



elisa 500 Specifications SW 2.10.x

Patient categories	
	Adults, children with a tidal volume of: 50–2600 ml (volume-controlled modes) 20–2600 ml or 2600–5000 ml * (pressure-controlled modes)
Intended use	
	Invasive and non-invasive ventilation, nasal applications (NC)
Special features	
Device configuration	Fully configurable, agile user interface Configurable, user-specific default settings Up to 6 live curves Configuration transfer between machines with USB stick
Device functions	Non-invasive ventilation (NIV) Invasive ventilation (IV) Nasal applications (NC) Tube compensation Documented monitoring of the replacement intervals of accessories which are in direct contact with the patient (hygiene function) Adjustment of the alarm volume to the ambient noise level Display brightness: day/night mode, configurable night screen Configurable default ventilation mode with analysis function Indication of the tidal volume according to patient height in real-time in ml/kg IBW Permanent indication of lung compliance and resistance Tabular trend (incl. storage function) Graphical trend Up to 6 loops (+ storage of up to 5 reference loops) Screenshot function Help function Expiratory pressure ramps Assistance feature for switching between volume- and pressure-controlled ventilation modes

* without automatic patient detection APD

Additional functions	O ₂ flush		
	Automatic Suction Routine (ASR)		
	Cuffscout		
	Oesophageal and transpulmonary pressure measurement (Peso and TPP)		
	IAP (Intra-abdominal pressure)		
	Pneumatic nebulizer		
	Hygiene function		
	Reference loops		
	Capnometry (with mainstream and sidestream sensors)		
	Multi-gas measurement		
	Pulse oximetry		
	LeoClac (automatic closed-loop control of the inspiratory O ₂ concentration)		
	Sedaconda function		
	Nurse call		
Manoeuvres	PEEPfinder with display of inflection points and stress index C20/C		
	Recruitment manoeuvre		
	Sigh (inspiratory and expiratory)		
	Inspiratory hold manoeuvre (with measurement of ΔP , PPlateau and C stat)		
	Expiratory hold manoeuvre (with measurement of PEEPi, Vtrap and MIP)		
	Manual breath		
	Bronchoscopy manoeuvre		
Weaning functions	Weaninganalyzer with SAT and SBT		
	Occlusion measurement P0.1		
	WOB (Work of Breathing)		
BF interface card with two LEMO connectors Configurable for:	mainstream CO ₂ sensor LEOCAP		
	sidestream CO ₂ sensor LEOSTREAM		
	CO ₂ sensor Masimo		
	Multi-gas sensor LEOLYZER		
	SpO ₂ sensor		
	Nurse call		
	PDMS/monitoring (Salvia protocol)		
	PDMS/monitoring(Philips protocol)		
	NO-A (EKU)		
PDMS interface card with two LEMO connectors Configurable for:	PDMS/monitoring (Salvia protocol)		
	PDMS/monitoring(Philips protocol)		
Ventilator settings		Adults	Children
Ventilation modes	Volume-controlled ventilation modes		
	VCV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	VC-SIMV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Optional VCV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PLV	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

	Pressure-controlled ventilation modes		Adults	Children
	PCV		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	BiLevel		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	BiLevel ST		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Mandatory BiLevel		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PC-SIMV		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PC-APRV		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Optional BiLevel		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Spontaneous ventilation modes		Adults	Children
	CPAP		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PSV		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Dynamic PSV		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Proportional PSV		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PAPS (adults only)		<input checked="" type="checkbox"/>	
	Hybrid ventilation modes		Adults	Children
	VA BiLevel		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Dynamic BiLevel		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Dual BiLevel		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Dynamic BiLevel ST		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Dual BiLevel ST		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Flexible BiLevel		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Flexible VCV		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	CPR (resuscitation mode)		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Closed loop modes		Adults	Children
	ALPV		<input checked="" type="checkbox"/>	
	WOBOV		<input checked="" type="checkbox"/>	
Nasal applications (NC)	HFOT		<input checked="" type="checkbox"/> up to 70 L/min	<input checked="" type="checkbox"/> up to 8 L/min
	nCPAP			<input checked="" type="checkbox"/>
	nBiLevel			<input checked="" type="checkbox"/>
Ventilation rate (Rate)	Adults	0–100 breaths/min		
	Children	0–120 breaths/min		
Inspiratory time (T insp)	Adults, children	0.2–20 s		
Tidal volume (VT)	Adults, children with a tidal volume of: 50–2600 ml (volume-controlled modes) 20–2600 ml or 2600–5000 ml * (pressure-controlled modes)			
I:E ratio	150:1 up to 1:299			
Inspiratory flow (Flow insp)	0–180 L/min**			
PS Endflow	5–70%			
Inspiratory pressure (P_{insp})	0–(100 – PEEP) mbar			
PEEP	OFF, 0.5–50 mbar			
Switchflow for automatic release under PC-APRV	OFF, 1–80%			
PAPS additional adjustment ranges	Resistance compensation: 5–95% Compliance compensation: 5–95%			
pressure support (PS)	0–(100 – PEEP) mbar			

