Solid State Relays, Contactors, and Power Controllers

SELECTION GUIDE

Solid State Relays, Contactors, and Power Controllers

Experience and quality

Gefran has been designing and producing solid state relays and power controllers for electrical heating applications for over 40 years.
The quality and reliability of Gefran devices is guaranteed by its experience, begun in the 1970s with the production of TRIAC temperature controllers and solid state power relays.

Gefran and its technical staff are constantly committed to research and innovation, offering new and efficient solutions to the electrical heating control sector.

Gefran has one of the world's largest catalogs, with products ranging from a solid state relay in "normalized" sizes up to 600A power units used in large industrial furnaces and thermal plants.

Gefran's new line of power controllers, a synthesis of decades of know-how, offers innovative and exclusive solutions that satisfy the demands of state-of-the-art thermal processes at high-tech companies: smart consumption control, electronic fuse to protect devices and processes, advanced diagnostics and alarms, and complete interfacing with control and supervision devices.

Advantages

ONE – STOP SHOP
Gefran is your single supplier for sensors, controllers, and actuators for all electrical heating applications.

SMART LOAD MANAGEMENT
Gefran's new solid state power units have special smart load management functions that provide real peak control and a lower energy account.

PROTECTION AGAINST DAMAGE BY SHORT CIRCUIT
An exclusive electronic fuse protects the power controller in case of momentary or permanent short circuit, drastically reducing down-times and allowing immediate reset of the controller.

SOLUTIONS FOR IR LAMP APPLICATIONS
In IR applications, an increasingly popular technology, soft start and current limit functions lengthen average lamp life.
In addition, the compact, space-saving size of Gefran devices, plus the 4-zone control function, are the ideal solution for high density applications.

UNIVERSALITY
Maximum integration in all automation architectures is ensured by a very wide range of fieldbuses.

PLASTIC, PHOTOVOLTAIC, FURNACES, WOOD, GLASS, PAPER, FOOD	**Solid State Power Controller**		
PLASTICS, PACKAGING, FURNACES	**Contactors Solid State**		**GTS** (15...120A) 
PLASTICS, PACKAGING	**Solid State Relay**	**GQ** (15...90A) 	**GS** (15...120A) 

Technology

Gefran products provide total control of the product development process: from design to quality tests to management of the production process.
In Gefran's technology polls, the best available technologies are experimented with and tested, then utilized for product engineering and approval for mass production.

Product catalog

ZERO CROSSING

HB ALARM

ZERO CROSSING BURST FIRING

HALF SINGLE CYCLE, PHASE ANGLE

GFX4
(16,32,40A)
[4 CHANNELS]

PROFIBUS
Modbus TCP/RTU
CANopen
DeviceNet
EtherCAT.
EtherNet/IP

PC Configurable

GTF
(25...250A)

RS 485
Modbus RTU
PC Configurable

GFW
(40...250A)

GFX4-IR
(16,32,40A)
[4 CHANNELS]

PROFIBUS
Modbus TCP/RTU
CANopen
DeviceNet
EtherCAT.
EtherNet/IP

PC Configurable

GTZ
(25...55A)
[3-PHASE]

GTD
(25,40A)

W211
(400, 600A)

W212
(400, 600A)

GTT
(25...120A)

GZ
(10...55A)
[3-PHASE]

GD
(40A)

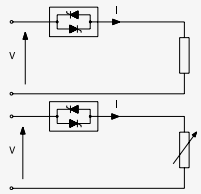
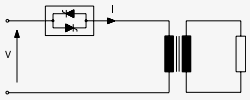
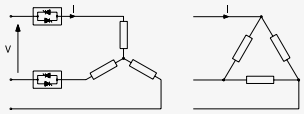
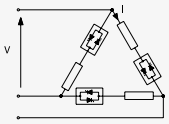
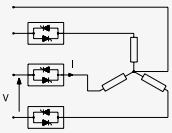
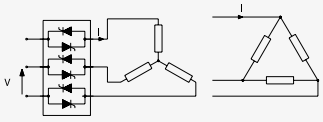
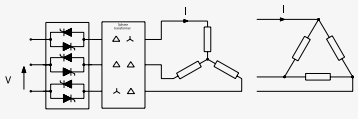
GT
(25...120A)

Catalog overview

SERIES		Solid State Relay				
		GQ	**GS**	**GD**	**GT**	**GZ**
RATINGS	Rated voltage (Vac)	230Vac; 480Vac; 600Vac	230Vac 480Vac	480Vac	480Vac	400Vac, 480Va 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					
	Smart Load management functions					
	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 "Super Wizard" configuration					
	Programmazione da tastierino portatile					
CERTIFICATIONS	CE	GQ	GS	GD	GT	GZ
	UL	GQ	GS			
	SCCR					

	Solid State Contactor					Power Controller			
	GTS	GTD	GTT	GTZ	Wattcor	GFX4	GFX4-IR	GTF	GFW
ac,	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	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		GFW
	GTS	GTD		GTZ	Wattcor			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
							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)
									GFW
						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)	(in progress)		(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					GFX4	GFX4-IR	pending	pending
						GFX4	GFX4-IR		

