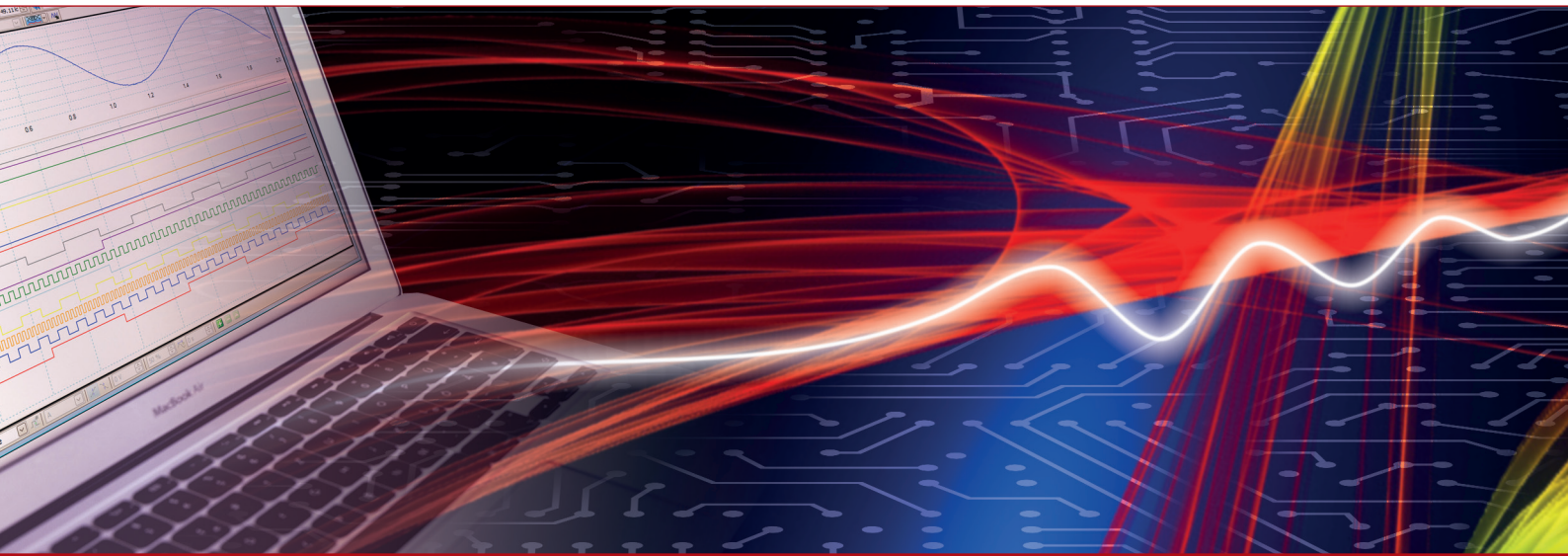


Product Datasheet - Technical Specifications



More information in our Web-Shop at ► www.meilhaus.com and in our download section.

Your contact

Technical and commercial sales, price information,
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Downloads:

www.meilhaus.com/en/infos/download.htm

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www.meilhaus.de

SEFELEC SYNOR 5000H

Cable tester

This high voltage cable tester is the most compact system on the market regarding his amount of available points, with such good specs/price ratio. Working with or without PC, it is as much dedicated to production or laboratory than maintenance, for indoor and outdoor applications in its ruggedized version.

Our Synor 420X cable testing solution can be modernised into Synor 5000 series, in order to benefit the wide additional possibilities of our new Winpass software platform with regular free web updates

“ Browse our internet pages in order to always benefit our free latest Winpass software functionalities ”

TECHNICAL CHARACTERISTICS

- AC/DC dielectric strength test
- Insulation measurement
- 2 & 4 wire continuity test
- Functional test / stimuli
- Test of components
- ALL board types can be mixed
- Stand alone mode (black box)
- Synor 420X series compatibility
- Ethernet, PLC interfaces, wifi
- Windows 7, Windows 10 compatible software
- Multilingual software, free updates available on our webs

CONTINUITY TEST

In order to check the conformity of your cable and connexions (no opens, no shorts, no inversions, no point shifting, ...), the continuity test allows you to test in 2 or 4 wire mode depending on the accuracy and resistance level you are looking at.

