EAN CODE :3760244880468 — 5 MHZ+RS232+LabVIEW™+(USB or LAN)* — GF467F

COMPLETE : Reciprocal frequency counter 50 MHz.
- Internal linear or logarithmic sweep, and external VCF or FM modulation. AM modulation.
- CMos function.
- Independent offset of the attenuator.
- Two fixed -20 dB attenuators and a -40 dB variable (Total = -80 dB)

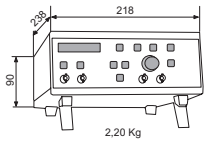
PRECISE : High waveform quality.
- Continuously variable duty cycle on all ranges.

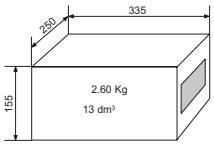
PROTECTED : 50 Ω and TTL outputs protected against up to ±60 V reverse power surges.

EASY : All parameters display.

*OPTIONS : RSETHER RSWIFI USBRS232

LabVIEW™





PROTECTED
RS232 + (USB OR LAN)* LabVIEW™
0,01 Hz to 5 MHz
CMos

Specifications

Functions
- Triangle, sine, square, ramp, implus, offset, CMos, internal linear or logarithmic sweep, external VCF or FM modulation, AM modulation.
- Frequency range : 0,01 Hz to 5 MHz in 8 ranges.
- Frequency adjustment : Thumbwheel switch with 3 steps (big, medium, fine). Resolution : < 0.04% of the range.

Waveform characteristics
- Sine-wave distortion : < 1% and harmonics less than < -30 dB.
- Triangle linearity error : 1% max (up to 100 KHz).
- Square-wave signal rise or fall times : 30 ns max (10 to 90%).

Duty cycle
- Calibrated : to 50% ± 1%.
- Variable : continuously from 20 to 80 % on all ranges and for all wave forms. Resolution : 1% step

Frequency sweep
- Internal : Linear or logarithmic, sweep time adjustable from 10 ms to 5 s and depth adjustable for 1 to 100. Start, arrival and lasting frequency setting. Ramp output on BNC socket, 1 volt into 35 kΩ.
- External : Input on BNC socket, input impedance : 47 kΩ ± 10%, Protection : ± 60 Volts max. Bandwidth : DC to 20 kHz. 500:1 ratio : for a variation from 0 to -10 V (± 1V). 1:500 ratio : for a variation from 0 to +10 V (± 1V).

Amplitude modulation
- Internal : 440 Hz frequency. Depth : 4 steps at 25, 50, 75 or 100%
- External : Input on BNC socket. Depth : 1 Vrms = 100% for 10 Vcc.

Frequency counter
- Frequency range : 0 to 50 MHz in 8 automatic ranges. Reciprocal reading for very low frequencies.
- Display : 14mm 5 digits red LEDS.
- External input : Impedance : 1 MΩ/20 pF Typical sensitivity : 10 mV rms
- Direct reading of the frequency in internal position.
- Accuracy to 100kHz : ± 0,025% ±1 digit.
- Memorize the last configuration used and its parameters.

Main output (Protected against short circuits and up to ±60 V reverse power surges)
- Output impedance : 50 Ω, accuracy : ± 5%.
- Output level : 20 V peak to peak (open circuit), 10 V peak to peak into 50 Ω.
- Fixed attenuation : 0, - 20 dB or -40 dB switchable.
- Variable attenuation : 0 dB to - 40 dB + DC function
- Resolution : 100mV at 0 dB, 10 mV at - 20 dB and 1 mV at -40 dB
- Offset voltage : Independent of fixed attenuator regulating ±10 V (open circuit), ±5 V into 50 Ω resolution : 100 mV

CMos function : Output signal shifting on positive range. Regulating from 0 to ±10 V in open circuit.

TTL output (Protected against short circuit and up to ±60 V reverse power surges)
- Synchronous square-wave signal 0 to 5 Volts. Fan-out : > 10.
- Rise and fall times : < 20 ns.

