



**BEDIENUNGSANLEITUNG
OPERATING INSTRUCTION
MODE D'EMPLOI**

12/85

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1. TECHNICAL DATA

1.1 IRG 200 Basic Instrument

Measuring range :

Time base 0 to 1000 μ s / 1....99999.9 m

Time base selection 0.1/0.2/0.5/1/2/5/10/20/50/100
 μ s / cm

Signal- or marker shift 0 to 999.99 μ s, can be resolved
in steps of 10 ns

Factor of speed of
propagation time
 $\frac{v}{z}$ preselectable $\frac{v}{z} = 0....199$ m/ μ s

Accuracy of signal shift ± 2 ns

Accuracy of marker shift ± 2 ns

Time base crystal controlled oscillator
 $f_0 = 100$ MHz

Display tube D14-11GH, flat screen 60x100 mm,
post-acceleration voltage 10 kV

Display expansion x1, x5, x10

Power supply :

Mains connection 110/130/150/220/240/260 V AC
 $\pm 10\%$, 40 to 60 Hz/40-50 VA
depending on battery load

Internal battery 12 V, 5.7 Ah, rechargeable

Operating time approx. 2.0 hours

Operational check LED indicator

Battery check monitoring instrument

Charging time approx. 16 hours, automatic
overload limitation

Connection for external
battery 12 to 14 V, approx. 2 A

Ambient temperature -25 to $+55^\circ$ C

Storage temperature -40 to $+70^\circ$ C

Dimensions Width 443 mm
Height 165 mm
Depth 425 mm with cover

Weight 20.5 kp with built-in batteries

1.2 ES 200 Plug-in Unit

Output pulse	step function or capacitor discharge
Pulse width of the capacitor discharge at 10 Ohms	50, 250, 500 ns, 1, 5, 25 μ s
Pulse voltage	20 or 60 V _{SS} across 50 Ohms
Pulse slope steepness	5000 V / μ s
Rise time	4 ns at 20 V, 12 ns at 60 V
Line matching	10 to 500 Ohms adjustable
Vertical amplifier	amplification adjustable from 1 to 8, a 100% reflection is indicated as 1 cm height on the screen at a damping of 39 dB and 60 V output voltage

AC-DC commutator	DC: filter out of service AC: 50/60 Hz suppression
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Modes of operation :

Selectable phase connections	L1	against sheath
	L2	" "
	L3	" "
	L1	against L2
	L2	" L3
	L3	" L1

Core comparison	L1/VL2	against sheath
	L2/VL3	" "
	L3/VL1	" "

Differential measurement	L1-L2	" "
	L2-L3	" "
	L3-L1	" "

External triggering :

Built-in input attenuator with 5 steps of each 6 dB attenuation

Total attenuation	30 dB
Trigger treshold	= 0.38 V

FDR :

Instrument only operates as monitor (via FDR-socket in cable box)

Dimensions :	136 x 136 x 280 mm
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Weight :	1.1 kp
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1.3 ET 1 Plug-in Unit

Output pulse	\sin^2 - function
Output voltage	3 to 50 V continuously adjustable
Internal resistance	at pulse width 0.05 μ s approx. 60 Ohms at pulse width 0.1 μ s " 40 Ohms at pulse width 0.2 μ s " 27 Ohms at pulse width 0.5 μ s " 17 Ohms at pulse width 1 μ s " 15 Ohms at pulse width 2 μ s " 13 Ohms at pulse width 5 μ s " 13 Ohms (measured at the x-sockets)
Pulse width	0.05 / 0.1 / 0.2 / 0.5 / 1 / 2 / 5 μ s adjustable measured at half pulse height
Amplification	0 to 54 dB adjustable in steps of 6 dB 0 to 6 dB continuously adjustable
Method of measurement	- measurement of one pair of cores - comparison of two pairs of cores
Simulation	- internally adjustable - external connections to sockets possible
Output pulse	- suppressed - not suppressed
Cross-talk coupling measurement	possible without attachment
Intercom coupling measurement	with supplementary attachable cross-talk unit MZ 1 for cross-talk (413-512)
Dimensions	136 x 136 x 280 mm
Weight	1.5 kgs
Accessories :	slip-on unit MZ 1 for cross-talk (413-512) 1 connecting plug 12.399-1 (552-287) 1 leather bag (570-005) 2 measuring lines (460-443)