* without automatic patient detection APD

** compressible volume of device and tubing taken into account

Insp. Ramp Insp. pressure ramp, mandatory	0.05–3 s (or 0.8 * T insp.)			
PS Ramp Insp. pressure ramp, spontaneous	0.05–2 s			
Exp Ramp mand Exp. pressure ramp, mandatory	OFF, -100 mbar/s, -80 mbar/s, -50 mbar/s, -20 mbar/s,			
Exp Ramp spont Exp. pressure ramp, spontaneous	OFF, -100 mbar/s, -80 mbar/s, -50 mbar/s, -20 mbar/s,			
O₂ concentration	21–100%			
Flow trigger	OFF, 0.1–20 L/min			
Pressure trigger	OFF, -0.1 to -10 mbar			
Tube compensation	Tube, tracheostomy tube, inspiration, expiration, Degree of compensation 25–100% Tube diameter 4.0–12.0 mm			
Byflow	10–30 L/min			
Available measurements				
Airway pressure	Peak	-50 to 150 mbar		
	P Plateau	-50 to 150 mbar		
	PEEP	-50 to 150 mbar		
	Pmean	-50 to 150 mbar		
	P min	-50 to 150 mbar		
Oesophageal and transpulmonary pressure monitoring	TPP i (es)	P exp. (es)	PEEPi (es)	ΔP (es)
	TPP e (es)	Pmin (es)	Δ TPP (es)	POB spont. (es)
	P insp. (es)	Peak (es)	WOB (es)	ΔPeso/ΔPAW
Rate measurement	Respiratory rate (RR)			
	Spontaneous respiratory rate (RR spont.)			
	Mandatory respiratory rate (RR mand.)			
	Synchronised respiratory rate (RR sync.)			
O₂ measurement	18–100%			
CO₂ measurement (option)	Mainstream, sidestream			
Multi-gas measurement (option)	CO ₂ (sidestream) Isoflurane Sevoflurane			
Unit of measurement (configurable)	vol.%	(0.0–25.0)		
	kPa	(0.0–25.5)		
	mmHg	(0–185)		
Volumetric capnography Measurements (option)	VTalv	Alveolar tidal volume		
	VTds	Anatomic dead space volume		
	V'CO ₂	Measured volume of the eliminated CO ₂ /ml		
SpO₂ measurement	HR (pulse)	18–321 beats/min		
	SpO ₂	0–99%		

Volume measurement	VT/IBW	all	0–49.9 ml/kg	
	MVe	all	0–50 L	
	MVe spont.	all	0–50 L	
	VTi	Adults Children	50–5000 ml 20–5000 ml	
	VTe	all	0–4000 ml	
	VTe spont.	all	0–4000 ml	
	Vtrap	all	0–1000 ml	
	Leakage	all	0–75%	
Compliance (C dyn.)	0–500 ml/mbar			
Resistance (R exp.)	0–500 mbar/(l/s)			
Static compliance (C stat.)	0–500 ml/mbar			
C20/C stat.	0–9.9			
Rapid Shallow Breathing Index	0–999			
Surrogate measurements in PAPS mode	WOB vent.	(J/L)		
	WOB spont.	(J/L)		
	Resistance	(mbar/l/s)		
	Compliance	(ml/mbar)		
Curve presentation	Pressure Flow Volume etCO ₂ Transpulmonary pressure curve TPP Trigger Tube compensation Plimit (baseline) Ptrach Pcuff Peso			
Configurable measurements				
Basic values	MVe	PEEP	C stat.	VTe spont.
	Pmean	R exp.	ΔP (es)	I:E
	Leakage	ΔP	MVe mand.	Flow insp.
	VT/IBW	RR	P Plateau	Flow exp.
	VTe	VTi	RR spont.	C dyn.
	MIP	Peak	P min	Cuff pressure
	T Plateau	MVe spont.	MVe spont. %	Flow insp.
	MV Leakage	RC exp.	RSBI	P0.1
	HR (pulse)	Flow exp.	RR mand.	SpO ₂
	RR sync.			
Advanced measurements	PEEPi	Vtrap	POB	WOB (es)
	P exp. (es)	P insp. (es)	POB spont. (es)	WOB spont.
	TPP e (es)	TPP i (es)	POB spont.	WOB vent.
	PEEPi (es)	ΔTPP (es)	IAP	Pmin (es)
	Peak (es)	ΔPeso/ΔPAW		
Volumetric capnometry	VTds (%)	VTds (ml)	VTalv (%)	VTalv (ml)

