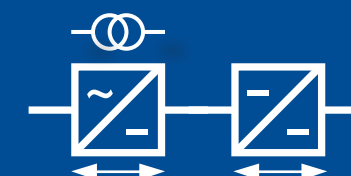




NEUSCHWANSTEIN CASTLE



Infeed Test System



***Innovation and quality from
Germany and Austria***

www.artconcept-werbeagentur.de



► **TYPE I-TS-3870**

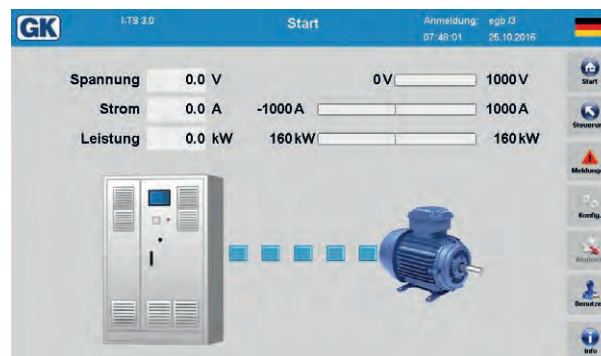
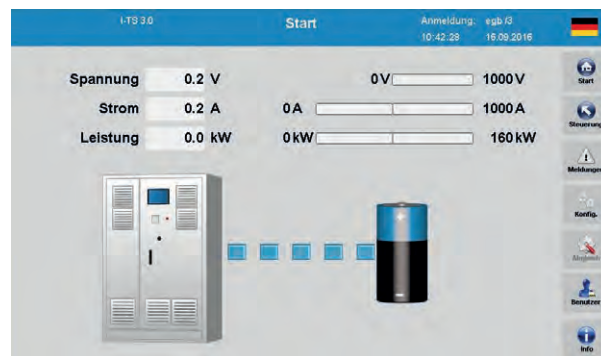
(ES) Equipements Scientifiques SA - Département Puissance Energie - 127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 45 - Fax. 01 47 01 16 22 - e-mail: tem@es-france.com - Site Web: www.es-france.com



Infeed Test System – Type I-TS-3870

General Data:

