



Control and Programming Matrix Boards

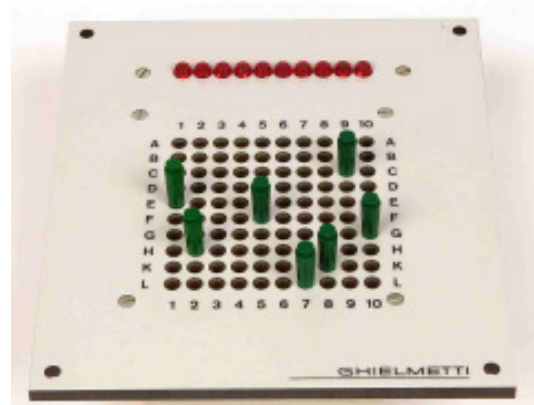
GKV n x m 321 LA
GKV n x m 621 LA

50VAC / 6A
230VAC / 16A

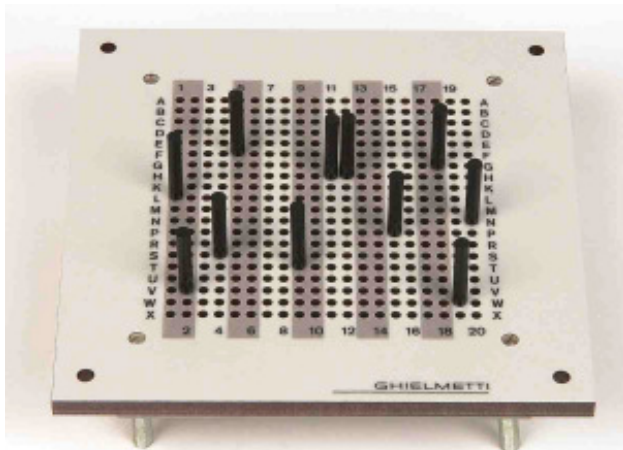
The matrix boards are many-sided control and programming devices. They are available in many different sizes. **Ask also for custom made design and construction.** Simplicity of Programming – Easy examination of the programming and switching – Wear resistant.



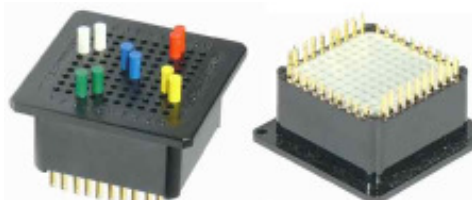
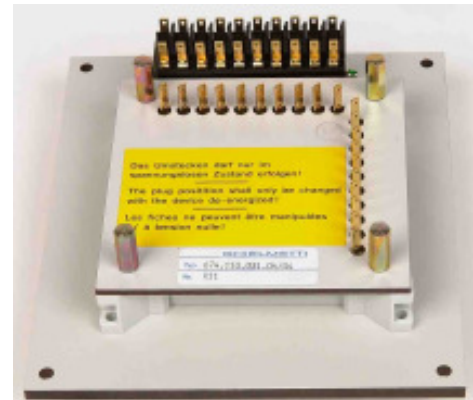
GKV 10x10 321 LA 673.110.007.01



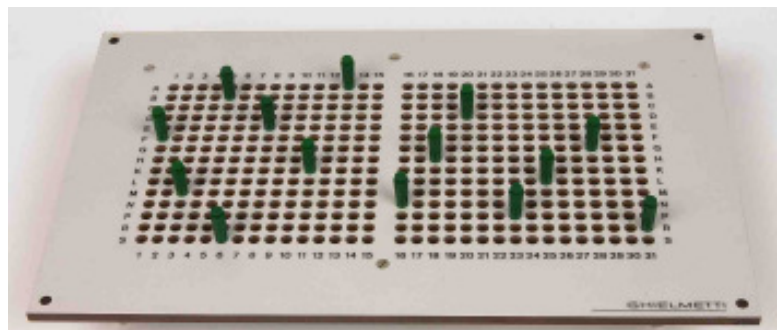
GKV 10x10 621 LA 674.110.031.04



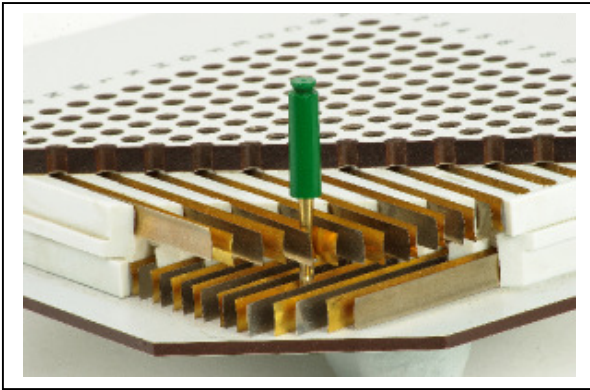
GKV 20x20 321 LA 673.110.022.07



GKV 10x10 321 LA MONO
673.110.050.00



GKV 15x31 621 LA 674.110.035.02



Safety

All GHIELMETTI patch panels and electro-mechanical matrix boards are based on the same technology: **the multi-level gold ribbon system with a flexible bus structure.** This technology is characterized by operational safety, flexibility, modular construction and modern design. With a conventional jack field system (Bantam or TT) the "hot connection" is made by open touch contacts which oxidize quickly if they are exposed to normal air current, in this case, two oxidized surfaces are pressed together creating no or only a bad contact. With GHIELMETTI patch panels a connection over two or more contact levels is achieved with a **self-cleaning gold contact system.** By executing a

