

Complete parts overview and specifications

**Features:**

- Plug and Play electronic components
- No separate laying for GND, V+ and V-
- Resuable minimum 500 times
- No layout needed
- No tooling needed
- Quick and easy
- Maximum degree of freedom
- Rotationally symmetrical in Basic Mode

Applications:

- Research and development
- Electronic laboratory
- Education
- Repairable products
- Building electronic circuits without tooling
- Lighting

System Description

Grionec Basic System:

The **Grionec Basic mode** is based on the following pin assignment:

Pin 1	V+	Positive operating voltage - The voltage can be pulled down to Signal about the <i>End part ENV+</i> .
Pin 2	S	The signal flow (S) - Every component is connected with pin 2.
Pin 3	GND	Ground - The signal can be pulled down to Ground with the <i>End part ENGND</i> .
Pin 4	V-	Negative operating voltage - The voltage can be pulled up to signal about the <i>End part ENV-</i> .

The Groundparts can connected to each other with the *X-Connector (CNX0)*. This Connector can used rotationally symmetrical. In the Basic Mode, a signal flow can build according to a circuit diagramm. No Layout needed.

Grionec Pro System:

The **Grionec Pro mode** for professionals works without defined pin assignments.

With the *Changer parts (CH)* can build individuel BUS-Systems.

Each pin can used arbitrarily.

The Pro-System can also expand the Basic mode for bypassing the operation voltages and Ground.

The operation voltages can be pulled down to the signal about the Changer parts (CH) within the running signal flow.

The signal can be pulled down to Ground about the Changer parts (CH) within the running signal flow.

This maximized the Degree of freedom.

1. Coupler / Koppler (CP)

The couplers are used to couple in and out external signals and voltages

Art. Nr.	Model Name	Description	Value	Umax	I _{max}	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
1.10	CP2xWago2059	4 x Wago Terminal	0,14mm ² - 0,34mm ²	48 V	2,0 A / channel total max 4,0 A	Wago 2059-302/998-403	22,23x12,7x 6mm ³	2 g		
1.20	CPJack2-5U24	Power Jack Hohlstecker 2,5mm		24 V	2,0 A	Wurth Elektronik 694108106102	22,23x22,3x14mm ³	5,5 g		
1.30	CPUSBC11250mU30	USB-C port		30 V	1,25 A	Molex 217175-001	22,23x22,3x6,3mm ³	3,5 g		
1.40	CPPINSOCKETPole4Raw 1	Socket 4 Pole 1 Raw		48 V	2,0 A / channel total max 4,0 A	Samtec SSM-104-L-SV	22,23x12,7x11mm ³	2,3 g		

2. Cross / Kreuz (CR)

The CR-parts are used to distribute, to cross, to bridge or to extend the signal flow

Art. Nr.	Model Name	Description	Value	Umax	Imax	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
2.10	CRT0	T-cross T-Kreuz		48 V	2,0 A / channel total max 4,0 A		22,23x17,5x3mm ³	2,5 g		
2.20	CRX0	Cross Kreuz		48 V	2,0 A / channel total max 4,0 A		22,23x22,3x3mm ³	2,7 g		
2.30	CRL0	L - angle L - Winkel	90 °	48 V	2,0 A / channel total max 4,0 A		17,5x17,5x3mm ³	1,7 g		
2.40	CRG0	extender Verlängerung	0 °	48 V	2,0 A / channel total max 4,0 A		22,23x17,5x3mm ³	1,7 g		
2.50	BRX0	signal flow bridging Signalfloss überbrücken		48 V	2,0 A / channel total max 4,0 A		22,23x22,3x3mm ³	2,7 g		

3. Components - IC / Komponenten -IC (CM)

The CM-parts are the electronic components - ICs are integrated Circuits and Pinsockets for embedding extern components and systems like Arduino and more

