

U S E R S H E E T
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Leakage current test devices AI 5000L series

General

The leakage current test devices of the AI 5000L series are designed exclusively for use in automatic test systems. Manual operation is not possible due to the diversified interfaces.

The following components are available within the series:

Device AI 5000L: Basic device corresponding to the user sheet on hand.

- Option A : Interfaces laid out for 24 VDC
(standard 12 VDC)
- Option B : Second range for current measurement
- Option C : Measuring ranges deviating from the standard
- Option D : Floating test voltage (max. 250 V / 2 A)
- Option E : No interruption of power supply when the operating mode is changed.
- Option F : PA 5002L, programmable source for free programming of voltage (500 VA max.).

Enclosures:	Data sheet	AI 5000L	(d-ai501)
	List of spare parts	No. 24	(EL700024)

Basic device AI 5000L
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Abridged data

- Leakage current tester for system application
- AC-voltage source up to 300 VAC
- Continuous power output 4 kVA (or 500 VA)
- Electronic release, adjustable
from 0,001 mA to 10 mA (depending on type)
- floating interfaces
- voltage adjustable via front panel, or
programmable via interface
- ammeter and voltmeter
- LED for display of measuring range
- isolating amplifier with 1500 V test voltage
for processing current and voltage
- plug-in unit 19" / 4 HU
- secondary acquisition of the measured values
- floating output voltage (Option D)

Description of interfaces

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A. Mains supply (X1)

in accordance with DIN 41622,
 20-pole pin connector strip
 (on the back panel).

Phase : L, a9(X1)
 Ground : N, a8(X1)
 Protective
 conductor : PE, a0(X1)
 Voltage : 220 V +/- 10 %
 Frequency : 50 Hz - 60 Hz
 Current : 2 A max.
 Fuse : 2 A on the back panel
 "Netz 2 At" (mains 2 A slow-blow)

Note : The mains supply only serves for
 processing the auxiliary voltages,
 not for the test voltage.

B. Test voltage supply (K1 and K2)

Connecting terminals on the back panel

Phase : L1 (K1)
 Ground : N (K2)
 Protective
 conductor : PE
 Voltage : 0 - 300 V
 Frequency : 50 Hz to 400 Hz
 Current : 16 A max. (2 A max. for devices
 with disconnecting transformer)
 Fuse : 16 A (2 A for devices with
 disconnecting transformer) on the
 front panel, automatic cut-out
 type.

C. Testee connection (K3, K4 and K5)

Connecting terminals on the back panel.

Phase : l1 (K4)
 Ground : n (K5)
 Protective conductor : pe (K3)
 Voltage : 0 - 300 V
 Frequency : 50 Hz to 400 Hz
 Current : 16 A max. (2 A max. for devices with disconnecting transformer)
 Fuse : 16 A (2 A for devices with disconnecting transformer) on the front panel, automatic cut-out type.

D. Control signals (X1)

in accordance with DIN 41622
 20-pole pin connector strip
 (on the back panel).

General : GNA = Reference potential of analog signals
 KGND = Reference potential of digital signals

All analog signals are floating with respect to the digital signals, the mains voltage, the supply voltage and to the test voltage.

General digital input signals

Voltage : 12 VDC (24 VDC)
 Internal resistance : 1.2 kOhm (2.4 kOhm)
 Ripple : < 10 %
 Active : positive logic for all input signals
 Reference potential : GND
 Note : Option A, all inputs for 24 VDC (values in parentheses)

Set Signal
<set, b6 (X1)>

Function: The device is put into the "betriebsbereit" (ready for operation) mode if the signal is active. This signal must be produced each time the device is turned on and after each error. If the device has already been set, the signal has no effect, so that the signal can also be produced cyclically after each test step. A 50 msec long pulse is sufficient.

A1 Start signal
<Start A1, b5 (X1)>

Function : When the device is ready for operation, the test voltage is produced and testing is performed according to procedure A1 (phase and ground are not interchanged).

A2 Start signal
<Start A2, b4 (X1)>

Function : When the device is ready for operation, the test voltage is produced and testing is performed according to procedure A2 (phase and ground are interchanged).

B1 Start signal
<Start B1, b3 (X1)>

Function : When the device is ready for operation, the test voltage is produced and testing is performed according to procedure B1 (phase and ground are short-circuited, test object is not in operation)

Range current (Option B)
<I x 10, a2 (X1)>

Passive signal (0 V) = Range 1 mA
Active signal = Range 10 mA

Note : The measuring range for the display instrument, the normalized output and the electronic fuse are changed-over.

General digital
output signals

Voltage : 28 VDC max.
 Current : 0.1 ADC max.
 Active : switched to GND when
 condition is fulfilled,
 negative logic
 Reference
 potential : GND

Error
 <F, b1 (X1)

Function: A signal is produced here, if a minimum voltage is not being applied at the device's output. This is the case e.g. after an error, when the device is turned off, when fuses blow or when the voltage produced is too low. The limit value is approx. 60 V.

General analog
output signals

Voltage : normalized to 0 - 10 VDC
 Current : 1 mA max.
 Function : according to signal
 Reference
 potential : GNA

Output voltage
 <U, a5 (X1)>

Function : A floating low voltage, proportional to the test voltage can be taken out here.
 Reference potential GNA.

The following applies to 300 V devices:

$$U (V) = U_{\text{test}} (V) \times 1/30$$

Leakage-Current
 <I, a4 (X1)

Function : A floating low voltage, proportional to the leakage current can be taken out here.
 Reference potential GNA.

