



H3 SERIES

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COMPUTERISED MULTIFUNCTIONAL SURGE TESTER 6-12-18-24-30-45-60KV

REMOTE SERVICE ASSISTANCE

Risatti Instruments offers a remote service assistance with the use of Team Viewer program. In fact, with this software it is possible to control the system, transfer files and chat with our technician to follow his instructions.

INSTALLATION OF THE MACHINE

One day is sufficient for the installation and training of our machine. In addition, it is possible to:

- Train your staff in your plant (in Italy or abroad)
- Train your staff using Team Viewer
- Other requests will be quoted according to "Risatti" pricelist

DOCUMENTATION PROVIDED TO THE CUSTOMER

The documentation provided will contain:

- User and maintenance manual in English language*
- Calibration certificate
- Warranty Certificate
- CE conformity certificate
- The use licence for WINDOWS 10 IoT EMBEDDED (OEM licence) will be placed on the rear panel of the PC

CALIBRATION

Risatti Instruments s.r.l. provides the calibration certificate, using instruments supplied by ACCREDIA Certificates.

At the end of the warranty period, it is possible to draft the annual Periodic Calibration Certificate to ensure the functionality and reliability of the machine measurements.



Our experience since 1958 together with the great success of the "H2" series, allowed Risatti to move forward towards and to realise the "H3" series managed by integrated PC. The numerous options customise this instrument, according to the customer's needs.

The instruments of the "H3" series can test any type of winding: coils, single and three-phase motor stators, die-cast and wound rotors, low and high voltage transformers with connected and non-connected phases internally.

Measures are performed **according to the CEI Italian, CE-NELEC EN European and IEC international laws.**

All systems of the "H3" family are managed by an Industrial Personal Computer and the basic version includes all essential memorisation measures and functions, printer and

archive of the test results through a dedicated page of the program named "STATISTICS".

All systems of the "H3" series are provided with "WINDOWS EMBEDDED" and the test setting is very easy, thanks to the simple graphic interfaces.

The "H3" series is suitable for laboratory and prototype tests, maintenance, repair, rewinding, service-assistance, prevention or tests of very special components.

MAIN FEATURES

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The main characteristics and test that this H3 series can perform are here summarised:

	H3/6	H3/6-BAT	H3/12	H3/18	H3/24	H3/30	H3/45	H3/60
Display	10"	8"	10"	10"	10"	15"	15"	15"
Automatic commutation	•	-	•	-	-	-	-	-
Assembly	CPS	BAT	CPS/CR	CR	RACK	RACK	RACK	RACK
Ohmmeter	•	•	•	•	•	•	•	-
Diel. strength in D.C.	•	-	•	•	•	•	•	-
External diel. strength in A.C.*	-	-	-	-	•	•	•	•
Surge	•	•	•	•	•	•	•	•
Insulation	•	•	•	•	•	•	•	•
IP*	•	•	•	•	•	-	-	-
DAR*	•	•	•	•	•	-	-	-
Current detection*	-	-	-	-	-	-	-	-
Die-cast rotors test*	•	•	•	•	•	-	-	-

* Option

POTENTIAL FEATURES OF THE TESTER:

The system allows the performance of the following tests, according to the customer's requirements:

- Measurement of the electric resistance
- Dielectric strength test in D.C
- Impulse test (Surge test)
- Insulation Resistance test
- IP test*
- DAR test*
- DD test*
- Die-cast rotors test*
- Detection of the partial discharge*
- Detection of the currents waveform*
- Measurement of the Tan Delta

DIMENSIONS

	DIMENSIONS (mm)	TPOLOGY	INDICATIVE WEIGHT (Kg)
CPS ASSEMBLY (Bench instrument)	W525XH320xD375	H3/6-CPS	20
	W525XH410xD600	H3/12-CPS	50
	W525XH500xD600	H3/18-CPS	58
	W525XH600xD600	H3/24-CPS	70
BATT ASSEMBLY (Trolley)	W570xH380xD260	H3/6-BAT	18
CR ASSEMBLY (On wheels)	W560xH1280xD600	H3/12-CR	220
		H3/18-CR	250
	26 units	H3/24-RACK	according to the type of test
RACK ASSEMBLY (Rack on wheels)	38 units	H3/30-RACK	according to the type of test
	38 units	H3/45-RACK	according to the type of test
	38 units	H3/60-RACK	according to the type of test

CONNECTIONS

CPS/CR type:

No. 3 HV cables + 1 ground cable with spring pincer (3 metres) directly connected to the instrument for Surge, dielectric strength and insulation tests.