Art. Nr.	Model Name	Description	Value	Umax	Imax	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
3.10	CMICLDD700LS	Constant Current Source	700 mA	9 V - 32 V	2,0 A / channel total max 4,0 A	MeanWell LDD-700LS	45,09x17,5x12,2mm ³	10 g	<p style="font-size: 8px;">Connect with CH2out for driving without dimming 1: Vin 1: 1-Vin 2: PWM 2: 2-Vout 3: GND 3: 3-Vout 4: Bypass 4: 4-Bypass</p>	
3.20	CMICSOCKETPole8Raw2	IC-Sockel	8 Poles	48 V	2,0 A / channel total max 4,0 A	Preci-dip 110-87-308-41- 105161	22,23x90,81x8,5mm ³	13,2 g		
3.30	CMPINOCKETPole4Raw1	Pin Socket Buchsenleiste	4 Poles 1 Row	48 V	2,0 A / channel total max 4,0 A	Samtec SSM-104-L-SV	22,23x90,81x8,5mm ³	12,5 g		
3.40	CMOPIUA741U18-18I25mHSOIC-8	Operation Amplifier Operations- verstärker	1 MHz	+/-18 V	25 mA	Texas Instruments UA741CDR	45,09x17,5x4,7mm ³	6,6 g	<p style="font-size: 8px;">Connect with ENV+ to 1V+ 2: +VCC 2: -VCC Connect with ENV- to 4V-</p>	

3. Components - Resistors / Widerstände (CM)

The CM-parts are the electronic components

Art. Nr.	Model Number	Description	Value	Tol.	Power	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
3.50	CMR1000mT1P1H2512	Resistor	1 ohms	1%	1 W	Bourns CR2512-F/- 1R00ELF	22,23x12,7x 3,5mm ³	2 g		
3.60	CMR10T1P1H2512	Resistor	10 ohms	1%	1 W	Bourns CR2512-FX- 10R0ELF	22,23x12,7x 3,5mm ³	2 g		
3.70	CMR47T1P1H2512	Resistor	47 ohms	1%	1 W	Yageo RC2512FK-0747RL	22,23x12,7x 3,5mm ³	2 g		
3.80	CMR100T1P1H2512	Resistor	100 ohms	1%	1 W	Bourns CR2512-FX- 1000ELF	22,23x12,7x 3,5mm ³	2 g		
3.90	CMR220T1P1H2512	Resistor	220 ohms	1%	1 W	Yageo RC2512FK-07220RL	22,23x12,7x 3,5mm ³	2 g		
3.100	CMR330T1P1H2512	Resistor	330 ohms	1%	1 W	Yageo RC2512FK-07330RL	22,23x12,7x 3,5mm ³	2 g		
3.110	CMR470T1P1H2512	Resistor	470 ohms	1%	1 W	Yageo RC2512FK-07470RL	22,23x12,7x 3,5mm ³	2 g		
3.120	CMR1000T1P1H2512	Resistor	1 k ohms	1%	1 W	Bourns CR2512-FX- 1001ELF	22,23x12,7x 3,5mm ³	2 g		
3.130	CMR2200T1P1H2512	Resistor	2,2 k ohms	1%	1 W	Yageo RC2512FK-072K2L	22,23x12,7x 3,5mm ³	2 g		
3.140	CMR4700T1P1H2512	Resistor	4,7 k ohms	1%	1 W	Yageo RC2512FK-074K7L	22,23x12,7x 3,5mm ³	2 g		
3.150	CMR10kT1P1H2512	Resistor	10 k ohms	1%	1 W	Bourns CR2512-FX- 1002ELF	22,23x12,7x 3,5mm ³	2 g		
3.160	CMR100kT1P1H2512	Resistor	100 k ohms	1%	1 W	Yageo RC2512FK-07100KL	22,23x12,7x 3,5mm ³	2 g		

3. Components - Capacitor / Kondensatoren (CM)

The CM-parts are the electronic components

Art. Nr.	Model Number	Description	Value	Tol.	Umax	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
3.170	CMC1000pT10U50H1206	Capacitor	1 nF	10%	48 V	Kemet C1206C102K5RAC	22,23x12,7x 4mm ³	2 g		
3.180	CMC10nT10U50H1206	Capacitor	10 nF	10%	48 V	Kemet C1206C103K5RAC	22,23x12,7x 4mm ³	2 g		
3.190	CMC100nT10U50H1206	Capacitor	100 nF	10%	48 V	Kemet C1206C104K5RAC7 867	22,23x12,7x 4mm ³	2 g		
3.200	CMC1000nT10U50H1206	Capacitor	1 µF	10%	48 V	Kemet C1206C105K5RAC	22,23x12,7x 4mm ³	2 g		
3.210	CMC4700nT10U50H1206	Capacitor	4,7 µF	10%	48 V	Kemet C1206C475K5PACT U	22,23x12,7x 4,7mm ³	2 g		
3.220	CMC10uT20U50H1210	Capacitor	10 µF	20%	48 V	KYOCERA AVX 12105C106MAT4A	22,23x12,7x 5,7mm ³	2,2 g		
3.230	CMCE47uT20U50H6-6x6-6	Elko	47 µF	20%	48 V	Panasonic EEE-FK1H470XP	22,23x12,7x 5,7mm ³	2,2 g		