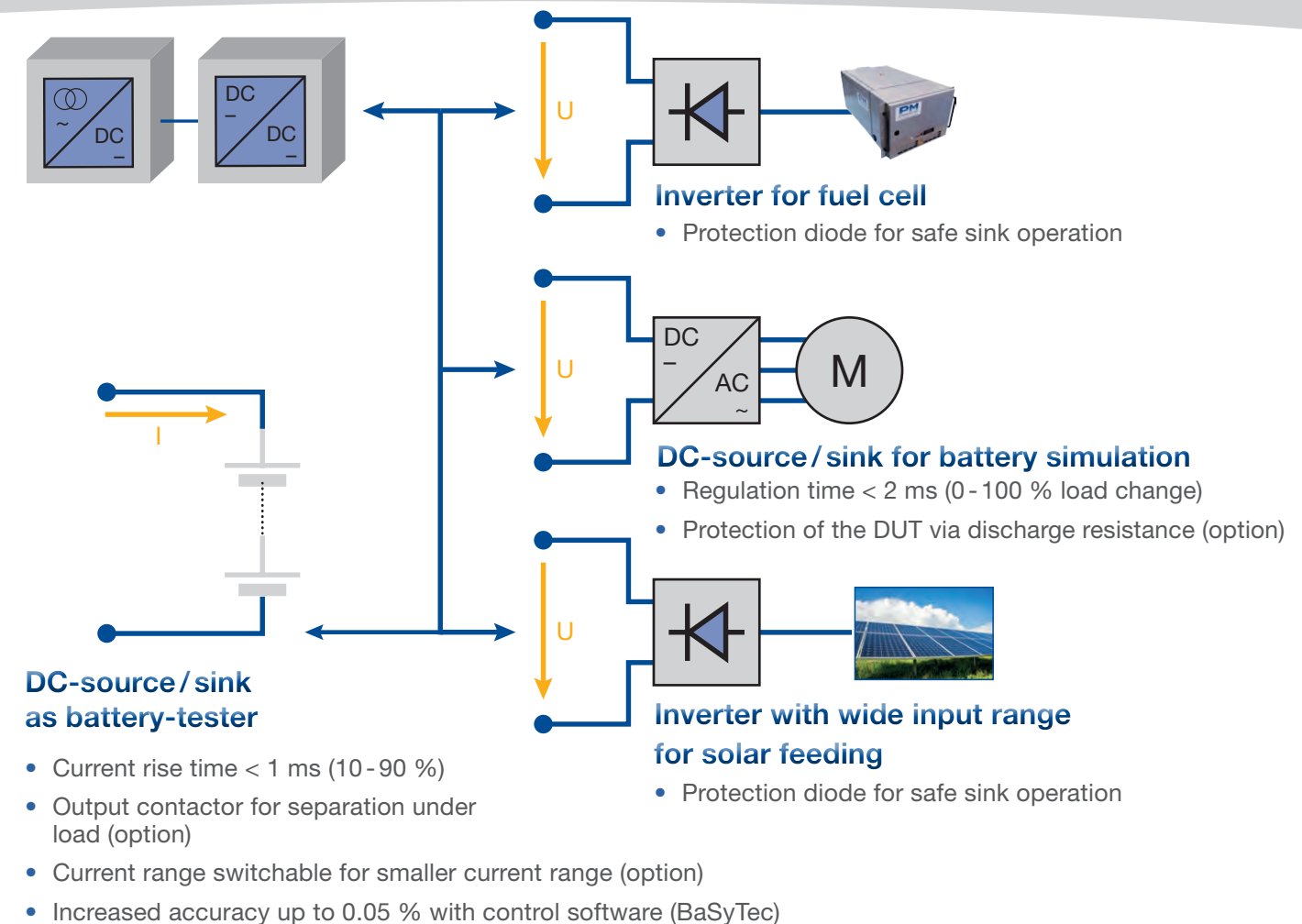
- Power single system up to 500 kW
- Total power parallel system up to 1 MW
- Output voltage single system up to 1000 V
- Output current single system up to 1000 A (higher output current on request)



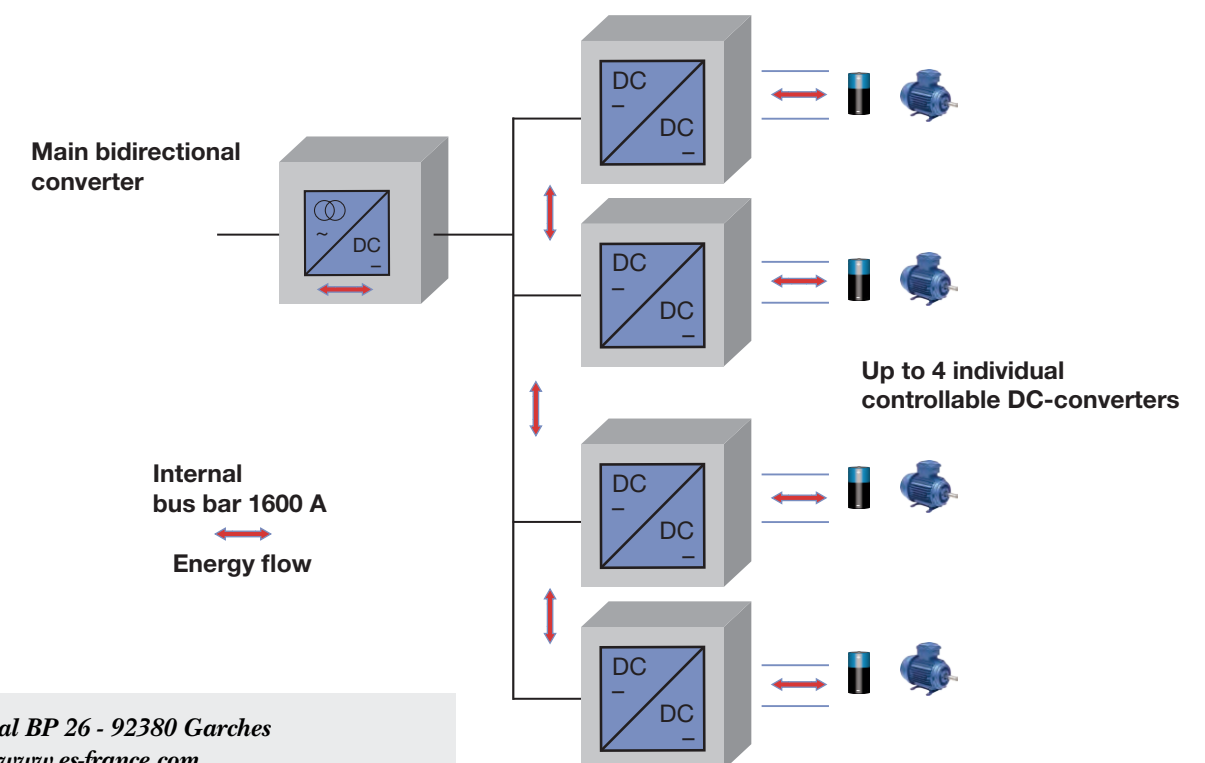
Typical applications:

