

MT-LINK*i* 介紹

連結

FANUC CNC



FANUC ROBOT



年代	控制器	PCMCIA	內藏網路	高速網卡	RS-232C	I/O
1985 ↓ 2020	0					○
	15				○	○
	16/18/20/21				○	○
	16i/18i/20i/21i-A			○	○	○
	16i/18i/20i/21i-B	○	○	○	○	○
	0i-A				○	○
	0i-B/C/D/F	○	○	○	○	○
30i/31i/32i/35i	○	○	○	○	○	

舊設備Solution

判斷機械狀態→須修改I/O線路

判斷機械加工程式/其他變數等→須預留RS-232C/修改程式





SIEMENS

DMG MORI

CITIZEN

FAGOR 

rexroth



Mazak

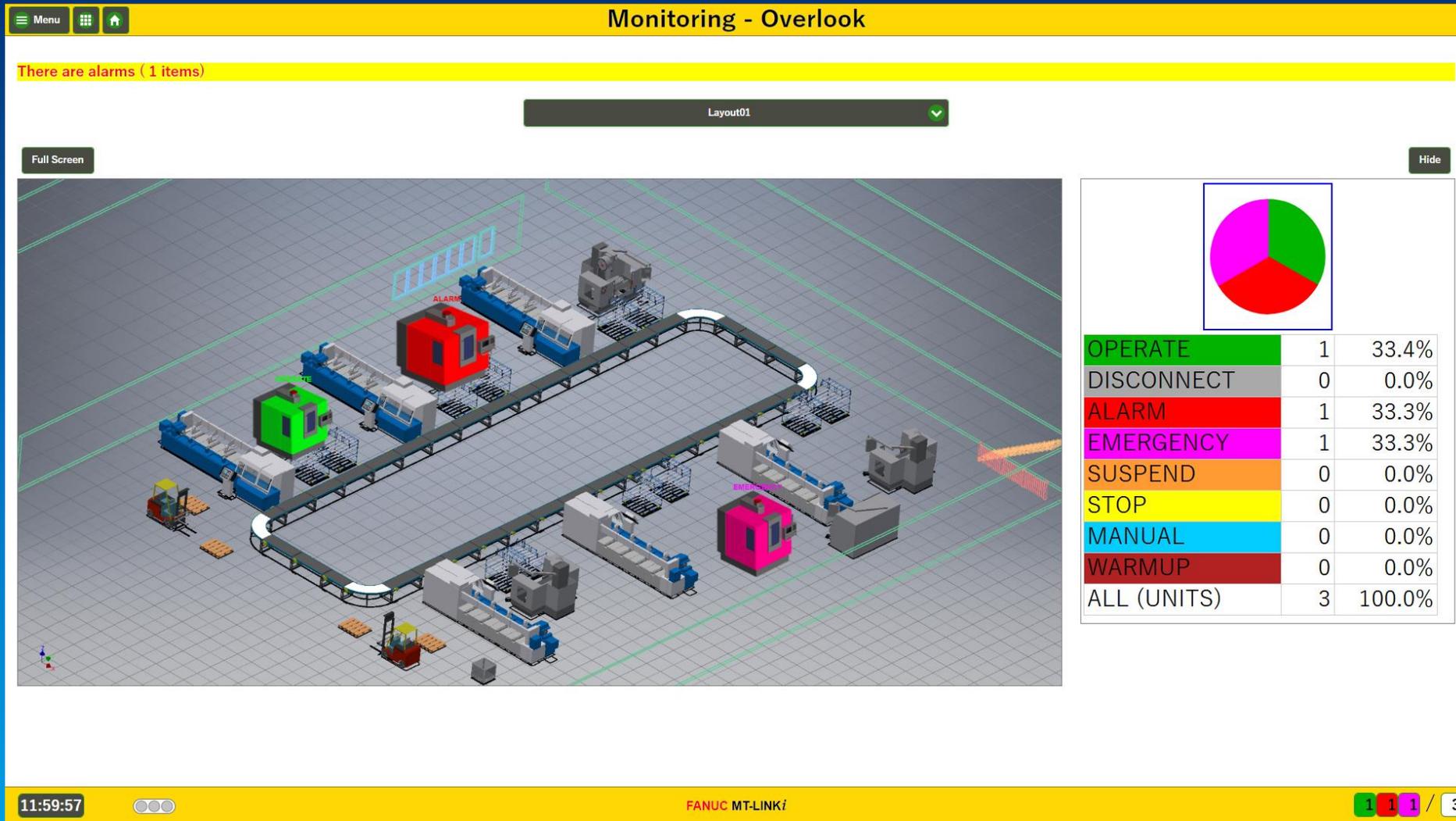
 LOKUMA

CITIZEN

 MITSUBISHI
ELECTRIC

NUM 

可視化



全廠監視

可視化

全廠監視

Monitoring - Equipment monitoring [NewGroup0001]

There are alarms (1 items)

1

CNC_432

Detailed



EMERGENCY

Disconnect CNC_432	off
Mode CNC_432 P1	EDIT
Executing program CNC_432 P1	/PATH1/SAMPLE
The number of machined parts CNC_432 P1	952
CNC_432 P1	EMERGENCY

CNC Simulator

Detailed



ALARM

Disconnect CNC_Simulator	off
Mode CNC_Simulator P1	MEMORY
Executing program CNC_Simulator P1	TH1/FANUCLOGO
The number of machined parts CNC_Simulator P1	0

NCGuide

Detailed



EMERGENCY