Other specifications
- Safety : Class II, Toroidal Safety Extra Low Voltage (SELV) Transformer. Complies with EN 61010-1, overvoltage category II, pollution degree 2.
- EMC : Complies with EN 61326-1.
- Protection level : IP 31.
- Interface : RS232 Link 9-way male SUB-D plug. LabVIEW™'s drivers download on www.elc.fr
- * USB option : USB / RS232 adapter kit + null modem cable.
- * ETHERNET option : WIFI /RS232 / RS485 / RS422 adapter kit to ETHERNET.
- Input voltage : 230 V ±10%, 50 / 60 Hz ; protected by 0.2 A time-delay fuse.
- Mains input : socket with 2 poles irremovable.
- Power consumption : 30 VA max.
- Dielectric strength : 3000 VAC from input to output.
- Presentation : screen-printed polycarbonate front panel, metal case, with feet.

EAN CODE : 3760244880047 5

5 MHZ + AMPLI + RS232 + LabVIEW™ + (USB or LAN)*

GF467AF

COMPLETE : Reciprocal frequency counter 50 MHz.
- Internal linear or logarithmic sweep, and external VCF or FM modulation. AM modulation.
- CMos function.
- Independent offset of the attenuator.
- Two fixed -20 dB attenuators and a -40 dB variable (Total = -80 dB)

PRECISE : High waveform quality.
- Continuously variable duty cycle on all ranges.

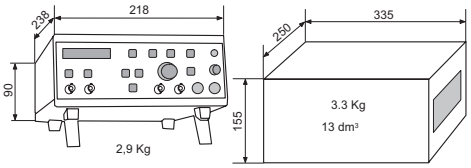
PROTECTED : 50 Ω and TTL outputs protected against up to ±60 V reverse power surges.

EASY : All parameters display.

*OPTIONS : RSETHER RSWIFI USBRS232

PROTECTED
RS232 + (USB OR LAN)* LabVIEW™
0,01 HZ TO 5 MHZ
CMOS
AMPLI 15 W

LabVIEW™



Specifications

Functions
- Triangle, sine, square, ramp, implus, offset, CMos, internal linear or logarithmic sweep, external VCF or FM modulation, AM modulation.
- Frequency range : 0,01 Hz to 5 MHz in 8 ranges.
- Frequency adjustment : Thumbwheel switch 3 steps (big, medium, fine).
- Resolution : < 0.04% of the range.

Waveform characteristics
- Sine-wave distortion : < 1% and harmonics less than < -30 dB.
- Triangle linearity error : 1% max (up to 100 KHz).
- Square-wave signal rise or fall times : 30 ns max (10 to 90%).

Duty cycle
- Calibrated : to 50% ± 1%.
- Variable : continuously from 20 to 80 % on all ranges and for all wave forms. 1% step.

Frequency sweep
- Internal : Linear or logarithmic, sweep time adjustable from 10 ms to 5 s and depth adjustable for 1 to 100. Start, arrival and lasting frequency setting. Ramp output on BNC socket, 1 volt into 35 kΩ.
- External : Input on BNC socket, input impedance : 47 kΩ ± 10%, bandwidth : DC to 20 kHz. 500:1 ratio : for a variation from 0 to -10 V (± 1V). 1:500 ratio : for a variation from 0 to +10 V (± 1V).

Amplitude modulation
- Internal : 440 Hz frequency. Depth : 4 steps at 25, 50, 75 or 100%
- External : Input on BNC socket. Depth : 1 Vrms = 100% for 10 Vcc.

Frequency counter
- Frequency range : 0 to 50 MHz in 8 automatic ranges. Reciprocal reading for very low frequencies.
- Display : 14 mm 5 digits red LEDS.
- External input : Impedance : 1 MΩ/20 pF
- Typical sensitivity : 10 mVrms
- Direct reading of the frequency in internal position.
- Accuracy to 100 kHz : ± 0,025% ±1 digit.
- Memorize the last configuration used and its parameters.