connection – i.e. inserting the plug into the panel – the plug will touch the contact ribbon with a friction force of about 2N. During this process, any oxide coating will be mechanically removed so that this connection guarantees the highest contact safety. Thus, a constantly high security of switching can be guaranteed, even under extreme climatic conditions.

Construction

GHIELMETTI matrix boards of series 300 (up to 50 VAC / 6A signal voltage) are produced with a grating distance of 3mm, the ones of series 600 (up to 230 VAC / 16A signal voltage) with a grating distance of 6mm.

Function Description

Appropriate connection plugs do the switching. Interconnection is made by solder lugs.

There are different connection plugs available:

Connecting plugs



GSS 321/6 sw 6 mm handle, black 673.310.000.00
GSS 321/6 rt 6 mm handle, red 673.310.000.02
other colours available

Diode plugs



GDS 321/16 ZS gn 250V/250mA, green 673.210.202.05
GDS 321/16 SZ rt 250V/250mA, red 673.210.302.02
other colours available

LED plug, series 321



GLS 321/16 ZS gn LED red, I_{max} = 15mA, handle green 674.910.088.05
other colours available

Connecting plugs series 621



GSS 621/15 sw 15 mm handle, black 674.310.180.00
GSS 621/15 ws 15 mm handle, white 674.310.180.09
other colours available

Locking jumpers – series 321/621



With the help of locking jumpers, a connection cross point can be locked to prevent unintentional switching

GBS 321 sw series 321 673.140.083.00
GBS 621 sw series 621 674.140.028.00

Direction of the diode plugs

ZS = row to column (input to output)
SZ = column to row (output to input)



Diode series: 621
Diode type: 1N4148
LED type: 621

LED plug, series 621



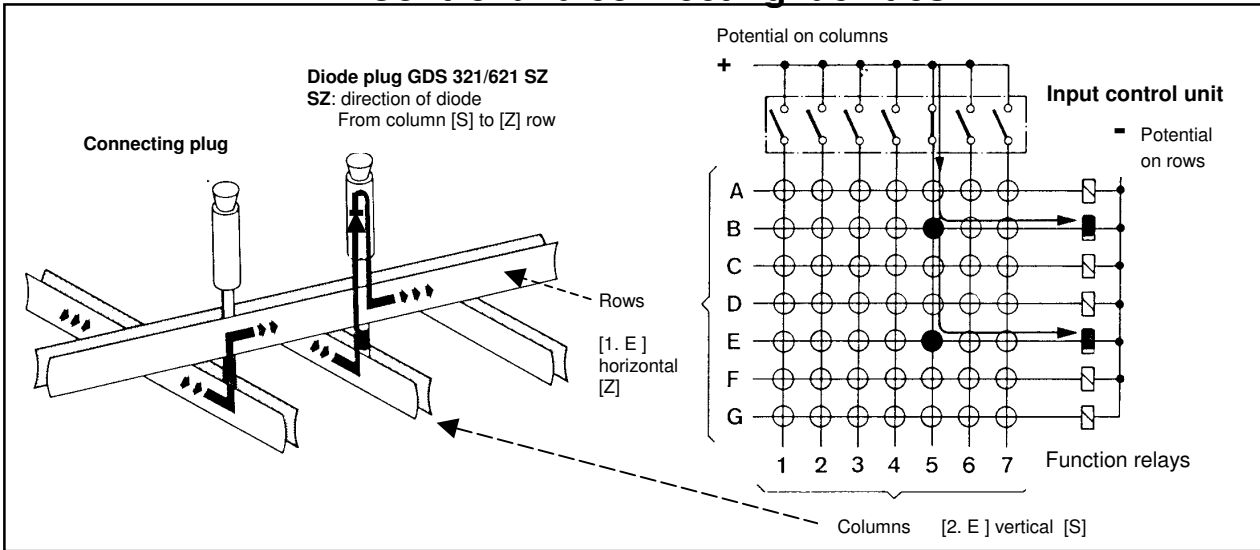
LED: red, I_{max} = 15 mA
GLS 621/22 SZ rt LED red, I_{max} = 15mA, handle red 674.910.088.02
GLS 621/22 ZS gn LED red, I_{max} = 15mA, handle green 674.910.085.05

