



EDC2: EXTENDED DATA COLLECTION

ZOOMFAB® productivity management system uses real-time machine and work centre monitoring together with powerful analytics to provide user with accurate and meaningful information about machine utilization, productivity, available capacity and profitability.

One of the true advantages of ZOOMFAB® is that it is **recording machine operation automatically**, with high accuracy and in great detail. However, there are interruptions to production process machine can't report. ZOOMFAB® offers optional Extended Data Collection terminal for operator to record in real-time:

- **machine setup time** (within estimated setup time; set as default for each machine)
- **exceeded machine setup time** (this is recorded automatically once default setup time is reached)
- **interrupted production time** (material shortage, missing or damaged tooling, program error, assisting other operator, waiting to quality control and approval, etc.)

For this purpose, each machine is equipped with:

- **EDC2, operator push-button terminal**, with yellow and red button. Unit also contains microprocessor with timer for default setup time and IIoT sensor/transmitter.
- **Signal light tower (optional)** with yellow and red light. This is usually placed on the top of electrical cabinet or in case of press brake, on the top of the machine.

ZOOMFAB® is an immensely valuable tool dedicated to job shops, which can't justify the cost, complexity and demands of Manufacturing Execution System (MES).

HOW IS EDC2 TERMINAL USED

1. COMMENCING SETUP

Before commencing a machine setup, operator presses YELLOW button on his terminal. This will illuminate both, yellow button and yellow tower light. At the same time DEFAULT SETUP TIMER will commence automatic countdown. ZOOMFAB screens will show in real-time yellow machine status, record the time and display the statistics.

2. EXCEEDING DEFAULT SETUP TIME

If operator exceeds the preset DEFAULT SETUP TIME, yellow light on the terminal and tower will start flashing. ZOOMFAB screens will change setup status from yellow to orange, indicating that setup time is now exceeded. ZOOMFAB records and analyzes exceeded setup time separately. Flashing yellow tower light and yellow tab on the monitoring screen informs operator and managers, that default setup time is now exceeded and it needs attention.

3. FINISHING SETUP

Operator presses yellow button again when setup is completed. Lights in button and signal tower will be turned off. If operator presses button twice by error or intentionally, counter will ignore delay up to one minute and continue countdown.

4. PROCESS INTERRUPTION

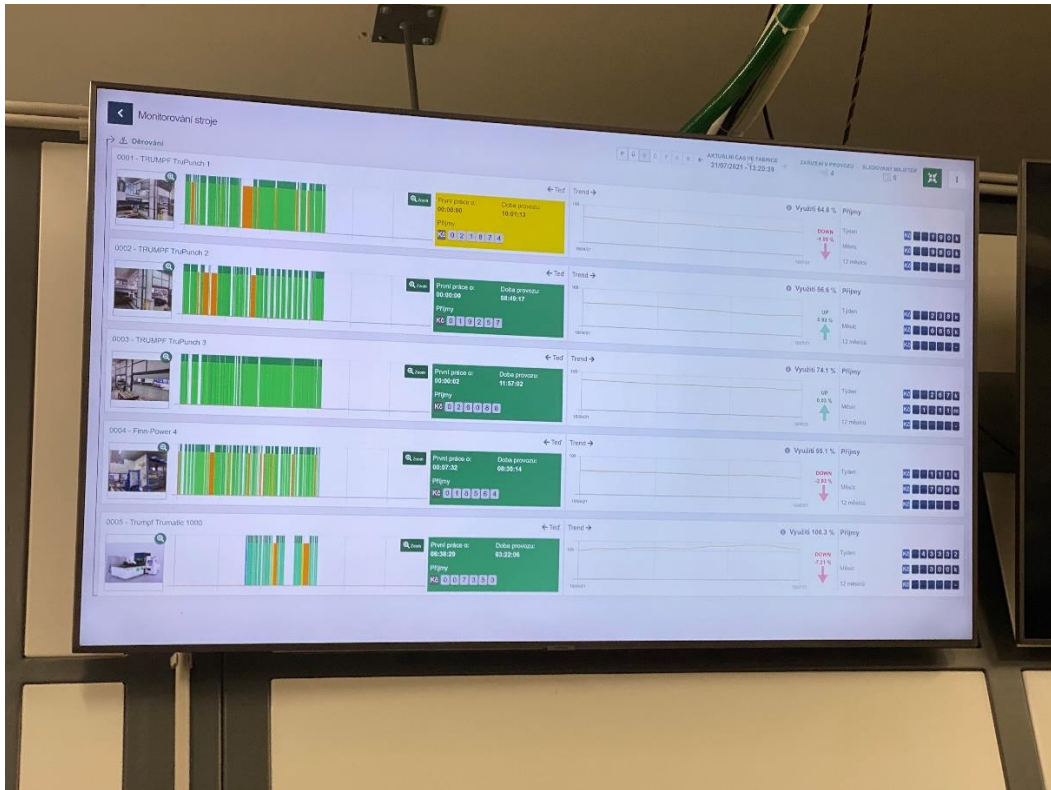
When operator can't operate the machine, for no his/her fault, he/she presses the RED button. This will illuminate both, red button and red tower lights, both flashing immediately. If red button is pressed during the setup, setup will be interrupted. ZOOMFAB screens will show in red, that machine production is interrupted.

