

POWER CONTROL

SOLID STATE RELAYS, CONTACTORS, AND POWER CONTROLLERS

GEFRAN





THE ACKNOWLEDGED INTERNATIONAL LEADER

Thanks to forty years of experience, Gefran is the world leader in the design and production of solutions for **measuring, controlling, and driving industrial production processes**. We have 14 branches in 12 countries and a network of over 80 worldwide distributors.

For 40 years, Gefran has been designing and producing technologically advanced actuators and solid state relays to control resistive/inductive loads and infrared lamps used in modern temperature control systems. Our knowledge of the market transforms your needs into practical, high-quality answers.



QUALITY AND TECHNOLOGY

Gefran components are a **concentrate of technology**, the result of constant research and of **cooperation with major research centres**. Thanks to its **complete line of controllers and actuators**, Gefran can be your sole provider of solutions for **electrical heating control**. Gefran's know-how and experience guarantee **continuous** and practical solutions.



PERFORMANCE

In addition to foreseeing the market's application needs, Gefran forms partnerships with its customers to find **the best way to optimise and boost the performance of various applications**. Gefran products communicate with one another to provide integrated solutions, and can dialogue with devices by other companies thanks to compatibility with numerous fieldbuses.



SERVICES

PRE AND POST SALES

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

TRAINING

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

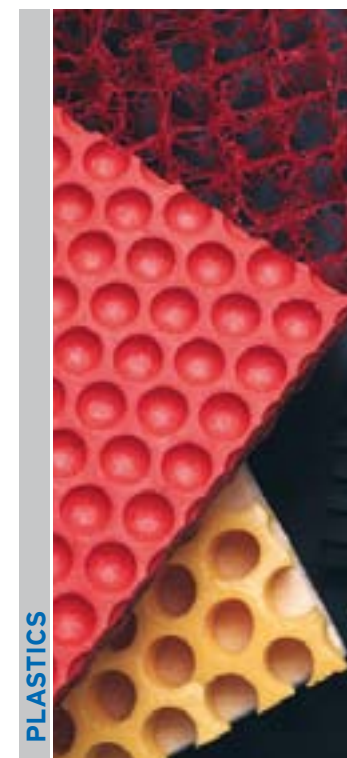


SOFTWARE

GF_eXpress

Configuration kit for Gefran instruments by means of PC (Windows environment). Lets you read or write all of the parameters of a single instrument via serial connection.

- > A single software for all models
- > Easy configuration
- > Copy/paste, save recipe, trend functions
- > Rapid configuration of instruments
- > Saving and management of parameter recipes
- > On-line trend and saving of historical data
- > Recovery of factory settings
- > Custom linearization
- > On-line user manual



PLASTICS



HEAT TREATMENT



GLASS



FOOD

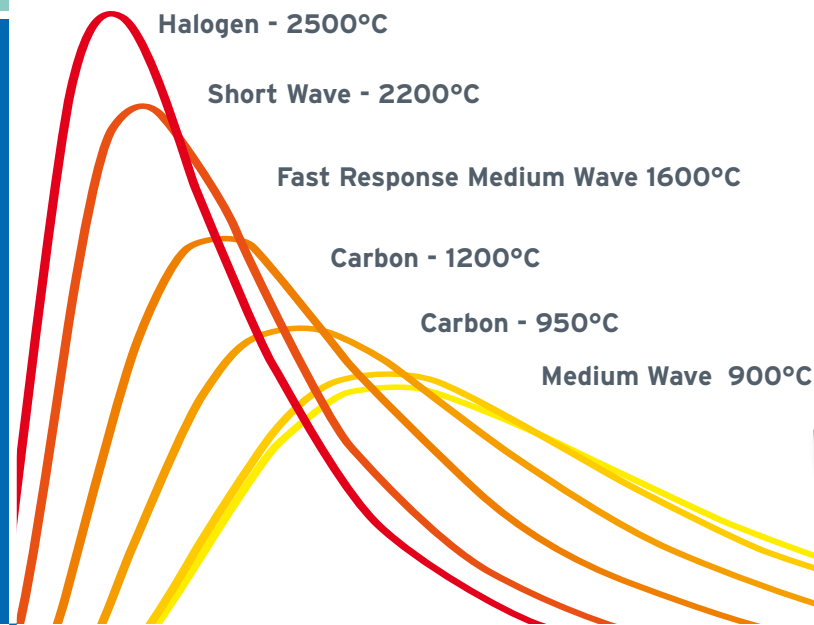


PAPER



ENERGY

IR SOLUTION



IDEAL SOLUTIONS FOR IR LAMP APPLICATIONS

Gefran introduces its GEF4-IR, a new 4-zone PID power controller for infrared lamps, transformers, and inductive loads.