Diode plugs series 621



Diode: 1000 W1A, 1N4007
GDS 621/20 SZ rt 1000V11A, red 674.213.003.02
GDS 621/20 ZS gn 1000V11A, green 674.213.002.05
other colours and handle lengths available

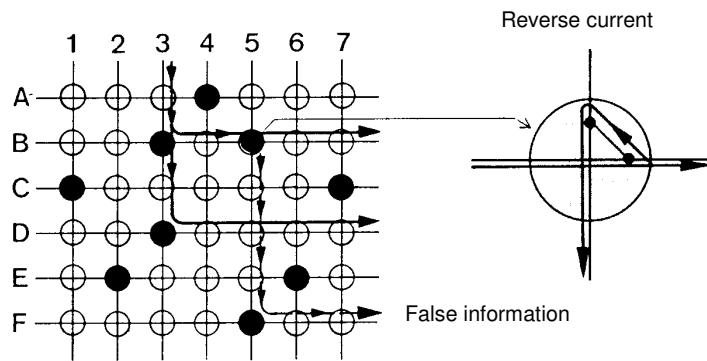
Control and connecting facilities



Switching with connecting plugs

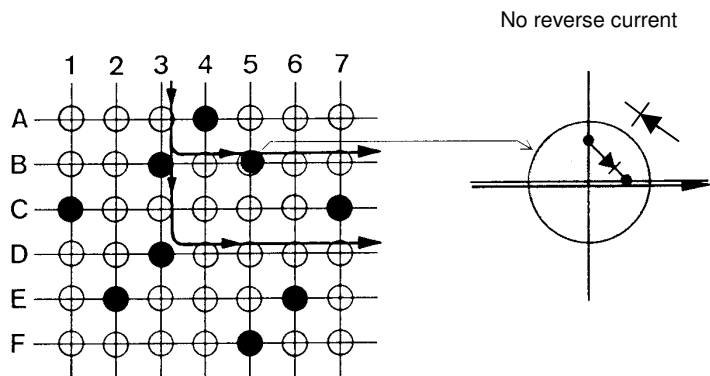
If more than one connecting plug is inserted per row or per column, reverse current may result. This leads to false information's at the output of the matrix board

Reverse current may be blocked by **diode plugs**



Switching with diode plugs

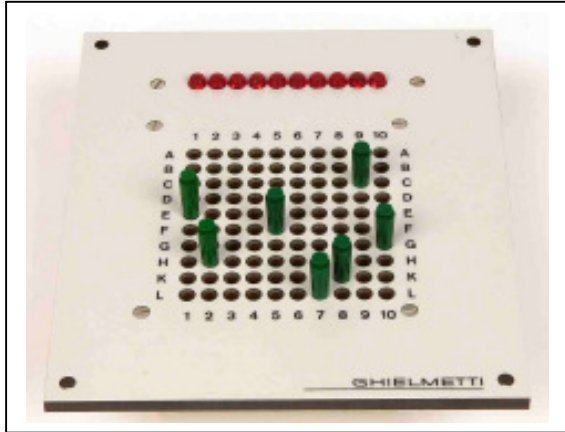
Diode plugs are used to prevent reverse currents



