in terms of performance and energy saving have led the use of servopump systems even in other sectors in which Gefran always offers its know-how and experience making it a reliable partner for OEMs, system integrators and end users.

# PERFORMING HYDRAULIC DRIVE MACHINES

Hydraulic drive 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

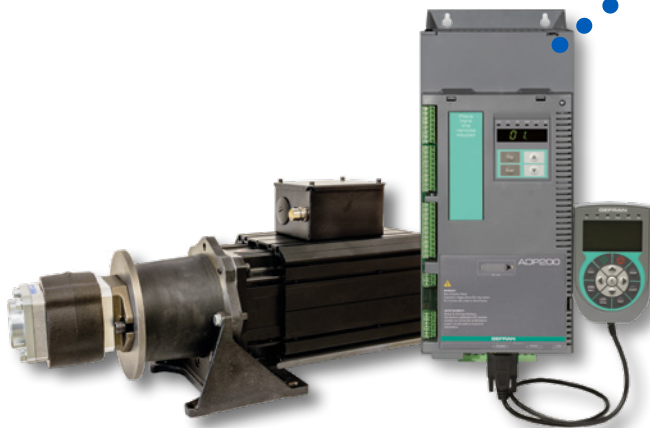
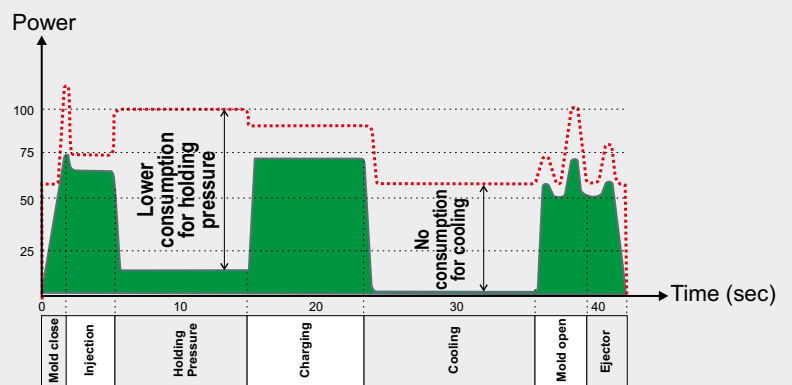
Energy saving by

- > Using high-end servo systems
- > Reducing heat in hydraulic fluid
- > Low CO<sub>2</sub> emissions

