



Via Faentina 207/Q - ZIP CODE: 48124 Ravenna - ITALY TEL. +39-0544-464048 FAX +39-0544-501617
E-mail: commerciale@vasinistrumenti.it Website: www.vasinistrumenti.it
For over 30 years, Vasini Strumenti S.r.l. has been designing, manufacturing and selling devices for blood transfusion centres.

BLOOD BAG WEIGHING SCALE MOD. EO51P-TC-RF-ID



This technical data sheet covers a family of four devices, grouped in a single document, which vary according to the available configurations. Starting from the Base model and adding components, the scale reaches its most comprehensive configuration (see the table below).

SUMMARY OF AVAILABLE MODELS AND CONFIGURATIONS

MODEL	CABLE TRANSMISSION DATA	WIRELESS TRANSMISSION DATA	RFID TAG READER/WRITER
EO51P-B (BASE MODEL)	NO	NO	NO
EO51P-TC	YES	NO	NO
EO51P-TC-RF	YES	YES	NO
EO51P-TC-RF-ID	YES	YES	YES

MAIN FEATURES

1. Large blue LCD display (dim: 130mm x 40mm) with white backlight, easy to read from any angle, with adjustable brightness and contrast.
2. Easy-to-clean ALPHANUMERIC membrane keypad, also suitable for manual data entry in case of barcode reader failure.
3. Mixing system, featuring a large oscillating tray (suitable for bags with filters), removable for easy cleaning, with a 5-second mixing cycle. Wide-range rocking system (40°) ensuring optimal mixing of blood with anticoagulant.
4. Automatic and manual tube clamping system, suitable for any type of tubing, with a tube presence/absence sensor for enhanced safety during the collection process.
5. Load cell volume transducer. Weighing accuracy +/- 1 ml.
6. Automatic conversion from grams to milliliters (1ml of blood = 1.06g).
7. Automatic tare for the blood bag weight.
8. Electronic setting of the collection volume (from 1 to 999 ml), with the possibility of adjustment during the donation process.
9. Quick recall feature for 10 preset volume SETS.
10. Real-time display of:
SET VOLUME, COLLECTED WEIGHT/VOLUME, INSTANTANEOUS FLOW RATE AND GRAPHICAL TREND, ACTUAL DURATION, ESTIMATED DURATION, REMAINING TIME, DATE, TIME, ACTIVE ALARMS, DEVICE STATUS, BATTERY CHARGE STATUS, TECHNICAL PARAMETERS.
11. Settable acoustic and visual 'COLLECTION DURATION' pre-alarm, to monitor the duration of the collection process.
12. Continuous monitoring of the collection flow with visual and acoustic alarms for no flow, low flow, or high flow. Electronic setting of minimum and maximum flow values
13. Automatic flow cutoff upon reaching the preset volume or exceeding the maximum time, with simultaneous acoustic and visual alarms. END CYCLE button for emergency stop with simultaneous acoustic and visual alarms.
14. RS232 serial port for barcode reader connection (excluded for the base model EO51P-B).
15. RS422 serial port for network connection (excluded for the base model EO51P-B).
16. Operation via external mains power or internal high-capacity rechargeable battery. The battery ensures correct operation and data storage even in the absence of external power. Continuous display of the battery charge status indicator. Recharging time to ensure operation: 2 hours.
17. Automatic management of the periodic load cell calibration expiry, with acoustic and visual alarms.
18. Calibration with issuance of a test report with traceability to national/international standards (LAT).
19. Storage capacity of up to 26,000 collection cycles (with optional additional memory)
20. BI-DIRECTIONAL connection to P.C. via RADIO FREQUENCY "WIRELESS" transmitter and CABLE via RS422 mode (excluded for the base model EO51P-B).
21. User access protection with 4 different password levels for enhanced data security: OPERATOR MENU, ADMINISTRATOR MENU, MAINTENANCE MENU, CALIBRATION MENU.
22. Administrator capability to modify passwords.
23. Option to set / customize the barcode scanning sequence required during the collection phase (excluded for the base model EO51P-B).
24. Ability to define the desired collection procedure and insert custom checks (excluded for the base model EO51P-B).
25. Ability to activate international procedures according to ISBT guidelines (excluded for the base model EO51P-B).
26. Equipped with RFID TAG reader/writer, 13.56 MHz HF passive Tag. ISO 15693 anti-collision, compliant with ISBT specifications (excluded for models EO51P-B, EO51P-TC, EO51P-TC).
27. Interoperability with all types of management information systems used in blood transfusion centers, via data exchange through text files (CSV), shared database, ORACLE interface tables, or WEB SERVICES (excluded for the base model EO51P-B).
28. Managed alarms:
 - No Flow alarm
 - Low Flow alarm
 - High Flow alarm
 - Maximum time exceeded alarm