The GEF4-IR is extremely compact, saving you space and wiring time..
GEF4-IR runs full and continuous diagnostics of process current, temperature, and voltage.

CHARACTERISTICS

- Up to 4 zones single-phase or 1 zone 3-phase + 1 single-phase
- All connection types (star, delta, with/without neutral)
- Zero-crossing operation with pulse train and half single cycle
- Phase-angle operation
- Soft start, soft stop, current limit, V, I, P feedback functions
- Iac rms and Vac rms read, interrupted load and short circuit diagnostics

PRINTING



PLASTICS - BLOWING



PHOTOVOLTAICS



TEXTILE



WOODWORKING MACHINES



AUTOMOTIVE



GTF - GFW



GTF

GTF plus is the new line of GEFAN power controllers, designed to control all types of industrial electric heaters. Versatility, plus easy and guided configuration with GEFAN user friendly software make the device ideal for all power control applications.

- Longer load life with Soft Start and current limits
- Process accuracy and reliability via voltage, current, power feedback
- Powerful diagnostics of total and partial load interrupt
- Greatly reduced downtimes with incorporated electronic fuse
- Great flexibility with all types of control and load

GFW

GFW adv is the new modular line of GEFAN power controllers, designed to control all types of industrial electric heaters with any connection mode (**mono-phase, bi-phase and tri-phase**).

Advanced control functions, feedback algorithms, phase synchronisation, and energy totalisers are the main advantages of the GFW's calculation functions. Advanced Fieldbus performance and easy configuration with **user-friendly** software.

- Full integration in automation architectures thanks to Fieldbuses
- Modularity for all mono/bi/ tri-phase applications
- Integrated solution with incorporated temperature controller
- Powerful diagnostics for total and partial load interrupt and for overtemperature,
- Greatly reduced downtimes with incorporated electronic fuse
- Great flexibility with all types of control and load



PLASTIC, PHOTOVOLTAIC, FURNACES, WOOD, GLASS,
PAPER, FOOD

Solid State Power Controller



PLASTICS, PACKAGING,
FURNACES

Contactors
Solid State



PLASTICS, PACKAGING

Solid State Relay



ZERO CROSSING

HB ALARM

ZERO CROSSING BURST FIRING

HALF SINGLE CYCLE, PHASE ANGLE



Modbus TCP/RTU
PC Configurable



FIELDBUS*



Modbus TCP/RTU

CANopen



EtherCAT



PC Configurable

GUIDE TO SELECTION BY FUNCTION

		SOLID STATE RELAY				
SERIE		GQ	GS	GD	GT	GZ
RATINGS	Rated voltage (Vac)	230Vac; 480Vac; 600Vac	230Vac 480Vac	480Vac	480Vac	400Vac, 480Vac, 600Vac
	Rated current (A)	15, 25, 50, 90	15, 25, 40, 50, 60, 75, 90, 120	40A	25, 40, 50, 60, 75, 90, 120	10, 25, 40, 55
INTEGRATED HEAT-SINK	Integrated heat-sink with DIN bar attachment	no	no	no	no	no
LOAD TYPE	Heating elements with low thermal coefficient	GQ	GS	GD	GT	GZ
	Long-wave IR lamps	GQ	GS	GD	GT	GZ
	Medium-wave IR lamps					
	Short-wave IR lamps					
	Heating elements with high thermal coefficient: (Kanthal, Super Kanthal, silicon carbide)					
	Single-phase Transformers					
	Three-phase Transformers					
INPUT CONTROL	Digital ON/OFF	GQ	GS	GD		GZ
	Digital PWM					
	Analog 0-10V, 4-20mA				GT	
	Analog, potentiometer				GT	
	Modbus RTU serial					
	Fieldbus					
FIRING MODE	Zero crossing, ON/OFF (ZC)	GQ	GS	GD		GZ
	Rapid Zero crossing "Burst firing" (BF)				GT	
	Optimized rapid Zero crossing (HSC)					
	Phase angle (PA)					
	Delay firing (DT)					
OPTIONS	Soft Start					
	Current limit					
	Load interrupt alarm			GD	GT	
	Short circuit alarm					
	Overtemperature alarm			GD		GZ
	Integrated high-speed fuse					
	Integrated electronic fuse					
	On-board temperature PID					
FEED-BACK FUNCTIONS	Voltage Feedback					
	Current Feedback					
	Power Feedback					
FIELDBUS	Profibus DP					
	CanOpen					
	Devicenet					
	Modbus TCP/RTU					
	Ethernet/ IP					
	EtherCAT					
	Profinet					
CONFIGURATION	Configuration from PC					
	Easy "Smart Configuration" configuration					
	Programmazione da tastierino portatile					
CERTIFICATIONS	CE	GQ	GS	GD	GT	GZ
	UL	GQ	GS		GT	GZ
	TÜV					