Disconnect NCGuide	off
Mode NCGuide P1	MEMORY
Executing program NCGuide P1	ER/PATH1/O1000
The number of machined parts NCGuide P1	1
NCGuide P1	EMERGENCY

13:08:11

FANUC MT-LINK7

1 2 / 3

生產線監視

可視化

全廠監視

Monitoring - Equipment monitoring [NCGuide]

Start Time series: 2018/01/30 13:09:22 | End Time series: 2018/01/31 13:09:22

There are alarms (1 items)

Full Screen

NCGuide

EMERGENCY

Disconnect: off
Mode NCGuide: MEMORY
P1
Executing program: ER/PATH1/O1000
NCGuide P1
The number of machined parts: 1
NCGuide P1

Operational Results

Production Results

Product	Production result	Plans	Rate
<input type="radio"/> Camera_\$150		2	10 20.0%
<input checked="" type="radio"/> CellPhone_\$50	10	100	10.0%
<input type="radio"/> NO PRODUCT	1	0	0.0%

Alarm History

Date and time of occurrence	Time span (minutes)	Machine name	Alarm type	Alarm number
2018/01/30 15:06:40	0.29	NCGuide	SR	5010 END
2018/01/30 15:05:22	0.06	NCGuide	SR	5010 END
2018/01/30 15:00:36	4.61	NCGuide	SW	100 PAR.

