

# Diagnostic Tools for ATP/TD and Interlocking Equipment

Possible to integrally manage and analyze status of equipment inside equipment rooms



Diagnostic Tools for ATP/TD and Interlocking Equipment are aimed to support maintenance work by constantly monitoring the states of power supplies and railway signaling systems such as ATP/TD wayside equipment, and electronic interlocking. Also, in case of trouble, the abnormal locations are displayed in the image of racks and equipment. In addition, the operating state of each equipment is stored at all times for defect analysis after restoration.

Combine, in terms of both hardware and software, things which were installed individually for the ATP monitor and the monitor for interlocking (MTC)

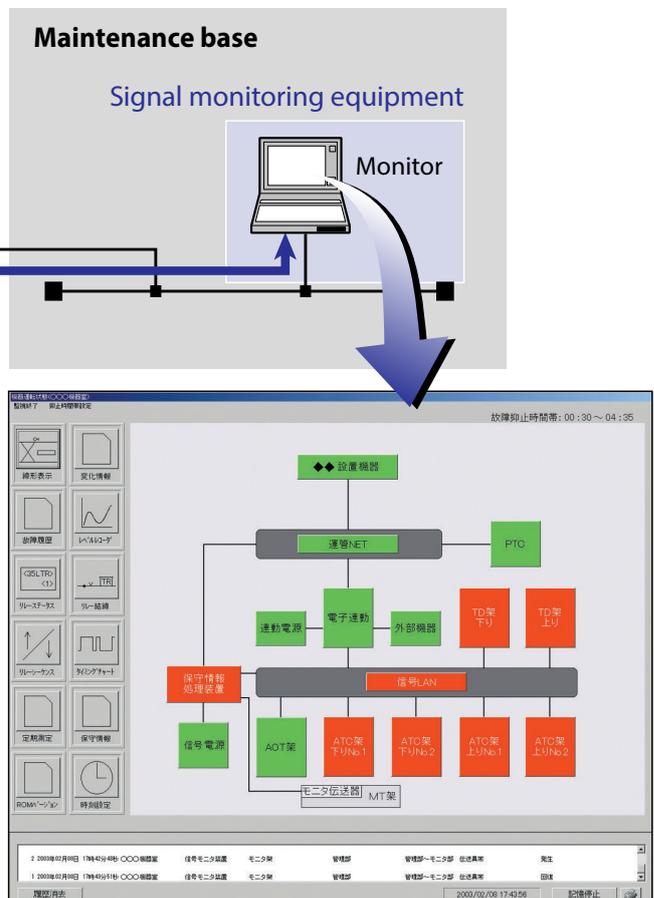
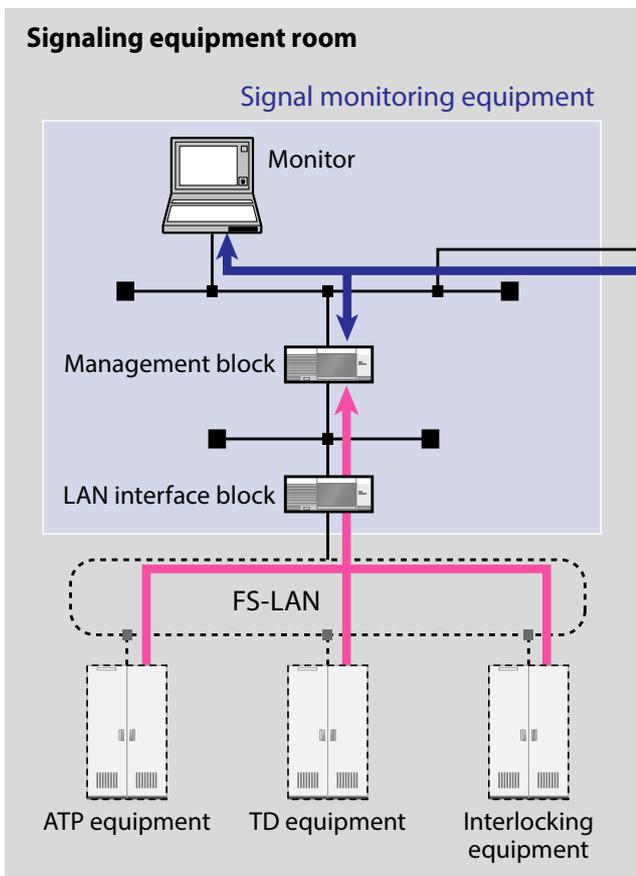
Forward large-capacity data by using ADSL and 100 Mbps Ethernet

Realization of unification of data management

Data managed inside equipment room are transmitted to the maintenance base, to enable remote monitoring in maintenance base

Consisting of state monitoring, analysis (monitor), data store (management block), and data fetching (LAN interface block), data management is unified.

The status of signal house is confirmed in maintenance base, and data analysis is possible.



**Main screen**

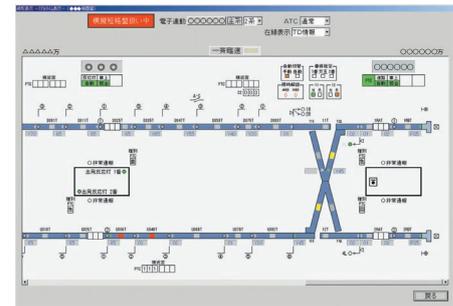
The states of monitored equipment are displayed fully in rough system configuration so that they can be confirmed in one glance (real-time display).