SOLID STATE CONTACTOR					POWER CONTROLLERS			
GTS	GTD	GTT	GTZ	Wattcor	GFX4	GFX4-IR	GTF	GFW
230Vac; 480Vac	480Vac	480Vac	400Vac, 480Vac, 600Vac	660Vac	480Vac	480Vac	480Vac; 600Vac	480Vac; 600Vac
15, 25, 40, 50, 60, 75, 90, 120	25, 40	25, 40, 50, 60, 75, 90, 120	25, 40, 55	25, 40, 75, 100, 150, 250, 400, 600	16,32,40	16,32,40	25, 40, 50, 60, 75, 90, 120 150, 200, 250	40, 60, 100, 150, 200, 250
yes	yes	yes	yes	yes (panel attachment)	yes	yes	yes	yes (panel attachment)
GTS	GTD	GTT	GTZ	Wattcor	GFX4	GFX4-IR	GTF	GFW
GTS	GTD	GTT	GTZ	Wattcor	GFX4	GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
GTS	GTD		GTZ	Wattcor	GFX4	GFX4-IR	GTF	GFW
							GTF	GFW
		GTT		Wattcor	GFX4	GFX4-IR	GTF	GFW
		GTT		Wattcor			GTF	GFW
					GFX4	GFX4-IR	GTF	GFW
					GFX4	GFX4-IR		GFW
GTS	GTD		GTZ	Wattcor	GFX4	GFX4-IR	GTF	GFW
		GTT				GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
				W312		GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
					GFX4	GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
	GTD	GTT		Wattcor	GFX4	GFX4-IR	GTF	GFW
					GFX4	GFX4-IR	GTF	GFW
	GTD		GTZ		GFX4	GFX4-IR	GTF	GFW
				Wattcor	GFX4	GFX4-IR	GTF (I >= 150A)	GFW
							GTF (I <= 60A)	GFW (I <=100A)
					GFX4	GFX4-IR		GFW
						GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
					GFX4	GFX4-IR		GFW
					GFX4	GFX4-IR		GFW
					GFX4	GFX4-IR		GFW
					GFX4	GFX4-IR	GTF (Modbus RTU)	GFW
					GFX4	GFX4-IR		GFW
					GFX4	GFX4-IR		GFW
					(in progress)	GFX4-IR		(in progress)
					GFX4	GFX4-IR	GTF	GFW
						GFX4-IR	GTF	GFW
					GFX4	GFX4-IR		GFW
GTS	GTD	GTT	GTZ	Wattcor	GFX4	GFX4-IR	GTF	GFW
GTS		GTT	GTZ		GFX4	GFX4-IR	pending	pending
							GTF	