In 2 wire mode

- Test voltage 1 mV to 28 V \pm 5 %
- Test current 25 μ A to 2 A \pm 1 %
- Continuity low limit 1 Ω to 2 k Ω \pm 2 %
- Continuity high limit 1 Ω to 2 k Ω \pm 2 %
- Test time 1 ms to 99 s \pm 1 ms
- Accuracy \pm 2 %
- Result in voltage drop or resistance

In 4 wire mode

- Test voltage 1 mV to 28 V \pm 5 %
- Test current 25 μ A to 2 A \pm 1 %
- Continuity low limit 1 m Ω to 2 k Ω
- Continuity high limit 1 m Ω to 2 k Ω
- Test time 1 ms to 99 s \pm 1 ms
- Accuracy \pm 2 %
- Result in voltage drop or resistance

INSULATION TEST

In order to check the quality of your cable and connexions (no scratch, no bended pins, no insulating problems, ...), the insulation test allows you to test in medium or very high resistance depending on your standard requirement or industry you are working in. Typically aerospace, aeronautic or military applications are requiring highest levels of insulation than industrial applications.

- Test voltage 2 VDC to 2121 VDC \pm 5 % (depending on the switching card type)
- Insulation limit from 50 k Ω to 5 G Ω
- Accuracy : 50 k Ω to 1 G Ω \pm 5 % / 1 G Ω to 3 G Ω \pm 8 % / 3 G Ω to 5 G Ω \pm 15 %
- Short-circuit current : 2 V to 20 V : 40 mA / 20 V to 2120 V : 10 mA
- Rise/fall time 1 ms to 60 s
- Hold time 1 ms to 999 s

DIELECTRIC STRENGTH TEST (HIPOT)

In order to check the quality of your cable and connexions (not respected distance, flashes to earth, no cable scratches, no crushed cable, no bended pins, no insulating problems, ...), the hipot test is more stressy and lets you see additional problems in your cabling. Different voltages will be applied to different cable types (power, audio, bus, network, telecommunication, ...).

□ In DC

- Voltage 20 V to 5500 VDC (depending on options and switching card type) \pm 5 %
- Breakdown current 500 μ A to 10 mA
- Rise/fall time 1 ms to 60 s
- Hold time 1 ms to 999 s

□ In AC

- Voltage 50 V to 4000 VAC (depending on options and switching card type) \pm 2 %
- Breakdown current from 500 μ A to 10 mA
- Leakage current measurement 500 μ A to 100 mA \pm 2,5 %
- Rise/fall time 500 ms to 60 s
- Hold time 20 ms to 999 s

FUNCTIONAL TEST / STIMULI

Once you are sure of the conformity and the quality of your cable, you can then use it for what it is : powering elements, energizing relays, lighting lamps, activating speakers, switches, servos, push buttons, ...

You can really make your module, cable, harness, backplane, ... as it should be in real operation. All this is done without disconnecting anything from our harness tester.

- Typical maximum switching voltage : up to 2120 VDC / 1500 VAC
- Typical maximum switching current : up to 10 A
- Higher voltage/current parameters are also possible on demand



Example : on this plane control module, once the cabling has been tested in continuity, insulation and high voltage, the user is guided through pictures and messages on the screen to test switches, to check the back light is working ok, to check that switch lights are activated in different positions, ... Thanks to our cable tester, 70 % of manual test time is saved, human mistakes are limited, quality is optimal and traceability automatic



Powering Business Worldwide



SEFELEC SYNOR 5000H

Cable tester

TEST OF COMPONENTS

Diode Measurement

- Test current 10 mA to 2 A
- Voltage limit 100 mV to 20 V $\pm 5\%$
- Voltage measurement $\pm 1\%$



Zener Diode Measurement

- Test voltage 2 VDC to 2120 V $\pm 5\%$ (depending on the switching card type)
- Short-circuit current :
2 V to 20 V : 10 mA
20 V to 2121 V : 10 mA



Transil, transorb, t.v.s., surge protector measurement

- Test voltage Generator 5 μ V to 1100 V
- Test current Generator 1 μ V to 3 A
- Test time : 100 μ s to 60 s
- Test voltage measurement $\pm 1\%$
- Current Measurements $\pm 1\%$



Resistance Measurement

In 2 wire mode

- Resistance 10 Ω to 10 M Ω $\pm 2\%$
- Test current 1 μ A to 10 mA
- Test time from 1 ms to 99 s ± 1 ms

In 4 wire mode

- Resistance 100 m Ω to 10 M Ω $\pm 2\%$
- Test current 1 μ A to 10 mA
- Test time from 1 ms to 99 s ± 1 ms



Capacitor Measurement

- Capacity from 100 pF to 10 mF
- ± 20 pF $\pm 5\%$
- Accuracy $\pm 5\%$ ± 20 pF



Shielding, Twisted Pairs

- Shielding 10 pF to 10 μ F
- Accuracy $\pm 5\%$ ± 10 pF



OTHER SPECIFICATIONS

Ethernet Interface

- Standard 10/100 Mbit communication with cable tester network



PLC

- 3 inputs at 24 VDC, 10 mA / 5 outputs at max. 48 VDC / 2 A



0-10V

- 4 floating outputs 0.1 VDC to 10 VDC
- Accuracy $\pm 1\%$ ± 10 mV

Remote Control

- 1 input that allows to start a test at distance or validate an action



User Safety

- Double hardware safety loop



External Light

- red/green/yellow light (24 VDC, 450 mA) :
RED : test running
YELLOW : status
GREEN : test not running



Floating mode

- This mode is dedicated to measure products referenced to ground (typically trains, planes, missiles, ...)