No. 1 double cable with pincer connector, Kelvin type (3 metres for ohmmeter)

BAT type:

No. 2 HV cables + 1 ground cable with spring pincer (3 metres) directly connected to the instrument for Surge, dielectric strength and insulation tests.

No. 1 double cable with pincer connector, Kelvin type (3 metres for ohmmeter)

RACK type:

No. 2 HV cables + 1 ground cable with spring pincer (3 metres) directly connected to the instrument for Surge, dielectric strength and insulation tests.

No. 1 double cable with pincer connector, Kelvin type (3 metres for ohmmeter)

INSTRUMENT SUPPLY

230V, 50-60Hz, 1,5 KVA for H3/6 and H3/12 models.

24V – 4,5 Ah battery supply; battery charge 230V, 50-60Hz for H3/BAT.

230V, 50-60Hz, 3KVA for H3/18, H3/24, H3/30, H3/45, H3/60 models (excluding dielectric strength in A.C)

PLEASE NOTE: longer cables have to be agreed during the offer.

OTHER FEATURES

- Memorisation of the set data and results, for each single test and with the relative response curves
- Indication of test results through GREEN-RED display signals
- Development software with LABVIEW graphic menu by national Instruments
- Double START button with anti-repetitive
- Screen selection of the test

OPTIONS

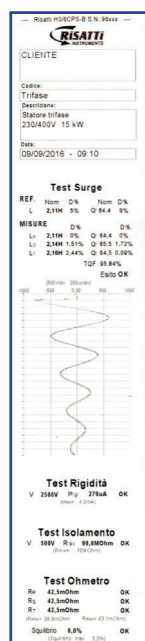
To customise the machine to all needs

	H3/6	H3/6-BAT	H3/12	H3/18	H3/24	H3/30	H3/45	H3/60
PRINTER	•	•	•	•	•	•	•	•
O4/BPR	•	•	•	•	R	R	R	R
TOOL FOR WOUND ROTORS	•	•	•	•	•	-	-	-
SAFETY LAMPS	•	•	•	•	•	•	•	-
PARTIAL DISCHARGE	•	•	•	-	-	-	-	-
IP	•	•	•	•	R	R	R	-
DAR	•	•	•	•	R	R	R	-
TROLLEY	•	-	•	-	-	-	-	-
DIELECTRIC STRENGTH TEST	-	-	-	-	•	•	R	-
AIR-CONDITIONER	-	-	-	-	-	•	•	-
HDD	-	-	-	-	-	•	•	-
DOCUMENTATION FOR THE CUSTOMER	•	•	•	•	•	•	•	•
CURRENT DETECTION	•	•	•	-	-	-	-	-

R = upon specific request

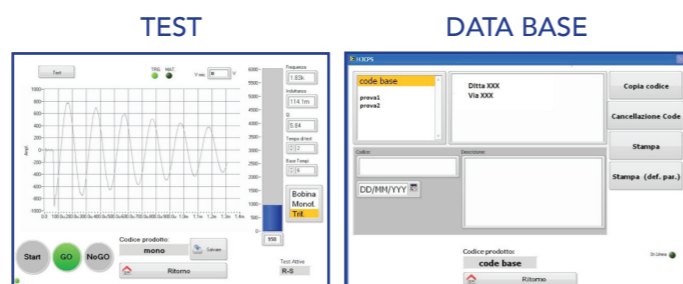
FORTY-COLUMN PRINTER

To print test results with the operator's data, object features and any other useful information



MANAGEMENT OF THE SOFTWARE DATABASE

The software is divided into two ambient:



All our machines manage the test data memorisation.

PLEASE NOTE: data cannot be extracted during the test cycle.