**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

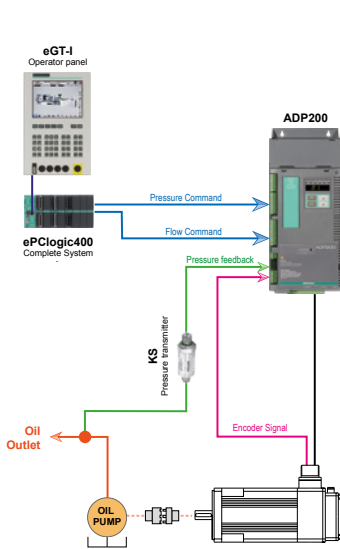


## ADP200 INVERTER

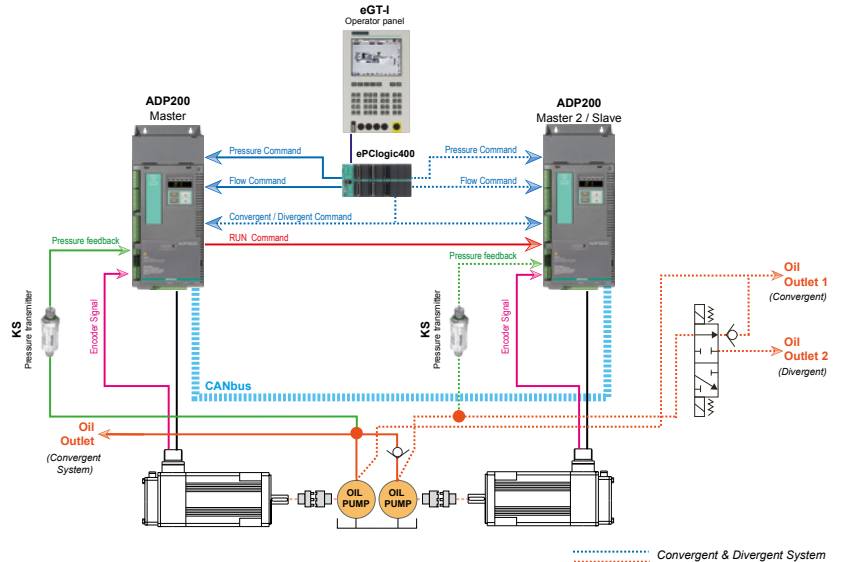
- > From 7.5 to 75 kW
- > FOC closed loop
- > Single and multi-pump control
- > Precise pressure and flow control
- > Pressure oscillation damping algorithm for servopump

**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

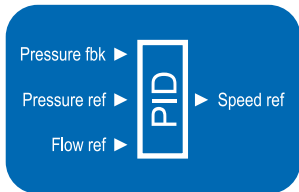


### MULTI HYDRAULIC PUMP CONTROL: CONVERGENT SYSTEM AND CONVERGENT & DIVERGENT SYSTEM



## SPECIAL FUNCTIONS FOR SERVOPUMP

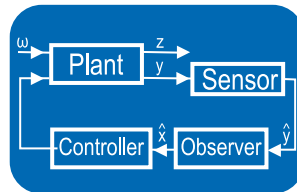
#### PID FUNCTION BLOCK FOR IMM



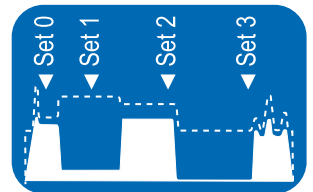
#### PRESSURE OSCILLATION DAMPING



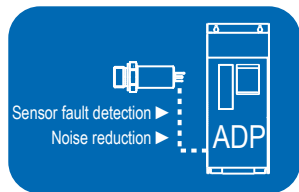
#### ADAPTIVE FEEDFORWARD



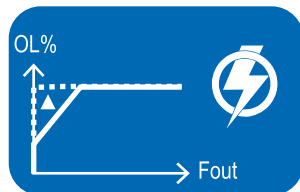
#### MULTI LEVEL PID



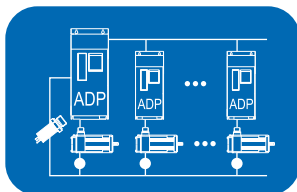
#### DEDICATED PRESSURE SENSOR INPUT



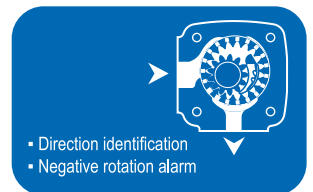
#### 200% OVERLOAD @ 0Hz



#### MULTIPUMP SYSTEMS



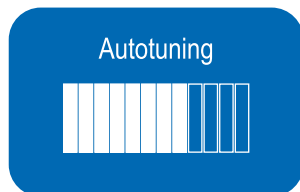
#### PUMP PROTECTION



#### AUTOMATIC SWITCHOVER BETWEEN SPEED AND PRESSURE CONTROL



#### SPEED AND PRESSURE CONTROL LOOPS TUNING



#### SUITABILITY FOR NEW MACHINES AND REVAMPING



# 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 and metal 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 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-IO-D8A4R2-ADP I01 = optional I/O card EXP-IO-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

