smart pft ®

smart pft USB	smart pft CO transfer

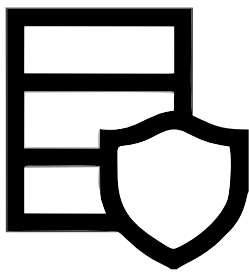| smart pft body	smart pft nebulizer

medical ®
equipment
europe

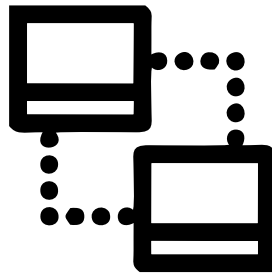# smartSOFTmee

advanced graphical user interface
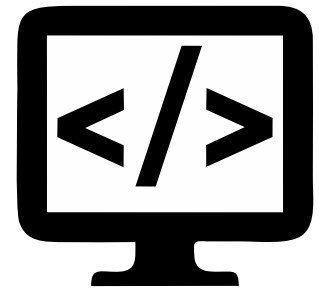based on WIN7 / WIN8 / WIN10 operating systems

database server

interfaces

software architecture

The SQL database, a professional network server solution that represents an international standard for data storage.

All important informations are complety encrypted.
It guarantees maximum safety for testing and patient data.

Nearly all requirements of data sharing in large networks can be realized.

ASCII, BDT / GDT *

HL7 *

PDF (labeled) *

FTP networking *

secure eMailing *

e-Doc printer *

Interface for BGA devices *

(* options)

Our modern graphical user interface makes working with the system simple and efficient.

The workflow is user optimized.

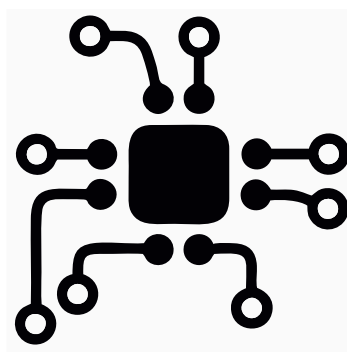There are more than 70 different print templates available to suit all customers needs.
Predicted value equations, selected Parameter and parameter units can be easily modified with in-built editors.

smart **pft**

Our devices were succesfully approved
according to 6060-01 4th edition by TÜV SÜD.

smart V sensor ®

electronics

special features

| This pneumotachograph sensor type is used since more than 35 years for pulmonary function and pulmonary exercise testing because of excellent characteristics.

Low resistance, low dead space, high linearity and absolutely no sensitivity to humidity make this sensor an optimal choice. | The data processing unit is based on a ultra low-power µ-processore

Digital, high pressure sensors reduce the riks of electrical interferences

The USB 2.0 PC interface guarantees long-term compatibility for PC system. | The standard software includes the newest GLI 2012 + GLI DLCO predicted value equations and smartZeroing®

An online BTPS data sampling module can be added to the USB spirometer.

In all other systems, BTPS sensors are integrated as a standard.

smartZeroing® means, the annoying zeroing happens discreetly and continuously in the background. |

smart **pft** body

solid aluminum & plasticconstruction
combined with
modern design & functionality

Panorama view box

The aim was to create a device that fully meets the requirements of patients.

Oval shaped panorama box with round glazing, so the patient never feels captured.

Very modern and long-term stable materials make it a very useful and unique device.
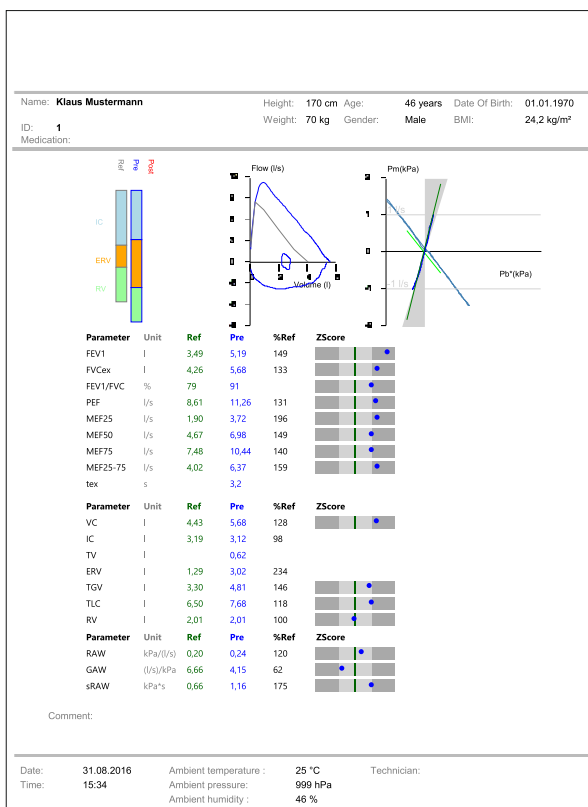
Technical standard features

Height adjustable, comfortable chair.