STANDARD VERSIONS OF THE RACK (others upon request)



CPS TYPE:
H3/6-CPS
H3/12-CPS



BAT TYPE:
H3/6-BAT



CR TYPE:
H3/12-CR
H3/18-CR
H3/24-CR



RACK TYPE:
H3/30-RACK
H3/45-RACK
H3/60-RACK



Accessories • tooling for wound rotor tests • external start pedal • Kelvin cables for ohmmeter tests • coaxial cable for O4/BPR transducer connection • O4/BPR transducer for die-cast rotor tests.

Here the explanation of the initials of the various machines typology, for example **H3/6-CPS**: **H3** = series of the instrument; **6** = max voltage expressed in KV; **CPS** = is the bench (**BAT** is the battery instrument contained in a trolley • **RACK** is the rack assembly • **CR** with trolley • A only Surge), other upon request.

For further information on the technical features, please read the : "THEORETICAL AND PRACTICAL WORKING PRINCIPLES OF THE H3 SERIES".

HARDWARE FEATURES

	H3/6	H3/6-BAT	H3/12	H3/18	H3/24	H3/30	H3/45	H3/60
PANEL PC	10"	8"	10"	10"	10"	15"	15"	15"
PROCESSOR Intel atom dual core 1,8 GHz – FANLESS	•	•	•	•	•	•	•	•
RAM 2GB	•	•	•	•	•	•	•	•
Solid state HARD DISK 32Gb extractable	•	*	•	•	•	•	•	•
PC USB	•	-	•	•	•	•	•	•
USB PORTS	2	1	1	1	1	1	1	1
LAN ETHERNET SOCKET	•	•	•	•	•	•	•	•
SUPPLY	230V, 1,5 KVA, 50-60 Hz	A BATTERIA 24Vdc,4,5Ah carica batteria 230 V. 50-60Hz	230 V, 1,5KVA 50-60 Hz			230V, 3 KVA, 50-60 Hz		
BACKLIGHTED DISPLAY	•	•	•	•	•	•	•	•
SERVICE ASSISTANCE with Team Viewer (**)	•	•	•	•	•	•	•	•

*Not extractable

** Internet connection provided by the customer

	H3/6	H3/6-BAT	H3/12	H3/18	H3/24	H3/30	H3/45	H3/60
OHMIC RESISTANCE MEASURE								
Min full-scale (mΩ)	20							
Max full-scale (KΩ)	20							
Resolution μΩ	10							
Test current (A)*	3	3	10	10	10	20	20	20
Accuracy	0,5% f.s.							
IMPULSES (SURGE TEST)								
Vmax (KV)	6	6	12	18	24	30	45	60
Frequency (impulses/sec)	10	10	10	10	10	5	5	5
Max energy (J)	1,2	1,2	3,6	3,6	7,2	11,2	25	45
Max current (A)	320	320	400	600	1000	1000	1000	1000
Surge (nF)*	66	66	50	50	25	25	25	-
Impulses increasing time (CEI EN 60034-15)	<0,5μsec							
DIELECTRIC STRENGTH TEST IN D.C. (CEI EN 60335)								
V max (KV)	6	6	12	18	24	30	45	60
I _{max} (mA)	5							
Reading accuracy in mA	1% f.s.							
Reading accuracy in KV	3% f.s.							
Test time	1-999 sec							
EXTERNAL DIELECTRIC STRENGTH TEST IN A.C. (CEI EN 60335)								
Max test voltage (KV)	6	6	12	18	24	30	45	60
I _{max} (mA)	50		Upon request					
Reading accuracy in mA	1% f.s.							
Reading accuracy in KV	3% f.s.							
Test time	1-999 sec							
INSULATION TEST (IEEE 43-2000)								
Test voltage (V)	100-2700		Upon request (max 5000V)					
Measurement range	From 2 MΩ to 50 GΩ	From 200 KΩ to 500 MΩ auto-ranging From 2 MΩ to 50 GΩ if IP present	From 2 MΩ to 50 GΩ					
Precision della lettura in MΩ	2% f.s.							
Tempo di test	1-999 sec							
PROVA IP (IEEE43-2000)								
Test voltage (V)	100-2700		Upon request (max 5000V)					
Measurement range	2 MΩ to 50 GΩ							
Test time	10'							
DAR TEST (IEEE43-2000)								
Test voltage (V)	100-2700		Upon request (max 5000V)					
Measurement range	2 MΩ to 50 GΩ							
Test time	1'							

