88.2 x 30.6 x 27.3mm dimensions

129.7 x 30.6 x 27.3mm 149.7 x 30.6 x 27.3mm

logic module AND/OR 1 x 4-way

> 2 x 2-way **AND** 1x 8-way AND/OR 2 x 4-way **AND** AND/OR 1 x 10-way AND 2 x 5-way



- √ 5-pin M12-connector for the connection cable to the control unit
- √ 3-pin assignment of the M8-sockets for inputs
- ✓ LED status displays
- √ easy and vibration-proof connection of sensor cables
- √ fully casted electronics
- √ degree of protection IP67







AND / OR logic operation minimized amount of cabling









description

It is often the case, that the signals of many sensors are linked in an application in order to provide a statement about an operational state.

If this linkage is adopted in the control unit, it is necessary to run the signals of each sensor up until there via leads, and process them in the control program.

In many cases, it would be sufficient to link the sensor signals to one another on-site and only transmit one linked end-signal to the control unit.

ipf electronic logic distribution terminals are used for this purpose. According to the module, up to 10 sensors can be connected and logically linked to one another. AND and/or OR versions are available as logical variants.

The user can directly see which signals are pending and/or which are missing (as the case may be) by means of LED status display of the logic modules. The status of the linked end signals is similarly shown via output LEDs. All versions have two separated signal outputs. In the 2 x 2-way / 2 x 5-way types, the input signals of the right and left module halves are linked independent from each other.

In the other logic modules, one output issues the result of the AND link and the other issues the result of the OR link. If, in the case of an AND module, an input slot cannot be taken up by a sensor, a so-called "jumper" plug can be supplied.

