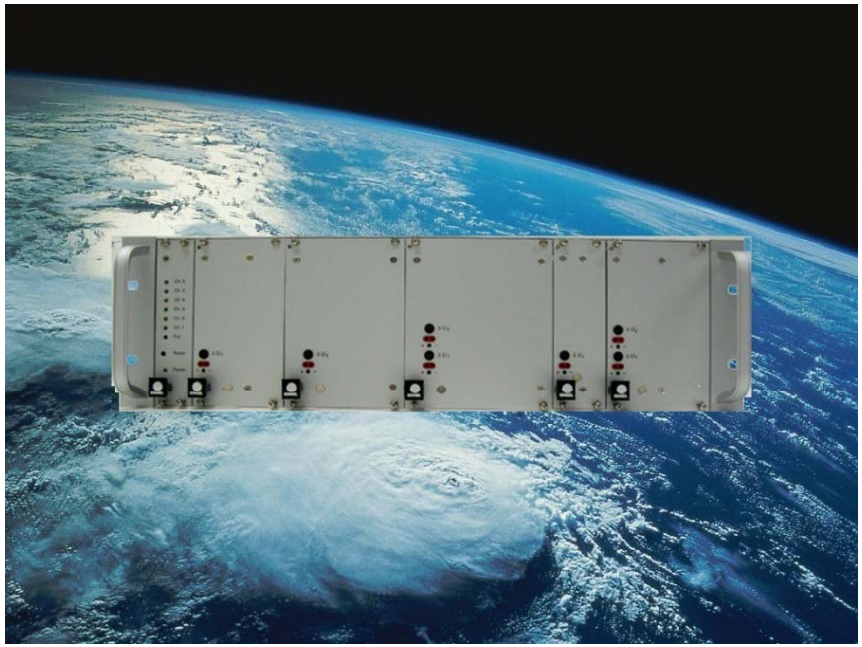
NGC Power Supply and its prerequisites



Power Transmission

How big does the cable have to be?

M17. A more realistic estimation for the length of the power cable will be 15 meters (length taken from KMOS). Until now we have considered 10 to 12 meters.

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Output No.	Supply Voltages	KMOS Current consumtion	Voltage drop ΔU*	Voltage drop ΔU* by 3 wire	Number of wires per Voltage
1a, 1b, 1c	+ 5V_Digital	3.2A	2.14V	0.76V	**3 + 3**
2a, 2b, 2c	-5V_Analog	1.9A	1.36V	0.45V	**3 + 3**
3a, 3b, 3c	+5V_Analog	5.4A	3.86V	1.29V	**3 + 3**
4, 5	-15V	96mA	0.07V		**2 + 2**
6	+15V	115mA	0.08V		**1 + 1**
7	+30V	59mA	0.04V		**1 + 1**
8a	+24V	500mA	0.36V		**1 + 1**
8b	Overtemperature:				**1 + 1**
Number of used lines:					**30**
* 15 meter copper cable with a diameter of 1.5mm² per wire					

KMOS Configuration 1xFEB, 3xAQ32

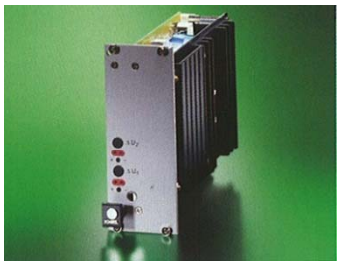
Power Transmission

Choosing the correct cable

- Continous flexing application
- Damp and wet enviroment
- EMC* / Screening
- Minimum of 30 wires
- Diameter of 1.5mm² per wire

- Qualified for 5 million bending cycles
- Outer sheath of special PVC vinyl
- Copper braid screening*
- 34 wires
- Diameter of 1.5mm² per wire

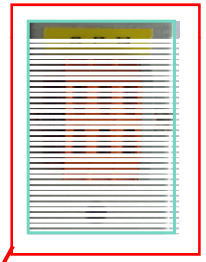
*EMC Electromagnetic compatibility
*Specified transfer impedance of screening max. 250 Ohm/km at 30 MHz



Supply Unit

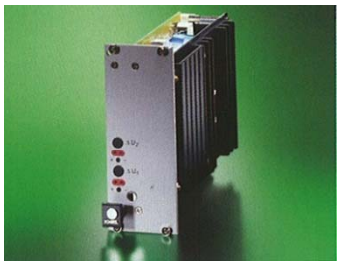
What are the requirements ?