Main output (Protected against short circuits and up to ±60 V reverse power surges)
- Output impedance : 50 Ω, accuracy : ± 5%.
- Output level : 20 V peak to peak (open circuit),10 V peak to peak into 50 Ω.
- Fixed attenuation : 0, - 20 dB or -40 dB switchable.
- Variable attenuation : 0 dB to - 40 dB + DC function
- Resolution : 100 mV at 0 dB, 10 mV at - 20 dB and 1 mV at -40 dB
- Offset voltage : Independent of fixed attenuator regulating ±10 V (open circuit), ±5 V into 50 Ω

CMos function : Output signal shifting on positive range. Regulating from 0 to ±10 V in open circuit.

0,5 Ω output (Protected against short circuits)
- Output impedance : 0,5 Ω, accuracy : ±10%.
- Power : 15 W into 4 Ω ; Max current : 2 A.
- Output voltage : ± 12,5 V (open circuit)
- Offset voltage : 7,8 V into 4 Ω, independent of fixed attenuator.
- Bandwidth : DC to 100 kHz.
- Power adjustment : 0 to max via trimer.
- External input : sensitivity 5 mV, input impedance : 47 kΩ ±10%, gain = 500 ; bandwidth : 0 to 100 kHz

TTL output (Protected against short circuit and up to ±60 V reverse power surges)
- Synchronous square-wave signal 0 to 5 Volts. Fan-out : > 10.
- Rise and fall times : < 20 ns.

Other specifications
- Safety : Class II, Toroidal Safety Extra Low Voltage (SELV) Transformer. Complies with EN 61010-1, overvolt. cat. II, poll. degree 2.
- EMC : Complies with EN 61326-1.
- Protection level : IP 31.
- Interface : RS232 Link 9-way male SUB-D plug. labVIEW's drivers download on www.elc.fr
- * USB option : USB / RS232 adapter kit + null modem cable.
- * ETHERNET option : WIFI /RS232 / RS485 / RS422 adapter kit to ETHERNET.
- Input voltage : 230 V ±10%, 50/60 Hz ; 200 mA time-delay fuse.
- Mains input : socket with 2 poles irremovable.
- Power consumption : 86 VA max.
- Dielectric strength : 3000 VAC from input to output.
- Presentation : screen-printed polycarbonate front panel, metal case, with feet.

EAN CODE : 3760244880451

12 MHZ DDS + RS232 + LabVIEW™ + (USB or LAN)*

GF 266

PRECISE : Very high frequency accuracy (0.005%) with display over 4 or10 digits.
- Very high sine quality (distorsion <0,1%).
- duty cycle: adjustable from 10 to 90%.

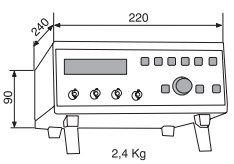
COMPLETE : Internal or external AM, FM, FSK et PSK modulation schemes.
- Internal linear or logarithmic sweep
- 0,8 Hz to 100 Mhz external frequency meter.
- Offset independent of attenuator

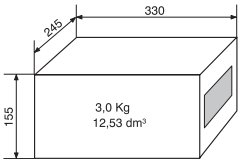
PROTECTED : 50 Ω and TTL output protected up to ±60 V.

EASY: Storage for 14 setups and parameters.

*OPTIONS : RSETHER RSWIFI USBRS232

PROTECTED
RS232 + (USB OR LAN)*
11 µHz to 12 MHz
DDS
AM, FM, FSK, PSK





Specifications

Functions
- Sine : Frequency range 11 µHz to 12 MHz. distortion at 2 Volts <0,1% up to 20 kHz and harmonics <-30 dB.
- Square : frequency range 11 µHz to 12 MHz. square-wave signal rise or fall times : 25 ns maxi (10 to 90%). duty cycle calibrated to 50% ± 1% and continuously variable from 10 to 90%.
- Triangle : frequency range 11 µHz to 12 MHz. Linearity <1% (up to 100 kHz).
- Ramp : frequency range 22 µHz to 5 MHz, rising or falling. Linearity <1% (up to 100 kHz)
- Impuls : Square-wave signal adjustement at the minimum
- DC : ±10 V (open circuit), ±5 V into 50 Ω
- Frequency adjustment : Thumbwheel switch with selected digit incrementation or decrementation.
- Frequency display : 10 digits in extended mode 4 digits in standard mode.
- Accuracy : ±50 ppm +10 µHz.