Stand alone mode (black box)

- Stand alone mode ; Synor 5000 harness tester can work without any PC connected (internal memory)



SOFTWARE SPECIFICATIONS



Connected or not to our cable tester, Winpass software automatically switches in simulation or real mode.

Ran under Windows XP, Seven or Windows 10 (32 and 64 bits), it complies with the latest market solutions. Every time a new Winpass release is available, you can freely download it from our web site.

What you will gain with our latest Winpass 5000 software platform is :
QUALITY + CONFORMITY + EASE OF USE
+ COMPATIBILITY + TRACEABILITY + PRICE
+ INTERNATIONAL

QUALITY

BE SURE YOUR CABLE TESTER IS OK

- **Self-test** it automatically checks that the generators and internal measuring equipment are working ok, and that all the relays are working ok ; in case a relay is defective it gives its exact position in the tester in order to replace it as fast as possible

- **Security tag** in order to be sure a user or sub contractor is using the right test file version. Anything modified in a test program can be noticed just by comparing the compilation date tags

- **User level** Each user can get a password in order to access or not the test file edition, modification, execution, ...

SEFELEC SYNOR 5000H

Cable tester

CONFORMITY

IMPORT YOUR TEST FILE INTO WINPASS

- **File transformer** the fastest way to create a Winpass test file is to import it from your database. It also guarantees no mistakes are done and automatically create test file, correspondence table and connector library

EASE OF USE

DO NOT WRITE YOUR TEST FILE, LEARN IT

- **Self-learning** an other way to create a Winpass test file is to plug the device under test that will be learned ; test program will be automatically written. If you decide to write it you do not have to be a programmer to do so

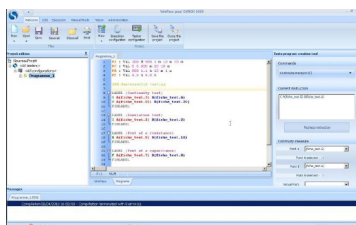
- For production we just show limited information on screen and big in size



EDIT, MODIFY AND TEST EASILY SWITCH TO BOTH WINDOWS IN A CLICK

- Graphical and colour editor it lets you easily identify what you do, where you are and whether your syntax is good or not

- Edit/Test window in one click just test what you just wrote by switching from the edit window to the test window

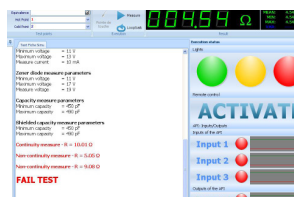


TEST AND DEBUG FAST

- Automatic test the automatic test can make a test in between :

- two points
- one point against and all other points
- a group of points and an other group of points

- Manual test the manual test can pop up during a test file is ran in order to provide you accurate information for debugging and doing maintenance. It provides you a wide panel of tools (touch probe, oscilloscope) to rapidly identify the mistake on your DUT and where it is



TRACEABILITY

PROVIDE REPORTS TO CUSTOMER

- Printing test reports including your logo and company details, it is automatically generated with the information you require, for traceability

TEST AND TRACE RESULTS

- Result saving you can save your result locally or on networks, in text files or excel files

- Statistics let you evaluate your production feedback for analyse on corrective actions