application examples

signal linkage of multiple sensors



	VL310104 AND- / OR-liked, 4-way	VL310108 AND- / OR-linked, 8-way	VL31010A AND- / OR-linked, 10-way
	MI2x1 16 16 17 17 17 17 17 17 17 17 17 17 17 17 17	27,3 16 16 28,9 30,6 30,6	M12x1 M12x1 16 149,7 113,3 17,5 149,7 113,3 30,6
TECHNICAL DATA			
ELECTRICAL DATA	nnn no Isignal on nin Al	nnn (signal on nin 4)	nnn (signal on nin 4)
ELECTRICAL DATA input	pnp, no (signal on pin 4) AND 4-way, OR 4-fway	pnp (signal on pin 4) AND 8-way, OR 8-way	pnp (signal on pin 4) AND 10-way, OR 10-way
ELECTRICAL DATA input output (linked)	pnp, no (signal on pin 4) AND 4-way, OR 4-fway 10 30V DC	pnp (signal on pin 4) AND 8-way, OR 8-way 10 30V DC	pnp (signal on pin 4) AND 10-way, OR 10-way 10 30V DC
put (linked) poerating voltage	AND 4-way, OR 4-fway	AND 8-way, OR 8-way	AND 10-way, OR 10-way
put (linked) operating voltage current consumption (max. load) operput current (max. load)	AND 4-way, OR 4-fway 10 30V DC 1A 200mA	AND 8-way, OR 8-way 10 30V DC 1A 200mA	AND 10-way, OR 10-way 10 30V DC
put (linked) operating voltage current consumption (max. load) output current (max. load) nsulation resistance	AND 4-way, OR 4-fway 10 30V DC 1A 200mA \geq 10 $^{\circ}\Omega$	AND 8-way, OR 8-way $10 \dots 30V DC$ $1A$ $200mA$ $\geq 10^{\circ}\Omega$	AND 10-way, OR 10-way 10 30V DC 1A 200mA \geq 10 $^{\circ}\Omega$
put (linked) output (linked) operating voltage current consumption (max. load) output current (max. load) nsulation resistance connection (module)	AND 4-way, OR 4-fway 10 30V DC 1A 200mA $\geq 10^{\circ}\Omega$ M12-connector, 4-pin	AND 8-way, OR 8-way 10 30V DC 1A 200mA ≥ 10°Q M12-connector, 4-pin	AND 10-way, OR 10-way 10 30V DC 1A 200mA $\geq 10^{\rm s}\Omega$ M12-connector, 4-pin
current consumption (max. load) coutput current (max. load) coutput current (max. load) consulation resistance connection (module)	AND 4-way, OR 4-fway 10 30V DC 1A 200mA \geq 10 $^{\circ}\Omega$	AND 8-way, OR 8-way $10 \dots 30V DC$ $1A$ $200mA$ $\geq 10^{\circ}\Omega$	AND 10-way, OR 10-way 10 30V DC 1A 200mA \geq 10 $^{\circ}\Omega$
connection (sensors)	AND 4-way, OR 4-fway 10 30V DC 1A 200mA $\geq 10^{\circ}\Omega$ M12-connector, 4-pin	AND 8-way, OR 8-way 10 30V DC 1A 200mA ≥ 10°Q M12-connector, 4-pin	AND 10-way, OR 10-way 10 30V DC 1A 200mA $\geq 10^{\rm s}\Omega$ M12-connector, 4-pin
input output (linked) operating voltage current consumption (max. load) output current (max. load) insulation resistance connection (module) connection (sensors) MECHANICAL DATA dimensions	AND 4-way, OR 4-fway 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 88.2 x 30.6 x 27.3mm	AND 8-way, OR 8-way $10 \dots 30V DC$ $1A$ $200mA$ $\geq 10^{8}\Omega$ M12-connector, 4-pin $4 \times M8\text{-coupling, 3-pin}$ $129.7 \times 30.6 \times 27.3 \text{mm}$	AND 10-way, OR 10-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin
put (linked) poperating voltage current consumption (max. load) putput current (max. load) putput current (max. load) putput current (max. load) poutput current (max. loa	AND 4-way, OR 4-fway 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin	AND 8-way, OR 8-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin	AND 10-way, OR 10-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin
put (linked) perating voltage current consumption (max. load) putput current (max. load) putput current (max. load) putput current (max. load) putput current (module) connection (module) connection (sensors) MECHANICAL DATA dimensions display (function)	AND 4-way, OR 4-fway 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 88.2 x 30.6 x 27.3mm only when using a connection	AND 8-way, OR 8-way 10 30V DC 1A 200mA ≥ 10*Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 129.7 x 30.6 x 27.3mm only when using a connection	AND 10-way, OR 10-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 149.7 x 30.6 x 27.3mm only when using a connection
input coutput (linked) coperating voltage current consumption (max. load) coutput current (max. load) consulation resistance connection (module) connection (sensors) MECHANICAL DATA dimensions display (function)	AND 4-way, OR 4-fway 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 88.2 x 30.6 x 27.3mm only when using a connection cable with LED	AND 8-way, OR 8-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 129.7 x 30.6 x 27.3mm only when using a connection cable with LED	AND 10-way, OR 10-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 149.7 x 30.6 x 27.3mm only when using a connection cable with LED
input output (linked) operating voltage current consumption (max. load) output current (max. load) output current (max. load) insulation resistance connection (module) connection (sensors) MECHANICAL DATA dimensions display (function) status LED (input signal) status LED (output signal) material (housing)	AND 4-way, OR 4-fway 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 88.2 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA	AND 8-way, OR 8-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 129.7 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA	AND 10-way, OR 10-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 149.7 x 30.6 x 27.3mm only when using a connectior cable with LED 1 x LED yellow per slot LED yellow per output plastic PA
input output (linked) operating voltage current consumption (max. load) output current (max. load) output current (max. load) insulation resistance connection (module) connection (sensors) MECHANICAL DATA dimensions display (function) status LED (input signal) status LED (output signal) material (housing) material (contacts)	AND 4-way, OR 4-fway 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 88.2 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated	AND 8-way, OR 8-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 129.7 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated	AND 10-way, OR 10-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 149.7 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated
input output (linked) operating voltage current consumption (max. load) output current (max. load) output current (max. load) insulation resistance connection (module) connection (sensors) MECHANICAL DATA dimensions display (function) status LED (input signal) status LED (output signal) material (housing) material (contacts) material (sealing)	AND 4-way, OR 4-fway 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 88.2 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated FPM/FKM	AND 8-way, OR 8-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 129.7 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated FPM/FKM	AND 10-way, OR 10-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 149.7 x 30.6 x 27.3mm only when using a connectior cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated FPM/FKM
input output (linked) operating voltage current consumption (max. load) output current (max. load) output current (max. load) insulation resistance connection (module) connection (sensors) MECHANICAL DATA dimensions display (function) status LED (input signal) status LED (output signal) material (housing) material (contacts) material (sealing) temperature (operating)	AND 4-way, OR 4-fway 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 88.2 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated FPM/FKM -25 +70°C	AND 8-way, OR 8-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 129.7 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated FPM/FKM -30 +90°C	AND 10-way, OR 10-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 149.7 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated FPM/FKM -30 +90°C
	AND 4-way, OR 4-fway 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 88.2 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated FPM/FKM	AND 8-way, OR 8-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 129.7 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated FPM/FKM	AND 10-way, OR 10-way 10 30V DC 1A 200mA ≥ 10°Ω M12-connector, 4-pin 4 x M8-coupling, 3-pin 149.7 x 30.6 x 27.3mm only when using a connection cable with LED 1 x LED yellow per slot LED yellow per output plastic PA CuZn, gold-plated FPM/FKM