5. CANCELLING PROCESS INTERRUPTION

When interruption is eliminated, after pressing red button again, red lights will go off. In case when process interruption was initiated during the setup, light will change from red to yellow and system will return to setup status depending when it was interrupted, either within default time with timer continuing count-down or in excess setup time. Based on this yellow light will be steady or flashing.

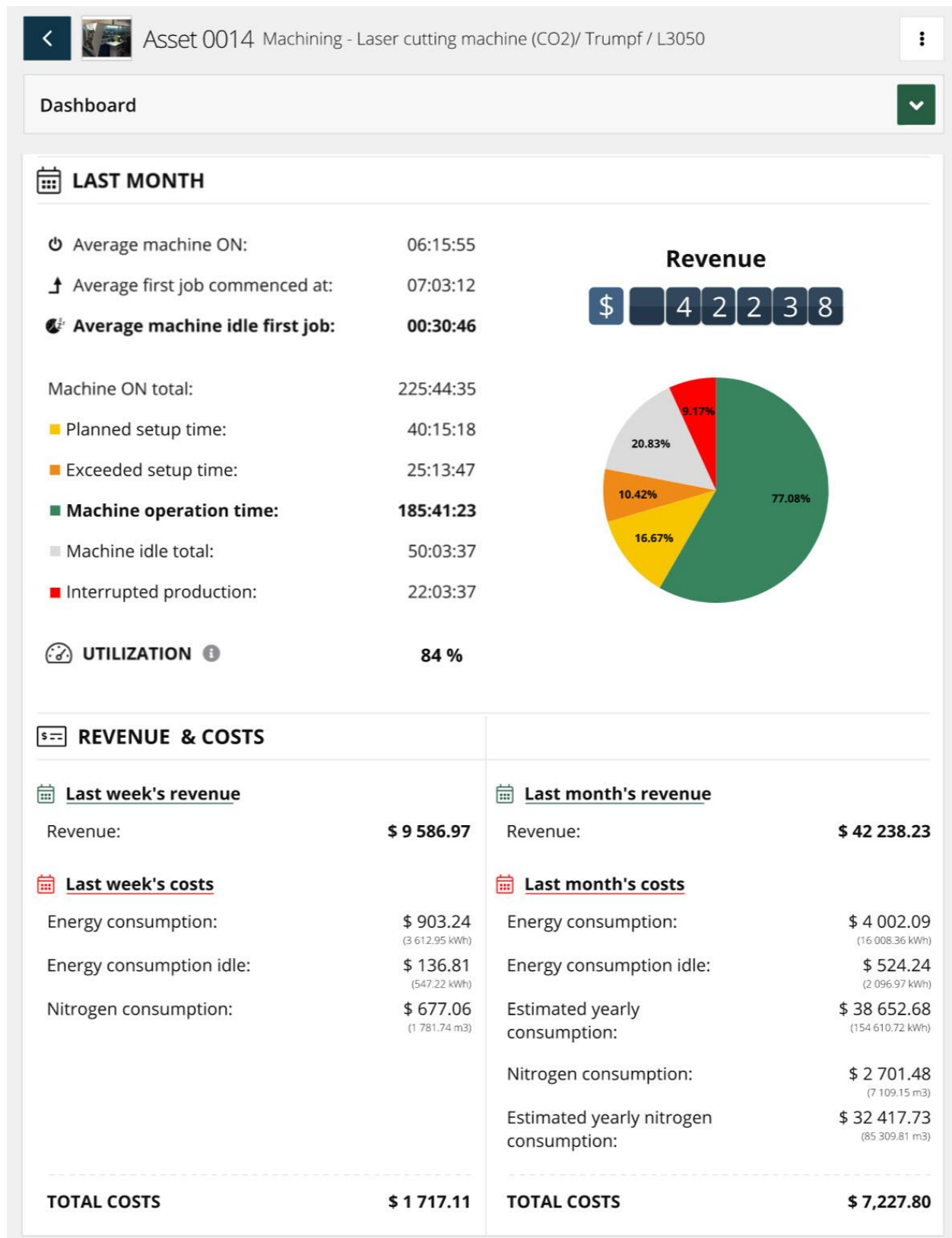