3. Components - Inductors / Induktivitäten / Spulen (CM)

The CM-parts are the electronic components

Art. Nr.	Model Name	Description	Value	Tol.	I _{max}	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
3.240	CML1000nT30I6500mH6-2x6-2	Inductor	1 µH	30%	6,5 A	FASTRON 242418FPS-1R0N-01	22,23x12,7x 7,6mm ³	2,5 g		
3.250	CML10uT20I3000H6-2x6-2	Inductor	10 µH	20%	3,7 A	FASTRON 242418FPS-100M-01	22,23x12,7x 7,6mm ³	2,5 g		
3.260	CML100uT20I900mH6-2x6-2	Inductor	100 µH	20%	0,9 A	FASTRON 242418FPS-101M-01	22,23x12,7x 7,6mm ³	2,5 g		

3. Components - Diodes / Dioden (CM)

The CM-parts are the electronic components

Art. Nr.	Model Name	Description	Value	U	I _{max}	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
3.270	CMD1SS24MI2U600mHMi-cro-SMA	Diode	Shottky	0,6 V	2,0 A	TAIWAN SEMICONDUCTOR SS24M	22,23x12,7x 4,2mm ³	2,2 g		
3.280	CMZDTSZU52C10U10mI5mH0603	Z - Diode	0,15 W	10 V	5 mA	TAIWAN SEMICONDUCTOR TSZU52C10	22,23x12,7x 4,2mm ³	2 g		







































3. Components - LEDs (CM)

The CM-parts are the electronic components

Art. Nr.	Model Name	Description	Value	U	I	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
3.290	CMLED3500I150CREE2835AWT-R	LED warmwhite warmweiß	3500k	3,04 V	150 mA	Cree LED JE2835BWT-P- U35GA0000- N0000001	22,23x12,7x 4mm ³	2,2 g		
3.300	CMLED4000I150CREE2835AWT-R	LED white weiß	4000k	2,86 V	150 mA	Cree LED JE2835BWT-N- H40GAP001- N00A0001	22,23x12,7x 4mm ³	2,2 g		
3.310	CMLED440460I140CREE2835ARY-N	LED royalblue königsblau	440nm-460nm	2,96 V	140 mA	Cree LED JE2835ARY-N- 0002A0000- N0000001	22,23x12,7x 4mm ³	2,2 g		
3.320	CMLED520540I140CREE2835AGR-N	LED green grün	520nm-540nm	2,8 V	140 mA	Cree LED JE2835AGR-N- 0002A0000- N0000001	22,23x12,7x 4mm ³	2,2 g		
3.330	CMLED620630I140CREE2835ARD-N	LED red rot	620nm-630nm	2,2 V	140 mA	Cree LED JE2835ARD-N- 0001A0000- N0000001	22,23x12,7x 4mm ³	2,2 g		


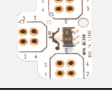


3. Components - 1-Layer-Aluminium High-Power-LEDs (CM)

The CM-parts are the electronic components. **Not rotationally symmetrically - need CNGNDG and ENGNDG.**

