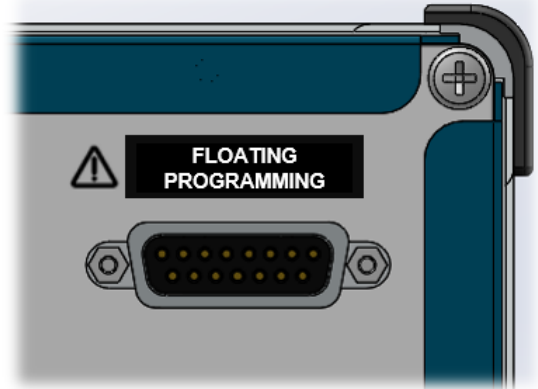


Potential free analog (max 350V) Programming / Interface

OPTION PPT30

Interface to the operating instructions
(Translated from German)

Version: 4.7



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1. Analog Programming option

1.1. General

The analog interface (15-pole Sub-D socket on the rear panel) is used to control the functions voltage setting, current setting as well as UNIT ON CMD (OUTPUT ON/OFF) and special functions, depending on the unit type. The current actual values are provided as analog voltages and the latest control modes as digital signals.

Please refer to the overview for analog programming, see 1.3.

The interface is located on the rear panel of the DC power supply.



This interface is potential free till max. 350V.



Failure to observe this may result in electric shock via the interface!

Function

Voltage and current can be set with standardized analog signals (0-10V), by external potentiometers. The reference voltage of +10V or the set values can alternatively be supplied by other external voltage sources (connect 0V!).

The analog signals for voltage and current setpoint as well as voltage and current monitors are galvanically isolated from the output potential via isolation amplifiers.

Digital signals are isolated via optocouplers.

Signal and control cable

The analog interface is implemented via a shielded Sub-D socket. The shield is connected to the housing potential (PE). The mating connector, as well as the data link, must be shielded and the shields must be connected to each other. The maximum permissible length of the shielded cable is 3m. These are prerequisites for compliance with electromagnetic compatibility (EMC), see also the Declaration of Conformity in the appendix.

Identifying sign

You can recognise this option by the sticker “FLOATING PROGRAMMING” on the interface connector on the rear panel.

Before the device is put into operation, the analog programming interface must be connected.

After commissioning has taken place and the external control is in operation, the ANALOG LED lights up.

The device is now operated externally via the programming socket. Voltage and current can be specified with standardized analogue signals (0-10V) or by external potentiometers.

Voltage limitation

The voltage limitation, adjustable by the potentiometer V-LIMIT on the front panel of the DC power supply, is still active.

1.2. Foreseeable misuse when using analog programming

WARNING

Danger of electrical shock at the power outputs!



If the device is operating in **ANALOG** mode and the analog programming interface cable is pulled, the output voltage drops to 0V after the unloading time which depends on the connecting load. Once the analog programming interface cable is plugged in again without changing the remote control settings, the last set values will be present at the outputs.

1.3. Overview of analog programming:

View of solder side plug			plug connection:
All voltages and currents are specified as DC			350V potential free
Isolation of the digital inputs and outputs, analog inputs and outputs			350V
Pin	Description	Type	Function
1	CC	DO	Supplies appr. +15V if power supply is in constant current mode. Equivalent to LED CC, Ri ca. 10kΩ
2	CV	DO	Supplies appr. +15V if power supply is in constant voltage mode. Equivalent to LED CV, Ri ca. 10kΩ
3	I-MON	AO	Actual output current monitor signal 0...+10V represents 0...nominal current Ri ca. 2kΩ
4	VPS	AO	Not used
5	IPS	AO	Not used
6	0VD	DI	Ground for digi. signals, may be current loaded
7	Not used		for devices of the HCB, MCA, MCP, NLN, NTN series without function.
	POL-SET	DI	control input for electronic polarity reversal switch (Option) POS = pin (7) open, NEG = connected to Pin (6) 0VD
	V/I REG	DI	switchover voltage/current regulation only applies to the NLB series V-REG mode: connect Pin7 with Pin6 (Pin7=0), I-REG mode: Pin7 unconnected
8	V-SET	AI	0...+10V controls 0...nominal voltage Input resistance to 0V appr. 0V ca. 10MΩ
9	0V	A-GND	Ground for analog signals, must not carry any current
10	+10V REF	AO	+10V Reference (Output), current loaded max. 2mA
11	V-MON	AO	Actual output voltage monitor signal. 0...+10V represents 0...nominal voltage Ri ca. 2kΩ
12	OUTPUT ON	DI	pin (12) open OUTPUT = OFF, pin (12) connected to 0VD pin (6) = OUTPUT ON
13	Not used		for devices of the MCP series without function.
	POL-Status	DO	polarity status (option) applies to devices with polarity reversal switch. POS polarity = approx. +12 V, NEG polarity = 0 V
	-10V REF	AO	for the devices of the HCB, NLB series
	P-LIM	DO	delivers approx. +15 V, when the MCA series device is driven into power limit, equivalent to LED P-LIM on the front panel
	S-REG	DO	Delivers approx. +15 V, if NTN, NLN series device in SENSE control (only with active sensor operation), equivalent to LED S-ERR on front panel.
14	NC	DI	Not used
15	I-SET	AI	0...+10V equals 0...INenn, input resistance against 0V approx. 10MΩ
	NC		Not used

