

C GPI16C

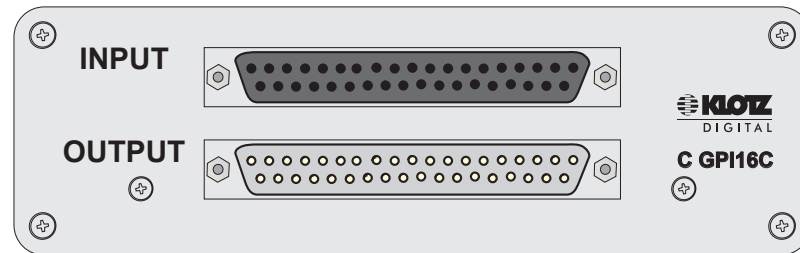


Figure 1: C GPI16C GPI with 16 inputs and 16 outputs

Description

The general purpose interface (GPI) C GPI16C is a control signal interface between a VADIS system providing a control module interface (CMI) bus and external equipment. The C GPI16C and the VADIS system are connected via the CMI bus.

The GPI has 2 functions:

- Control of external equipment by the VADIS system
- Control of the VADIS system by external equipment

The GPI's 16 control signal inputs are designed as galvanically isolated optocoupler inputs for a 5 V input voltage. The external control signal lines are connected to the GPI input via a 37-pin female D-SUB panel connector on the front of the GPI.

The 16 control signal outputs are floating relay contacts. The external control signal lines are connected to the GPI output via a 37-pin male D-SUB panel connector on the front of the GPI.

The configuration of the control signal in- and outputs of the GPI is made in the VADIS software to customer's specifications. This also includes the configuration of the trigger characteristics of the control signals. So input signals can be defined either edge positive or edge negative. Output signals can be latched or pulsed with a length between 110 ms and 800 ms.

The GPI is powered by an external PSU. The PSU is not included in delivery.

Specification

General data

Connectors

- Front:
 - 37-pin D-SUB panel connector, female @ optocoupler, 5 V input voltage
 - 37 pin D-SUB panel connector, male @ relay output
- Rear:
 - 6.3 mm 2-pin panel connector, Cliff FC68149 @ external power supply
 - 2 x RJ45 panel connector, female with LEDs for status and link indication @ CMI bus

Switches

5-pole DIP switch for address setting and termination on the back of the device

Standard power supply

12 VDC ±10% @ internal power supply via the CMI bus

Optional power supply

12 VDC ±10% @ external power supply via an external PSU

Operating current (12 V)

- 200 mA typ. 1 @ all elements on + external supply for GPI control not in use
- 370 mA typ. 2 @ all elements on + 240 mA for external GPI control
- 60 mA min. @ no elements on
- 550 mA max. @ all elements on + 480 mA for external GPI control

Dimensions

Width: 132 mm / 5.2"
 Height: 42 mm /
 Depth: 130 mm / 5.1" with connectors

5 V optocoupler inputs

Serial resistance

430 Ω; internal, 1 %, 125 mW

Input voltage

5 V typ. @ a power dissipation of 45 mW, 50 °C ambient temperature
 7.5 V max. @ a power dissipation of 110 mW, 50 °C ambient temperature
 3.3 V min. @ a power dissipation of 17 mW, 50 °C ambient temperature

Supply for external GPI input control

Voltage: 5 V ±5%
 Current: 240 mA

Relay outputs

DC

- Rated load 1 A @ 24 VDC
- Max. operating voltage 60 VDC
- Max. operating current 1 A
- Max. switching capacity 30 W
- Min. permissible load 1 mA @ 5 VDC

AC

- Rated load 0.5 A @ 125 VAC
- Max. operating voltage 125 VAC
- Max. operating current 1 A
- Max. switching capacity 62.5 VA

Contact resistance

100 mΩ max.