HOW IS COLLECTED DATA VISUALIZED

MACHINE OPERATION (PRODUCTION), SETUP TIME, EXCEEDED SETUP TIME and PROCESS INTERRUPTION TIME are **shown in real-time** in ZOOMFAB's monitoring pages on office computers, smart portable devices (phone or pad) and shop floor monitors.

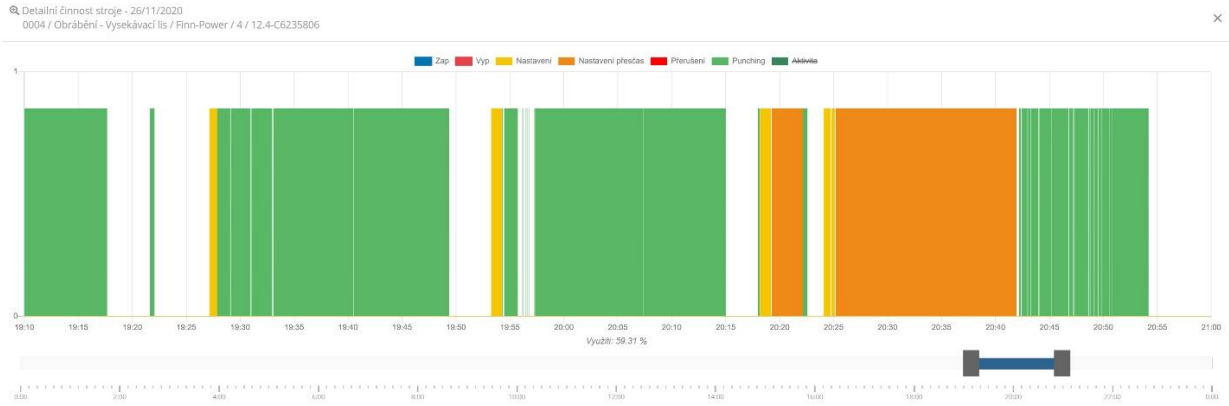


Here it is instantly visible if machine is operating (green), being setup (yellow), setup time has been exceeded (flashing orange) or production has been interrupted (flashing red).