<b>Power supply</b>	3 x 230-400 -480 VAC, -15% +10%, 50/60 Hz, ±5%
<b>Motor type</b>	Synchronous
<b>Connection to TT and TN networks</b>	yes
<b>Power ratings</b>	7.5 ... 75kW (10...100 Hp)
<b>Maximum output voltage</b>	0.98 x Vin
<b>Max Switching frequency</b>	8 kHz
<b>Maximum output frequency f2</b>	300Hz
<b>Overload Ability</b>	170% x In (for 60 sec.), 200% x In (for 3 sec)
<b>Control mode</b>	Vector control with feedback (Encoder expansion card mandatory) Precision Speed control accuracy <sup>(1)</sup> : ±0.01% motor speed rating Control Range: 1:1500
<b>EMI Filter</b>	Integrated in -F models, EN61800-3 category C2 (ADP200-2075-F) and C3 (ADP200-2110-F ... ADP200-5750/5S750-F)
<b>Choke <sup>(2)</sup></b>	DC side choke integrated in ADP200-4300...5750 models. AC side external choke mandatory in ADP200-5S550 and ADP200-5S750 models.
<b>IGBT braking unit</b>	Integrated with external resistor (except ADP200-5750 model), braking torque 150% max
<b>Programming SW</b>	GF-eXpress
<b>PLC</b>	PLC with advanced IEC61131-3 programming environment
<b>Integrated keypad</b>	1-line x 4-character alphanumeric LED display
<b>Serial communication</b>	RS485 serial line (Modbus RTU)
<b>Fieldbus management</b>	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.

<b>Protections</b>	Motor protection	Compatibility with KTY, PTC or Klixon
	Ground leakage current	Setting via parameter
	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
<b>Other</b>	Port for SD card	yes
	Functions	<ul style="list-style-type: none"> <li>Self-tuning rotational and stand still of speed-current-flux regulators and motor data identification</li> <li>Torque control</li> <li>Simplified Start-up menu</li> <li>Motor, Drive and Braking resistor I2t thermal protection</li> <li>Multispeed function (16 programmable preset)</li> <li>4 independent programmable Multi-ramp with jerks</li> <li>Jog function</li> <li>Motorpotentiometer function</li> <li>Droop function</li> <li>Double parameters setting</li> <li>Variable switching frequency</li> <li>Motor temperature monitoring</li> <li>Advanced programming via MDPLC tool (IEC 61131-3 standard environment)</li> <li>PID function block for injection molding machine application</li> <li>Flow and pressure limit control</li> <li>Pressure sensor status control</li> <li>Adaptive Feedforward</li> <li>Automatic switchover between closed-loop speed and pressure control</li> <li>Speed and pressure control loops tuning</li> <li>Pump Rotation direction identification</li> <li>Multi pump convergent and divergent control</li> <li>Multilevel PID</li> <li>Pump negative speed alarm</li> </ul>
<b>Environmental conditions</b>	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)	
<b>Markings</b>		Complies with the EC Directive concerning low voltage equipment (Directives LVD 2014/35/EC, EMC 2014/30/EC)
		UL508C

# 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).



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

## SD CARD

## ENCODER CONFIGURATION

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

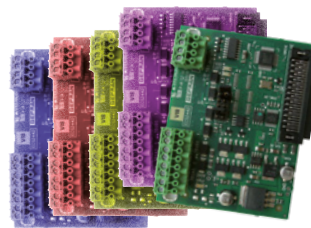
### > STANDARD: EXP-RES-I1-ADP

- 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.

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



## 24 VDC

Regulation card external power supply



## 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	



### 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.

### FIELDBUS

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



### SERIAL COMMUNICATION

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



# INPUT / OUTPUT DATA

The combinations listed in the table 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 <sup>(1)</sup>	Without input choke	With input choke <sup>(1)</sup>	Without input choke	With input choke <sup>(1)</sup>		[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 <sup>(2)</sup>	-	113	-	120	-	114	73	30	55	75	105	105	94
5S570 <sup>(2)</sup>	-	158	-	161	-	148	104	37	75	100	150	150	135

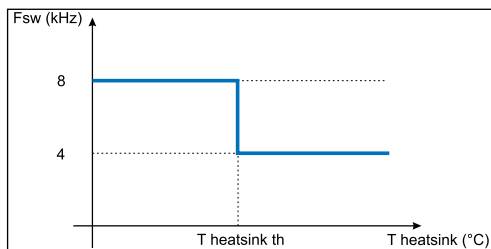
(1) ADP200-4300 ... 5750 models have DC side choke integrated. For use and connection of available external optional chokes, refer to the instruction manual.  
 (2) ADP200-5S550 and 5S570 models: AC input external choke is mandatory.