The following is true for the 1 mA range:

$$U(V) = I_{\text{test}}(\text{mA}) \times V/\text{mA} \times 10$$

The following is true for the 10 mA range:

$$U(V) = I_{\text{test}}(\text{mA}) \times V/\text{mA}$$

C. Chronological sequence of putting into operation
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- Main condition: - The mains switch must be actuated.

- The mains for the supply must be fed-in (X1 strip)

- A test voltage greater than 60 V must be fed-in (K1, K2)

Time/sec. =====	Triggering =====	Note =====
0	--	Set the test voltage manually on the front panel or program it via K1 and K2 (Option F, PA 5002L)
0	--	Set the release current manually on the front panel
0	Signal I x 10	Select range (Option B) if available or desired
0,1	Signal Set	Device operative
0,2	Signal Start (A1, A2 or B1)	A test voltage is produced from now on
0,4	Error	The voltage evaluation can be read
0,4	Output I	The normalized output signal for leakage current can be read
0,4	Output U	The normalized signal for test voltage can be read
3.2	Signal Start (A1, A2 or B1) is switched off	The 3 sec. test time is over

D A T A S H E E T

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Leakage current test device AI 5000L series

Dimensions

width : 464 mm
depth : 310 mm
height : 177 mm
corr. to : 19" / 4 HU

Weight:

gross : 125 N

Mains supply:

(for measuring instrument)

voltage : 220 V +/- 10 %
frequency : 50 Hz - 60 Hz
power
consumption : 200 W
fuse : 2 A slow-blow

Mains supply:

(for test voltage internal)

voltage : 100 V - 300 V
frequency : 40 Hz - 500 Hz
power
consumption : 4.8 kW max.
fuse : 16 A (automatic cut-
out on the front panel),
or 2 A for
floating
devices

Test voltage:

range : 100 V - 300 V
frequency : 40 Hz - 500 Hz
current : 16 A max.,
or 2 A for
floating devices

Measurement voltage:

range : 0 - 300 VAC
40 Hz - 500 Hz
105 degree scale
class 1.5, floating

Measurement current:

Range 1 : 0 - 1 mAAC
40 Hz - 500 Hz
105 degree scale
class 1,5
floating with
respect to mains
and test voltage

Range 2 : 0 - 10 mAAC
(Option B) 40 Hz - 500 Hz
105 degree scale
class 1.5
floating with
respect to mains
and test voltage

Limit-value setting:

Range 1 : 0.1 mAAC - 1 mAAC
Range 2 : 1 mAAC - 10 mAAC
Note : the set limit
value can be
displayed on the
ammeter
("Test" key)

Response
time : 20 ms
Optional range
0.1 mAAC final
value possible

Interface:

* setting voltage (analog 0 - 10 V),
only with Option F, PA 5002L
* setting current (analog 0 - 10 V),
manually via front panel
* reading voltage (analog 0 - 10 V)
* reading current (analog 0 - 10 V)
* range I x 10 (Option B)
* setting device

with respect to
mains and test
voltage

* starting device (A1, A2 oder B1)
* error voltage

Für Kunden
Nur A oder B

SP000024

Schwäbisch Hall, Jan. 1, 1990

Spare-parts list no. 24 for leakage current testers AI 5000L

P = priority (1= very important) System no. :
L = delivery period Feature :
MS = minimum quantity
MI = amount in device
PI = price index

A 1 Stück
ohne Preis

B 5 Stück
ohne Preis

C 2 Stück
mit Preis
für Kunden

D 2 Stück
Händler/SPS

0,325 104,00
Distrib. Basis

Item no./Item	Type	P	L	MS	MI	PI	Preis/DM	Price/DM 1984
XXXXXX Complete plug-in unit	AI 5000L	3	6	1	1	920	2831	2548 2722
890035 Jack mains supply	BU 20-n	3	4	1		8	26	23 25
890154 Power supply	ST 300a2	2	4	1	1	145	447	402 430
890155 Measurement current/voltage	UI 300a	2	4	1	1	211	649	584 624
890156 Relay unit	Re1 300a	2	4	1	1	76	235	212 226
850022 Transformer test voltage	AI 1	2	4	1	1	35	107	96 103
850025 Transformer measurement	AI 2	2	4	1	1	16	49	44 47
850000 Variable-ratio trans 2A	220V/220V	2	4	1	1	47	146	131 140
840150 Ceramic potentiometer	10k/lin.	2	4	1	1	8	24	22 23
840071 Analog instrument 10VDC	10mA	2	4	1	1	34	106	95 102
840073 Analog instrument 10VDC	300VAC	2	4	1	1	34	106	95 102
840165 Automatic circuit breaker	16A	2	4	1	1	13	38	35 37
820090 Resistor	5k6/4W	2	4	5	1	1	3	3 3
840009 Pushbutton	1*CHANGE-OVER	2	4	1	2	4	11	10 11
840021 Switch	2*ON Rafi	2	4	1	1	8	24	22 23
840032 Light	Rafi	2	4	1	3	2	7	7 7
860003 Relay (contactor)	DIL 00-K4	2	4	1	3	14	43	38 41
840009 Incandescent bulb	30V	1	2	5	1	1	4	4 4
840007 Incandescent bulb	24V	1	2	5	3	1	3	3 3
820467 Fuse	2 A slow-blow	1	2	10	1	1	1	1 1

- All prices, if not listed, in accordance with the valid price index.
- Offer firm for 6 months, after which prices are subject to change.
- There will be a DM 25,- surcharge on all orders under DM 250,-.
- Delivery ex works, 30 days net.