Frequency sweep
- Internal : linear or logarithmic, sweep time adjustable from 10 ms to 10 s. Sweep from 0,372 Hz to frequency Max. (F stop mini = F start +100 Hz. Step of 10 Hz). Start synchronization of the ramp output on BNC socket.

Modulation
Internal sine-wave AM, FM, PSK, FSK to 800 Hz.
External on BNC socket,Input impedance : 10KΩ.
- AM : Internal, modulation percentage settable to 25, 50, 75 or 100%. External, bandwidth from DC to 20 kHz, 1V rms=100%.
- FM : Deviation adjustable from 100 Hz to Fmax, bandwidth from DC to 5.6 kHz.
- FSK : Adjustable from 100 Hz to Fmax, bandwith from DC to 20 kHz.
- PSK : Phase adjustable from 0 to 360°, bandwith from DC to 20 kHz.

Main output (Protected against short circuits and up to ±60 V reverse current surges)
- Output impedance : 50 Ω, accuracy : ± 5%.
- Output level : 20 V peak to peak (open circuit), 10 V peak to peak into 50 Ω.
- Amplitude variation : from 0,1to 1 dB depends of the frequency
- Fixed attenuation : 0, - 20 dB and - 40 dB switchable.
- Variable attenuation : 0 to -20 dB.
- Offset voltage : ± 10 V (open circuit), ± 5 V into 50 Ω independent of the attenuator.

TTL output (Protected against short circuits and up to ±60 V reverse current surges)
- Synchronous square-wave signal 0 to 5 Volts. Fan-out : > 10.
- Rise and fall times : < 10 ns.

Frequency counter
- Frequency range : 0,8 Hz to 100 MHz in 5 automatic ranges 0,8 Hz to 25 MHz and 1 range from 25 to 100 MHz.
- Display over 5 digits.
- Input on BNC socket, impedance : 1 MΩ/20 pF
- Typical sensitivity : 25 mV rms.
- Accuracy : ± 0,025% ±1 digit.

Other specifications
- Parameter display : 2 lines of 16 characters.
- Memorizing of the parameters: Safeguard of 14 configurations.
- Interface : RS232 link 9-way male SUB-D plug. labVIEW™'s drivers download on www.elc.fr
- * USB option : USB / RS232 adapter kit + null modem cable.
- * ETHERNET option : RS232 / RS485 / RS422 adapter kit to ETHERNET.
- Safety : Class I, Complies with EN 61010-1, overvoltage category II, pollution degree 2.
- EMC : Complies with EN 50082-1, performance criteria B and EN55011, ISM groupe I, class B.
- Input voltage : 230 V ±10%, 50/60 Hz ; protected by 200 mA time-delay fuse.
- Mains input : EEC socket with 2 poles + earth cable.
- Power consumption : 30 VA max.
- Dielectric strength : 2300 VAC input to output, 1350 VAC input to chassis.
- Presentation : screen-printed polycarbonate front panel, metal case, epoxy finish, feet.

DECADE CAPACITANCE BOX

EAN CODE : 3760244880383

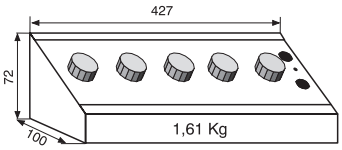
ACCURACY 2% | DC 05

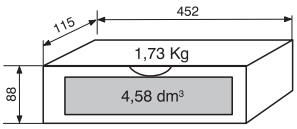
ROBUST : Switches witch metal frame.
- Metal case, epoxy finish.

PRECISE : Good long-term stability.
- Low temperature coefficient and 2% accuracy.

INSULATED : Maximum voltage: 300 VDC or 230 VAC 50 Hz until 1000 Hz.

EASY : 19" standard rack size tilted front panel.