GUIDE TO SELECTION BY CONNECTION / LOAD TYPE

Wiring	Load Typology	Series									
		GQ	GS	GD	GT	GZ	GTS	GTD	GTT	GTZ	Wattcor
		15...90A	15...120A	25...40A	15...120A	10...55A	15...120A	25...40A	15...120A	10...55A	400/600A
SINGLE PHASE											
	HEATING ELEMENTS WITH LOW THERMAL COEFFICIENT										
	Wire resistance	1x	1x	1x	1x		1x	1x	1x		1x
	Infrared Long wave	1x	1x	1x	1x		1x	1x	1x		1x
	HEATING ELEMENTS WITH HIGH THERMAL COEFFICIENT										
	Infrared Lamps Medium Wave										
	Infrared Lamps Short Wave										
	Kanthal, Super Kanthal heaters										
	Elementi in carburo di silicio										
SINGLE PHASE TRANSFORMER											
	HEATING ELEMENTS WITH LOW THERMAL COEFFICIENT										
	Wire resistance										
	Infrared Long wave										
	HEATING ELEMENTS WITH HIGH THERMAL COEFFICIENT										
	Infrared Lamps Medium Wave										
	Infrared Lamps Short Wave										
	Kanthal, Super Kanthal heaters										
	Elementi in carburo di silicio										
BI-FASE											
(Closed Delta/ star without neutral)											
	HEATING ELEMENTS WITH LOW THERMAL COEFFICIENT										
	Wire resistance	2x	2x		1M 1S		2x		1M 1S		1M 1S
	Infrared Long wave	2x	2x		1M 1S		2x		1M 1S		1M 1S
	HEATING ELEMENTS WITH HIGH THERMAL COEFFICIENT										
	Infrared Lamps Medium Wave										
	Infrared Lamps Short Wave										
	Kanthal, Super Kanthal heaters										
	Silicon Carbide heaters										
THREE-PHASE - OPEN DELTA											
	HEATING ELEMENTS WITH LOW THERMAL COEFFICIENT										
	Wire resistance	3x	3x	3x	3x	1x	3x	3x	3x	1x	3x
	Infrared Long wave	3x	3x	3x	3x	1x	3x	3x	3x	1x	3x
	HEATING ELEMENTS WITH HIGH THERMAL COEFFICIENT										
	Infrared Lamps Medium Wave										
	Infrared Lamps Short Wave										
	Kanthal, Super Kanthal heaters										
	Silicon Carbide heaters										
THREE-PHASE - STAR WITH NEUTRAL											
	HEATING ELEMENTS WITH LOW THERMAL COEFFICIENT										
	Wire resistance	3x	3x	3x	3x	1x	3x	3x	3x	1x	3x
	Infrared Long wave	3x	3x	3x	3x	1x	3x	3x	3x	1x	3x
	HEATING ELEMENTS WITH HIGH THERMAL COEFFICIENT										
	Infrared Lamps Medium Wave										
	Infrared Lamps Short Wave										
	Kanthal, Super Kanthal heaters										
	Silicon Carbide heaters										
TRI-FASE											
(Closed delta/star without neutral)											
	HEATING ELEMENTS WITH LOW THERMAL COEFFICIENT										
	Wire resistance	3x	3x		1M 2S	1x	3x		1M 2S	1x	1M 2S
	Infrared Long wave	3x	3x		1M 2S	1x	3x		1M 2S	1x	1M 2S
	HEATING ELEMENTS WITH HIGH THERMAL COEFFICIENT										
	Infrared Lamps Medium Wave										
	Infrared Lamps Short Wave										
	Kanthal, Super Kanthal heaters										
	Silicon Carbide heaters										
THREE-PHASE TRANSFORMER											
	HEATING ELEMENTS WITH LOW THERMAL COEFFICIENT										
	Wire resistance										
	Infrared Long wave										
	HEATING ELEMENTS WITH HIGH THERMAL COEFFICIENT										
	Infrared Lamps Medium Wave										
	Infrared Lamps Short Wave										
	Kanthal, Super Kanthal heaters										
	Silicon Carbide heaters										