3D adjustable device stand. (optionally, e-motor driven)

Ambient pressure, temperature and humidity sensors allow continuous BTPS data sampling and calculation.

The electromagnetic door locking is maintenance free and safe for patients.

The box has a very efficient ambient pressure movement compensation unit.

Name:	**Klaus Mustermann**			Height:	170 cm	Age:	46 years	Date Of Birth:	01.01.1970
				Weight:	70 kg	Gender:	Male	BMI:	24,2 kg/m²
ID:	**1**								
Medication:									

Ref | Pre | Post

IC

ERV

RV

Flow (l/s)

Volume (l)

Pm(kPa)

Pb*(kPa)

-1 l/s

Parameter	Unit	Ref	Pre	%Ref	ZScore
FEV1	l	3,49	5,19	149	
FVCex	l	4,26	5,68	133	
FEV1/FVC	%	79	91		
PEF	l/s	8,61	11,26	131	
MEF25	l/s	1,90	3,72	196	
MEF50	l/s	4,67	6,98	149	
MEF75	l/s	7,48	10,44	140	
MEF25-75	l/s	4,02	6,37	159	
tex	s		3,2		

Parameter	Unit	Ref	Pre	%Ref	ZScore
VC	l	4,43	5,68	128	
IC	l	3,19	3,12	98	
TV	l		0,62		
ERV	l	1,29	3,02	234	
TGV	l	3,30	4,81	146	
TLC	l	6,50	7,68	118	
RV	l	2,01	2,01	100	

Parameter	Unit	Ref	Pre	%Ref	ZScore
RAW	kPa/(l/s)	0,20	0,24	120	
GAW	(l/s)/kPa	6,66	4,15	62	
sRAW	kPa*s	0,66	1,16	175	

Comment:

Date:	31.08.2016	Ambient temperature :	25 °C	Technician:
Time:	15:34	Ambient pressure:	999 hPa	
		Ambient humidity :	46 %	

We use only materials with long-term stability.

The door rubber is secured by a steel frame.

Box and door frames are made from powder coated massive aluminium profiles.

For simple service access, nearly all electronic components are placed on the top and protected by a hood.

A box designed for patients with poor mobility.

The entry step hight is less then 10cm, a large 2 door opening makes placing the patient very confortable.

Optionally a special chair mounted on a telescope arm can be added to move wheelchair patients safely into the box.

smart **pft** USB

high precision PC based spirometer

®

PC Spirometer USB powered

A powerful spirometer with high precision technology and the posibility for upgrading with a wide range of testing options.

The system requires only one USB cable to connect to a Microsoft computer.

The spirometer has all connectivity options of an advanced pulmonary function testing system like ASCII, HI7 and networking.

Standard features are

- Slow vital capacity test
- Flow/volume test
- Pre/Post comparison
- Trend reporting
- Programmable challenge testing protocols
- Incentive graph for kids
- GLI 2012 predicted values
- SQL database
- smartZeroing

®

smart pft USB Bluetooth®

high precision PC based Bluetooth® spirometer

Bluetooth®

PC Spirometer with Bluetooth 4.1 connection

A fully charged battery lads for many hours continuous cable less testing.

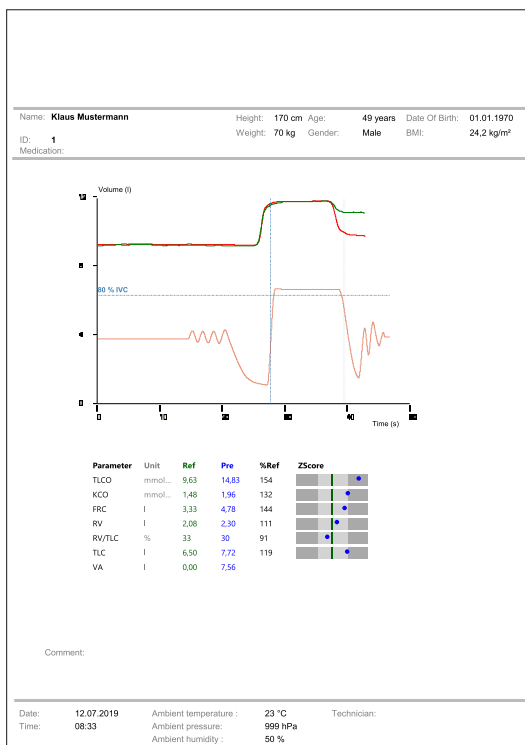Measurement are possible via USB when Battery are discharged.