- Duration 12 min. alarm
- Duration 15 min. alarm
- Calibrate Scale alarm
- Low Battery alarm
- Donation interrupted alarm
- Auto-zero failed alarm
- Memory Full alarm
- Set volume exceeded alarm
- Scale clock failure alarm
- Battery overheated alarm

29. Ability to acquire the following via 1D and 2D barcode reader:

- Start and end operator code
- Donor code
- Donation code (DIN)
- Bag lot number
- Bag ref.
- Expiry date
- Bag codes (1...5)
- Test tube codes (1...10)
- Arm code
- Donation result
- Optional codes (e.g., RFID TAG UID codes)

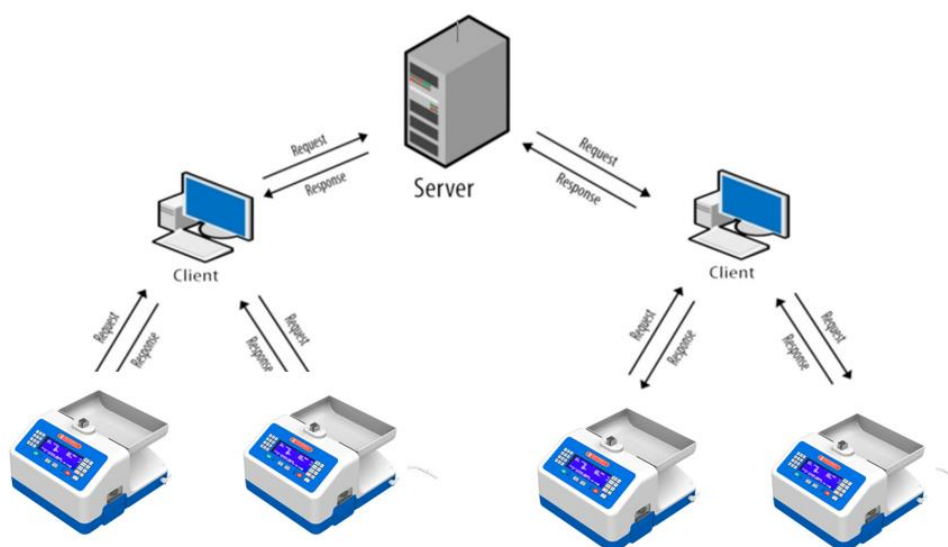
FUNCTIONAL DESCRIPTION (excluded for the base model EO51P-B)

The EO51P–TC–RF–ID model is undoubtedly among the most advanced blood collection scales available on the market. Thanks to its technology featuring latest-generation reprogrammable microprocessors, it can receive firmware updates that modify its operation to meet the diverse needs of different customers and remain continuously compliant with current regulations.

Data acquisition occurs via a barcode reader or keypad. Through wireless or wired communication, the scale can communicate in both mono- and bi-directional modes with the hospital's management software. This device has been designed to simplify operator tasks as much as possible.

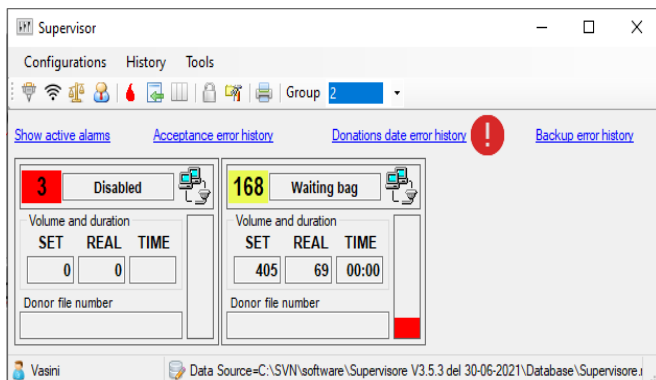
To ensure full traceability of donation data, as required by current regulations, the scales' computerized system utilizes a Supervisor software installed on a dedicated PC (Client PC) connected to the corporate network. This acts as a hub for data exchange between the scales and the hospital's management system.