Test	Time	Ref. Pin	Cat. Pin	Status	Results	Values	Instruction Time
1	Test de continuité	1	1	OK	1000	1000	1000
2	Test de continuité	2	2	OK	1000	1000	1000
3	Test de continuité	3	3	OK	1000	1000	1000
4	Test de continuité	4	4	OK	1000	1000	1000
5	Test de continuité	5	5	OK	1000	1000	1000
6	Test de continuité	6	6	OK	1000	1000	1000
7	Test de continuité	7	7	OK	1000	1000	1000
8	Test de continuité	8	8	OK	1000	1000	1000
9	Test de continuité	9	9	OK	1000	1000	1000
10	Test de continuité	10	10	OK	1000	1000	1000
11	Test de continuité	11	11	OK	1000	1000	1000
12	Test de continuité	12	12	OK	1000	1000	1000
13	Test de continuité	13	13	OK	1000	1000	1000
14	Test de continuité	14	14	OK	1000	1000	1000
15	Test de continuité	15	15	OK	1000	1000	1000
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90	Test de continuité	90	90	OK	1000	1000	1000
91	Test de continuité	91	91	OK	1000	1000	1000
92	Test de continuité	92	92	OK	1000	1000	1000
93	Test de continuité	93	93	OK	1000	1000	1000
94	Test de continuité	94	94	OK	1000	1000	1000
95	Test de continuité	95	95	OK	1000	1000	1000
96	Test de continuité	96	96	OK	1000	1000	1000
97	Test de continuité	97	97	OK	1000	1000	1000
98	Test de continuité	98	98	OK	1000	1000	1000
99	Test de continuité	99	99	OK	1000	1000	1000
100	Test de continuité	100	100	OK	1000	1000	1000

PRICE

COST EFFECTIVE AT ALL LEVELS

- Free software updates downloadable from our web site, you can enjoy our latest functionalities thank to our latest software releases

INTERNATIONAL

EXPORTABLE SOLUTION

- Unlimited languages our open source language pack makes Winpass interface customizable to any language. In addition to German, English, French, Chinese, Korean, Russian and Spanish user interface, Winpass accepts any other custom language

TECHNICAL CHARACTERISTICS

Presentation

- Table top unit
- Metal case
- 19 inches rack

Dimensions

- Height 375 mm
- Width 520 mm
- Depth 560 mm

Weight

- 25 kg

Mains

- 115/230 VAC $\pm 15\%$, 47...64 Hz
- Consumption 500 VA

Operating temperature & humidity

- 0° C to +45° C Up to 90 % RH (non-condensing)

Storage temperature

- -10° C to +60° C

Over-voltage category

- CATII

Pollution degree

- 2

Safety class

- Class I (earth protection)

Output connector type

- Female 64 points DIN41612 or any other customized type

SEFELEC SYNOR 5000H

Cable tester

SWITCHING CARD TYPE

Those cards are mostly dedicated to test sub-assemblies for conformity

SY5000-M128A5

500 VDC (if option SY5000-HVDC) /
350 VAC (if option SY5000-HVAC) /
2 A switching card - 128 points



SY5000-M128A10

1000 VDC (if option SY5000-HVDC) /
750 VAC (if option SY5000-HVAC) /
2 A switching card - 64 points



SY5000-M64A15

1500 VDC (if option SY5000-HVDC) /
1000 VAC / 2A switching card -
64 points

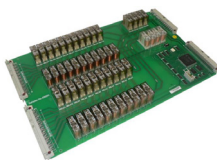


SY5000-M64A20A

2121 VDC (if option SY5000-HVDC) /
1500 VAC (if option SY5000-HVAC) /
2 A switching card - 64 points

SY5000-M22A20

2000 VDC (if option SY5000-HVDC) /
1500 VAC (if option SY5000-HVAC) /
10 A stimuli card - 22 points



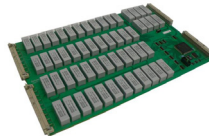
SY5000-M32A30

3000 VDC / 2000 VAC / 2 A switching card -
32 points ; requires SY5000-XS-VHV option
+ a XS equipment



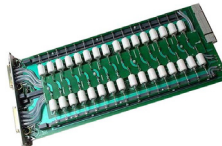
SY5000-M24A42

4200 VDC / 3000 VAC / 2 A switching card -
24 points ; requires SY5000-XS-VHV option
+ a XS equipment



SY5000-M8A55

5500 VDC / 4000 VAC / 2 A switching card -
8 points ; requires SY5000-XS-VHV option
+ a XS equipment



SY5000-EXS

6000 VDC / 5000 VAC (if option SY5000-HVG) /
40 A switching card - 4, 8, 12 or 16 points

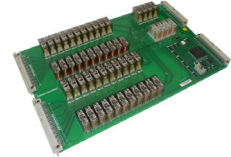


STIMULI CARDS

Those cards are mostly dedicated to activate components (lights, engines, ...), energise relays, check switches and functionalities of systems

SY5000-S22A20

2000 VDC / 1500 VAC (if option SY5000-HVAC) / 10 A stimuli card - 22 points



SY5000-S32A15

1500 VDC / 1000 VAC (if option SY5000-HVAC) / 5 A stimuli card - 32 points

MIXED STIMULI/SWITCHING CARDS

SY5000-MS32A15

1500 VDC / 1000 VAC / 5 A stimuli card -
32 channels + common. 2 variable and
2 A switching card

OPTIONS

SY5000-HVAC

High voltage AC dielectric strength tester at 1500 VAC 50 Hz / 60 Hz

SY5000-HVDC

High voltage DC dielectric strength tester + insulation meter at 2120 VDC

SY5000-FLT

Floating continuity measurement; dedicated to measure products referenced to ground (typically trains, planes, ...)

