Today’ s leading edge ultra high-resolution TEM/STEM systems offer an extremely high level of automation. It is important to manage and monitor the microscope, its ancillary equipment as well as the installation room environment to optimize data acquisition and minimize tool downtime.
ATTEM (Activity Tracker for TEM) has been developed to assist with monitoring instrument parameters that may influence and affect results and uptime.

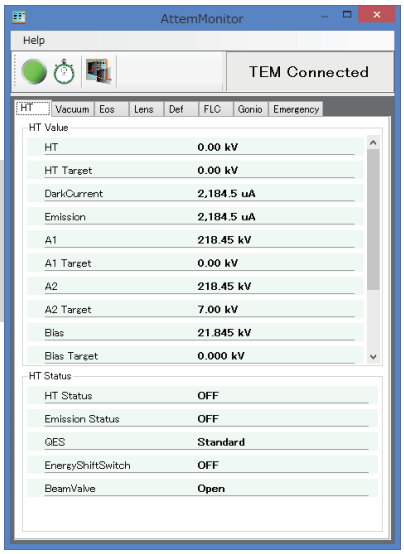
ATTEM

Activity Tracker monitors and records the subsystems of the TEM/STEM, in real time, providing feedback for the high-voltage system, vacuum system, optical system (Lens/Deflectors) as well as the sample stage. In addition, sensors may be added, to include room temperature, cooling water temperature & flow rate ensuring feedback on external pressures that influence instrument performance/results. Once various alerts are defined, such as vacuum failure (*1), stage failure (*1), a decrease in water flow rate (*2), etc., necessary events will be emailed to the administrator or users so that quick corrections may be made thereby increasing tool uptime. In addition, all parameters are logged for later reference so that it will be easier to understand the root cause of an “event” for a quick fix. Making it possible to quickly and accurately manage the daily details of microscope usage, replacement of consumable parts, and if any service level adjustments need to be completed to keep the tool in optimum condition preventing future tool failure and downtime.
As facilities around the world move to more automated lab scheme, there have been a wide variety of software systems introduced to manage the total lab equipment environment. ATTEM offers an API via REST communication, making it possible to integrate the data output into other monitoring systems.

*1 Depends on the model and version of the TEM　　*2 Requires connection of an external sensor

Feature1 : Real-time status monitoring

ATTEM acquires, displays and records various useful TEM/STEM sub system parameters as well as external sensors at regular intervals. An alarm indicating an issue may be displayed in the GUI or an e-mail may be sent to the tool owner when a specific parameter exceeds a predefined condition.