ACCESSORIES LOGIC MODULES 1650

VL310114 VL310118 VL31011A article no. AND, 2 x 4-way, 8-way output AND, 2 x 2-way, 4-way AND, 2 x 5-way, 10-way 27,3 M12x1 27,3 16 M12x1 27,3 16 M12x1 -(O) □ 0 0 0 0 0 0 🗆 Õ 0 0 93,3 113,3 **TECHNICAL DATA** ELECTRICAL DATA input pnp (signal on pin 4) pnp (signal on pin 4) pnp (signal on pin 4) output (linked) AND, 2 x 2-way, 4-way AND, 2 x 4-way, 8-way AND, 2 x 5-way, 10-way operating voltage 10 ... 30V DC 10 ... 30V DC 10 ... 30V DC current consumption (max. load) 1A 1A 1A output current (max. load) 200mA 200mA 200mA insulation resistance ≥ 108Ω ≥ 108Ω ≥ 108Ω connection (module) M12-connector, 5-pin M12-connector, 5-pin M12-connector, 5-pin 4 x M8-coupling, 3-pin 4 x M8-coupling, 3-pin connection (sensors) 4 x M8-coupling, 3-pin MECHANICAL DATA 88.2 x 30.6 x 27.3mm 129.7 x 30.6 x 27.3mm 149.7 x 30.6 x 27.3mm dimensions display (function) only when using a connection only when using a connection only when using a connection cable with LED cable with LED cable with LED 14 status LED (input signal) 1 x LED yellow per slot 1 x LED yellow per slot 1 x LED yellow per slot status LED (output signal) LED yellow per output LED yellow per output LED yellow per output material (housing) plastic PA plastic PA plastic PA material (contacts) CuZn, gold-plated CuZn, gold-plated CuZn, gold-plated material (sealing) FPM/FKM FPM/FKM FPM/FKM -30 ... +90°C -30 ... +90°C temperature (operating) -30 ... +90°C > 100 > 100 > 100 plug-in cycles degree of soiling 3 3 degree of protection (mounted) IP67 IP67 IP67

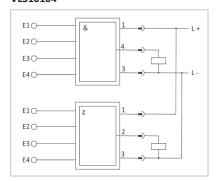
ACCESSORIES

1650 LOGIC MODULES



connection

VL310104



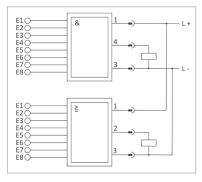
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functions:

1= L+, 2= PNP NO, 3= L-, 4= PNP NO

VL310108



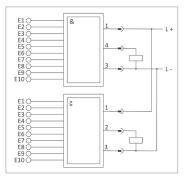
colors

1= BN (brown), 2= WH (white), 3= BU (blue), 4= BK (black),

functions:

1= L+, 2= PNP NO, 3= L-, 4= PNP NO

VL31010A



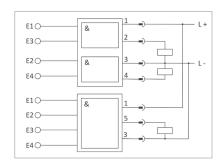
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functions:

1= L+, 2= PNP NO, 3= L-, 4= PNP NO

VL310114



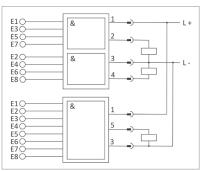
colors:

1= BN (brown), 2= WH (white), 3= BU (blue), 4= BK (black), 5= GY (gray)

functions:

1= L+, 2= PNP NO, 3= L-, 4= PNP NO, 5= PNP NO

VL310118



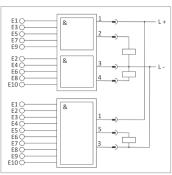
colors

1= BN (brown), 2= WH (white), 3= BU (blue), 4= BK (black), 5= GY (gray)

functions:

1= L+, 2= PNP NO, 3= L-, 4= PNP NO, 5= PNP NO

VL31011A



colors:

1= BN (brown), 2= WH (white), 3= BU (blue), 4= BK (black), 5= GY (gray)

functions:

1= L+, 2= PNP NO, 3= L-, 4= PNP NO, 5= PNP NO