SY5000-STDA

Stand alone mode ; Synor 5000 harness tester can work without any PC connected (internal memory)

SY5000-OUT10V

0-10V analog outputs (4 outputs available)



SEFELEC SYNOR 5000H

Cable tester

SY5000-AUX

Auxiliary input for T&M equipment such as MGR10, XS series, ... has to be ordered with the associated cables (ref. SY5000-MGR10, SY5000-M1501P, SY5000-XS, SY5000-XSVHV)



SY5000-XS-VHV

I/O connexion for XS equipment (U>2000 VDC / 1500 VAC), including connexion cables

PDZA series

Wide range of simple or double power supplies for stimuli option, fully driven by our software platform



SY5000-M22A20

2000 VDC (if option SY5000-HVDC) / 1500 VAC (if option SY5000-HVAC) / 10 A stimuli card - 22 points

SY5000-MGR10

VERY LOW RESISTANCE OPTION (able to measure below 100 $\mu\Omega$, up to 10 A depending on the switching card type) ; to be ordered with ref. SY5000-MGR10



SY5000-M1501

VERY HIGH RESISTANCE OPTION (able to measure up to 2000 T Ω) ; to be ordered with ref. SY5000-M1501P

SY5000-STI

Stimuli power supply input

SY5000-Temp/Hum

Automatic temperature and humidity measurement

SY5000-BTBN

Continuity with low current 25 μ A to 250 mA

SY5000-Cont28V

Continuity with test voltage up to 28 V

SY5000-Gmovx

transil, transorb, tvs, surge protector measurement

SY5000-DASx

Slipping measurement.
Noise measurement, continuity

SY5000-RLC

RLC measurement with bridge

SY5000-DESKTOP

Desktop PC, display, Windows™ XP PRO or new version



SY5000-LAPTOP

Laptop PC, inkjet printer, Windows™ XP PRO or new version



SY5000-RACK PC1

Rackable industrial PC, external display, external keyboard, Windows™ XP PRO or new version



SY5000-RACK PC2

Rackable industrial PC, external display, rackable industrial keyboard, Windows™ XP PRO or new version



SY5000-RACK PC3

Rackable industrial PC, rackable industrial display, rackable industrial keyboard, Windows™ XP PRO or new version



OPTIONAL FRONT PANEL CONNECTOR OUTPUTS

STANDARD OUTPUTS

All our testers are delivered with DIN41612 connector types, per default.



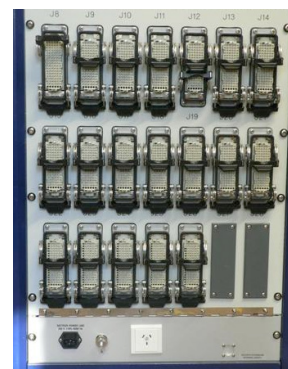
If the application requires stronger type of connector, zero insertion force connectors, military type connectors, ... then see below some typical connector front panel outputs.

Sefelec customizes the connector outputs as required.



SY5000-HAN

Harting 64 pts, 128 pts, ... connector type is popular for railway industry or any other type of environment where test conditions need rough connexions

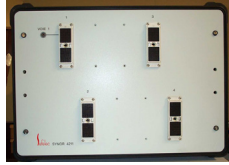


SEFELEC SYNOR 5000H

Cable tester

SY5000-ITTC

ITT CANNON 264 pts, ... connector type is popular for aeronautic industry or any other type of environment when one need to connect a big quantity of points at the same time



SY5000-EDAC

EDAC 56 or 120 pts, ... connector type is popular for Aeronautic, military industry or any other type of environment when one need cheap and locable connectors



SY5000-OTTY

Any configuration for the connector outputs is possible ; just supply Sefelec with your specifications or leave us guide you on your requirement and our experience



AVAILABLE ACCESSORIES

SY5000-LIGHTS

Red-Green lamp to indicate the high voltage presence



SY-WINTRANSFERT

Software for transfer in Excel format to Winpass5000

SY-WINREPORT

Software for report creation

SY5000-PROBE (standard accessory, automatically delivered with new equipment)

Touch probe, useful for debugging & manual testing



SY5000-CAL

Synor series automatic calibration kit