13:10:00 | FANUC MT-LINK | 1 2 / 3

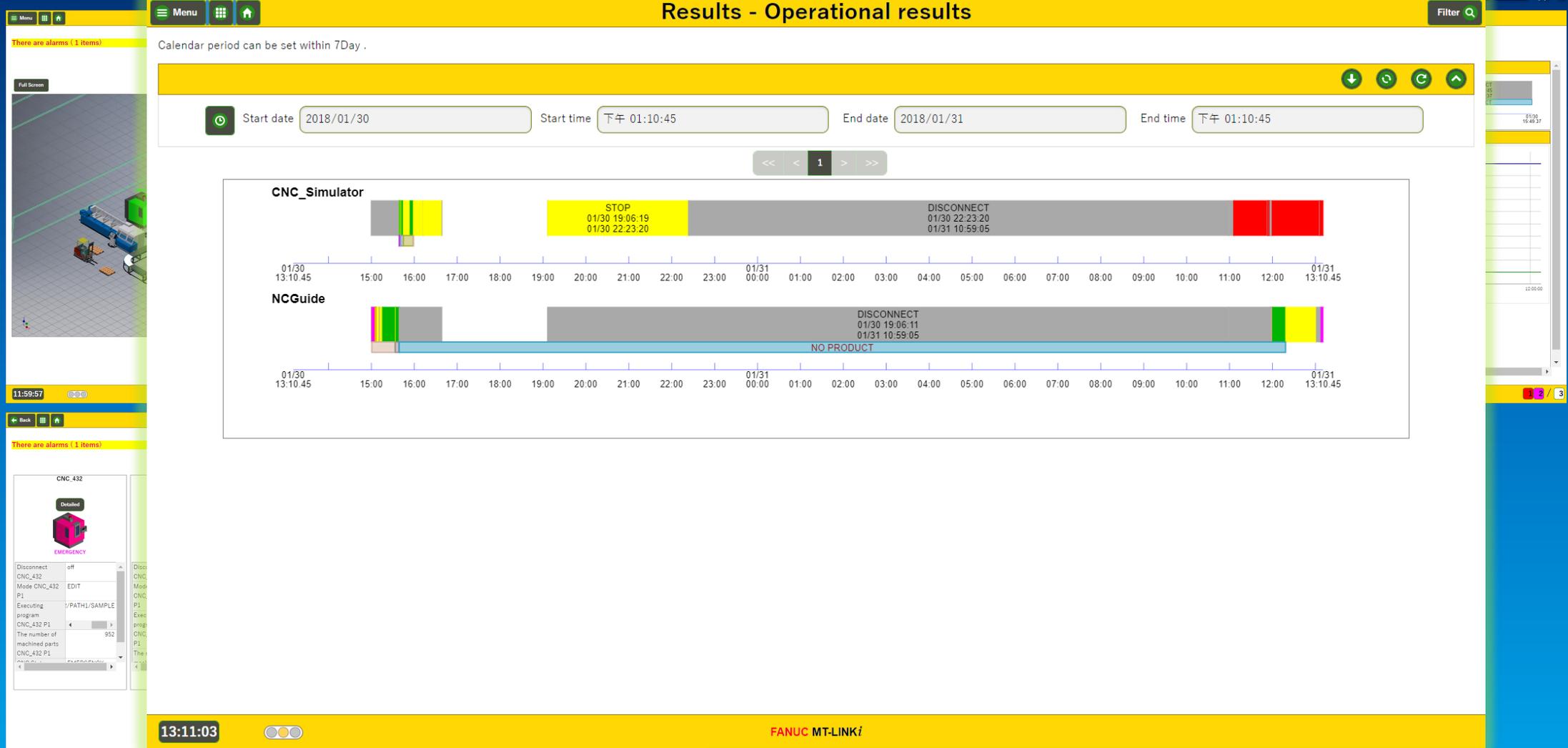
設備監視/生產監視

生產線監視

可視化

全廠監視

設備監視/生產監視



設備操作監視

生產線監視

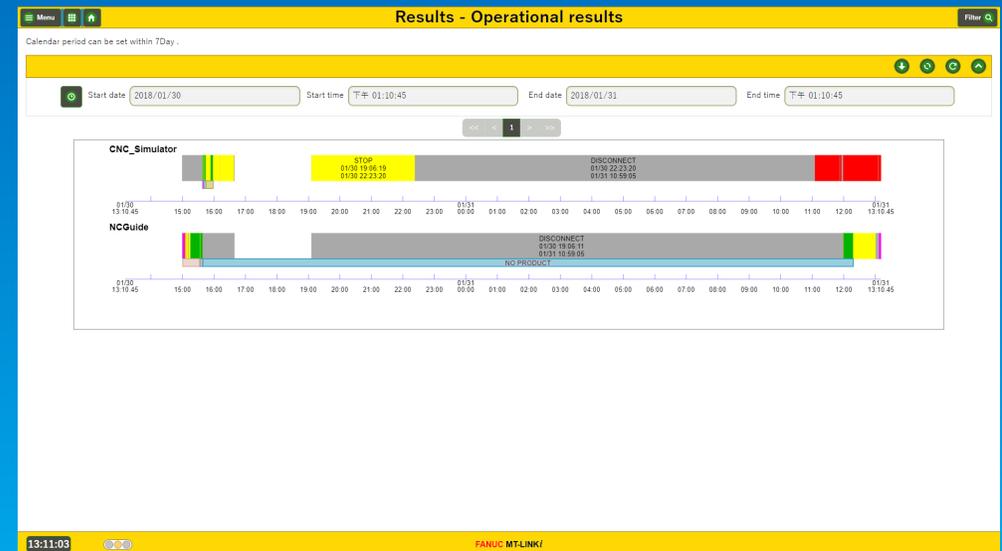
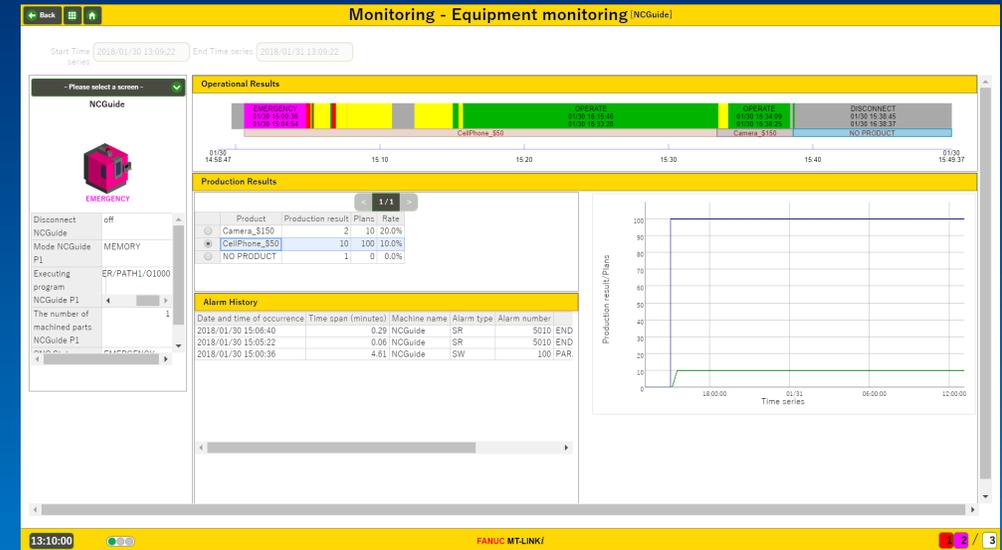
可視化

全廠監視



生產線監視

設備監視/生產監視



設備操作監視

Diagnosis - Alarm History

Calendar period can be set within 7Day .

Search Summary

Start date: 2018/01/30 Start time: 下午 01:12:03 End date: 2018/01/31 End time: 下午 01:12:03

Sort by occurrence date/time: Descending Ascending

Period range (minute): Min: More than input value Max: Less than input value

Equipment name: Equipment

Machine name: Machine

Alarm type: type

Alarm number: Number

Alarm message: message

Alarm list

Date and time of occurrence	Time span (minutes)	Equipment name	Machine name	Alarm type	Alarm number	Alarm message
2018/01/31 13:06:19	0.00	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/31 13:05:45	0.04	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/31 11:59:26	66.1	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/31 11:56:51	0.08	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/31 11:54:37	2.02	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/31 11:53:12	1.06	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/31 11:05:40	47.19	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/30 15:06:40	0.29	NCGuide	NCGuide	SR	5010	END OF RECORD
2018/01/30 15:05:22	0.06	NCGuide	NCGuide	SR	5010	END OF RECORD
2018/01/30 15:00:36	4.61	NCGuide	NCGuide	SW	100	PARAMETER ENABLE SWITCH ON

13:12:07 FANUC MT-LINKi

Diagnosis - Program History

Start date/time were corrected automatically because the period setting exceeded 7Day.