Operate time

5 ms max. (mean value: approx. 2.5 ms)

Release time

5 ms max. (mean value: approx. 0.9 ms)

Bounce time

5 ms max. (mean value: approx. 0.17 ms)

Isolation resistance

1 MΩ @ 500 VDC min.

Supply for external GPI output control

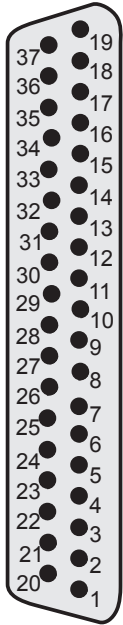
Voltage 5 V ±5%
 Current 240 mA

External PSU**NOTE!**

Long cables and/or the installation of more than one module per CMI bus can cause the need for the installation of an external PSU/external PSUs. For details on the interdependence between cable length, number of installed modules per CMI bus and the necessity to install an external PSU/external PSUs refer to the *Quick Start Guide* for the C GPI16C.

The following table provides the requirements specification for the external PSU.

Connector	Type:	Barrel 2.5 mm x 5.5 mm x 9.5 mm
	Pinouts:	Inner contact: +
		Outer contact: Ground
Output voltage		+12 V \pm 5% typ.
Output current		800 mA min.

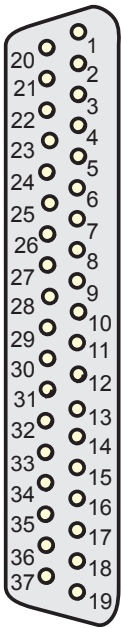


Pin configuration

Pin assignment of the female 37-pin D-SUB panel input connector (optocoupler)

Input	Pin	Name
1	1	OPT-A1
	20	OPT-K1
2	2	OPT-A2
	21	OPT-K2
3	3	OPT-A3
	22	OPT-K3
4	4	OPT-A4
	23	OPT-K4
5	5	OPT-A5
	24	OPT-K5
6	6	OPT-A6
	25	OPT-K6
7	7	OPT-A7
	26	OPT-K7
8	8	OPT-A8
	27	OPT-K8
9	9	OPT-A9
	28	OPT-K9
10	10	OPT-A10
	29	OPT-K10
11	11	OPT-A11
	30	OPT-K11
12	12	OPT-A12
	31	OPT-K12
13	13	OPT-A13
	32	OPT-K13
14	14	OPT-A14
	33	OPT-K14
15	15	OPT-A15
	34	OPT-K15
16	16	OPT-A16
	35	OPT-K16
17*	17	GND
	36	GND
	18	GND
	37	+5 V
	19	+5 V

* Power supply for GPI input control



Pin assignment of the male 37-pin D-SUB panel output connector (relays)

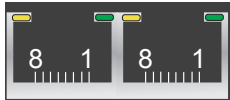
Input	Pin	Name
1	1	REL-A1
	20	REL-K1
2	2	REL-A2
	21	REL-K2
3	3	REL-A3
	22	REL-K3
4	4	REL-A4
	23	REL-K4
5	5	REL-A5
	24	REL-K5
6	6	REL-A6
	25	REL-K6
7	7	REL-A7
	26	REL-K7
8	8	REL-A8
	27	REL-K8
9	9	REL-A9
	28	REL-K9
10	10	REL-A10
	29	REL-K10
11	11	REL-A11
	30	REL-K11
12	12	REL-A12
	31	REL-K12
13	13	REL-A13
	32	REL-K13
14	14	REL-A14
	33	REL-K14
15	15	REL-A15
	34	REL-K15
16	16	REL-A16
	35	REL-K16
17*	17	GND
	36	GND
	18	GND
	37	+5 V
	19	+5 V

* Power supply for GPI output control



Pin assignment of the 2-pin panel connector for the installation of an external PSU

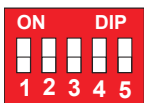
Pin	Signal
1 (inner contact)	+12 V
2 (outer contact)	GND



Pin assignment of the CMI connectors, 2 x 8-pin RJ45 panel connector, female for CMI bus connection

Pin	Signal
1	CMI H
2	CMI L
3	GND
4	CMI H
5	CMI L
6	GND
7	+12 V
8	+12 V

DIP switch



DIP switch settings of the 5-pole DIP switch for address setting and termination

ADDRESSING

Address	DIP switch				
	1	2	3	4	5
0	Not allowed				
1	On	Off	Off	Off	X
2	Off	On	Off	Off	X
3	On	On	Off	Off	X
4	Off	Off	On	Off	X
5	On	Off	On	Off	X
6	Off	On	On	Off	X
7	On	On	On	Off	X
8	Off	Off	Off	On	X
9	On	Off	Off	On	X
10	Off	On	Off	On	X
11	On	On	Off	On	X
12	Off	Off	On	On	X
13	On	Off	On	On	X
14	Off	On	On	On	X
15	On	On	On	On	X



NOTE!
The address 0 is not available for module addressing, because it is firmly assigned to the frame's integrated CMI controller.

