

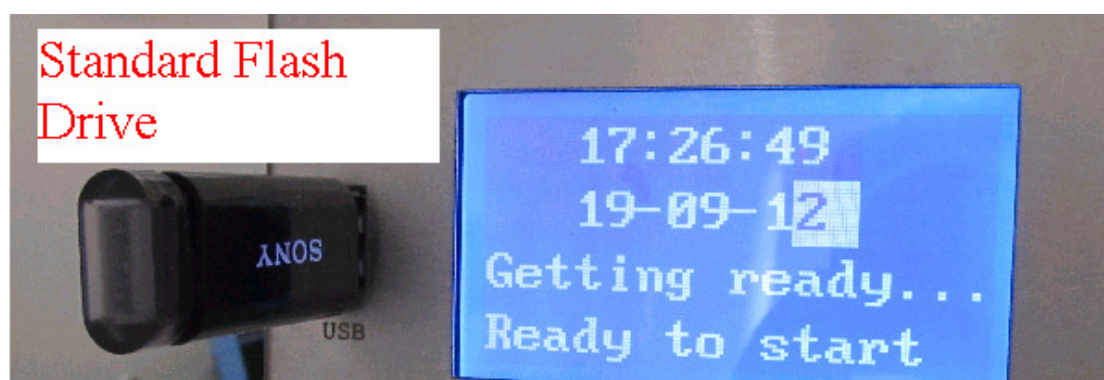
Option Standard USB Flash Drive (Pen Drive).

This option allows connecting standard USB Flash Drive (Pen Drive) towards the Lactoscan (LS). Its usage allows automatically (without operator's interfere) creating total archive of all measurements, made with the analyzer. Actions necessary for switching on/off the USB Flash Drive are analogous to the same when working with PC. After USB Flash Drive is inserted in the coupling at the front panel of the analyzer, Lactoscan starts writing there the results from each measurement.

USB Connector for USB Flash Drive (Pen Drive), mounted on LS front panel:



USB Flash Drive (Pen Drive), connected on LS:



Warning:
In the USB connector shown on the pictures above may be connected ONLY flash and no other USB device.

If you do not need to make an archive, then simply remove the flash drive from the analyser. As when working in PC, when the flash reads/writes its LED blinks. In this case wait for the LED stop blinking and then remove the flash drive from the analyser.

Data, collected from measurements, are saved in MS Excel file, in the form as shown below:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	51211	201217	16383	0	3906	1	20.14	0	0.1	0.55	0.03	0.1	99.99	0	0	0	-35.36
2	51211	201313	16383	0	3906	1	22.03	0	0.04	0.31	0.01	0	99.99	0	0	0	-35.36
3	51211	201507	16383	0	3906	3	23.31	0	0.07	0.42	0.03	0	99.99	0	0	0	-35.36
4	51211	202137	555	5555	3906	1	24.22	0	0.04	0.25	0.01	0	99.99	0	0	0	-35.36
5	51211	202240	55	69	3906	1	25.54	0	0.09	0.38	0.03	0.1	99.99	0	0	0	-35.36
6	51211	202625	1	2.5	3906	2	25.94	0	0.12	0.55	0.06	0.1	99.99	0	0	0	-35.36
7	51211	202819	5	7.8	3906	1	26.75	0	0.1	0.42	0.03	0.1	99.99	0	0	0	-35.36
8	51211	202927	12	7.8	3906	1	27.66	0	0.06	0.28	0.02	0	99.99	0	0	0	-35.36
9	51211	205645	1	3.4	3907	1	26.18	0	0.14	0.66	0.05	0.1	99.99	0.01	0	0	-35.36
10	51211	205749	11	3.4	3907	1	27.37	0	0.09	0.47	0.03	0.1	99.99	0	0	0	-35.36
11	51211	205854	8	77.8	3907	2	28.26	0	0.11	0.56	0.05	0.1	99.99	0	0	0	-35.36
12	51211	210051	16383	0	3907	3	28.57	0	0.12	0.57	0.05	0.1	99.99	0	0	0	-35.36
13	51211	210141	16383	0	3907	1	29.59	0	0.04	0.27	0.01	0	99.99	0	0	0	-35.36
14	51211	210959	16383	0	3907	2	29.98	0	0.08	0.43	0.04	0	99.99	0	0	0	-35.36