Start date: 2018/01/24 Start time: 下午 01:13:30 End date: 2018/01/31 End time: 下午 01:13:30

Sort by start date/time: Descending Ascending Switch display: Main only Main/Running

Filter

NCGuide

Program type	Machine name	Path	Program name	Start time	End time	Time span (minutes)
Main Program	NCGuide	path1	//CNC_MEM/USER/PATH1/O1000	2018/01/31 11:59:54	2018/01/31 12:18:20	18.43
Main Program	NCGuide	path1	//CNC_MEM/USER/PATH1/O0004	2018/01/30 15:38:38	2018/01/30 15:38:45	0.12
Main Program	NCGuide	path1	//CNC_MEM/USER/PATH1/O0004	2018/01/30 15:34:09	2018/01/30 15:38:25	4.28
Main Program	NCGuide	path1	//CNC_MEM/USER/PATH1/O0004	2018/01/30 15:15:46	2018/01/30 15:33:28	17.69
Main Program	NCGuide	path1	//CNC_MEM/USER/PATH1/O0004	2018/01/30 15:15:04	2018/01/30 15:15:28	0.40
Main Program	NCGuide	path1	//CNC_MEM/USER/PATH1/FANUCLOGO	2018/01/30 15:06:34	2018/01/30 15:06:40	0.10
Main Program	NCGuide	path1	//CNC_MEM/USER/PATH1/FANUCLOGO	2018/01/30 15:05:16	2018/01/30 15:05:22	0.10

Calendar period can be set within 7Day.

Search:

Start date: 2018/01/30 Start time: T# 01:12:03

Sort by occurrence date/time: Descending Ascending

Period range (minutes): Equipment name:

Min: (More than input value) Equipment:

Max: (Less than input value) Alarm number:

Number:

Alarm list

Date and time of occurrence	Time span (minutes)	Equipment name	Machine name	Alarm type	All
2018/01/30 15:02:59	0.00	CNC_Simulator	CNC_Simulator	SR	
2018/01/30 15:05:45	0.00	CNC_Simulator	CNC_Simulator	SR	
2018/01/30 15:06:26	0.01	CNC_Simulator	CNC_Simulator	SR	
2018/01/30 15:06:51	0.00	CNC_Simulator	CNC_Simulator	SR	
2018/01/30 15:07:47	2.00	CNC_Simulator	CNC_Simulator	SR	
2018/01/30 15:08:12	1.00	CNC_Simulator	CNC_Simulator	SR	
2018/01/30 15:08:40	41.70	CNC_Simulator	CNC_Simulator	SR	
2018/01/30 15:06:40	0.20	NCGuide	NCGuide	SR	
2018/01/30 15:05:22	0.00	NCGuide	NCGuide	SR	
2018/01/30 15:00:36	4.40	NCGuide	NCGuide	SR	

