ROHDE&SCHWARZ

UVZ

SCANNER
UVZ

⟨IEC 625 Bus⟩   IEEE 488

SCANNER · UVZ   395.3111.02

CHANNEL
BUS ADDR   16   SELECT

1...16
1...8
21...24
17...24
MODE

OUTP MODE BUS LOCAL   REM
                             SRQ
DISABLE   ADDR   LLO
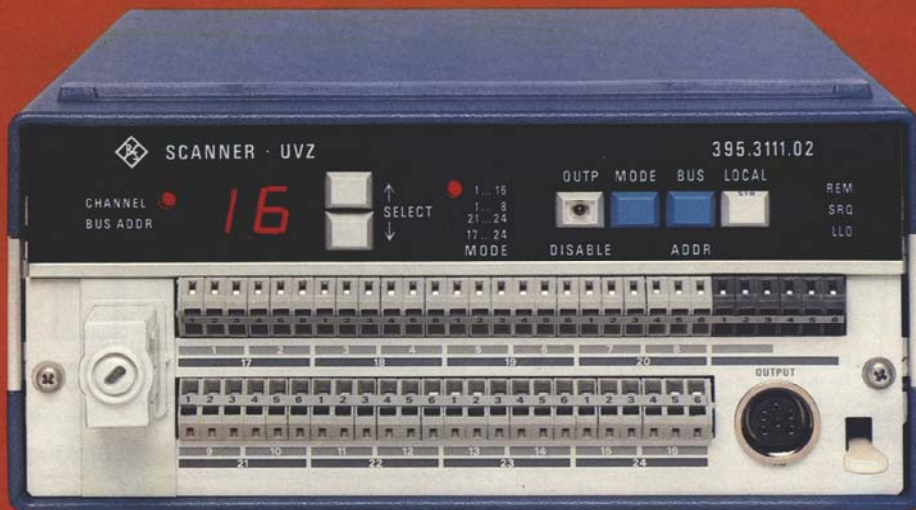
OUTPUT

- Switch-selected channels:
  16 channels, 3 pole, or
  8 channels, 6 pole, or
  8 channels, 3 pole and 4 channels,
  6 pole
- Switching power 25 VA
  (max. 250 V, max. 1 A)
- Crosstalk > 70 dB down at 100 kHz (50 Ω)
- Thermoelectric voltage < 1 µV
- Clamp terminals for input
  and output lines

Data sheet
395 311
E–1

CHARACTERISTICS AND USES

Application The Scanner UVZ is a universal test-point selector for digital multimeters (e. g. for the Digital Multimeter UDS 5 of Rohde & Schwarz). The IEC-bus-compatible UVZ can also be used as relay switch panel or test-point selector for many other applications. If the Scanner serves as relay switch panel, it may either be employed for connecting several sources to one output or for switching one signal to several signals outputs. When operating the UVZ in computer-controlled systems via IEC bus, additional commands are available for the freely selectable parallel-connection of channels. This, for instance, permits the setup of flexible 3- or 6-pole signal distribution or combining panels.

Number of selectable channels
- 16 channels, 3 pole, or
- 8 channels, 6 pole, or
- 8 channels, 3 pole and 4 channels, 6 pole.

Additional relays in the output lines permit these versatile combinations. Each relay switches 3 contacts simultaneously, and an additional contact is used for signalling the actual switching status. The 16-channel, 3-pole mode is preferably used for voltage measurements whereby a HI or LO input and the guard or shield are connected through. The 8-channel, 6-pole mode is intended for impedance measurements, particularly for measuring low impedances, whereby sockets HI and LO input, HI and LO sense and the shield are connected through with one contact remaining free.

Characteristics The UVZ is particularly notable for low-capacitance design, high channel isolation and switching practically free of thermoelectric voltage due to the use of pulse-triggered bistable relays. This allows application of the Scanner from DC up to the MHz range. The maximum switching power is 25 VA whereby max. 250 V or max. 1 A are permissible.

Setting Selection of required channels, operating mode or IEC-bus address is either manual by means of keys on the front panel or, except for the IEC-bus address, remote-controlled via the IEC bus. Except for the controller functions, the IEC-bus interface is fully implemented. The settings are indicated on LEDs and on a 2-digit display. IEC-bus address and selected operating mode are stored in a non-volatile store (EEPROM).

Design The removable connector block at the rear panel of the UVZ and the clamp terminals facilitate wiring and permit versatile use of the instrument in various test setups. Due to the cable duct provided in the UVZ the lines may also be taken to the rear panel.
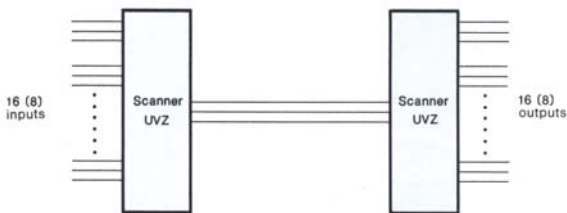
Arrangement of a 3-pole 16 x 16 matrix or of a 6-pole 8 x 8 matrix using two Scanners UVZ (in the case of a 6-pole 8 x 8 matrix, six lines are required between the two Scanners).
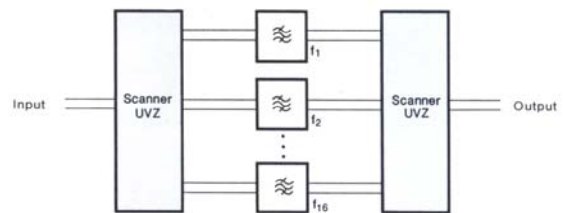
Two Scanners UVZ used for dividing and combining a signal (filter bank). Both Scanners may be set with one command if they have the same IEC-bus address.