- Battery simulation
- Battery test
- Testing fuel cell
- Testing solar panels

Applications (depending on equipment)



Multi-Channel-System – Type I-TS-3871



Types / Technical data

Type	Nominal power (kW)	voltage (V DC)	current (A DC)	Current rise time typ. for 10 % - 90 % _{IN} (ms)
I-TS-3870-200-60-200	60	5-200	600	<1
I-TS-3870-200-120-600	120	5-200	600	<1
I-TS-3870-800-100-600	100	5-800	600	<1
I-TS-3870-800-100-1000	100	5-800	1000	<1
I-TS-3870-800-160-600	160	5-800	600	<1
I-TS-3870-800-160-1000	160	5-800	1000	<1
I-TS-3870-800-250-600	250	5-800	600	<1
I-TS-3870-800-250-1000	250	5-800	1000	<1
I-TS-3870-800-320-600	320	5-800	600	<1
I-TS-3870-800-320-1000	320	5-800	1000	<1
I-TS-3870-800-400-1000	400	5-800	1000	<1
I-TS-3870-800-500-1000	500	5-800	1000	<1
I-TS-3870-1000-100-600	100	5-1000	600	<1.3
I-TS-3870-1000-100-1000	100	5-1000	1000	<1.3
I-TS-3870-1000-160-600	160	5-1000	600	<1.3
I-TS-3870-1000-160-1000	160	5-1000	1000	<1.3
I-TS-3870-1000-250-600	250	5-1000	600	<1.3
I-TS-3870-1000-250-1000	250	5-1000	1000	<1.3
I-TS-3870-1000-320-600	320	5-1000	600	<1.3
I-TS-3870-1000-320-1000	320	5-1000	1000	<1.3
I-TS-3870-1000-400-600	400	5-1000	600	<1.3
I-TS-3870-1000-400-1000	400	5-1000	1000	<1.3
I-TS-3870-1000-500-600	500	5-1000	600	<1.3
I-TS-3870-1000-500-1000	500	5-1000	1000	<1.3

AC - Input voltage / AC – Input frequency	V / Hz	380 / 400 / 440 / 480 / 500 / 690 V ±10 %, 3-phase, (N), PE, 50 / 60 Hz ± 6 %
Measuring resolution	%	voltage: 16 Bit ADC current: 16 Bit ADC
Control accuracy	%	voltage 0.1 fs current 0.1 fs
Voltage tolerance dynamic (0 – 100 % INom in 5 ms)	% fs	< 3
Voltage ripple (U > 10 V)	% eff.	≤ 0.1 fs
Current ripple (U > 10 V)	% eff.	≤ 0.1 fs
Short circuit behavior		Short circuit proof (IK < 5 kA)
Permissible ambient temperature	°C	0 to 40
Climate class		3K3 according to EN60721 (85 % relative humidity non condensing with cabinet heating up to 95 % rel. humidity without condensing)
Distance from ceiling min.	mm	300 (standard)
Installation		Operating area with restricted access
Protection class		IP20 (IP5312) according to IEC 60529
Safety		EN ISO 13849-1
Basic standard		EN 62040
EMC		EN 61000-2-4 grid disturbances EN 61000-6-2 interference immunity EN 61000-6-4 interference emission EN 61800-3 Kat C2 (A1) variable – speed electrical drives