ROBUST
CAPACITANCES from
100 pF to 11,111 µF

Specifications

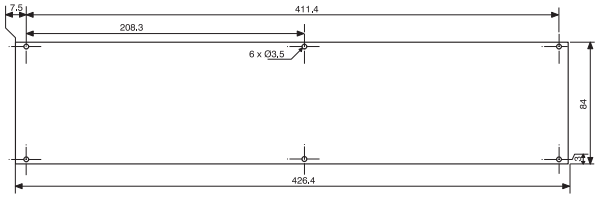
- The DC05 box uses polystyrene and polypropylene capacitors offering a high accuracy, a low temperature coefficient (125 ppm/°c) and a very high insulation resistance.
- Output on two 4 mm safety sockets.
- Screen outputs (front panel and case) on safety earth socket.
- Robust switches with metal frame and gold-plated contacts.
- Discharge button.

Range	Quality	Accuracy	Maximum voltage
100 pF	Polystyrene	2%	300 V DC 230 V to 50 Hz
1 nF	Polystyrene	2%	300 V DC 230 V to 50 Hz
10 nF	Polystyrene	2%	300 V DC 230 V to 50 Hz
100 nF	Polystyrene	2%	300 V DC 230 V to 50 Hz
1 µF	Polypropylene	2%	300 V DC 230 V to 50 Hz

Connection	Capacitance
Top socket to screen socket :	13 pF
Bottom socket to screen socket :	24 pF

Other specifications

- Safety : Complies with EN 61010-1, overvoltage category I, pollution degree 1.
- Max voltage : 300 VDC or 230 VAC (reinforced insulation).
- Presentation : aluminium mounting plate, screen-printed satin epoxy finish, metal case, epoxy finish.
- The assembly is mounted on the front panel which fits into a 19" standard subrack.
- Mounting plate dimensions: H = 2U (U = 44,45 mm)
  L = 84F (F = 5,08 mm)



EAN CODE : 3760244880390

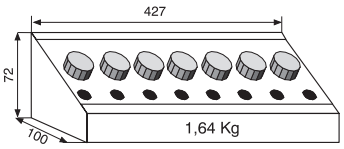
ACCURACY 5%

DL 07

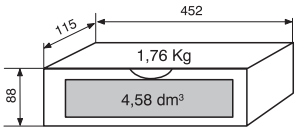
ROBUST : Switches with gilt contacts.
- Metal case, epoxy finish.

PRECISE : Good long-term stability.
- Q factor between 55 and 100, depending on decade.

EASY : 19" standard rack size tilted front panel.
- Intermediate tap at each decade.



ROBUST
INDUCTANCE from
1 µH to 11,111 110 H



Specifications

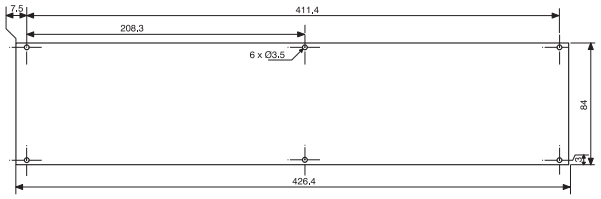
- Each decade consists of inductors wound around a ferrite pot core, which gives a Q factor between 55 and 100.
- Like all inductors of this type, the applied voltage mostly depends on the operating frequency. The voltage must be limited to avoid core saturation and overheating.
- Professional quality switches with gilt contacts.
- Output of each decade on 4 mm safety socket.
- Screen outputs (front panel and case) on safety earth socket.

Other specifications

- Safety : Complies with EN 61010-1, overvoltage category I, pollution degree 1.
- Max voltage : 300 V AC/DC (reinforced insulation).
- Presentation : aluminium mounting plate, screen-printed satin epoxy finish, metal case, epoxy finish.