*Others upon request

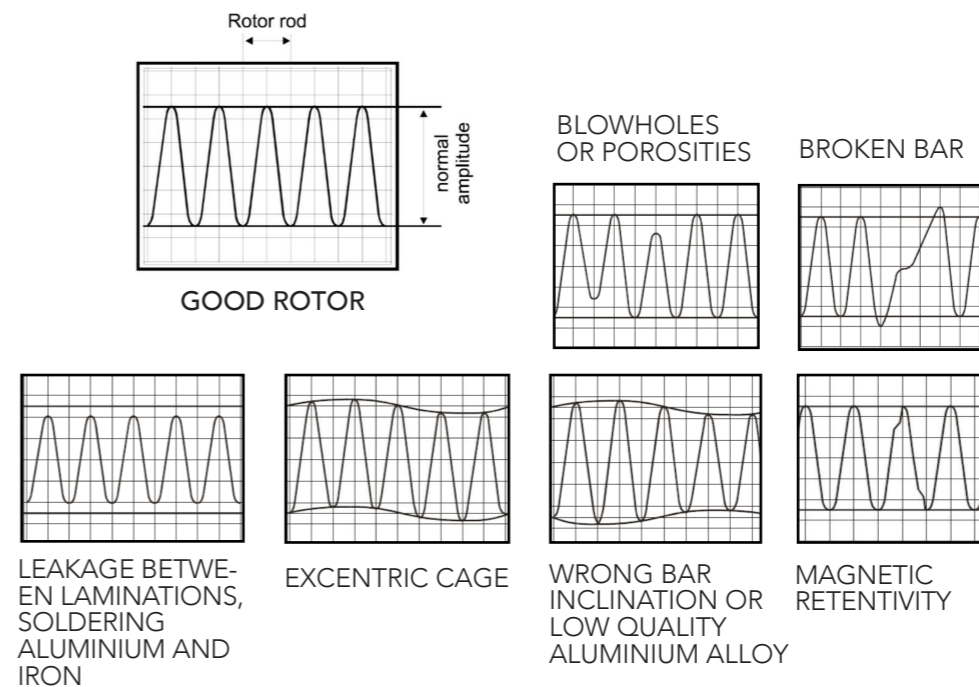
4 5

H3/6	H3/6-BAT	H3/12	H3/18	H3/24	H3/30	H3/45	H3/60
TEST OF CURRENTS DETECTION (in process)							
•	•	•	-	-	-	-	-
DIE-CAST ROTORS TEST							
•	•	•	-	-	-	-	-

The die-cast rotors test uses the exclusive Risatti system, created in 1975 that detects failures in squirrel cage die-cast rotors. For further information please read "THEORETICAL AND PRACTICAL WORKING PRINCIPLES OF THE H3 SERIES".

This test is done using the O4/BPR transducer and the following failures are detected:

- Interrupted bars
- Blowing and porosities
- Inclination angle



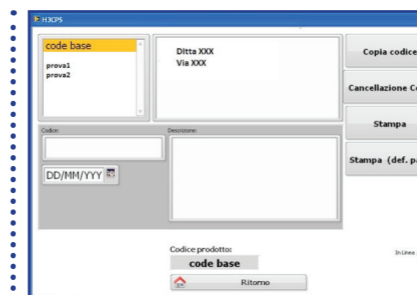
CODE CREATION

The creation of the customer code is done by assigning a name to the test from the Database menu.

- The following fields are given:
- Name: customisable
 - Description: free and generic
 - Automatic creation date
 - Automatic modification date

For each code, the electrical tests can be enabled and customised. For example:

- Resistance
- Die-cast rotors test
- Surge
- Dielectric strength test
- Insulation
- Polarisation index (PI) Etc.



TEST AMBIENT

From the main page, it is possible to select every single test and set it before performing the test. Each test will overwrite the previous one, saving it on the database.

The screen-shots on the right are showing the following tests: Homepage – Dielectric strength – Surge – Rotor test – Insulation – Resistance