Subject to change without notice (tech)

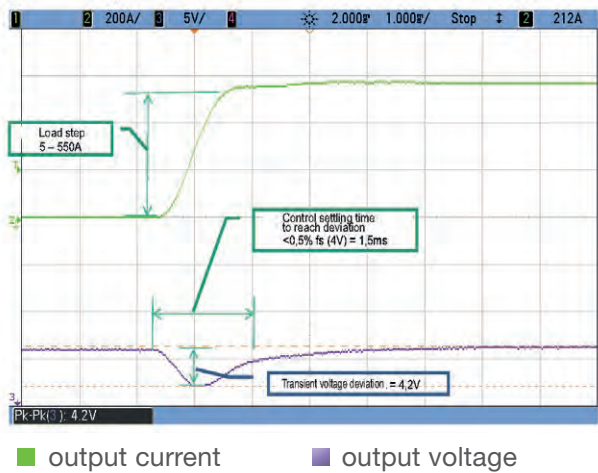
Characteristics

- „Battery tester“ version
 - Highly dynamic inverter
 - Short circuit proof <5 KA
 - Electrical isolation to grid
 - Control accuracy 0.1 % fs
 - Voltage ripple 0.1 % rms
 - DC current measurement with 0.1 % accuracy
 - Current rise time <1 msec (200 V, 800 V), <1.3 msec (1000 V)
 - Seamless transition source/sink
 - Main switch (switch disconnector with fuses in the AC input; lockable in Off-Position)
 - Safety control for Performance Level d (PLd) in accordance with ISO 13849-1 / EN 60204-1
 - TFT display with touch operation
 - Stop button (black mushroom button) in switch cabinet door
- Insulation monitoring (switchable)
 - Voltmeter and ready indicator light in cabinet door
 - DC output contactor (switching without load)
 - Connection terminals for DC voltage measurement (0.1 % accuracy with Sense lines)
 - Connection terminals for external „Emergency Stop“
 - Connection terminals for external „Stop“
 - Connection terminals for calibrating case
 - Interface MOD-bus / TCP-IP
 - Interface CAN-bus („100 Hz“ with dbc file)
 - Interface VNC over Ethernet
 - Protection type IP 20
 - Air cooled
 - High efficiency
 - Fire protection housing (according EN 61010-1 Item 9.3)
 - Noise-reduced version (rubber buffer, fan control)
 - Customer specific design

Version „Battery simulator“

I-TS, 800 V DC, 600 A
Small voltage dip at load step

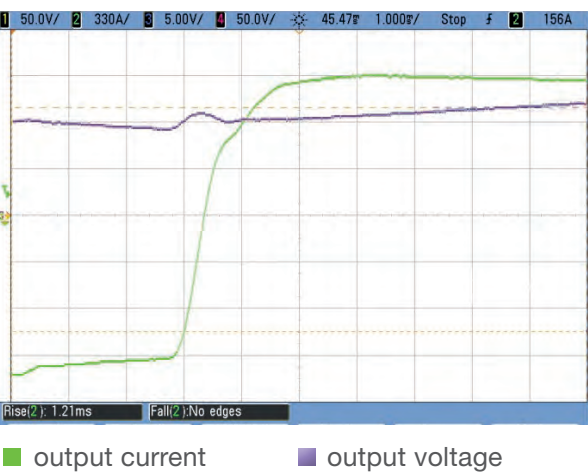
- Setting: constant voltage
- Max. accepted deviation of voltage at load step 0-100 % in 3 msec: 1 % fs = 8 V
- Measuring of transient voltage deviation and control settling time