Sizes	Switching frequency fsw <sup>(4)</sup>		Reduction factor		
	Max [kHz]	Default [kHz]	Kt <sup>(1)</sup>	Kalt <sup>(2)</sup>	Kv <sup>(3)</sup>
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.

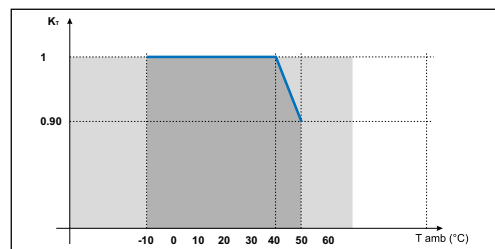
### Derating values for switching frequency

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 (light grey)  
 Range of ambient temperatures allowed (dark grey)



# 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



Model	Cod.	Pn@ 400 Vac Sync. motor	Configuration
ADP200-2075-KBP-4-C-RS-24	SHS9ADP51	7.5 kW	Internal Braking Unit – Without EMI filter
ADP200-2110-KBP-4-C-RS-24	SHS9ADP52	11 kW	Internal Braking Unit – Without EMI filter
ADP200-3150-KBP-4-C-RS-24	SHS9ADP53	15 kW	Internal Braking Unit – Without EMI filter
ADP200-3185-KBP-4-C-RS-24	SHS9ADP54	18.5 kW	Internal Braking Unit – Without EMI filter
ADP200-3220-KBP-4-C-RS-24	SHS9ADP55	22 kW	Internal Braking Unit – Without EMI filter
ADP200-4300-KBP-4-C-RS-24	SHS9ADP56	30 kW	Internal Braking Unit – Without EMI filter - Integrated DC choke
ADP200-4370-KBP-4-C-RS-24	SHS9ADP57	37 kW	Internal Braking Unit – Without EMI filter - Integrated DC choke
ADP200-4450-KBP-4-C-RS-24	SHS9ADP58	45 kW	Internal Braking Unit – Without EMI filter - Integrated DC choke
ADP200-5550-KBP-4-C-RS-24	SHS9ADP59	55 kW	Internal Braking Unit – Without EMI filter - Integrated DC choke
ADP200-5750-KXP-4-C-RS-24	SHS9ADP60	75 kW	Without EMI filter - Integrated DC choke
ADP200-5S550-KBP-4-C-RS-24	SHS9ADP63	55 kW	Internal Braking Unit – Without EMI filter - Compact size
ADP200-5S750-KBP-4-C-RS-24	SHS9ADP64	75 kW	Internal Braking Unit - Without EMI filter - Compact size
ADP200-2075-KBP-F-4-C-RS-24	SHS9ADP11	7.5 kW	Internal Braking Unit – EMI filter Integrated
ADP200-2110-KBP-F-4-C-RS-24	SHS9ADP12	11 kW	Internal Braking Unit – EMI filter Integrated
ADP200-3150-KBP-F-4-C-RS-24	SHS9ADP13	15 kW	Internal Braking Unit – EMI filter Integrated
ADP200-3185-KBP-F-4-C-RS-24	SHS9ADP14	18.5 kW	Internal Braking Unit – EMI filter Integrated
ADP200-3220-KBP-F-4-C-RS-24	SHS9ADP15	22 kW	Internal Braking Unit – EMI filter Integrated
ADP200-4300-KBP-F-4-C-RS-24	SHS9ADP16	30 kW	Internal Braking Unit – EMI filter Integrated - Integrated DC choke
ADP200-4370-KBP-F-4-C-RS-24	SHS9ADP17	37 kW	Internal Braking Unit – EMI filter Integrated - Integrated DC choke
ADP200-4450-KBP-F-4-C-RS-24	SHS9ADP18	45 kW	Internal Braking Unit – EMI filter Integrated - Integrated DC choke
ADP200-5550-KBP-F-4-C-RS-24	SHS9ADP19	55 kW	Internal Braking Unit – EMI filter Integrated - Integrated DC choke
ADP200-5750-KXP-F-4-C-RS-24	SHS9ADP20	75 kW	EMI filter Integrated - Integrated DC choke
ADP200-5S550-KBP-F-4-C-RS-24	SHS9ADP23	55 kW	Internal Braking Unit – EMI filter Integrated - Compact size
ADP200-5S750-KBP-F-4-C-RS-24	SHS9ADP24	75 kW	Internal Braking Unit – EMI filter Integrated - Compact size