This spirometer has all connectivity options of an advanced pulmonary function testing system like ASCII, HI7 and networking.

Standard features are

- Slow vital capacity test
- Flow/volume test
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- Trend reporting
- Programmable challenge testing protocols
- Incentive graph for kids
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smart **pft** CO-transfer

designed for simplified CO transfer capacity screening

Name:	**Klaus Mustermann**	Height:	170 cm	Age:	49 years	Date Of Birth:	01.01.1970
ID:	1	Weight:	70 kg	Gender:	Male	BMI:	24,2 kg/m²
Medication:							

Volume (l)

80 % IVC

Time (s)

Parameter	Unit	Ref	Pre	%Ref	ZScore
TLCO	mmol...	9,63	14,83	154	
KCO	mmol...	1,48	1,96	132	
FRC	l	3,33	4,78	144	
RV	l	2,08	2,30	111	
RV/TLC	%	33	30	91	
TLC	l	6,50	7,72	119	
VA	l	0,00	7,56		

Comment:

Date:	12.07.2019	Ambient temperature :	23 °C	Technician:
Time:	08:33	Ambient pressure:	999 hPa	
		Ambient humidity :	50 %	

Single breath

CO transfer capacity test fast and reproducible.

This device is designed for quick screening of CO-Diffusion capacity.

The online gas sampling method allows testing of patients with very low vital capacity starting from approximately 0.7 liters.

The test runs fully automatic and gives online all necessary advice for the correct breathing maneuvers.

The system registers and displays real-time all important data like gas concentrations, volume and mouth pressure.

Standard features are

Selective and fast infrared gas analyzer measuring transfer and inert gas (CO & CH4).

Particular and precise gas supply by a demand valve.

Input mask for Hb and COHb values and correlating recalculation of test result.

Automatic altitude corrections by built in ambient pressure sensor.

Online display of mouth pressure during breath holding.

Gas analyzer works without absorber products.

smart **pft** nebulizer

standardized dosimeter unit for challenge testing

Compressor unit

A confortable, safe and very robust device to support challenge testing.

No need for an external source of compressed air, a low noise compressor is built in.

The compressor runs fully automatic.

A built in panel computer with LCD-display guarantees a very simple control handling.

Standardized nebulizer type for challenge testing used in many studies.

This nebulizer and nebulization method fulfill strictly the recommendations of ATS and ERS.

A flow based trigger sensor synchronizes the start of nebulization with beginning of inhalation.

Automated execution protocols can be programmed to simplify routine testing.

smartVsensor	materials	housing	PS	color	white & blue
	sensor type	pneumotachograph	screen	variable orifice	hostaphan
	flow range	0,02l/sec - 20 l/s	volume range	0,02 L to 20 L	numeric integration
	dimensions	length = 80 mm	width = 37 mm	height = 25 mm	
	backpressure	< 0,055 kPa/l*s @ 15 l/s	linearity error	< 3% absolute	
	disinfection:	cold gas & cold liquid			
pressure transducers	flow	interface I²C bus	ADC 14 bit	temp-compensated	linearity error < 0,1 %FSS
		type	piezoresistive	differential	
		range	12,7	mbar	
	mouth pressure	interface I²C bus	ADC 14 bit	temp-compensated	linearity error < 0,1 %FSS
		type	piezoresistive	differential	
		range	200	mbar	
	box pressure	interface I²C bus	ADC 14 bit	temp-compensated	linearity error < 0,1 %FSS
		type	piezoresistive	differential	
		range	2,5	mbar	
	ambient pressure	interface I²C bus	ADC 8 bit	temp-compensated	linearity error ± 10 mbar
		type	piezoresistive	absolute	
		range	500 - 1150	mbar	
	temperature sensor	interface I²C bus	ADC 8 bit	temp-compensated	linearity error < 1%FSS
		type	PTA internal	range	-40 to + 125 °C
	humidity sensor	interface I²C bus	ADC 8 bit	temp-compensated	linearity error ± 1 %rF
		type	capacitive Polymer	range	0 - 100 % rF
shutter	materials	housing	PVC	color	white & red
	type	electromagnetic			
	effective dead space	< 20 ml	occlusion time	< 60 ms	
	dimensions	length = 145 mm	width = 85 mm	height = 85 mm	weight = 450 g
	backpressure	< 0,03 kPa/l*s			
	disinfection:	cold gas & cold liquid			
smartpft USB	dimensions	length = 163 mm	width = 65 mm	height = 40 mm	weight = 151 gr.
		material	PVC	color	white
		disinfection:	cold gas & cold liquid		
smartpft body	weight	139 kg with acryl			
	power supply	230 VAC	max 350 VA	optional 1000 VA	
	materials	door & box frame	aluminum	powder coated	color = white
		base & cover plate	PE		color = white
		windows	glass / acryl	floor	PVC antrazit
	volume	860 liter			
	dimensions	with closed doors	length = 115 cm		
			width = 83 cm		
			height = 185 cm		
		with opened doors	length = 120 cm		
			width = 111 cm		
	minimum door dimensions for transport		height = 190 cm	width = 78 cm	
	box & mouth pressure calibration syringe				
		volume	50 ml		
		type	sinus electrical		
		calibrates	box pressure	mouth pressure	
		voltage	12 V		
		current	700 mA		
	box ventilation valve				
		type	electromagnetic		
		voltage	12 V		
		maximum current	1,1 A		
	loudspeaker	inside body box			
	chair	fixed, hight adjustable			
		maximum weight tested	130 kg		
		color	black	material	soft plastic