Selection Guide Table

Wiring	Load Typology	GQ	GS	GD	GT	GZ	GTS	GTD
		15...90A	15...120A	25...40A	15...120A	10...55A	15...120A	25...40
SINGLE PHASE 	**HEATING ELEMENTS WITH LOW THERMAL COEFFICIENT**							
	Wire resistance	1x	1x	1x	1x		1x	1x
	Infrared Long wave	1x	1x	1x	1x		1x	1x
	HEATING ELEMENTS WITH HIGH THERMAL COEFFICIENT							
	Infrared Lamps Medium Wave							
	Infrared Lamps Short Wave							
	Kanthal, Super Kanthal heaters							
	Silicon Carbide heaters							
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							
	Silicon Carbide heaters							
DUAL PHASE (Closed Delta/ star without neutral) 	**HEATING ELEMENTS WITH LOW THERMAL COEFFICIENT**							
	Wire resistance	2x	2x		1M 1S		2x	
	Infrared Long wave	2x	2x		1M 1S		2x	
	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
	Infrared Long wave	3x	3x	3x	3x	1x	3x	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
	Infrared Long wave	3x	3x	3x	3x	1x	3x	3x
	HEATING ELEMENTS WITH HIGH THERMAL COEFFICIENT							
	Infrared Lamps Medium Wave							
	Infrared Lamps Short Wave							
	Kanthal, Super Kanthal heaters							
	Silicon Carbide heaters							
THREE-PHASE CLOSED DELTA/STAR WITHOUT NEUTRAL 	**HEATING ELEMENTS WITH LOW THERMAL COEFFICIENT**							
	Wire resistance	3x	3x		1M 2S	1x	3x	
	Infrared Long wave	3x	3x		1M 2S	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 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
	GTT	GTZ	Wattcor	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
A	15...120A	10...55A	400,600A	16,32,40A	16,32,40A	25...250A	40...250A											
	1x		1x	1/4x	1/4x	1x	1x	x	x								I=P/Vline	
	1x		1x	1/4x	1/4x	1x	1x	x	x								I=P/Vline	
					1/4x	1x	1x			x	x		x	x			I=P/Vline	
					1/4x	1x	1x			x	x		x	x			I=P/Vline	
					1/4x	1x	1x				x		x		x		I=P/Vline	
					1/4x	1x	1x			x	x		x			x	I=P/Vline	
					1/4x	1x	1x	x				x					I= 1,2 (P+10%)/ Vline	
					1/4x	1x	1x	x				x					I= 1,2 (P+10%)/ Vline	
					1/4x	1x	1x				x		x	x			I= 1,2 (P+10%)/ Vline	
					1/4x	1x	1x				x		x	x			I= 1,2 (P+10%)/ Vline	
					1/4x	1x	1x				x		x		x		I= 1,2 (P+10%)/ Vline	
					1/4x	1x	1x				x		x			x	I= 1,2 (P+10%)/ Vline	
	1M 1S		1M 1S	2/4x		1M 1S	2PH	x	x								I= P/ (√3 Vline)	
	1M 1S		1M 1S	2/4x		1M 1S	2PH	x	x								I= P/ (√3 Vline)	
	3x	3x	3x	3/4x	3/4x	3x	3PH	x	x								I= P/ (3 Vline)	
	3x	3x	3x	3/4x	3/4x	3x	3PH	x	x								I= P/ (3 Vline)	
					3/4x	3x	3PH			x	x		x	x			I= P/ (3 Vline)	
					3/4x	3x	3PH			x	x		x	x			I= P/ (3 Vline)	
					3/4x	3x	3PH				x		x		x		I= P/ (3 Vline)	
					3/4x	3x	3PH			x	x		x			x	I= P/ (3 Vline)	
	3x	3x	3x	3/4x	3/4x	1M 2S	3PH	x	x								I= P/ (√3 Vline)	
	3x	3x	3x	3/4x	3/4x	1M 2S	3PH	x	x								I= P/ (√3 Vline)	
					3/4x	1M 2S	3PH			x	x		x	x			I= P/ (√3 Vline)	
					3/4x	1M 2S	3PH			x	x		x	x			I= P/ (√3 Vline)	
					3/4x	1M 2S	3PH				x		x		x		I= P/ (√3 Vline)	
					3/4x	1M 2S	3PH			x	x		x			x	I= P/ (√3 Vline)	
	1M 2S	1x	1M 2S	3/4x	3/4x	1M 2S	1M 2E	x	x								I= P/ (√3 Vline)	
	1M 2S	1x	1M 2S	3/4x	3/4x	1M 2S	1M 2E	x	x								I= P/ (√3 Vline)	
					3/4x	3M	3PH				x		x	x			I= P/ (√3 Vline)	pw>5%P
					3/4x	3M	3PH				x		x	x			I= P/ (√3 Vline)	pw>5%P
					3/4x	3M	3PH				x		x		x		I= P/ (√3 Vline)	pw>5%P
					3/4x	3M	3PH				x		x			x	I= P/ (√3 Vline)	pw>5%P
					3/4x	1M 2S	3PH	x				x					I= 1,2 (P+10%)/ (√3 Vline)	
					3/4x	1M 2S	3PH	x				x					I= 1,2 (P+10%)/ (√3 Vline)	
					3/4x	3M	3PH				x		x	x			I= 1,2 (P+10%)/ (√3 Vline)	pw>5%P
					3/4x	3M	3PH				x		x	x			I= 1,2 (P+10%)/ (√3 Vline)	pw>5%P
					3/4x	3M	3PH				x		x		x		I= 1,2 (P+10%)/ (√3 Vline)	pw>5%P
					3/4x	3M	3PH				x		x			x	I= 1,2 (P+10%)/ (√3 Vline)	pw>5%P

X (1pc) Not available

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