Art. Nr.	Model Name	Description	Value	U	I	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
3.340	CMLED29003200I750mP3 HP06	LED warmwhite warmweiß	2900k-3200k	3,5-4,5 V	750 mA	High Power LED 3W29003200s	22,23x22,23x8,5mm ²	4,5 g		
3.350	CMLED40004500I750mP3 HP06	LED white weiß	4000k-4500k	3,5-4,5 V	750 mA	High Power LED 3W40004500s	22,23x22,23x8,5mm ²	4,5 g		
3.360	CMLED45005000I750mP3 HP06	LED white weiß	4500k-5000k	3,5-4,5 V	750 mA	High Power LED 3W45005000s	22,23x22,23x8,5mm ²	4,5 g		
3.370	CMLED55006000I750mP3 HP06	LED white weiß	5500k-6000k	3,5-4,5 V	750 mA	High Power LED 3W55006000s	22,23x22,23x8,5mm ²	4,5 g		
3.380	CMLED65007000I750mP3 HP06	LED cool white kaltweiß	6500k-7000k	3,5-4,5 V	750 mA	High Power LED 3W55006000s	22,23x22,23x8,5mm ²	4,5 g		
3.390	CMLED1000020000I750m P3HP06	LED cool white kaltweiß	10 000k- 20 000k	3,5-4,5 V	750 mA	High Power LED 3W1000020000s	22,23x22,23x8,5mm ²	4,5 g		
3.400	CMLED380390I750mP3H P06	LED UV-A Ultraviolett	380nm-390nm	3,5-4,5 V	750 mA	High Power LED 3W380390s	22,23x22,23x8,5mm ²	4,5 g		
3.410	CMLED390400I750mP3H P06	LED UV-A Ultraviolett	390nm-400nm	3,5-4,5 V	750 mA	High Power LED 3W390400s	22,23x22,23x8,5mm ²	4,5 g		
3.420	CMLED410420I750mP3H P06	LED UV-A actinic blue	410nm-420nm	3,5-4,5 V	750 mA	High Power LED 3W410420s	22,23x22,23x8,5mm ²	4,5 g		
3.430	CMLED430435I750mP3H P06	LED hyper violet	430nm-435nm	3,5-4,5 V	750 mA	High Power LED 3W4430435s	22,23x22,23x8,5mm ²	4,5 g		
3.440	CMLED440450I750mP3H P06	LED royalblue königsblau	440nm-450nm	3,5-4,5 V	750 mA	High Power LED 3W440450s	22,23x22,23x8,5mm ²	4,5 g		
3.450	CMLED455460I750mP3H P06	LED blue blau	455nm-460nm	3,5-4,5 V	750 mA	High Power LED 3W455460s	22,23x22,23x8,5mm ²	4,5 g		
3.460	CMLED515525I750mP3H P06	LED green grün	515nm-525nm	3,5-4,5 V	750 mA	High Power LED 3W515525s	22,23x22,23x8,5mm ²	4,5 g		
3.470	CMLED590600I800mP3H P06	LED yellow gelb	590nm-600nm	2,2-2,8 V	800 mA	High Power LED 3W590600s	22,23x22,23x8,5mm ²	4,5 g		
3.480	CMLED600610I800mP3H P06	LED orange	600nm-610nm	2,2-2,8 V	800 mA	High Power LED 3W600610s	22,23x22,23x8,5mm ²	4,5 g		
3.490	CMLED630640I800mP3H P06	LED red rot	630nm-640nm	2,2-2,8 V	800 mA	High Power LED 3W630640s	22,23x22,23x8,5mm ²	4,5 g		
3.500	CMLED660I800mP3HP06	LED deep red tiefrot	660nm	2,2-2,8 V	800 mA	High Power LED 3W660s	22,23x22,23x8,5mm ²	4,5 g		
3.510	CMLED740745I800mP3 HP06	LED IR infrarot	740nm-745nm	2,2-2,8 V	800 mA	High Power LED 3W740745s	22,23x22,23x8,5mm ²	4,5 g		
3.520	CMLED850I800mP3 HP06	LED IR infrarot	850nm	2,2-2,8 V	800 mA	High Power LED 3W850s	22,23x22,23x8,5mm ²	4,5 g		

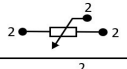
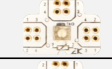
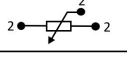

3. Components - Transistors / Transistoren (CM)

The CM-parts are the electronic components

Art. Nr.	Model Name	Description	U _{BE}	U _{max}	I _{max}	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
3.530	CMNPNBCX56U801HSO T-89-3	NPN Transistor	1,2 V	80V	1.0 A	Nexperia BCX56-16,115	22,23x17,5x4,5mm ³	2,7 g		
3.540	CMNPNBCX53U801HSO T-89-3	PNP Transistor	- 1,2 V	80V	1.0 A	Nexperia BCX53-16,115	22,23x17,5x4,5mm ³	2,7 g		

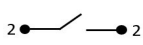

3. Components - Potentiometer / Trimmer (CM)

The CM-parts are the electronic components

Art. Nr.	Model Name	Description	Value	Tol.	Power	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
3.550	CMTR1k	Trimmer einstellbarer Widerstand	1 k ohms	20%	0,25 W	Bourns 3314J-1-102E	22,23x17,5x5,7mm ³	2,7 g		
3.560	CMTR10k	Trimmer einstellbarer Widerstand	10 k ohms	20%	0,25 W	Bourns 3314J-1-103E	22,23x17,5x5,7mm ³	2,7 g		

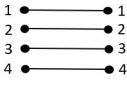

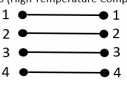

3. Components - Switches and push Buttons / Schalter und Drucktaster (CM)

The CM-parts are the electronic components

Art. Nr.	Model Name	Description	Value	U _{max}	I _{max}	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
3.570	CMSI300U30	slide switch Schiebe- schalter		30 V	300 mA	C&K JS202011SCQN	22,23x12,7x 8,6mm ³	2,3 g		

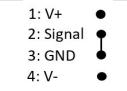

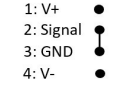

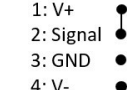
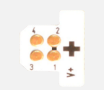
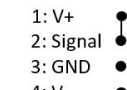

4. Connectors / Verbinder (CN)

The Connectors are for connecting the Groundparts to each other. The thickness of the PCB is 1,2mm.