The name of the file is formed by the date, when the measurement is made (in case there's embedded clock option). For example – 111205.xls means, that the file was created in year 2011(last two digits from the year), month 12 – December, day 05. Tabs with results are in accordance with software resLS, i.e. the file, created on the flash drive is with the same structure and may be processed with the same, already existent client software, used for collecting data with PC (see the manual of the software resLS.exe). Meaning of results tabs are in the file LS-USB.XLS, as it is shown below:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Date	Time	Sup.N:	Litr	Ser.N	Cal	Temp	Fat	SNF	Den	Prot	Lac	Wat	Sol	FrP	pH	Cond

This file is generated always on the flash drive when the embedded LS Test USB Flash is started.

The difference is, that if there's flash drive connected to Lactoscan during measurements, there's no need the analyzer to be connected to PC all the time. In the presence of more than 1 analyzer, each of them may be equipped with flash drive and at the end of the shift (working day or after a definite period of time (chosen by the customer)) files from different analyzers to be processed on only one computer.

Note:

It is recommended this option to be used in combination with RTC and Keypad.



Availability of clock option ensures archive of the time when the measurement was taken. Clock adjustment can be made with the software tool LS-AdjustRTClock.exe (see its manual). In presence of Keypad, the deliverer's number can be entered (or some kind of number/identifier of the sample) – number from 1 to 9999 and liters/kg of the milk.

There's no requirement for type and producer of the Flash Drive, as well as its storage capacity. Other files, working under MS Windows may be also present on the flash drive.

Approximately, results from one measurement, take less than 100 bytes. For example, flash drive of 8 GB, can store more than 80 000 000 measurements, which makes it unlimited from point of view archive of measurement results.

Usage of the option (possibilities):

The idea of embedding standard USB Flash-Drive (Pen Drive) in the analyser is to move to a qualitatively new level in terms of storage and processing of the measurement results. The Flash-Drive is used as memory for storing the results. Having in mind the memory volume, necessary for storing the results from one measurement, Flash-Drives – available on the market are in fact unlimited memory, i.e if the analyser is working normally it could not be filled in totally. Flash-Drive Controller development keep all the standard convenient features for work with it – there's no limitation when to be connected to the analyser – it may happen any time. As it is when Flash-Drive is placed in PC, on the same way, the Flash-Drive may be removed from the analyser in case it is not working (its LED is not blinking).

It works with the file structure of MS Windows, the file names are unique, based on the current date. In this case on the same Flash-Drive can be stored whatever other files the customer needs to store on it. Files, generated by the analyser are type MS Excel, ready to be processed with a computer.

What kind of advantages using Flash-Drive gives?

- overcomes the restriction of using limited internal memory of the analyser for collecting data;
- There's no need of constant connection between LS and PC or LS – specialized external device for collecting data. The only thing needed is to place the Flash-Drive in the USB coupling when needed and remove it when it is not needed – that's the total training an operator needs.

Having in mind above described mobility of this option, there are different scenarios for using it, depending on the specific conditions.

Example for mobile version: Lactoscan milk analyser is used on a milk collecting truck, which is going from place to place to collect milk. Lactoscan is powered by the accumulator of the truck (through the car-lighter for example). The operator of the analyser enters (with the embedded in the upper cover of Lactoscan milk analyser keypad) the deliverer's number and liters delivered, takes sample and starts measurement of its parameters. After the measurement is finished, the measured results, together with the already entered by the operator data for the milk deliverer automatically, without operators interfere are stored on the Flash-Drive. On practice, this operation is "invisible" for the operator, does not take additional time and the operator has the possibility to start servicing the next deliverer. After arriving in the base (milk collecting center/dairy), the operator has just to disconnect the Flash-Drive and give it to the laboratory, which, in fact, is his daily report for the work he has done. Results are transferred to a PC as standard files and as per the strategy accepted – they can be saved or removed/deleted from the flash. And all this can happen within 1-2 minutes, which makes the total process of reporting and archiving the results automatic.

Even to make the process faster, it is possible to make weighting the milk automatic – in dependence of end-user choice, according the available technique, weight scales may be connected to the analyser – via analog or serial channel. In this case, after entering suppliers' number, the analyser passes automatically in mode weighting scales and starts accepting data coming from the connected to it weight scales. The way of saving the results on the Flash-Drive is exactly the same as described when data are entered via the keypad.