X Irrelevant



NOTE!
Each module address must be assigned only once per CMI bus.

TERMINATION

Termination switched on	DIP switch				
	1	2	3	4	5
No	X	X	X	X	Off
Yes	X	X	X	X	On

X Irrelevant

**NOTE!**

The termination must only be switched on, if the GPI is the last module on the CMI bus. If the GPI is not the last module on the bus the termination must be switched off.

Front view

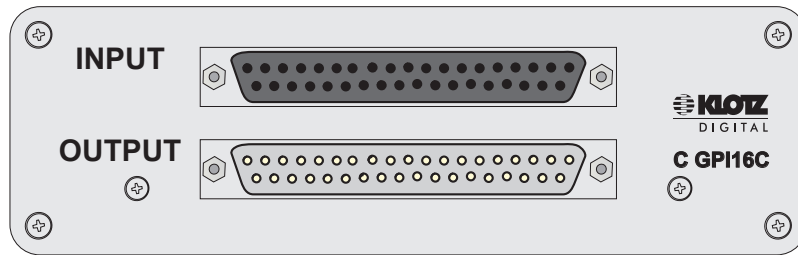
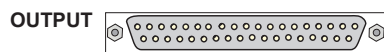


Figure 4: Front view of the CMI GPI C GPI16C with 16 inputs and 16 outputs



Input connector

Via this female panel connector the 5 V control signal lines from external equipment are connected to the GPI.



Output connector

Via this male panel connector the control signal lines from the GPI are connected to the external equipment.

Rear view

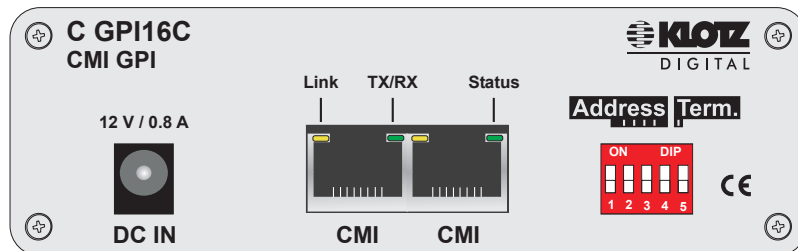


Figure 5: Rear view of the CMI GPI C GPI16C with 16 inputs and 16 outputs

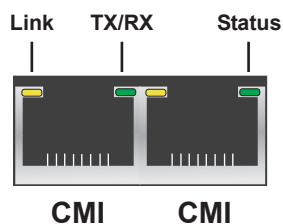
12 V / 0.8 A



DC IN

2-pin DC IN panel connector

Via this connector an external 12 V DC PSU can be connected to the GPI.



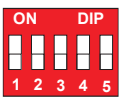
CMI connectors

Via the 2 RJ45 CMI connectors the GPI is connected with the control network. The LEDs of the left CMI connector are used for link indication, the right LED of the right CMI connector is used for status indication of the C GPI16C.

Meaning of the CMI connectors' LEDS

LED	Color	State	Meaning
Link	Yellow	Lights permanently	CMI connection is established.
TX / RX	Green	Flashes sporadically	The LED flashes are caused by the transmission of data. At the time when data are transmitted the LED lights. If no data are transmitted the LED remains unlighted.
Not labeled	Yellow	Unlighted	Not used.
Status	Green	Flashes steadily	Controller is operating.

Address Term.



5-pole DIP switch

The DIP switch of the C GPI16C is used for module addressing and termination. With pins 1 - 4 the module address is set, with pin 5 the termination is switched on or off.