Art. Nr.	Model Name	Description	Value	Umax	Imax	Component	Dimensions L x W x H	Weight	Schematic circuit	Picture
4.10	CNX0	X-Connector X-Verbinder Left and right side are crossed on PCB for rotationally symmetrical use	Basic mode	48 V	2,0 A / channel total max 4,0 A		14x7,6x 4,1mm ³	1 g	Left and right side are crossed on pcb for rotationally symmetrical use 	
4.20	CNG0	G-Connector G-Verbinder Left and right side are straight for Connecting 1-Layer-Aluminium PCB.	Pro mode Only for 1-Layer Aluminium PCBs	48 V	2,0 A / channel total max 4,0 A		14x7,6x 4,1mm ³	1 g	Left and right side are straight on pcb for Connecting 1-Layer-Aluminium-pcb (High Temperature Components) 	

5. End (EN)

The End-parts are for closing the signal flow with Ground or operating voltage. The thickness of the PCB is 1,2mm.

Art. Nr.	Model Name	Description	Value	Umax	Imax	Example	Dimensions L x W x H	Weight	Schematic circuit	Picture
5.10	ENGND	Signal to GND	2 on 3	48 V	2,0 A / channel total max 4,0 A	If you need to end your your signal flow with GND.	9,5x12,7x 4,1mm ³	0,8 g		
5.20	ENGNDG	Signal to GND only for 1-Layer Aluminium PCB	2 on 3	48 V	2,0 A / channel total max 4,0 A	For grounding 1-Layer-Aluminium PCBs e.g. High Power LEDs.	9,5x12,7x 4,1mm ³	0,8 g	Only for 1-Layer-Aluminium-pcb (High Temperature Components) 	
5.30	ENV+	Signal to V+	2 on 1	48 V	2,0 A / channel total max 4,0 A	Operation amplifier needs positive Operating voltage.	9,5x12,7x 4,1mm ³	0,8 g		
5.40	ENV-	Signal to V-	2 on 4	48 V	2,0 A / channel total max 4,0 A	Operation amplifier needs negative Operating voltage.	9,5x12,7x 4,1mm ³	0,8 g		

6. Changers / Wechsler (CH)

The Changers are Pro-Mode parts for changing signals between the running signal flow. The thickness of the PCB is 1,2mm.

Art. Nr.	Model Name	Description	Value	Umax	Imax	Example	Dimensions L x W x H	Weight	Schematic circuit	Picture
6.10	CH2cut	actual Signal cutted	2 cut	48 V	2,0 A / channel total max 4,0 A	If you only need Operating voltage, e.g. LDD-700LS without dimming	14x7,6x 4,1mm ³	1 g		
6.30	CH1on12-2cut-3on3-4on4	V+ to Signal and actual Signal cutted	2 cut 1 on 2	48 V	2,0 A / channel total max 4,0 A	If you need V+ as Signal and need to cut the actual signal, e.g. for building new chains with a cross.	14x7,6x 4,1mm ³	1 g		
6.50	CH1on12-2on3-3on3-4on4	V+ to Signal and actual Signal to GND and cutted	2 on 3 and 2 cut 1 on 2	48 V	2,0 A / channel total max 4,0 A	If you need a new chain in series, e.g. every 3 LEDs a new series.	14x7,6x 4,1mm ³	1 g		
6.70	CH1on1-2cut-3on3-4on4	V- to Signal and actual Signal cutted	2 cut 4 on 2	48 V	2,0 A / channel total max 4,0 A	If you need V- as Signal and need to cut the actual signal, e.g. for building new chains with a cross.	14x7,6x 4,1mm ³	1 g		
6.90	CH1on1-2on3-3on3-4on4	V- to Signal and actual Signal to GND and cutted	2 on 3 and 2 cut 4 on 2	48 V	2,0 A / channel total max 4,0 A	If you need different operating voltages, you can connect the second voltage to pin 4. With this part you can connect the second voltage to new signal chain.	14x7,6x 4,1mm ³	1 g		