## OPTIONS AND ACCESSORIES

Models	Cod.	Note	Dimensions: WxHxd mm [inches]	Weight kg [lbs]
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### AC INPUT CHOKE \*



<b>LR3y-2075</b>	S7AB6	AC input choke for 7.5kW	150 [5.9] x 155 [6.1] x 79 [3.1]	4.9 [10.8]
<b>LR3y-3110</b>	S7AB7	AC input choke for 11kW	150 [5.9] x 155 [6.1] x 79 [3.1]	5 [11]
<b>LR3y-3150</b>	S7AB8	AC input choke for 15kW	150 [5.9] x 169 [6.7] x 85 [3.3]	5.5 [12.1]
<b>LR3-022</b>	S7FF4	AC input choke for 18.5kW - 22kW	180 [7.1] x 182 [7.2] x 130 [5.1]	7.8 [17.2]
<b>LR3-055</b>	S7FF1	AC input choke for 5S550 model	180 [7.1] x 185 [7.3] x 180 [7.1]	12 [26.5]
<b>LR3-090</b>	S7D19	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 \*



<b>SRF 600 T 68R</b>	S8SA21	Braking resistor for 7.5kW	320 [12.6] x 27 [1.06] x 36 [1.42]	0.65 [1.4]
<b>SRF 600 T 40R</b>	S8SA22	Braking resistor for 11kW	320 [12.6] x 27 [1.06] x 36 [1.42]	0.65 [1.4]
<b>SRF 600 T 26R</b>	S8SA17	Braking resistor for 15kW	300 [11.8] x 30 [1.18] x 35 [1.38]	0.65 [1.4]
<b>SRF 600 T 18R</b>	S8SA23	Braking resistor for 18.5kW - 22kW	320 [12.6] x 27 [1.06] x 35 [1.38]	0.65 [1.4]
<b>SRF 1K0 T 12R</b>	S8SA18	Braking resistor for 30kW - 37kW	320 [12.6] x 100 [3.93] x 30 [1.18]	2.35 [5.2]
<b>SRF 1K0 T 10R</b>	S8SA19	Braking resistor for 45kW	320 [12.6] x 100 [3.93] x 30 [1.18]	2.35 [5.2]
<b>SRF 1K0 T 8R</b>	S8SA20	Braking resistor for 55kW - 75kW	320 [12.6] x 100 [3.93] x 30 [1.18]	2.35 [5.2]