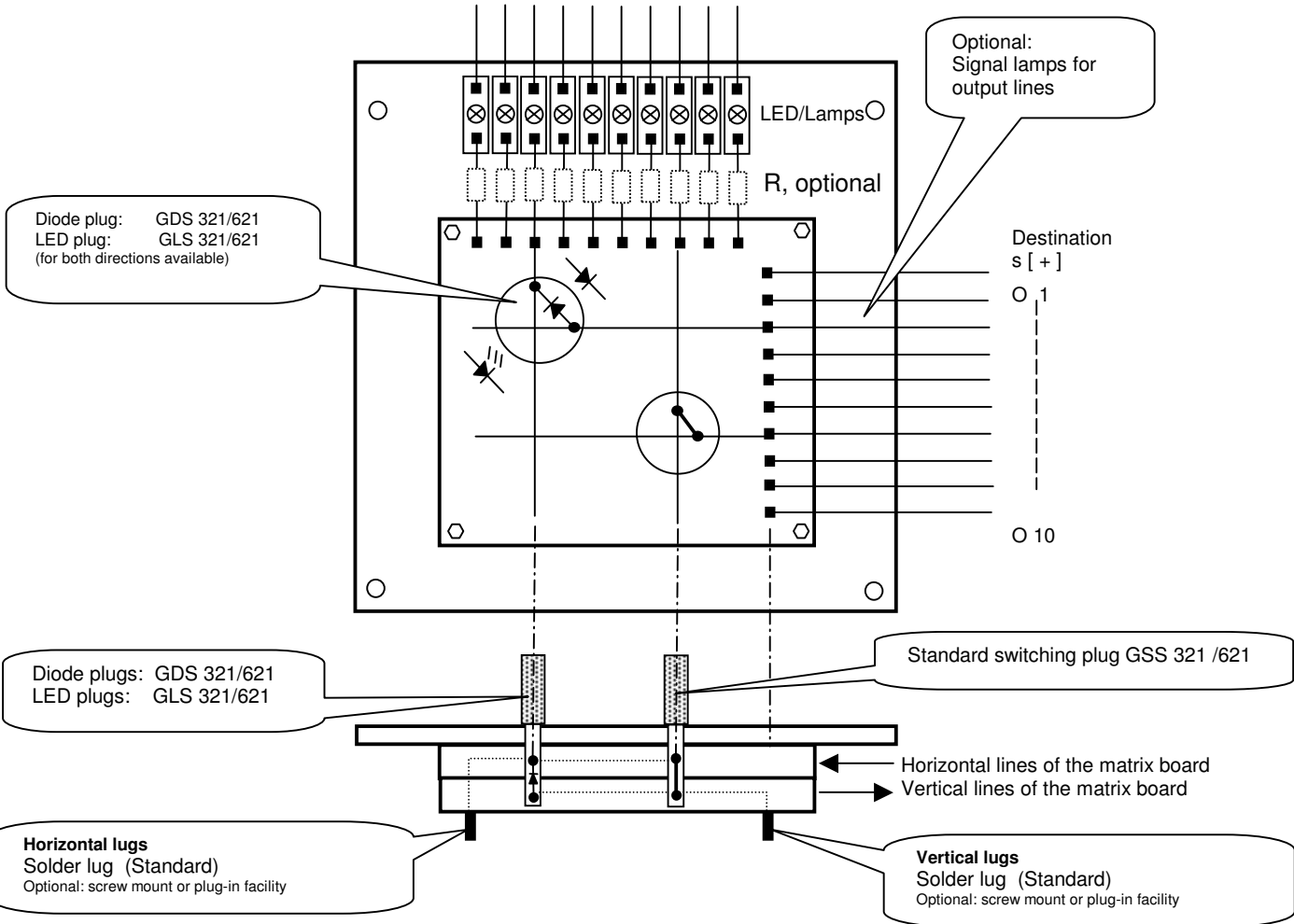


Interconnecting and installation

Optional with LED / Lamp signalisation

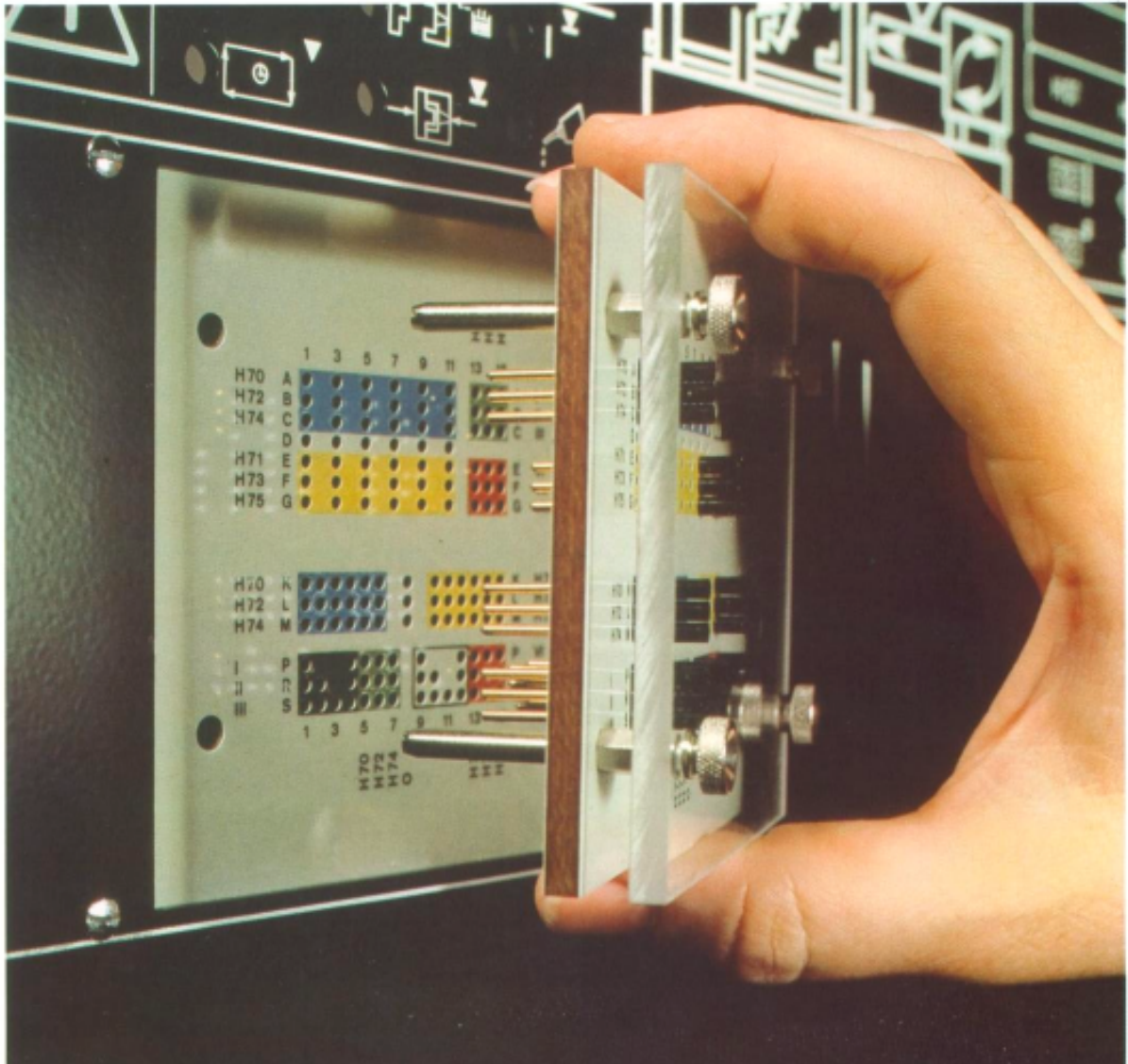


Sources [-] | 1 | 10





Programming plate for fast reprogramming and rerouting of switching configurations