Series				Firing Mode suggested					Function suggested				Nominal Current Dimensioning (*)	Notes
GFX4	GFX4-IR	GTF	GFW	ZC	BF	HSC	PA	DT	Soft Start	Current Limit	Feedback (I)	Feedback (P)	P= total max power I= current value to select the size of the product	pw= power % provided to the load
16,32,40A	16,32,40A	25...250A	40...250A											
1/4x	1/4x	1M	1M	x	x								I= P/Vline	
1/4x	1/4x	1M	1M	x	x								I= P/Vline	
	1/4x	1M	1M			x	x		x	x			I= P/Vline	
	1/4x	1M	1M			x	x		x	x			I= P/Vline	
	1/4x	1M	1M				x		x		x		I= P/Vline	
	1/4x	1M	1M			x	x		x			x	I= P/Vline	
	1/4x	1M	1M	x				x					I= 1,2 (P+10%)/ Vline	
	1/4x	1M	1M	x				x					I= 1,2 (P+10%)/ Vline	
	1/4x	1M	1M				x		x	x			I= 1,2 (P+10%)/ Vline	
	1/4x	1M	1M				x		x	x			I= 1,2 (P+10%)/ Vline	
	1/4x	1M	1M				x		x		x		I= 1,2 (P+10%)/ Vline	
	1/4x	1M	1M				x		x			x	I= 1,2 (P+10%)/ Vline	
2/4x		1M 1S	2PH	x	x								I= P/ (√3 Vline)	
2/4x		1M 1S	2PH	x	x								I= P/ (√3 Vline)	
3/4x	3/4x	1M 2S	3PH	x	x								I= P/ (√3 Vline)	
3/4x	3/4x	1M 2S	3PH	x	x								I= P/ (√3 Vline)	
	3/4x	3M	3PH			x	x		x	x			I= P/ (√3 Vline)	
	3/4x	3M	3PH			x	x		x	x			I= P/ (√3 Vline)	
	3/4x	3M	3PH				x		x		x		I= P/ (√3 Vline)	
	3/4x	3M	3PH			x	x		x			x	I= P/ (√3 Vline)	
3/4x	3/4x	1M 2S	3PH	x	x								I= P/ (√3 Vline)	
3/4x	3/4x	1M 2S	3PH	x	x								I= P/ (√3 Vline)	
	3/4x	3M	3PH			x	x		x	x			I= P/ (√3 Vline)	
	3/4x	3M	3PH			x	x		x	x			I= P/ (√3 Vline)	
	3/4x	3M	3PH				x		x		x		I= P/ (√3 Vline)	
	3/4x	3M	3PH			x	x		x			x	I= P/ (√3 Vline)	
3/4x	3/4x	1M 2S	3PH	x	x								I= P/ (√3 Vline)	
3/4x	3/4x	1M 2S	3PH	x	x								I= P/ (√3 Vline)	
	3/4x		3PH				x		x	x			I= P/ (√3 Vline)	pw>6%P
	3/4x		3PH				x		x	x			I= P/ (√3 Vline)	pw>6%P
	3/4x		3PH				x		x			x	I= P/ (√3 Vline)	pw>6%P
	3/4x		3PH	x				x					I= 1,2 (P+10%)/ (√3 Vline)	
	3/4x		3PH	x				x					I= 1,2 (P+10%)/ (√3 Vline)	
	3/4x		3PH				x		x	x			I= 1,2 (P+10%)/ (√3 Vline)	pw>6%P
	3/4x		3PH				x		x	x			I= 1,2 (P+10%)/ (√3 Vline)	pw>6%P
	3/4x		3PH				x		x			x	I= 1,2 (P+10%)/ (√3 Vline)	pw>6%P

(*) It is always suggested to add a margin of at least 10% to the calculation of the current value

x = (Ipc) ☐ Not available

GEFRAN

GEFRAN HEADQUARTER

Via Sebina, 74
25050 PROVAGLIO D'ISEO (BS) ITALY
Ph. +39 03098881
Fax +39 0309839063
info@gefran.com

Drive & Motion Control Unit

Via Carducci, 24
21040 GERENZANO (VA) ITALY
Ph. +39 02967601
Fax +39 029682653
info.motion@gefran.com

Technical Assistance:
technohelp@gefran.com

Customer Service
motioncustomer@gefran.com
Ph. +39 02 96760500
Fax +39 02 96760278

AUTHORIZED DISTRIBUTORS

Argentina	Maroc
Austria	Mexico
Australia	Montenegro
Belarus	New Zeland
Bosnia/Herzegovina	Norway
Canada	Poland
Chile	Portugal
Colombia	Romania
Croatia	Russia
Czech Republic	Saudi Arabia
Denmark	Serbia
Finland	Singapore
Greece	Slovakia Republic
Hungary	Slovenia
Iran	South Africa
Israel	Sri Lanka
Japan	Sweden
Jordan	Thailand
Kazakhstan	Tunisia
Korea	Turkey
Kosovo	Ukraine
Lebanon	United Arab Emirates
Macedonia	Venezuela
Malaysia	



GEFRAN BENELUX N.V.