Version „Battery tester“

I-TS, 1000 V DC, 1000 A, 100 kW
Small current rise time

- Output voltage 80 V DC
- Changing setpoint for current from -1000 A to + 1000 A
- Measuring of current rise time (-900 A to + 900 A) = 1.2 msec



typical course

Options

Operating mode „Battery simulator“	(I-TS-SIM-3.0)
Operating mode „Battery simulator / tester“ switchable	(I-TS-SIM-TEST-3.0)
Insulation monitoring device at DC output	(I-TS-ISO-3.0)
DC output contactors (for disconnection under load)	(DC-CONT-1000-1000)
Current range switching over with 2 ranges (100 % and 10 %)	(I-TS-SU100-10-3.0)
Parallel control device to increase power	(I-TS-PARALLEL-3.0)
Interface with 4 potential-free contacts	(I-TS-RELAIS)
Interface SCPI	(I-TS-SCPI)
Interface PROFIBUS DP	(I-TS-PROFIBUS)
Interface PROFINET	(I-TS-PROFINET)
Interface 0-10 VDC analogue	(I-TS-10VANALOG)
Interface high speed access to I+ controller (1 kHz)	(I-TS-HSANALOG)
Protection type IP 21	(I-TS-IP21)
Protection type IP 23	(I-TS-IP23)
Protection type IP 20 with opened door	(I-TS-IP20-INSIDE)
Single wire marking (GK system)	(I-TS-W-MARK-GK)
Single wire marking (Phoenix Contact system)	(I-TS-W-MARK-PH)
Cabinet lights	(CAB-L-ds-plug)
Cabinet heating	(CAB-heating-sep.input)
Emergency Stop button in switch cabinet door	(I-TS-E-Stop)
Halogen-free wiring	(CAB-UPS/INV-halogen-free)
Cabinet base 100 mm height	(I-TS-BASE100)
Cabinet base 200 mm height	(I-TS-BASE200)
PDSB 2 inputs 1 output up to 1000 V / 1000 A	(I-TS-PDSB-2/1-1000)
PDSB 2 inputs 1 output up to 1000 V / 2000 A	(I-TS-PDSB-2/1-2000)
PDSB 1 input 2 outputs up to 1000 V / 600 A	(I-TS-PDSB-1/2-600)
PDSB 1 input 2 outputs up to 1000 V / 1000 A	(I-TS-PDSB-1/2-1000)
Discharge unit DCU (Discharge Unit) 2 Ω 500 kWs	(I-TS-DCU-2Ω-500-kWs) (only in combination with PDSB)
PDU 1000 V / 1000 A tester, wall casing, 1inp. 1outp.	(I-TS-PDU-TEST-1000-3.0)
PDU 1000 V / 2000 A tester, cabinet, 1inp. 1outp.	(I-TS-PDU-TEST-2000-3.0)
PDU 1000 V / 1000 A simulator, wall casing, 1inp. 1outp.	(I-TS-PDU-SIM-1000-3.0)
PDU 1000 V / 1000 A simulator, cabinet, 1inp. 1outp.	(I-TS-PDU-SIM-1600-3.0)