### EXTERNAL EMI FILTER (FOR MODELS WITHOUT INTEGRATED FILTER)\*



<b>EMI FTF-480-16</b>	S7GH0	External EMI filter for 7.5kW	250 [9.84] x 45 [1.77] x 70 [2.76]	0.8 [1.8]
<b>EMI FTF 480-30</b>	S7GHP	External EMI filter for 11kW - 15kW	270 [10.63] x 50 [1.97] x 85 [3.35]	1 [2.2]
<b>EMI FTF 480-42</b>	S7GOA	External EMI filter for 18.5kW - 22kW	310 [12.20] x 50 [1.97] x 85 [3.35]	1.3 [2.9]
<b>EMI FTF-480-55</b>	S7GOB	External EMI filter for 30kW	250 [9.84] x 90 [3.54] x 85 [3.35]	1.9 [4.2]
<b>EMI FTF-480-75</b>	S7GOC	External EMI filter for 37kW	270 [10.63] x 80 [3.15] x 135 [5.31]	2.6 [5.7]
<b>EMI FTF-480-100</b>	S7GOD	External EMI filter for 45kW - 55kW	270 [10.63] x 90 [3.54] x 150 [5.91]	3 [6.6]
<b>EMI FTF-480-130</b>	S7GOE	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.  
EN61800-3 category C2 (ADP200-2075 ... 3150) and C3 (≥ ADP200-3185).

Models	Cod.	Note
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### I/O CARDS



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



Models	Cod.	Note
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## ENCODER CARDS



EXP-RES-II-ADP	-	Resolver
EXP-RES-II1R1-ADP	-	Resolver + Repeat
EXP-DE-II1R1F2-ADL	-	Incremental Digital encoder + Repeat + 2 Freeze
EXP-SE-II1R1F2-ADL	-	Incremental Sinusoidal encoder + Repeat + 2 Freeze
EXP-SESC-II1R1F2-ADL	-	Incremental Sinusoidal + SinCos encoder + Repeat + 2 Freeze.
EXP-EN/SSI-II1R1F2-ADL	-	Incremental Sinusoidal + Absolute EnDat/SSI encoder + Repeat + 2 Freeze
EXP-HIP-II1R1F2-ADL	-	Incremental Sinusoidal + Hiperface encoder + Repeat + 2 Freeze

Models	Cod.	Note
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## VARIOUS



Kit power shield size 2	S726101	Power cable shielding kit for size 2
Kit power shield size 3	S726501	Power cable shielding kit for size 3
Kit power shield size 4	S72902	Power cable shielding kit for size 4
Kit power shield size 5	S725621	Power cable shielding kit for size 5



BUy 1050	S9D56	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)
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Kit RS485 - PCI-COM	S50T6	Universal kit for RS485 serial line (PCI COM + 8S8F59 connection cables)
Shielded cable for PCI 485	8S8F59	RS-485 serial interface cable (L = 4.5 m)
OPT-RS485-ADP	S5L85	Optoisolator for RS485 for Multidrop connections
PCI COM	S560T	Universal RS-232 / RS-485 serial interface



KB-ADV100	S5P3T	Optional programming Alphanumeric keypad (5 line x 21 character display)
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KIT KEY SD-CARD	S72644	Adapter for SD card (data loading memory)
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USB-RS232 1.0M Cable Converter	8S8F62	Cable Converter USB-RS232 (L = 1.0 m)
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# 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

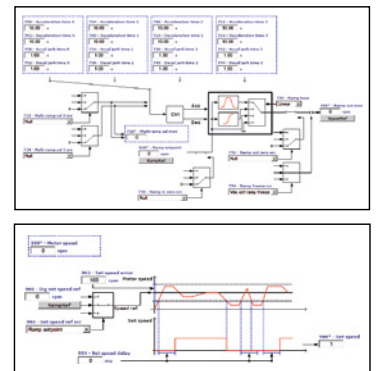
GF\_eXpress software configures the parameters of the automation components, drives and sensors in the Gefran catalogue.

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.