Gases	O ₂	inISO	inSEV	exSEV
	etCO ₂	exISO	inCO ₂	V'CO ₂
Weaning functions				
Fastwean Recommended measurements	RSBI			
	P0.1			
	VTe spont.			
	RR spont.			
Fastprotect Recommended measurements	ΔP			
	VT/IBW			
	P Plateau			
	TPP i (es)			
	TPP e (es)			
WOB (Work of Breathing) Measurements	WOB spont.			
	WOB vent.			
	POB spont.			
	POB			
Loops (5 reference loops can be saved)				
Paw - V				
V - Flow				
Flow - Paw				
PAW - Peso				
CO ₂ - V				
Flow - Ptrach				
Languages				
English		Norwegian	Polish	Portuguese
German		Slovenian	Spanish	Danish
French		Italian	Russian	Czech
Dutch		Turkish	Finnish	Chinese
Swedish		Hungarian	Serbian	Greek
Japanese (in separate software)				
Adjustable alarms				
Ventilation	Minute volume MV		min/max	
	Tidal volume VT		min/max	
	Respiratory rate RR		min/max	
	PEEP		min/max	
	Plimit (relative or absolute)		max	
	P min		min	
	Leakage		5-95%	
Gas	FiO ₂ concentration		min/max	
	O ₂ ctrl.		min/max	
	etCO ₂ concentration		min/max	
	inCO ₂ concentration		max	
	inISO concentration		min/max	
	exISO concentration		min/max	
	inSEV concentration		min/max	
	exSEV concentration		min/max	

Additional alarms	RR spont.	min/max
	Pmean	min/max
	P Plateau	max
	HR (pulse)	min/max
	SpO ₂	min/max
	SpO ₂ ctrl.	min/max
Alarms with adjustable delay	T VTmax	0-15 s
	T VTmin	0-15 s
	T Pmin	0-30 s
	T Backup ventilation	5-120 s
	T Leakage high	0-15 s
	T Apnoea alarm	5-60 s
	T Disconnection	0-30 s

Advanced safety functions

Automatic patient detection (APD)
Confirmation prompt before ending ventilation
Backup modes
O₂ flush

Trend displays

Tabular trend	Configurable trend display Storage capacity: up to 90 days (depending on respiration, equivalent to over 1,500,000 entries) Export function to USB stick			
Graphical trend Storage capacity: Up to 30 days Graphical display of the measurements (configurable):	MVe	VT _e spont.	PEEP _i	MVe spont.
	Pmean	I:E	P exp. (es)	RC exp.
	Leakage	Flow insp.	TPP e (es)	Flow exp.
	VT/IBW	Flow exp.	PEEP _i (es)	P min
	VT _e	C dyn.	V _{trap}	MVe spont. %
	P insp. (es)	C stat.	VT _{alv} (ml)	RSBI
	ΔP _{eso} /ΔPAW	O ₂	inISO	RR mand.
	MVe mand.	etCO ₂	TPP i (es)	Cuff pressure
	P Plateau	inCO ₂	ΔTPP (es)	Flow insp.
	RR spont.	VT _{alv} (%)	POB	P0.1
	PEEP	MIP	POB spont. (es)	inSEV
	R exp.	T Plateau	POB spont.	exSEV
	ΔP	MV Leakage	IAP	V'CO ₂
	RR	VT _d s (%)	HR (pulse)	exISO
	VT _i	VT _d s (ml)	Peak	WOB (es)
	Pmin (es)	ΔP (es)	WOB spont.	RR sync.
Peak (es)	SpO ₂	WOB vent.		

Electrical supply

Mains power	100-240 VAC, 50 / 60 Hz
Power consumption	160 VA
Internal power supply	Rechargeable lithium ion battery (1 or 2) Automatic switch-over when mains supply fails Replacement possible during operation Operating time of up to 2 h with each fully charged battery Charging time < 4 h for each depleted battery

Gas supply		
Oxygen supply (O ₂)	Pressure range: 200 to 600 kPa (29 to 87 PSI)	
Air supply (AIR)	From turbine, noise level 46 dB(A)	
Maximum inspiratory flow	Up to 300 L/min	
Inspiratory O ₂ measurement	Maintenance-free paramagnetic O ₂ sensor	
Dimensions and weight		
elisa 500	Width x depth x height:	360 x 245 x 455 mm
	Weight, net:	10 kg
Cart	Width x depth x height: with turned in wheels:	720 x 840 x 920 mm 580 x 700 x 920 mm
	Weight, net:	17 kg
Total	Width x depth x height:	720 x 840 x 1480 mm
	Weight, net:	27 kg
Control unit		
Screen type	4:3 LCD display, tilt angle of 35°	
Screen diagonal	15"	
Input system	Touch screen (capacitive multi-touch)	
Hardware connections		
elisa 500	2 x USB interface 1 x RJ45 1 x DVI (interface for service purposes) 2 x BF interface card with two LEMO connectors 1 x PDMS interface card with two LEMO connectors Up to 5 additional interfaces via data interface elisaATmegs	
Software version		
SW	2.10.x	




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