As option available to each kind of Ghielmetti Matrix Boards

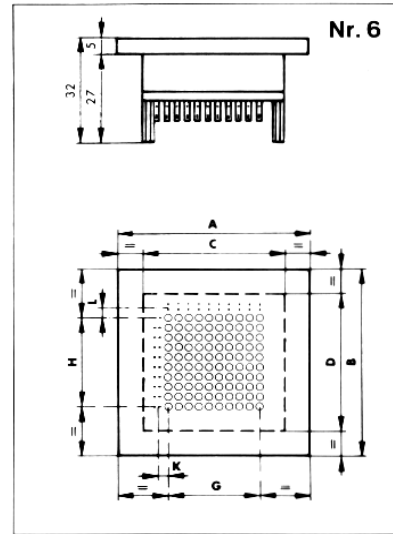
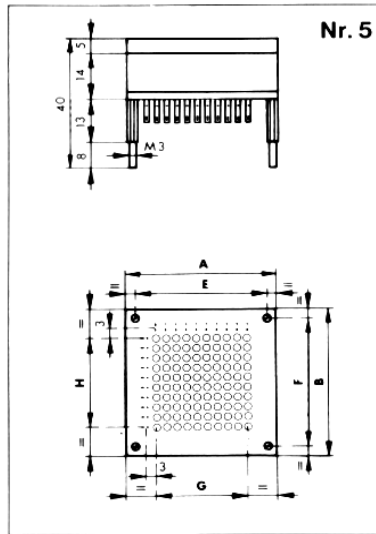
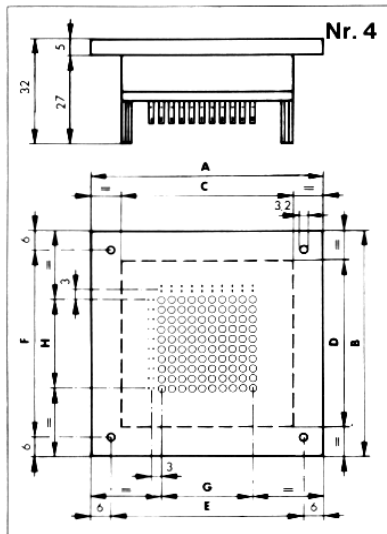




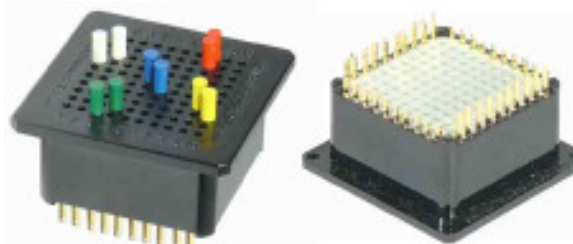
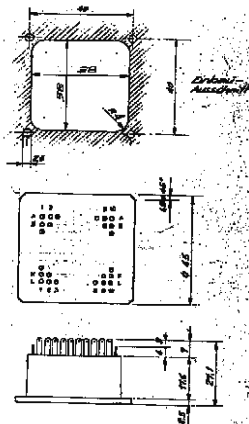
Standard matrix programme boards Norm-GKV 321