## Major functions

### Track layout display

ATP signal aspects, ATP transmission status, track occupied status, route lock, route directions available etc., are indicated on the track layouts, and the operational status is displayed.

1. ATP signal aspect code test can be performed on the track layouts.
2. Supports defect analysis by using playback function.



Track layout screen

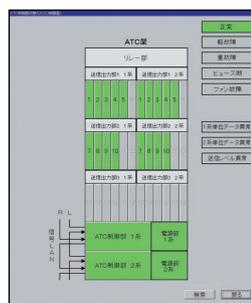
### ATP monitor

The operating states of ATP/TD wayside equipment are displayed.

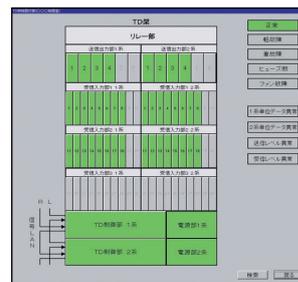
1. With mounting image of rack, it supports early detection and restoration of the failure area.

軌道名称	区	区間中心 (TWS)					
1200	1	1.0	11.0	12.0	13.0	14.0	15.0
1201	2	1.0	11.0	12.0	13.0	14.0	15.0
1202	1	1.0	11.0	12.0	13.0	14.0	15.0
1203	2	1.0	11.0	12.0	13.0	14.0	15.0
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1206	1	1.0	11.0	12.0	13.0	14.0	15.0
1207	2	1.0	11.0	12.0	13.0	14.0	15.0
1208	1	1.0	11.0	12.0	13.0	14.0	15.0
1209	2	1.0	11.0	12.0	13.0	14.0	15.0
1210	1	1.0	11.0	12.0	13.0	14.0	15.0
1211	2	1.0	11.0	12.0	13.0	14.0	15.0
1212	1	1.0	11.0	12.0	13.0	14.0	15.0
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1220	1	1.0	11.0	12.0	13.0	14.0	15.0
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1222	1	1.0	11.0	12.0	13.0	14.0	15.0
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1231	2	1.0	11.0	12.0	13.0	14.0	15.0
1232	1	1.0	11.0	12.0	13.0	14.0	15.0
1233	2	1.0	11.0	12.0	13.0	14.0	15.0
1234	1	1.0	11.0	12.0	13.0	14.0	15.0
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1268	1	1.0	11.0	12.0	13.0	14.0	15.0
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1286	1	1.0	11.0	12.0	13.0	14.0	15.0
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1289	2	1.0	11.0	12.0	13.0	14.0	15.0
1290	1	1.0	11.0	12.0	13.0	14.0	15.0
1291	2	1.0	11.0	12.0	13.0	14.0	15.0
1292	1	1.0	11.0	12.0	13.0	14.0	15.0
1293	2	1.0	11.0	12.0	13.0	14.0	15.0
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1295	2	1.0	11.0	12.0	13.0	14.0	15.0
1296	1	1.0	11.0	12.0	13.0	14.0	15.0
1297	2	1.0	11.0	12.0	13.0	14.0	15.0
1298	1	1.0	11.0	12.0	13.0	14.0	15.0
1299	2	1.0	11.0	12.0	13.0	14.0	15.0
1300	1	1.0	11.0	12.0	13.0	14.0	15.0

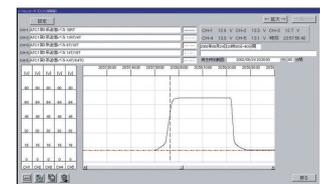
ATP state level



Equipment state of ATP rack



Equipment state of TD rack



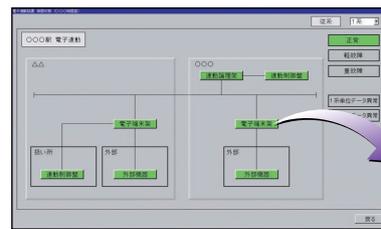
Level recorder

2. Steady monitoring of ATP transmission level and TD transmission and reception level is performed.
  - Monitoring of whether it exceeds the limit value
  - Form image display, and display of the latest value in which measurement conditions are made (scheduled measurement)

### Monitor for interlocking equipment

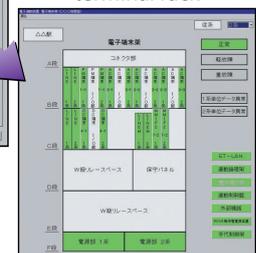
The operating states of electronic interlocking are displayed.

1. With the system configuration image of electronic interlocking, failure areas are indicated.
2. With mounting image of rack and desk, it supports early detection and early restoration of the failure area.
3. It indicates relay states of electronic interlocking equipment, and supports grasping the current situation and defect analysis.

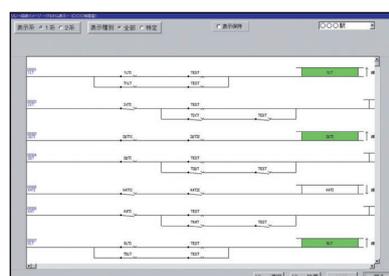


Device state of electronic interlocking

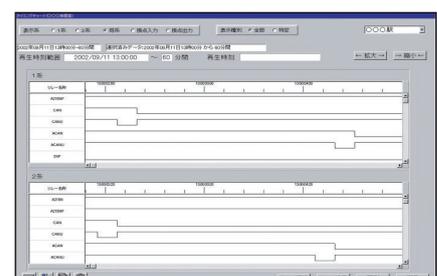
State of electric terminal rack



Relay status (Playback)



Relay logic data image (Real-time)



Timing chart