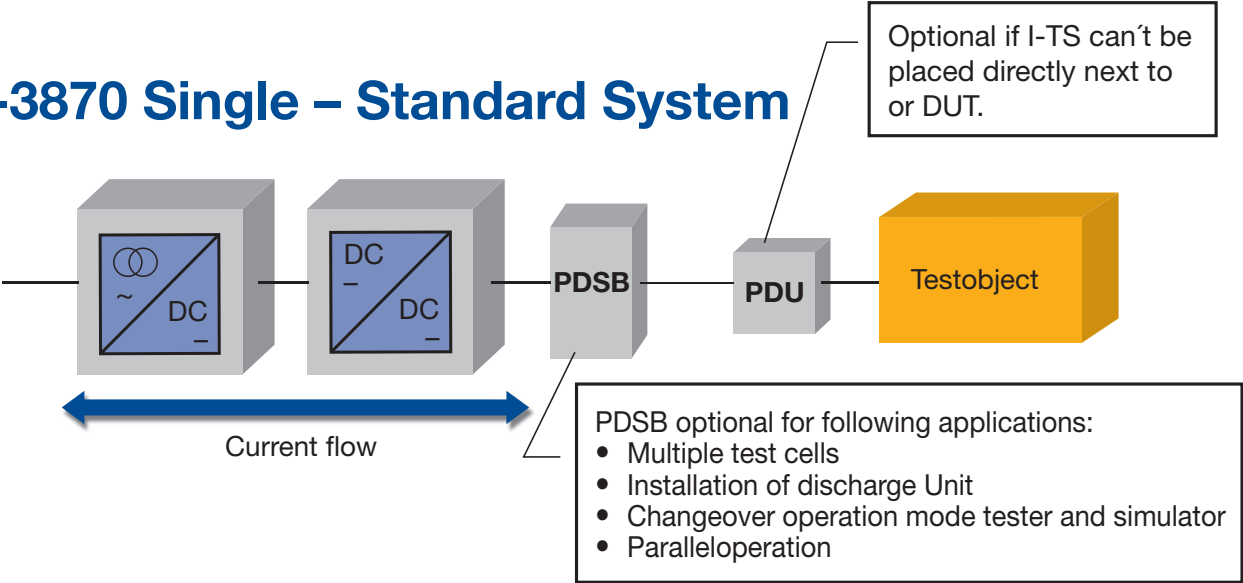
Insulation monitoring device at DC output



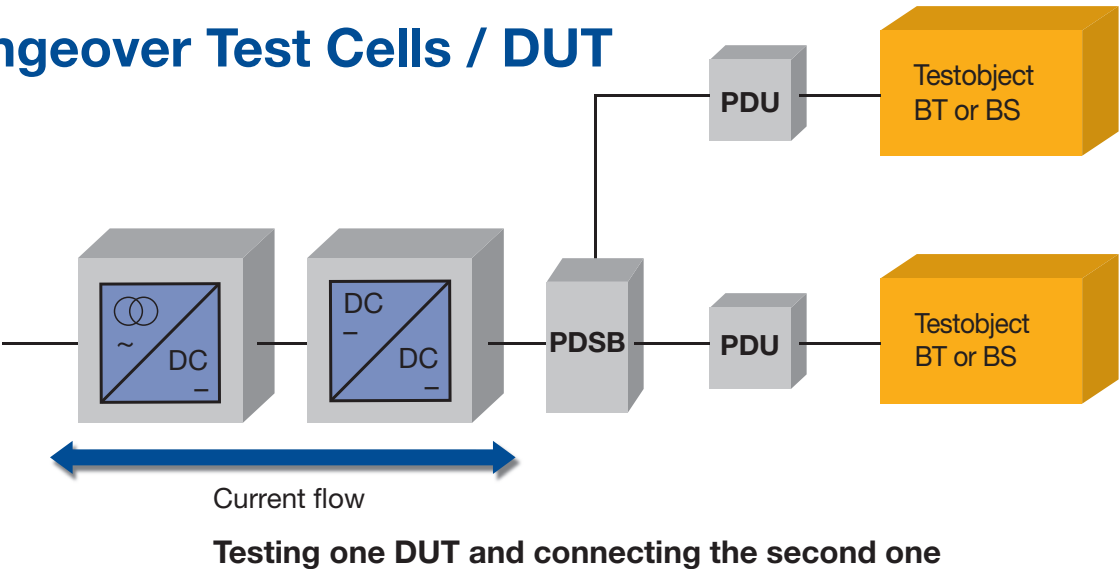
DC output contactor

Applications

I-TS-3870 Single – Standard System



Changeover Test Cells / DUT



I-TS-3870 Parallel – System