The following tables show functions and commands or outputs of the Scanner UVZ when controlled by a processor via the IEC bus.

Setting commands

Command	Function

C1	**Basic setting:**
	(≙ DCL, SDL after addressing)
	CHx, OD, QØ, W3
	  x = 1 for MØ, M1
	  x = 17 for M2 CLEAR
	Service mode off
	Channel limits cleared
	In the case of fault: fault code cleared

MØ M1 M2	3-pole channel mode (channels 1-16) 3/6-pole channel mode (channels 1-8, 21-24) MODE 6-pole channel mode (channels 17-24) Note: no storage in the EEPROM
OE OD	enable OUTPUT disable

CE [<DATA>]	Channel enable with channel selection
	<DATA> may be omitted ≙ OE
	<DATA> : 1-24 (1 or 2 digits)
	     evaluation depends on
	     selected mode
	     + channel increment
	     − channel increment
	If +/− are used, the channel may be
	limited with command LT.

CD [<DATA>]	Channel disable of selected channel <DATA> may be omitted ≙ OD <DATA> same as with CE
CH <DATA>	Channel selection <DATA> must be transmitted <DATA> same as for CE OE, OD as set before
ADD [<DATA>]	Channel added to current switching state (with MØ, M2 only) <DATA> same as for CE (except for +/−) Note: If the channel number is missing and REMOVE has been the last command to the UVZ, the channels switched off by REMOVE are switched on again.
REMOVE [<DATA>]	Removes the channel from the current switching state (with MØ, M2 only) <DATA> same as for CE (except for +/−) Note: If the channel number is missing, the current switching state is stored and all channels are switched off (they may be switched on again with ADD).

Data input and trigger commands

Command	Function
LT<DATA1>/ <DATA2>	Limits for restricting the sequence of the channel range when + or − are used with channel select (CH, CE, CD) Note: LIMITS <DATA>: >Ø, reset with C1, channels must be part of the channel range of the selected mode (MØ, M1, M2) otherwise storage is not possible.
L?	Interrogates the set limits → output string, can be read with processor

Interface commands

Command	Function	
WO	NL	
W1	CR	
W2	ETX	
W3	CR + NL	
W4	EOI	Delimiters after
W5	NL + EOI	string output
W6	CR + EOI	
W7	ETX + EOI	
W8	CR + NL + EOI	
QØ	SRQ mode	off
Q1		on

Special commands

Command	Function
SØ	Test of display LEDs
S5	Display of hardware faults in coded form

Service commands

Command	Function
SERVICE	Keyword for enabling commands SA to SD required for test purposes
SA, SB, SD	Service commands for test purposes

Separators and delimiters

Character	Designation	Equivalent ASCII decimal code	Recommended use
,	Comma	44	Separator between commands
CR	Carriage return	13	
NL	New line	10	Delimiters
ETX		3	
EOI	Setting the EOI line after the last transferred character is accepted as a delimiter.		

Service Request

Device status	Status byte (decimal)
Channel ready (on)	89
Syntax error Command illegal Input data error (illegal channel number)	96 97 98
Hardware fault UVZ not ready for data output	100 101

SPECIFICATIONS

Specifications

Number of channels (selectable)	16 channels, 3 pole, or
	8 channels, 6 pole, or
	8 channels, 3 pole and
	4 channels, 6 pole
Max. permissible	
switching voltage	250 V
switching current/contact	1 A
switching power/contact	25 VA
Volume resistance/contact	$<0.5\ \Omega$
Thermoelectric voltage	$<1\ \mu V$
Isolation	$>10^{10}\ \Omega$
Capacitance between	
channel – channel	
(all contacts in parallel)	<10 pF, typ. 5 pF
contact – ground	<150 pF, typ. 100 pF
contact – contact	
in 3-contact configuration	<50 pF, typ. 20 pF
in adjacent 3-contact blocks	<10 pF, typ. 5 pF
Life time of contacts	
w/o load	10^8 switching operations
with max. load	10^6 switching operations
Switching time (between channels)	25 ms (addressing incl. SRQ)
Switching time (on/off)	
Output disable/output enable	15 ms
Remote control	to IEC 625-1 (IEEE 488)
Interface functions	SH1, AH1, T6, L4, SR1, RL1, DC1, PP1
Connector	24-way Amphenol

General data

Operating temperature range	+5 to +45°C
Storage temperature range	−40 to +70°C
Connectors Inputs	Clamp terminals (max. 2.5 mm²)
Outputs	Clamp terminals (max. 2.5 mm²)
	Round multiway connector on front and rear panel
Power supply	100/120/220/240 V ±10%, 47 to 63 Hz (25 VA), safety class 1 (VDE 0411 and IEC 348)
Dimensions (W x H x D)	210 mm x 110 mm x 349 mm
Weight	4.4 kg

Ordering information

Order designation	▶ Scanner UVZ 395.3111.02

Accessories supplied
Manual

Recommended extras

Connector block	UVZ-Z2	395.3163.02
Connecting cable	UVZ-Z5	395.0412.02
(UVZ-UDS 5, banana plug)		

Scanner UVZ and Digital Multimeter UDS 5 in a 19" rack