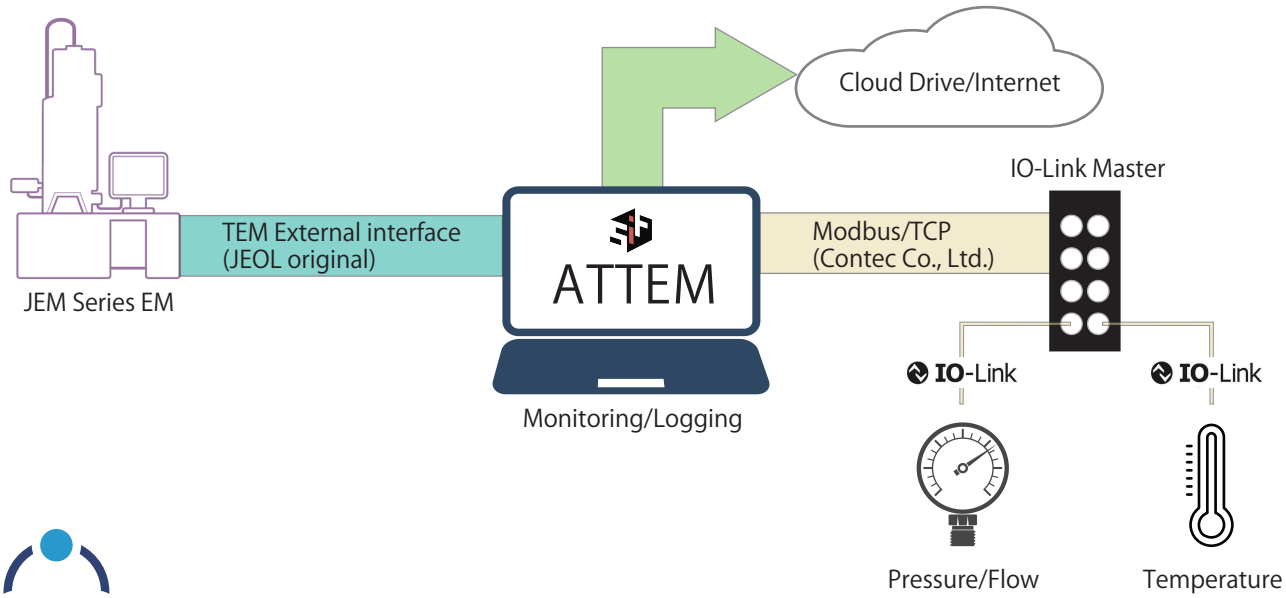


Featurer 2 : Observation and analysis of records

Long-term recorded data can be observed and analyzed interactively.
In addition to displaying details of each defined parameter, users of ATTEM can also specify the periodicity and interval of the graph output display. The data can then be output as a CSV file showing the change of conditions over time.

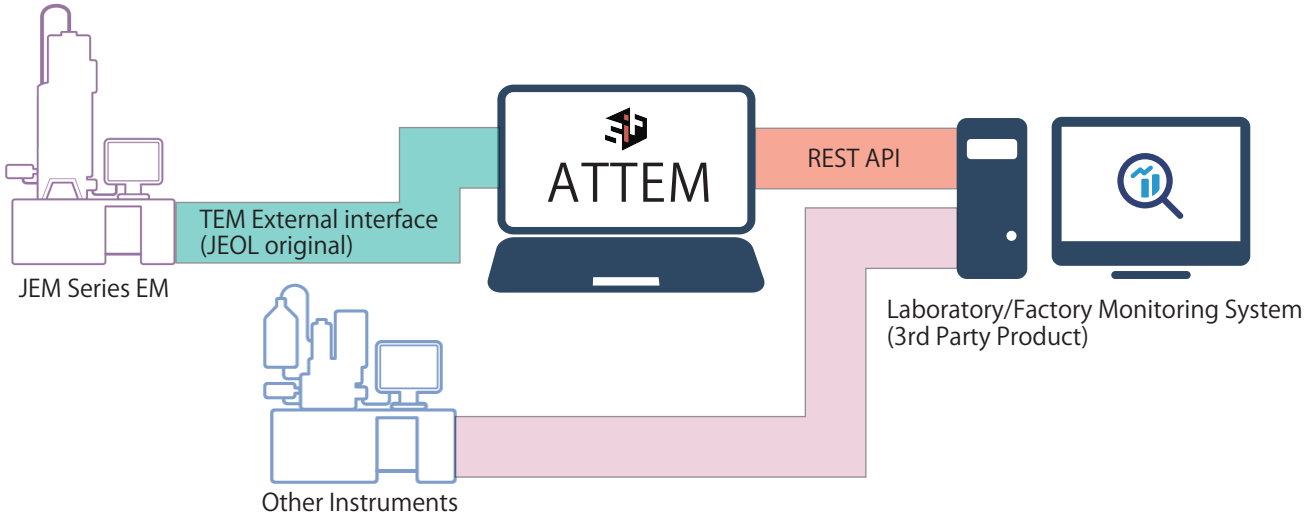
Expansion 1: Connecting external sensors

ATTEM has been standardized to IO-Link , an international industrial digital communication standard, making it possible to easily connect to a variety of external sensors enhancing the ability to monitor the room environment.
(IO-Link compatible sensors are connected to ATTEM via IO-Link Master from CONTEC.)



Expansion 2 : Integration with other lab monitoring systems

ATTEM' s REST API allows necessary parameters to be shared with other systems, so ATTEM can be used as an interface between facility monitoring systems and TEM/STEM equipment monitoring.



Specifications

TEM	JEOL Ltd. JEM Series (Please contact us for more details.)
OS	Windows 10/11

Contact

SYSTEM IN FRONTIER INC.
2-8-3 Shinsuzuharu Bldg. 4F Akebono-cho Tachikawa-shi, Tokyo 190-0012
https://www.temography.com/