13:12:57

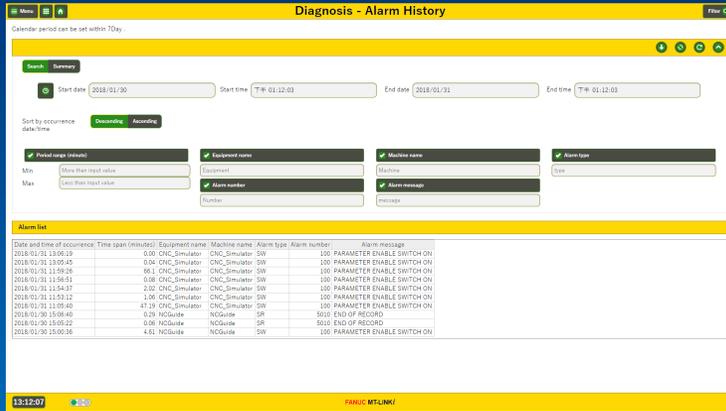
異

13:14:27

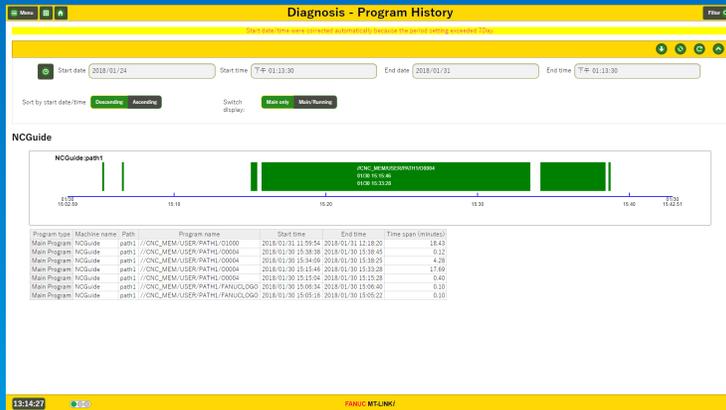
FANUC MT-LINK*i*

程式履歷

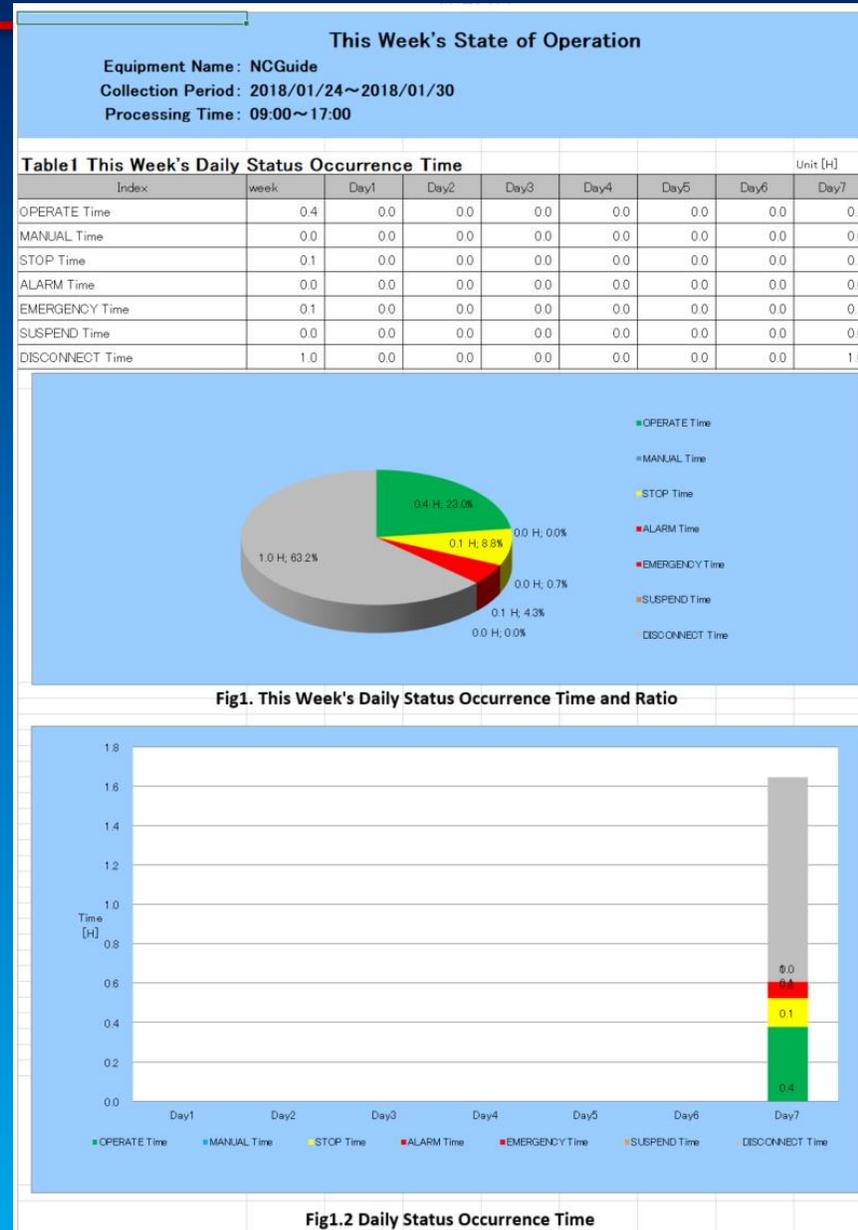
管理



異常履歷



程式履歷



稼働率報表

管理

Diagnosis - Alarm History

Calendar period can be set within 7Day.