Décade	x 1 µH	x10 µH	x100 µH	x1 mH	x10 mH	x100 mH	x 1H
Q factor	55	55	60	70	100	100	60
Frequency	5 M	1 M	500 k	500 k	50 k	50 k	10 k
Max DC current	800 mA	700 mA	380 mA	140 mA	70 mA	50 mA	40 mA
Max resistance	0,25 Ω	0,55 Ω	1,8 Ω	3,4 Ω	12,1 Ω	82 Ω	250 Ω
Accuracy	5%	5%	5%	5%	5%	5%	10%

- The assembly is mounted on the front panel which fits into a 19" standard subrack.
- Mounting plate dimensions: H = 2U (U = 44.45 mm)
  L = 84F (F = 5.08 mm)



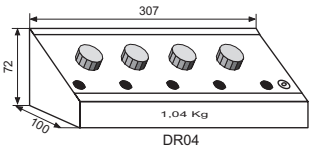
EAN CODE : 3760244880406 (DR04)

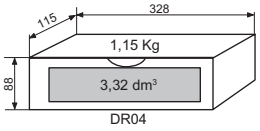
ACCURACY 1% **DR 04/05/06/07/08**

EAN CODES : 3760244880413 (DR05)
3760244880420 (DR06)
3760244880437 (DR07)
3760244880444 (DR08)

ROBUST : Metal case, epoxy finish.
PRECISE : Good long-term stability.
- 1% resistors.

EASY : front panel.
- Intermediate tap at each decade.





ROBUSTS
RESISTANCE from
0,1 Ohm to
11,111 111 MOhms

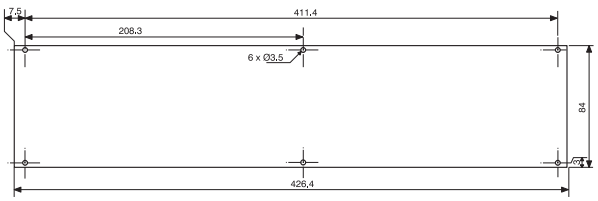
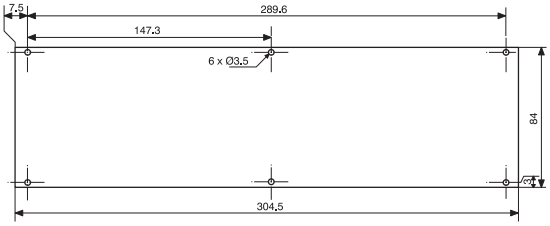
Specifications

- The DR04-07 boxes use metal film resistors offering 0.5% accuracy and a temperature coefficient of 50 ppm/°C.
- The DR08 box use thick film resistors offering 1% accuracy and a temperature coefficient of 100 ppm/°C
- Output of each decade on 4 mm safety socket.
- Screen outputs (front panel and case) on safety earth socket.
- Professional quality switches with gilt contacts. (R < 9 mΩ).
- Max power rating : 0.5 W.

Other specifications

- Safety : Complies with EN 61010-1, Overvoltage category III, pollution degree 2.
- Max voltage : DR04-07, 150 V AC/DC (reinforced insulation). 250 V AC/DC with earth connected to safety earth socket (single insulation). DR08, 300 V AC/DC (reinforced insulation)
- Presentation : aluminium mounting plate, screen-printed satin epoxy finish, metal case, epoxy finish.

Type	Weight Kg	Decades	Multiplier in OHMS								Totale Resistance
			0.1	1	10	100	1 K	10 K	100 K	1M	
DR 04	1	4		•	•	•	•				11,110 KΩ
DR 05	1,4	5		•	•	•	•	•			111,110 KΩ
DR 06	1,44	6		•	•	•	•	•	•		1 111,110 KΩ
DR 07	1,52	7		•	•	•	•	•	•	•	11,111 110 MΩ
DR 08	1,4	8	•	•	•	•	•	•	•	•	11,111 111 MΩ
Accuracy %			3	1	1	1	1	1	1	1	
Max current			2.3 A	700 mA	200 mA	70 mA	20 mA	7 mA	2 mA	0,7 mA	

- The assembly is mounted on the front panel which fits into a 19" standard subrack.
- Mounting plate dimensions :

DR04 : H = 2U (U = 44.45 mm) - L = 84F (F = 5.08 mm)
DR 05, 06, 07, 08 : H = 2U (U = 44.5 mm) - L = 84F (F = 5.08 mm)