Type	Order number	Single sockets	Inscription	Grey stripes	Dimension sketch	Dimensions									
						A	B	C	D	E	F	G	H	K	L
GKV 10x10 321 LA	673.110.007.01	■	■	■	6	57	57	42	42	—	—	27	27	3	3
	*673.110.007.02	■	■	■	6	57	57	42	42	—	—	27	27	3	3
GKV 20x20 321 LA	673.110.008.03		■	■	6	87	87	78,3	78,3	—	—	57	57	3	3
	673.110.021.01		■	■	5	75	75	—	—	69	69	57	57	—	—
	.02		■	■	5	75	75	—	—	69	69	57	57	—	—
	673.110.022.05		■	■	4	99	99	78,3	78,3	87	87	57	57	—	—
.07		■	■	4	99	99	78,3	78,3	87	87	57	57	—	—	
GKV 22x22 321 LA	673.110.023.01		■	■	5	87	87	—	—	69	81	63	63	—	—
	.02		■	■	5	87	87	—	—	69	81	63	63	—	—
	673.110.024.01		■	■	4	111	111	87	87	99	99	63	63	—	—
	.02		■	■	4	111	111	87	87	99	99	63	63	—	—

Sketches for the standard matrix boards Norm-GKV 321



Ask for custom-made design

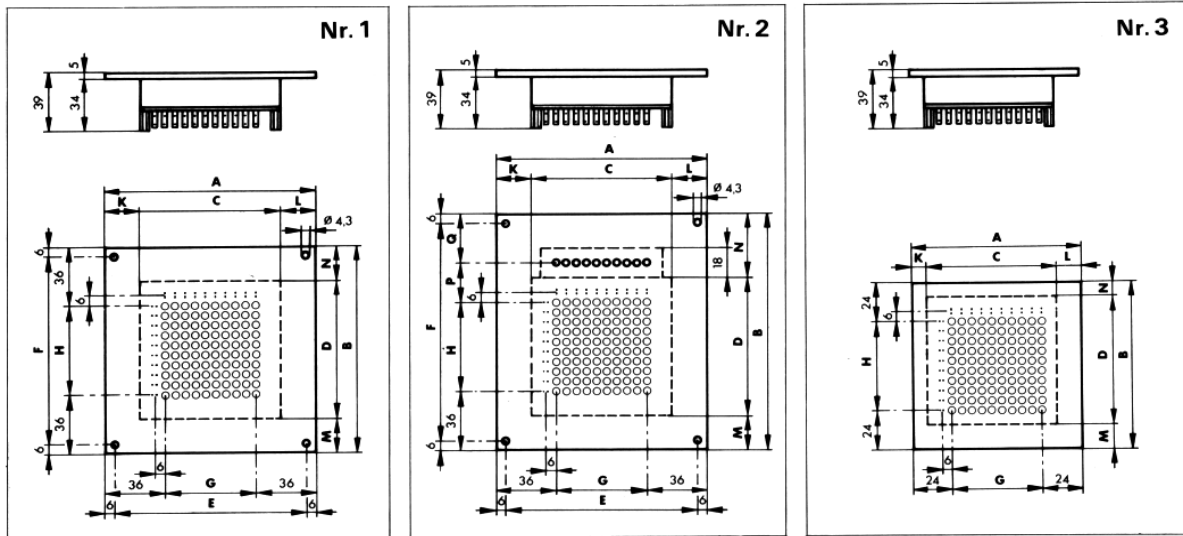


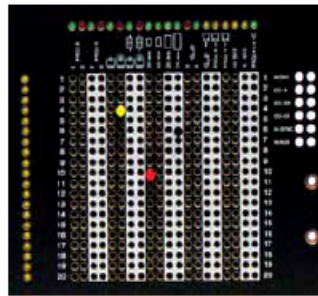
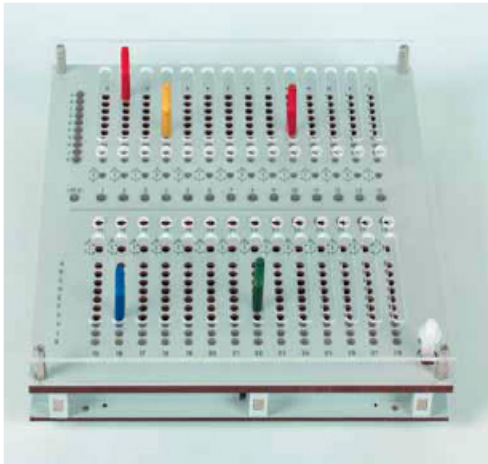
GKV 10x10 321 LA MONO, 50V/6A, 673.110.050.00