BIDIRECTIONAL CONNECTION SCHEMA



It allows real-time monitoring (of up to 25 scales simultaneously) of:

- Connection status;
- Scale operating status;
- Preset collection volumes (ml);
- Actual volumes collected (value in ml and graphical fill bar);
- Collection duration;
- Donor Code;
- Active alarm statuses such as: low flow, high flow, low battery, etc



INSTANTANEOUS DATA DISPLAYED IN REAL-TIME ON SUPERVISOR

Connection status
Scale status
Set volume to be drawn
Actual volume withdrawn
Withdrawal duration
Donor code
Active alarms
Filling progress bar

The device ensures complete donation traceability through BI-DIRECTIONAL interfacing with blood transfusion center management systems, performing real-time cross-checking of: donor code, DIN (Donation Identification Number), and the codes of all collection bags and test tubes. On the scales, the collection cycle in BI-DIRECTIONAL mode is almost entirely automated, as they receive an INPUT DATA PACKET from the management software and return an OUTPUT DATA PACKET containing the following codes:

INPUT DATA PACKET SENT TO SCALE	OUTPUT DATA PACKET SENT FROM SCALE TO SUPERVISOR
DONATION CODE (CDM)	SCALE ID
DONATION PROGRAM CODE	SCALE NAME
VOLUME SET	PROTOCOL VERSION
DONOR CODE	START COLLECTION DATE AND TIME
DONOR SURNAME	STOP COLLECTION DATE AND TIME
DONOR NAME	COLLECTION DURATION
DONOR BIRTH	VOLUME SET (ml)
CODE BAG N.1	VOLUME COLLECTED (ml)
CODE BAG N.2	MEAN FLOW (ml/min)
CODE BAG N.3	TARE (ml)
CODE BAG N.4	INITIAL OPERATOR CODE
CODE BAG N.5	BAG LOT
CODE TUBE N.1	DONOR CODE
TUBE N.1 DESCRIPTION	DONATION CODE (CDM)
CODE TUBE N.2	BAG KIT TYPE (TRIPLE, QUADRUPLE,Etc...)
TUBE N.2 DESCRIPTION	CODE BAG N.1
CODE TUBE N.3	CODE BAG N.2
TUBE N.3 DESCRIPTION	CODE BAG N.3
CODE TUBE N.4	CODE BAG N.4
TUBE N.4 DESCRIPTION	CODE BAG N.5
CODE TUBE N.5	TUBES QUANTITY
TUBE N.5 DESCRIPTION	CODE TUBE N.1
CODE TUBE N.6	CODE TUBE N.2
TUBE N.6 DESCRIPTION	CODE TUBE N.3
CODE TUBE N.7	CODE TUBE N.4
TUBE N.7 DESCRIPTION	CODE TUBE N.5
CODE TUBE N.8	CODE TUBE N.6
TUBE N.8 DESCRIPTION	CODE TUBE N.7
CODE TUBE N.9	CODE TUBE N.8

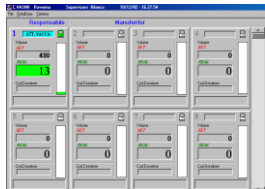
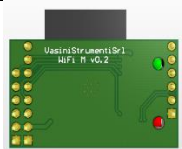
TUBE N.9 DESCRIPTION	CODE TUBE N.9
CODE TUBE N.10	CODE TUBE N.10
TUBE N.10 DESCRIPTION	BAG EXPIRATION DATE
ID. OF COLLECTION POINT	ARM CODE (RIGHT - LEFT)
INSERT DATE	RESULT CODE (EX: OK, OUT OF VEIN, ETC..)
	FINAL OPERATOR CODE
	BAGS REFERENCE
	ALLARMS (EX: NO FLUX, HI FLUX, LOW FLUX, DONATION INTERRUPTED, MAXIMUM TIME REACHED, 12 MINUTES REACHED, 15 MINUTES REACHED, TARATOR NEEDED, LOW BATTERY, AUTO-ZERO PROBLEM, MEMORY FULL, INTERNAL CLOCK PROBLEM, SET VOLUME EXCEEDED)
	RFID UID TAG 1
	RFID UID TAG 2
	RFID UID TAG 3
	RFID UID TAG 4
	RFID UID TAG 5
	SUPERVISOR USER CODE

By receiving the Input data package, the device can perform a real-time comparison between the data entered by the operator via barcode reader and the received data, blocking the operator if any code inconsistency is detected. It also ensures safe operation even if the Input data package is not received. Thanks to the ability to set up to 4 custom control rules for each acquired code, data accuracy and completeness are guaranteed even in case of UNIDIRECTIONAL communication. Furthermore, if the system is OFF-LINE, it allows data to be downloaded from the mixer via a USB key and manually transferred to the LIS (Laboratory Information System)