- Cover broad spectrum of applications (KMOS, MUSE, SPHERE, …)
- Low emission
- High reliability
- Available rack space
- LRU (Line-replaceable unit)
- Safe handling of 230 Volt input
- Monitoring output voltages
- ALARM output for CAS module



Junction plate

View from rear side



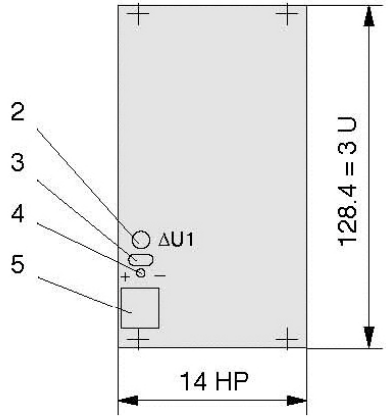
Supply Unit

Choosing the correct type

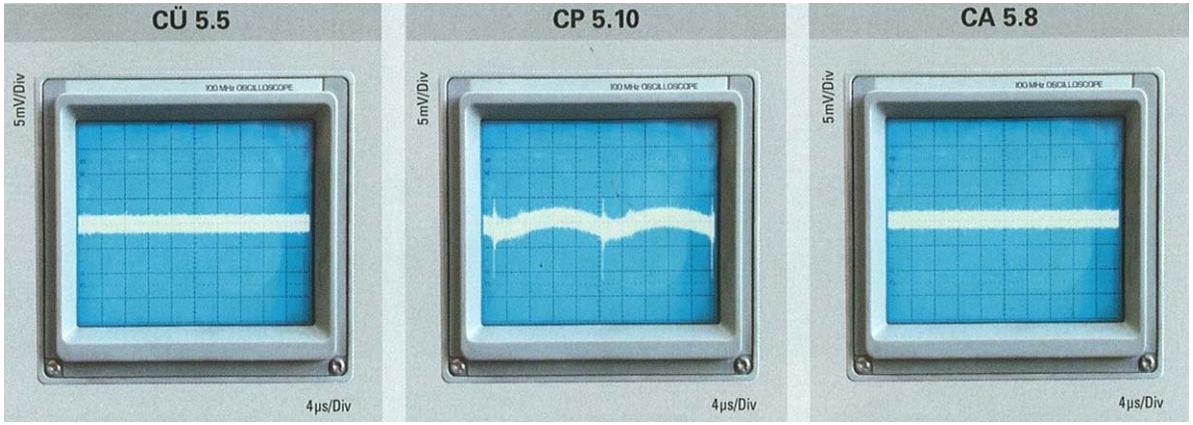
2 = potentiometer
3 = test socket
4 = LED, green
5 = grip

1 HP* = 5.08mm

* HP = horizontal pattern



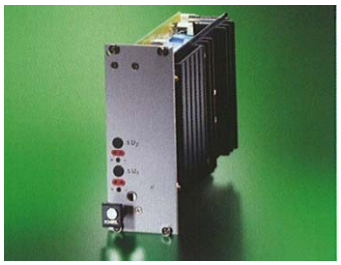
Spikes + Ripples



Linearly regulated **14HP**
Efficiency **>33%**

Primary switched **8HP**
Efficiency **>77%**

Low Emission **8HP**
Efficiency **>77%**



Supply Unit

Choosing the correct power modules

Output No.	Voltages	MUSE Current consumtion	KMOS Voltage drop ΔU* by 3 wire	Resulting Supply Voltages	Rack space HP	Kniel Model No.
1a, 1b, 1c	+ 5V_Digital	6A	0.76V	**+5.5V***	**18**	**CLO 5.7**
2a, 2b, 2c	-5V_Analog	1.5A	0.45V	**-6V**	**22**	**CLDO 6.5,5**
3a, 3b, 3c	+5V_Analog	1.5A	1.29V	**+6V**		
4, 5	-15V	1.5A		**-15V**	**16**	**CDÜ 15.1,5**
6	+15V	1.5A		**+15V**		
7	+30V	400mA		**+30V**	**8**	**CÜ 30.0,5**
8a	+24V	500mA		**+24V**	**14**	**CÜ 24.5**
Voltage supervisor					**6**	**VC 16 LH**
Number of rack space patterns used:					**84**	
* 15 meter copper cable with a diameter of 1.5mm² per wire * Adjustment Range ±0.5V						

MUSE Configuration 6xFEB