smartpft CO transfer	non dispersive infrared absorption (NDIR)	gas channels	CH4 & CO		
gas analyzer	CH4 & CO channel	range	0 ppm - 3000 ppm		
		accuracy	< ± 1% FSS	resolution	< 0,5% FSS
		resolution	< 0,5% FSS	linearity	< 1% FSS
		warm up time	max. 5 min	zero drift	< 1% FSS / 24h
tablet touch PC	dimensions	length = 290 mm	width = 171 mm	height = 20 mm	weight = 1350 g
		materials	aluminum	color	RAL 9006
	power supply	voltage	12 V=	maximum current	2 A
	PC system	processor	Intel® Atom™ Z2760	screen	8" WXGA multi-touch LCD
		memory	2GB	storage	eMMC 32 GB
		interfaces	WiFi	USB	
		operating system	windows 8	32 bit	
smartpft nebulizer	power supply		230V AC / 50 Hz		
	dimensions	length = 250 mm	width = 250 mm	height = 145 mm	weight = 2900 g
	reservoir	max. pressure	7 bars	min. pressure	3 bars
	nebulizer pressure	2 bars	nebulization time	600ms	
	dose per nebulization	10 ± 1 µL	with closed vent	14 ± 1 µL	with open vent

Spirometry	VC, IVC, IC, ERV, IRV, TV
Flow / Volume	FVC (ex), FEV 6, FEV 3, FEV 1, FEV 0.75, FEV 0.7, FEV 0.5, FEV1/FVC, FEV1/IVC, FEV1/VC, FEV0,5/FVC, FEV0,5/IVC, FEV1*30, PEF, MEF 25, MEF 50, MEF 75, MEF 25-MEF75, AEX, t ex, EV, FVC (in), FIV1, FIV1/VC, PIF, MIF 25, MIF 50, MIF 75, MEF50/MIF50
MVV	MVV, FMVV
Resistance by interruption	R int
BGA values	pH, pCO2, pO2, BE, HCO3, Hb, SO2, Na+,K+, Ca++
In case of online data transfer from analyzer	list of parameters depending on type and brand of blood gas analyzer
External parameters	up to 14 additional parameters, this parameter can be user defined
Rhinomanometry	R75, R150, R300, L75, L150, L300, RES-L75, RES-L150, RES-L300, RES-R75, RES-R150, RES-R300
Respiratory drive	P0,1, PI max, PE max, P0,1 max, VE, P0,1 / VE, P0,1 / PI max, VT, BF, VT/Ti, Ti/Ttot, P0,1/VT/Ti, PI max 1.0, PE max 1.0
Compliance	C static, C dynamic
Resistance measured by bodyplethysmography	RAW (eff), sRAW, GAW, sGAW
Volumes measured by bodyplethysmography	TGV, RV, TLC, TGV/TLC, RV/TLC, IC, VC, IC/TLC, VC/TLC, IC/TGV, VC/TGV, IC/RV, VC/RV
CO diffusion	TLco, Kco, TLC, RV, FRC, VA , t diff, Hb, VIN (ch4)

About us

medical equipment europe GmbH is specialized in development, manufacturing and distribution
of measuring systems for cardiopulmonary function diagnostics.

Very precise and easy to use measuring technology
combined with patient acceptance are main targets of
our development.

We design and produce all our devices within one
production place on a surface of more than 3.500 m^2 .
We dispose a high vertical range of manufacturing.

We concern to produce our products with a minimum
of environmental pollution. Transport of semifinished
products we keep at a minimum.

medical $^®$
equipment
europe

our distribution partner