CLOOS

Weld your way.

OEE calculation

2026.4.0-DEV

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1 Sub-factors of OEE

For the calculation of Overall Equipment Effectiveness (OEE) to work, all manufactured components must be assigned a target time, and the capacity plan must be configured.

1.1 Availability

A QIROX device is deemed *available* when the Running data point has value *true*. The data point has value *true* when the following four conditions are satisfied:

- OperatingMode is in mode *AUTO*.
- ErrorNumber has error code *0*.
- Stop is *false*.
- InterpreterActive is *true*.

The percentage specifies for how much of the shift time (as a %) the robot is *running*.

1.2 Performance

Performance is derived from the actual times of components manufactured as compared to their target times entered. As soon as a component is finished, it is compared with its target time and the performance coefficient is stored in the component report (target and actual times). A value between 0.0 and 1.0 results if the target time is shorter than the actual time. Then the system searches, for a particular time period, for which components were produced in this time period. Their performance coefficients and time between components (0%) are calculated proportionally to each other.

1.2.1 Example

Calculating the performance metric from 13:00 to 14:00 and producing the following two components in that time gives the following values:

	Type	Start	End	Target time (in min)	Actual time (in min)	Performance coefficient
Component 1	A	13:05 p.m.	13:25 p.m.	15	20	0.75 (75%)
Component 2	B	13:30 p.m.	13:55 p.m.	20	25	0.8 (80%)

Calculation:

- Nothing was produced for 15 minutes. The value is 0% for this time.
- Production performance was at 75% for 20 minutes
- Production performance was at 80% for 25 minutes
- Formula: $\frac{15}{60} \times 0 + \frac{20}{60} \times 0.75 + \frac{25}{60} \times 0.8 = 0.58\overline{3} \cong 58.3\%$

1.3 Quality

The quality metric specifies the relation between components that are OK and NOK. Producing 100 components within a time period, of which 5 are waste, gives a value of 95% for this time period.

2 Calculation

The last step in the calculation is multiplying the availability, performance and quality coefficients for the given time frame.

2.1 Availability

A QINEO device is considered *available* when the data point Running has the value *true*. The exact definition can be found in the data point documentation.

2.2 Power

The performance metric is calculated in the same way as for overall equipment effectiveness (OEE) (chapter 1.2).