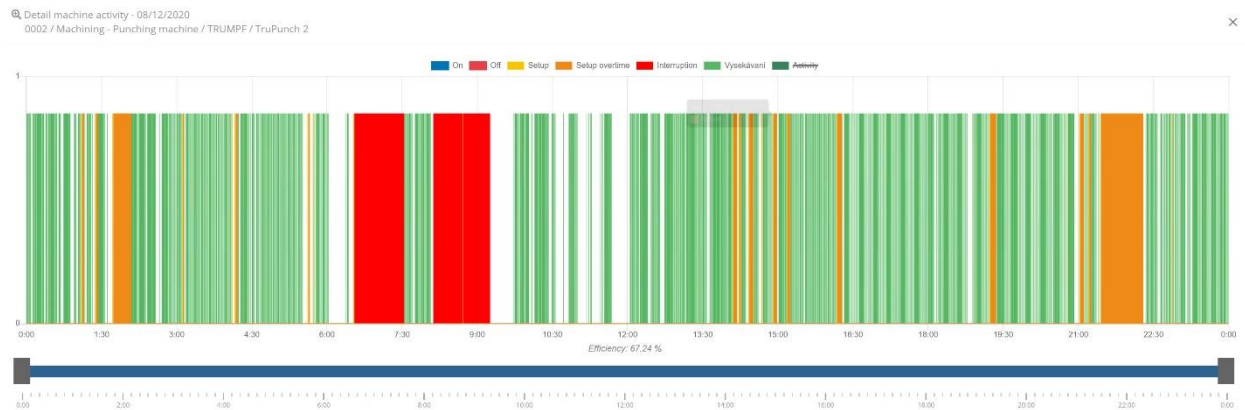
Collected data is also processed and appears in daily (up-to-the-minute), weekly and monthly statistics.



Example of detailed graph showing machine Setup (yellow), Exceeded setup (orange) and normal machine operation (light green):



Example of Process interruption (red):



ZOOMFAB allows operator or supervisor to record the cause of interruption with two clicks. First one is to identify the interruption on zoomed graph, the second one to identify cause (it is also possible to identify multiple causes in one go).



Record about each interruption is then automatically stored in Notes.

#	NOTE	RELAZIONE	AGGIUNTO	UTENTE	
1	Interruzione > inizio: 24/11/2021 11:04:15; Motivi: Qualità	Interruzione	24/11/2021	admin admin	
2	Interruzione > inizio: 18/05/2021 10:02:17; Motivi: Colpa	Interruzione	18/05/2021	admin admin	
3	Interruzione > inizio: 03/05/2021 15:54:02; Motivi: Colpa	Interruzione	03/05/2021	admin admin	

EDC2 INSTALLATION:



EDC2 requires independent electricity connection (220VAC or 24VDC) located close to the machine. This will allow unit to operate even when machine is switched OFF. There is no other connection required, as unit communicates wirelessly with standard ZOOMFAB gateway.

Unit is usually placed close to the operator's console using magnetic or Velcro fixture. Average installation time takes about 10 minutes and it does not require any interruption to the machine's operation.

EDC2 can be also used for other operations like welding, assembly, etc.

INSTRUCTIONS FOR THE OPERATOR:

COMMENCING SETUP (YELLOW BUTTON)

Press yellow button when you commence setting up machine. Make sure yellow light is ON.

NOTE: When default setup time is exceeded, yellow light will start flashing. Complete the setup or seek the help from your supervisor.

FINISHING SETUP (YELLOW BUTTON)

Press yellow button again when you finish setup or when you commence planned brake (lunch, helping at other machine, or similar reason). Make sure when you press button, light is OFF. When you return from break, recommence the setup by pressing yellow button again.

PROCESS INTERRUPTION (RED BUTTON)

When you can't operate the machine for no your fault (missing material, damaged tooling, waiting for supervisor, machine fault, etc.), press the RED button. You can do this also during the setup. Pressing red button will automatically cancel setup, there is no need to press yellow button first.

CANCELLING PROCESS INTERRUPTION (RED BUTTON)

When interruption is eliminated, press red button again. Make sure light is OFF. If process interruption was initiated during the setup, light will change from red to yellow and setup indication will continue. Once setup time is exceeded light will flash again.