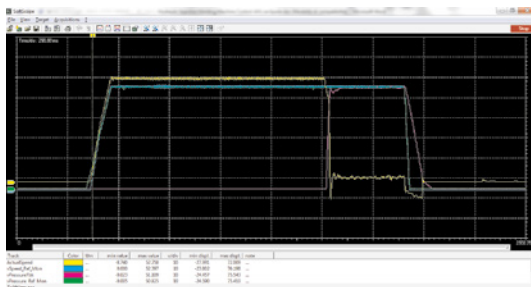
## SOFTSCOPE

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

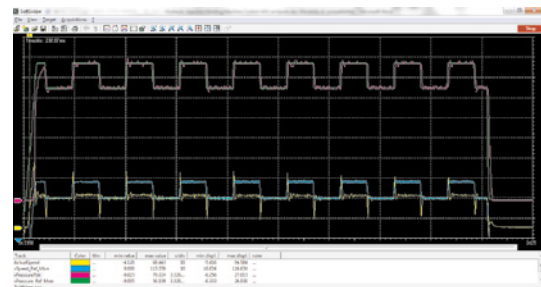
With SoftScope, the user can easily and quickly display a number of specific variables, such as commissioning variables, variables for testing performance levels achieved or for tuning control loops, etc.

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 HYDRAULIC MACHINE WITH SERVOPUMP

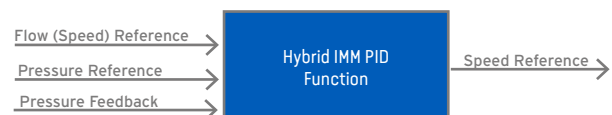
### Applications

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 hydraulic machine with single and multi servopump.

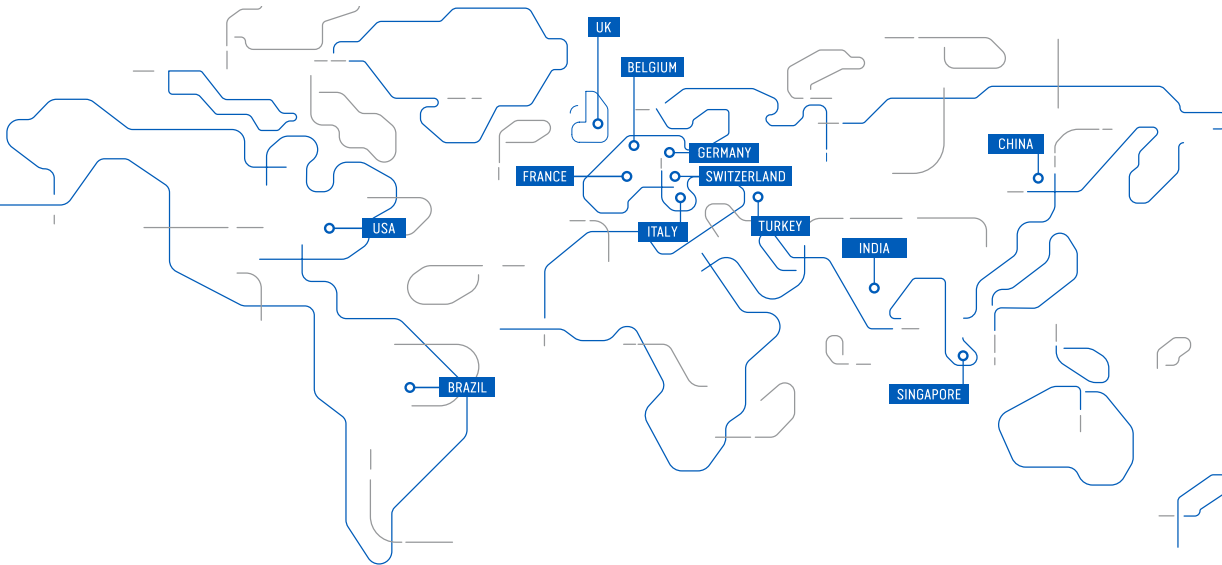
The control needs as input the Pressure feedback measured from external sensor, the pressure reference and the speed reference. These information are processed to meet typical pattern of the flow (speed) and pressure references during a complete machine cycle.

### Features

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







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