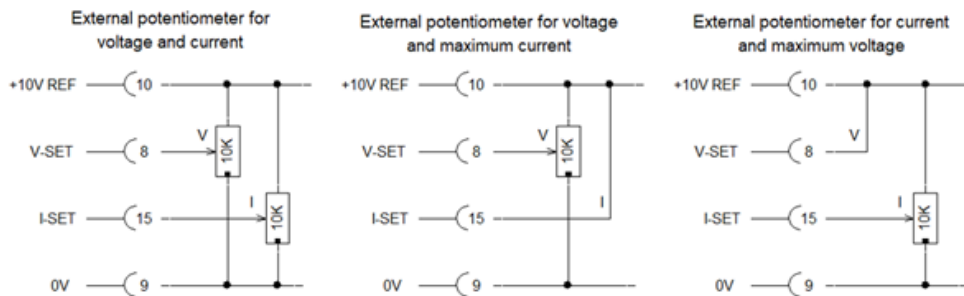
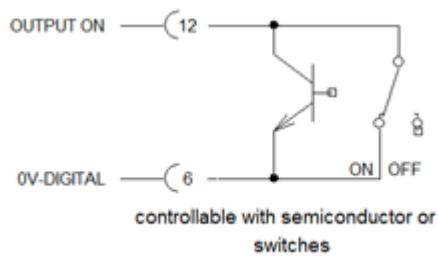
All values of voltages and currents are in DC.
D = Digital, A = Analog, I = Input, O = Output
NC = Not used

1.4. Wiring Options

NOTE

- An external voltage adjustment necessarily requires also a wiring of the current control and vice versa.
- The reference voltage of +10V or the nominal values can alternatively come from other external voltage sources. (connect 0V).
- The ON/OFF command (pins 12-6) **must** be wired.

Release of the DC OUTPUT with floating and fixed potential analog programming



1.5. Operation of the analog interface

WARNING

Enable of OUTPUT ON/OFF

The DC OUTPUT is switched on by connecting pin 12 to pin 6, see 1.3

If the DC OUTPUT is switched on with a wire connection between pin 12 and pin 6, the OUTPUT remains active until the connection between pin 12 and pin 6 is open or the mains is switched off.

In the event of a mains voltage failure, the DC OUTPUT remains enabled. As soon as the mains voltage is supplied again, the DC OUTPUT is active again!



Electric shock possible due to residual voltage at the output!

When the unit is switched off or in the event of a power failure, residual voltage / current will NOT be displayed on the monitor outputs!

Observe the discharge time!

Putting the analog programming option / interface into operation



1. The installation of the analog interface must only be executed when the DC power supply is not in operation!
2. The interface of the control unit shall be connected to the interface of the DC power supply as specified.
3. Now turn on the POWER switch (1).
4. Set the REMOTE switch at the front panel to ON. If an additional digital interface is available set the switch to ANALOG. The ANALOG LED is now lit.

To switch the power supply off, proceed as follows:

1. Set the values at the pin (8) V-SET and pin (12) I-SET to 0V.
2. Open Pin (12), command OUTPUT OFF
3. After the output voltage has reached a value < 50 V, switch the device completely off using the POWER switch.

The DC power supply is switched off.