Standard matrix programme boards, Norm-GKV621

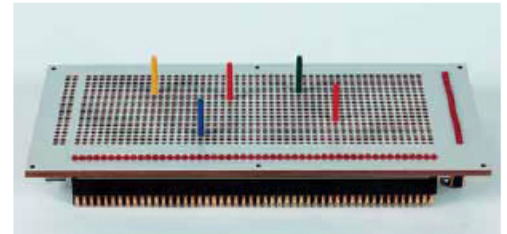
Type	Order number	* Pilot lamps at the top	Inscription	Grey stripes	Dimension sketch	Dimensions															
						A	B	C	D	E	F	G	H	K	L	M	N	P	Q		
GKV 10x10 621 LA	674.110.031.01 .02 .03 .04	■	■	■	1	126	126	90	90	114	114	54	54	15	21	21	15	—	—		
					1	126	126	90	90	114	114	54	54	15	21	21	15	—	—		
					2	126	144	90	90	114	132	54	54	15	21	21	33	30	24	—	—
					2	126	144	90	90	114	132	54	54	15	21	21	33	30	24	—	—
GKV 15x15 621 LA	674.110.800.00 .01 .02 .03 .04	■	■	■	3	132	132	108	108	—	—	84	84	9	15	15	9	—	—		
					1	156	156	108	108	144	144	84	84	21	27	27	21	—	—	—	—
					1	156	156	108	108	144	144	84	84	21	27	27	21	—	—	—	—
					2	156	174	114	108	144	162	84	84	21	21	27	39	24	30	—	—
GKV 20x20 621 LA	674.110.609.01 .02 .03 .04	■	■	■	1	186	186	156	156	174	174	114	114	15	15	15	15	—	—		
					1	186	186	156	156	174	174	114	114	15	15	15	15	—	—	—	—
					2	186	204	156	156	174	192	114	114	15	15	15	33	30	24	—	—
					2	186	204	156	156	174	192	114	114	15	15	15	33	30	24	—	—
GKV 31x15 621 LA	674.110.037.01 .02 .03 .04	■	■	■	1	156	258	120	222	144	246	84	186	15	21	21	15	—	—		
					1	156	258	120	222	144	246	84	186	15	21	21	15	—	—	—	—
					2	156	276	120	222	144	264	84	186	15	21	21	33	30	24	—	—
					2	156	276	120	222	144	264	84	186	15	21	21	33	30	24	—	—
GKV 31x31 621 LA	674.110.039.01 .02 .03 .04	■	■	■	1	258	258	222	222	246	246	186	186	15	21	21	15	—	—		
					1	258	258	222	222	246	246	186	186	15	21	21	15	—	—	—	—
					2	258	276	222	222	246	264	186	186	15	21	21	33	30	24	—	—
					2	258	276	222	222	246	264	186	186	15	21	21	33	30	24	—	—

* Standard execution: red lens caps, incandescent lamp 24 V, 20 mA

Sketches for the standard matrix boards Norm-GKV 621




It is recommended to print the frontpanel with signs, letters and symbols (windings) in order to get an clearly arranged and optimised user interface.



Connecting plugs



GSS 321/6 sw 6 mm handle, black 673.310.000.00
GSS 321/6 rt 6 mm handle, red 673.310.000.02
other colours available

Diode plugs



GDS 321/16 ZS gn 250V/250mA, green 673.210.202.05
GDS 321/16 SZ rt 250V/250mA, red 673.210.302.02
other colours available

LED plug, series 321



GLS 321/16 ZS gn LED red, I_{max} = 15mA, handle green 673.910.088.05
other colours available

Connecting plugs series 621



GSS 621/15 sw 15 mm handle, black 674.310.180.00
GSS 621/15 ws 15 mm handle, white 674.310.180.09
other colours available

Locking jumpers - series 321/621

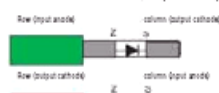


With the help of locking jumpers, a connection cross point can be locked to prevent unintentional switching

GBS 321 sw series 321 673.140.083.00
GBS 621 sw series 621 674.140.028.00

Direction of the diode plugs

ZS = row to column (input to output)
SZ = column to row (output to input)



Diode series 321 250V/250mA 1A 021
Diode series 621 1000V/1A 1N4007
LED red/green max. 10mA

LED plug, series 621



LED: rot, I_{max} = 15 mA
GLS 621/22 SZ rt LED red, I_{max} = 15mA, handle red 674.910.088.02
GLS 621/22 ZS gn LED red, I_{max} = 15mA, handle green 674.910.085.05

Diode plugs series 621



Diode: 1000 V/1A, 1N4007
GDS 621/20 SZ rt 1000V/1A, red 674.213.002.02
GDS 621/20 ZS gn 1000V/1A, green 674.212.002.05
other colours and handle lengths available