TECNICAL DATA

PRODUCT CODE	EO51P-B, EO51P-TC, EO51P-TC-RF, EO51P-TC-RF-ID
POWER SUPPLY	Provided stabilized power adapter Input: 100-240 Vac, 47-63Hz - 0,9-0,3A Output: 24Vdc 1,25 A Max
BATTERY	Rechargeable with high autonomy and no memory effect NiMh type. STANDARD: 2200mAh capacity (12h continuous operation) OPTIONAL: 4400mAh capacity (24h continuous operation)
AVERAGE BATTERY LIFE	3 years
OPTIMAL CHARGING TIME	5 h
DISPLAY	Blue-white LCD screen (size:130mm x 40mm)
SWINGING PLATE SPEED	14 RPM
FLAT TILTING AMPLITUDE	From +20° to -20° (total swing of 40°)
TUBE CLAMP	Automatic 2 positions (open, closed) with integrated tube presence sensor
WEIGHT TRANSDUCER	Load cell with maximum load capacity of 6 Kg
ACCURACY	± 1 ml
VOLUME SETS	from 200ml to 999 ml
BAGS TARE	Automatic
PERIODIC CALIBRATION	YES. Programmable and executed by qualified personnel.
RADIO TRANSMISSION	With 2.4GHz radio transceiver module 'WiFi_MODULE_V0.2' for wireless connections (except for models EO51P-B, EO51P-TC)
RFID TAGS MANAGEMENT	With RFID TAG reader/writer, HF passive tag at 13.56 MHz. ISO 15693 anti-collision, ISBT compliant. (except for models EO51P-B, EO51P-TC, EO51P-TC-RF)
MANAGED ALLARMS	No flow, Low flow, High flow, Maximum duration exceeded, Duration 12 min, Duration 15 min, Scale calibration required, Low battery, Donation interrupted, Autozero failed, Memory Full, Set volume exceeded, Scale clock error, Battery overheated.
ALARM SUSPENSION	From keyboard
LANGUAGES	English, Italian, Spanish, German, French
DIMENSIONS	mm 300x315x210 h
COSTRUCTION MATERIALS	ABS, Stainless steel, Alluminium

NET WEIGHT	Kg 3,8
AVERAGE NOISE	42 dB
WORKING TEMPERATURE	From + 10°C to + 40 °C
DEVICE CLASS	CLASS Im
ELECTRICAL SAFETY CLASS	Class 1
PROTECTION CLASS APPLIED PARTS	CLAMP: Type B
CND CODE	Z121799
RDM CODE	732968/R

OPTIONAL ACCESSORIES		
CODE	DESCRIPTION	IMAGE
TOUCHTD1100	1D BARCODE READER	
SCANNER 1470G	1D and 2D BARCODE READER	
USB/RF-01	2.4GHz radio modem for wireless connection	
COM0000170	Supervisor Software for connecting scales to PC via cable and/or radio	
RS422-USBKEY	Data download device for scale mod. RS422-USBKEY	
ELT0000266	2.4GHz RADIO TRANSCEIVER "WiFi_MODULE_V0.2" FOR WIRELESS CONNECTIONS	
ELT0000228	Additional memory expansion module (capacity: 26,000 donations)	

KITRFID-01	ISO15693 RFID TAG READER/WRITER	
ELT00000226	12V 4400 mAh NiMh rechargeable battery with 100 kΩ NTC	
EO1HDPE	High-density polyethylene (HDPE) mixer carrying case, ideal for frequent transport. It can be used as a stand for the mixer during the work cycle	
PESPLT 1KG	M1 Class 1 kg Calibration Weight Set with plastic case, complete with LAT traceable calibration certificate (according to OIML R111 standard). Suitable for scale calibration and quality control	
CAR02-1	Mixer trolley, equipped with: 1 variable-height shelf, 1 fixed shelf, and 4 swivel wheels with brakes	
CARAVE04-2	Electric height-adjustable mixer trolley. Mixer trolley equipped with: 1 electrically height-adjustable shelf (system designed to protect operator posture), 1 fixed shelf, and 4 swivel wheels with brakes	

KITPALOLAM	360° visible RGB LED status indicator (Applicable to various trolley models)	
TSTRM-02	Remote control keypad with LED light, designed to protect operator posture	

COMPLIANT WITH CEE DIRECTIVES IN FORCE
The Company reserves the right to make changes and improvements at any time and without prior notice.
Designed and made in Italy.