Lammerdries-Zuid 14A
B-2250 OLEN
Ph. +32 (0) 14248181
Fax +32 (0) 14248180
info@gefran.be

GEFRAN DEUTSCHLAND GmbH

Philipp-Reis-Straße 9a
D-63500 Seligenstadt
Ph. +49 (0) 61828090
Fax +49 (0) 6182809222
vertrieb@gefran.de

SIEI AREG - GERMANY

Gottlieb-Daimler Strasse 17/3
D-74385 - Pleidelsheim
Ph. +49 (0) 7144 897360
Fax +49 (0) 7144 8973697
info@sieiareg.de

GEFRAN SUISSE sa

Sandackerstrasse, 30
9245 Oberbüren
Ph. +41 71 9554020
Fax +41 71 9554024
office@gefran.ch

GEFRAN FRANCE sa

4, rue Jean Desparmet - BP 8237
69355 LYON Cedex 08
Ph. +33 (0) 478770300
Fax +33 (0) 478770320
commercial@gefran.fr

GEFRAN UK Ltd

Capital House, Hadley Park East
Telford
TF1 6QJ
Tel +44 (0) 8452 604555
Fax +44 (0) 8452 604556
sales@gefran.co.uk

GEFRAN ESPAÑA

Calle Vic, números 109-111
08160 - MONTMELÓ
(BARCELONA)
Ph. +34 934982643
Fax +34 935721571
comercial.espana@gefran.es

GEFRAN SIEI Drives Technology Co., Ltd

No. 1285, Beihe Road, Jiading
District, Shanghai, China 201807
Ph. +86 21 69169898
Fax +86 21 69169333
info@gefransiei.com.cn

GEFRAN SIEI Electric Pte. Ltd.

No. 1285, Beihe Road, Jiading
District, Shanghai, China 201807
Ph. +86 21 69169898
Fax +86 21 69169333
info@gefransiei.com.cn

GEFRAN SIEI - ASIA

Blk.30 Loyang Way
03-19 Loyang Industrial Estate
508769 Singapore
Ph. +65 6 8418300
Fax +65 6 7428300
info@gefransiei.com.sg

GEFRAN INDIA Head Office: Pune

Survey No: 182/1 KH, Bhukum, Paud road,
Taluka - Mulshi,
Pune - 411 042, MH, INDIA
Phone No.: +91-20-39394400
Fax No.: +91-20-39394401
gefran.india@gefran.in

Branch Office: Mumbai

403, Damodar Nivas,
'B' Cabin Road, Near Railway quarters,
Naupada, Thane (W) - 400 602, MH, India
Phone No.: +91-22-2533 8797
Phone/Fax No.: +91-22-2541 8797
gefran.india@gefran.in

Branch office: Ahmedabad

20-A, Second Floor, Kala Purnam Building,
Near Municipal Market, C. G. Road,
Ahmedabad - 380 019, Gujarat, India
Ph: +91-79-2640 3591
Ph/Fax: +91-79-2640 3592
gefran.india@gefran.in

GEFRAN TAIWAN

Rm. 3, 9F., No.8, Ln. 157, Cihui 3rd St.,
Zhongli City,
Taoyuan County 320, Taiwan (R.O.C.)
Tel/Fax +886-3-4273697
dino.yeh@gefransiei.com.sg

GEFRAN Inc.

8 Lowell Avenue
WINCHESTER - MA 01890
Toll Free 1-888-888-4474
Fax +1 (781) 7291468
info@gefraninc.com

GEFRAN BRASIL ELETROELETRÔNICA

Avenida Dr. Altino Arantes,
377 Vila Clementino
04042-032 SÃO PAULO - SP
Ph. +55 (0) 1155851133
Fax +55 (0) 1132974012
comercial@gefran.com.br

www.gefran.com