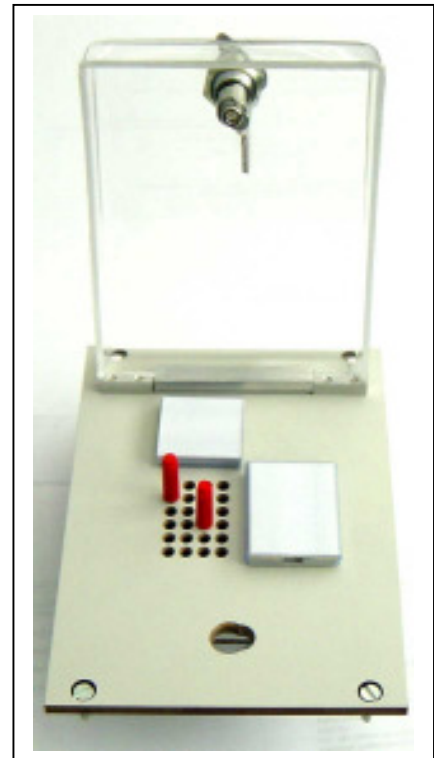
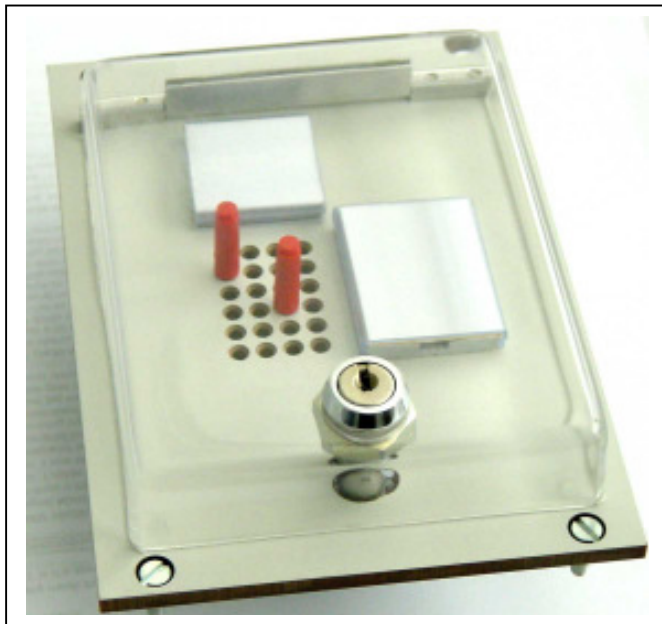


Technical Data	GKV 321	GKV 621
Grating	3 mm	6 mm
Operation voltage	50 VAC	230 VAC
Thermal rated current	6 A	16 A
Contact resistance (bus bar – plug – bus bar)	0.8 – 1 mΩ	0.5 – 0.7 mΩ
Resistance of a bus bar pair per grating	0.4 mΩ	0.34 mΩ
Insulation resistance (of parallel bus bar pairs over 10 plug points)	5 x 10 ³	15 x 10 ³
Insulation material	Polycarbonate	Polycarbonate
Air and surface leakage path	min. 1 mm	min. 3 mm
Test voltage	1000 V	2000 V
Working temperature	-20 ... +50 °C	-20 ... +60 °C
Air humidity	95 %	95 %
Capacity of two parallel bus bar pairs (distance 10 plug points)	≈ 5 pF	≈ 6 pF
Capacity of two crossed bus bar pairs (distance 10 plug points)	≈ 3.1 pF	≈ 4 pF
Material bus bars	Beryllium copper, hardened, Gold plated	Beryllium copper, hardened, Gold plated
Contact force	> 200 p	> 500 p
Material of plugs	Brass contact pin, Gold plated	Brass contact pin, Gold plated
Diameter of contact pins	1.6 mm	2.4 mm

Custom Made Matrix Board GKV 4 x 6 621 LA K

Part. No.: 674.115.087.00

Safely connecting 4 input signals (1-pole) to 6 output signals (1-pole)



Applications

- Industrial Control Panel
- Power plant control Matrix
- Relays switching and control
- Security Control Matrix
- For all application in dirty environment
- Your application ...

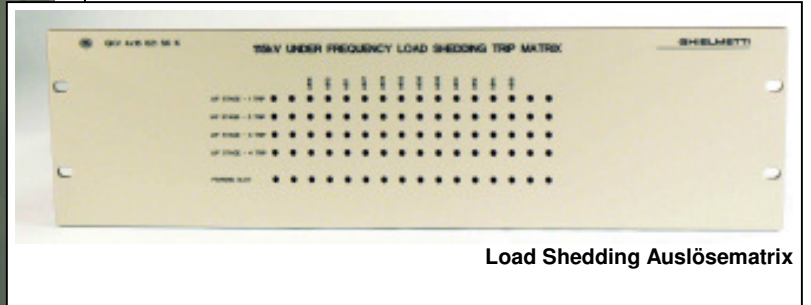
Features

- 4 Input Signals - 8 Output Signals
- 8 Input Signals - 4 Output Signals
- Max Voltage 250VAC
- Max Current 16 A
- Protection Cover with security key on plexy glass
- 2 large inscription labels
- Solder Lug contacts for In- and Outputs
- Size: 114 x 164 x 85 mm (incl. key)

Applications



Tripping Matrix Power Control



Load Shedding Auslösematrix



GKVA 200x210 314 LA K, Telecom Matrix 2-pole for routing of data and telecom signals



Custom designed Control Matrix



Generator Protection Tripping Matrix



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