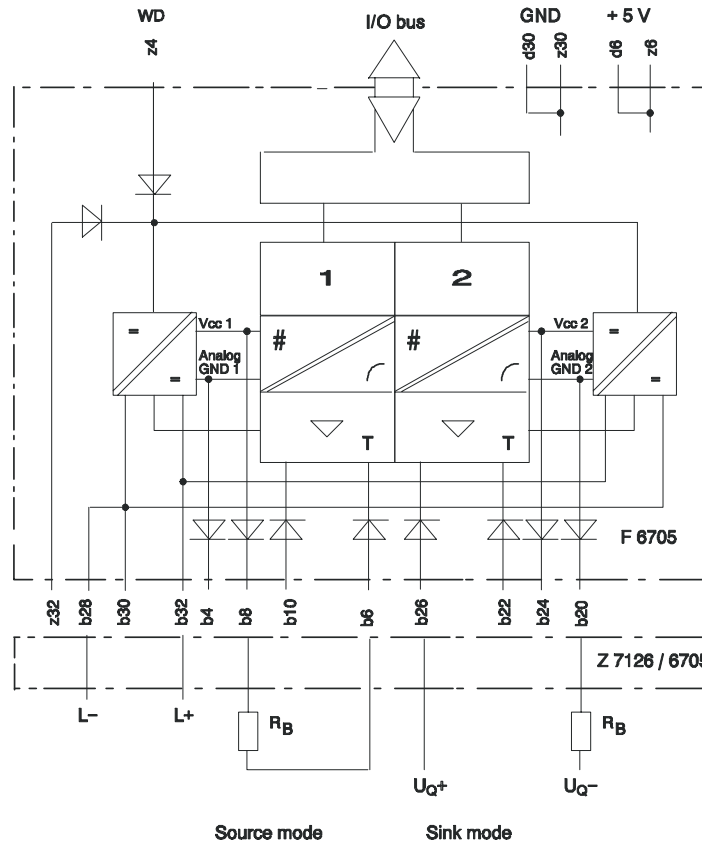




**F 6705: 2-fold Converter digital/analog, safety related**

Outputs: 0/4 ... 20 mA, individual galvanically isolated, with safety isolation, with integrated safety shutdown for source or sink mode requirement class AK 1 ... 6



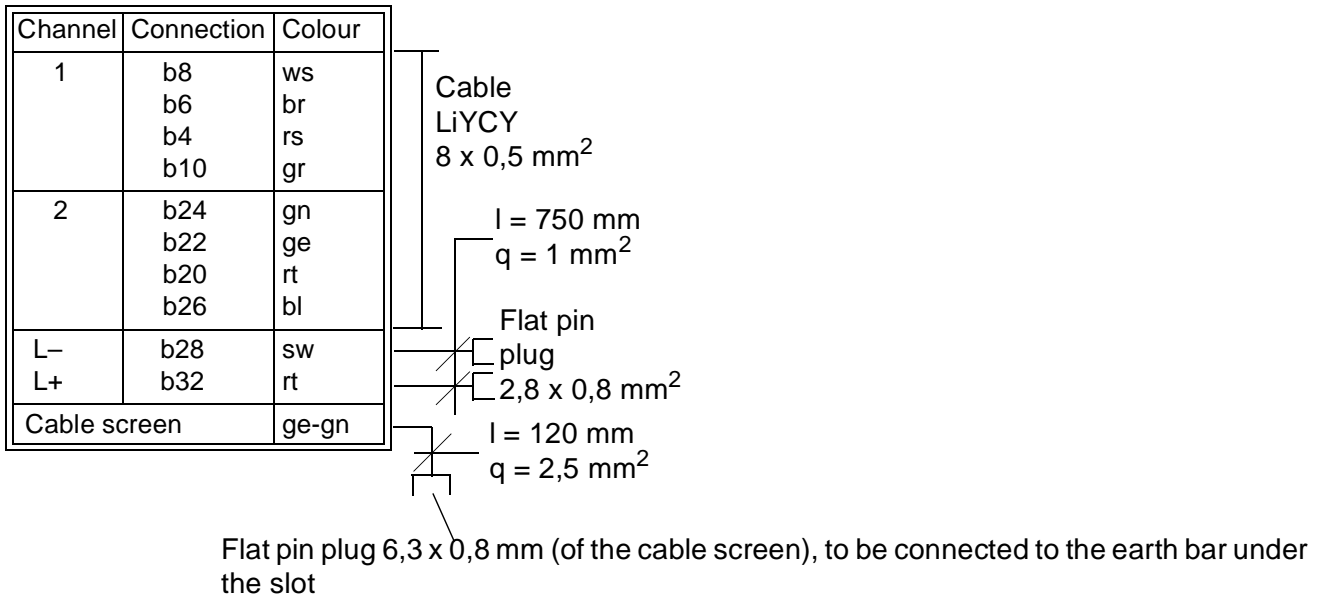
Block diagram

Front cable plug

The module is automatically fully tested during operation. The main test routines are:

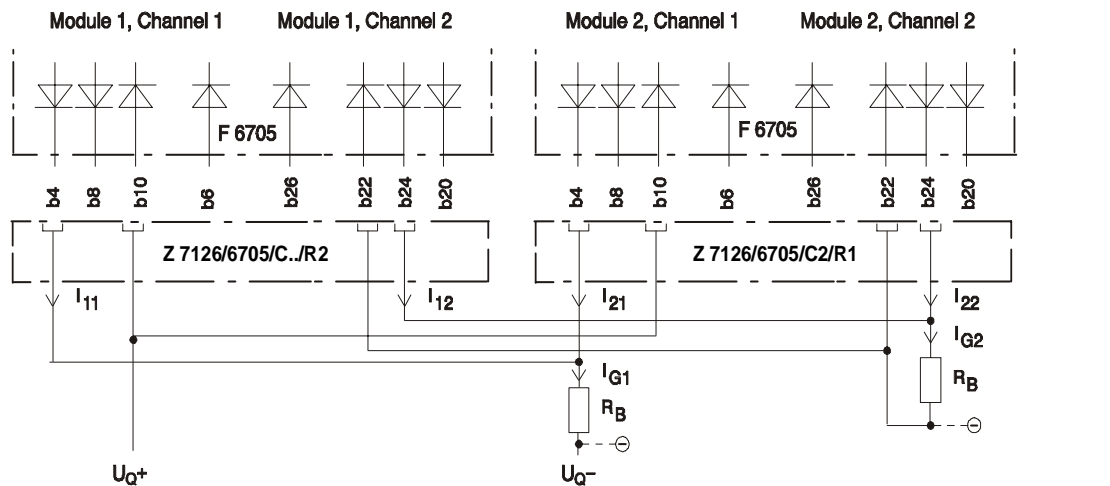
- Linearity of the DA-converter
- Cross-talk between the outputs
- safety shut down

Resolution	12 bits (4095 steps) 0 = 0 mA, 3840 = 20 mA
Burden R <sub>B</sub>	
source mode	≤ 550 Ohm incl. line resistance to the burden
sink mode	≤ (U <sub>Q</sub> - 10 V) / 21.2 mA
	U <sub>Q</sub> = source voltage
Basic error	≤ 0.2 % (40 µA) at 25 °C
Operating error	≤ 0.4 % at 0...+60 °C
Line length	max. 1000 m (watch for burden)
Electric strength	250 V against Analog-GND
Basic status with plug-in	I ≤ 40 µA
Source voltage U <sub>Q</sub> (sink mode)	10 ... 30 V
Space requirement	4 TE
Operating data	5 V DC: 85 mA, 24 V DC: 130 mA



Lead marking cable plug  
Z 7126 / 6705 / C..

**Note:** To prevent module error messages not used channels have to be terminated with a jumper  
 b6 - b8 for channel 1  
 resp. b22 - b24 for channel 2



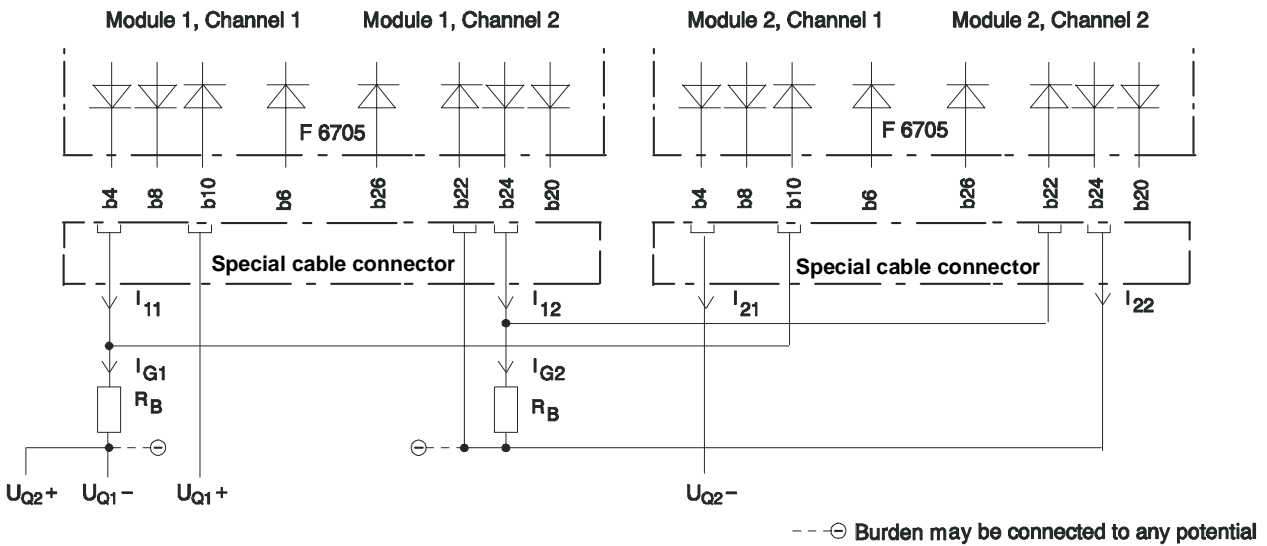
Channels 1: Sink mode  
 Channel 2: Source mode

---⊖ Burden may be connected to any potential

### Redundant current connection

With redundant current connection, the following must be considered:

- The total current  $I_{G1}$  resp.  $I_{G2}$  to the burden  $R_B$  is the addition of the individual currents  $I_{11}$  and  $I_{21}$  resp.  $I_{12}$  and  $I_{22}$
- The admissible burden resistance is the half
- The paralleled channels have to be used in the same mode (source or sink mode)
- Because of the temperature error and of the wanted well-balanced load of the modules each output channel should generate the half of the current  $I_G$  to the burden.



Channels 1: Sink mode  
 Channel 2: Source mode

### Bipolar current connection

The bipolar current connection serves the output of currents with sign between -20 mA to +20 mA. The following must be considered:

- The total current is the addition of the individual currents:  
 $I_{G1} = I_{11} - I_{21}$  or  $I_{G2} = I_{12} - I_{22}$  resp.
- The admissible burden resistance remains the same
- Module 1 generates the positive part and module 2 the negative part of the total current
- In reasons of accuracy only one module may generate or consume current. This must be programmed in the user's program.

For your notes