

TMS MES for earthworks

Description

TMS MES has been implemented into all excavators and site dumpers performing ground works at the construction site.

Earthworks has been ordered to a subcontractor.

Due to the fact, devices mounted on the TMS equipment have been sublet for the time of contract realization. Main user of TMS MES was the main contractor.

Knowing that:

1. Opportunity to influence the project costs decreases with its development.
2. Project costs may increase if its deadline is endangered. It means that all costs must be strictly controlled from the very beginning and all decision on corrective actions must be made on this basis.
3. Information about any deviations from the established costs must be presented as soon as possible.

Main Contractor used TMS MES to:

1. Automatic measurement of the earthworks progress.
2. Automatic measurement of the deviations between plan and its performance.
3. Automatic control of output capacity of all ground work machines to identify points and reasons of potential disturbances immediately.
4. Developing the documentation useful for claims.

Main Contractor used TMS MES to control:

1. output capacity of excavators and site dumpers,
2. fuel consumption,
3. operators work time.

TMS delivered: reporting software, system personalization, integration of the system with the plant fuel station, e-mail alarms system about exceeding the key parameters, dedicated reports individually configured and automatically sent by e-mail to the team responsible for the current project management.

Benefits

1. Immediate knowledge about performance advancement.
2. Delays monitoring.

3. Identification the reasons of delays:
 - a. Associated with decrease of machines output capacity.
 - b. Disturbances within the process.
4. Gathering data needed for claims.
5. Gathering key data to evaluate claims:
 - a. Direct costs of machines utilization.
 - b. Reliable time of delay estimation and cost of additional machines engagement.
6. Better control of the subcontractors.
7. Automatic reporting.

Key characteristics of the TMS MES for ground works:

1. On-line monitoring of work progress in areas divided into zones.
2. Automatic settlement of m³ transported from each zone into its destination per subcontractors, vehicles, zones and type of material.
3. Comparing m³ of transported material with plan regarding all subcontractors, vehicles, zones and materials.
4. Comparing m³ of transported material with measured loading per subcontractors, vehicles and zones.
5. Monitoring the location, drives, driving time, standstill and idle running of all vehicles.
6. Monitoring the location of each digger, controlling the m³ volume of material loaded on the vehicle, crushers total work time, standstills, idle running and fuel consumption.
7. Transferring the SMS or e-mail alarms in case of any situation exceeding defined boundary values, such as:
 - Established routs for vehicles from loading zones to unloading zones
 - Discrepancies between the loaded volume and rated load capacity of site dumper,
 - Unjustified (longer) idle running of vehicles and diggers.
8. Managers' reports developed daily, weekly, monthly, such as:
 - Comparing m³ of transported material with plan – per subcontractors, vehicles and zones.
 - Evaluation of the diggers work time including the load, work hours, loaded running and idle running, and drives performed by the tippers.