Search Summary

Start date: 2018/01/30 Start time: T# 01:22:03 End date: 2018/01/31

Sort by occurrence date/time

Period range (minutes): Min: More than input value, Max: Less than input value

Equipment name: Machine name: Alarm type: Alarm number: Alarm message

Date and time of occurrence	Time span (minutes)	Equipment name	Machine name	Alarm type	Alarm number	Alarm message
2018/01/30 13:00:39	0.00	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/30 13:00:45	0.00	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/30 13:00:49	0.01	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/30 13:00:57	0.00	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/30 13:01:01	2.00	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/30 13:01:22	1.00	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/30 13:01:49	47.39	CNC_Simulator	CNC_Simulator	SW	100	PARAMETER ENABLE SWITCH ON
2018/01/30 15:06:40	0.29	NCGuide	NCGuide	SR	8010	END OF RECORD
2018/01/30 15:05:02	0.00	NCGuide	NCGuide	SR	8020	END OF RECORD
2018/01/30 15:00:38	4.42	NCGuide	NCGuide	SW	100	PARAMETER ENABLE SWITCH ON

異警履歷

Diagnosis - Program History

Start date: 2018/01/24 Start time: T# 01:33:30 End date: 2018/01/31

Sort by start date/time

Switch display: Main only, Main Number

NCGuide

NCGuide path: [Timeline chart showing program execution]

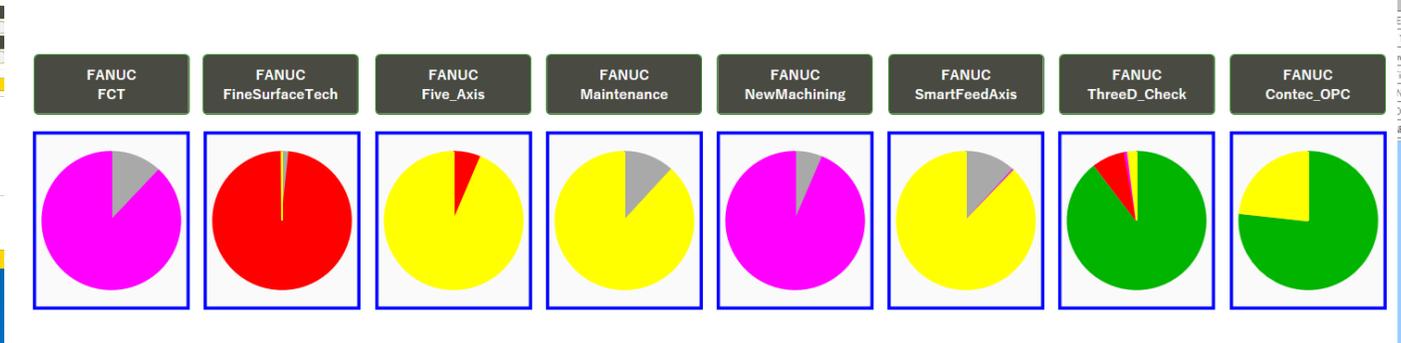
Program type	Machine name	Path	Program name	Start time	End time	Time span (minutes)
Main Program	NCGuide	path1	//CNC_MEM_USER_PATH/01000	2018/01/31 11:59:54	2018/01/31 12:18:20	18.43
Main Program	NCGuide	path1	//CNC_MEM_USER_PATH/00004	2018/01/30 15:38:38	2018/01/30 15:38:45	0.12
Main Program	NCGuide	path1	//CNC_MEM_USER_PATH/00004	2018/01/30 15:34:09	2018/01/30 15:38:25	4.28
Main Program	NCGuide	path1	//CNC_MEM_USER_PATH/00004	2018/01/30 15:15:48	2018/01/30 15:33:28	17.69
Main Program	NCGuide	path1	//CNC_MEM_USER_PATH/00004	2018/01/30 15:15:48	2018/01/30 15:33:28	5.40
Main Program	NCGuide	path1	//CNC_MEM_USER_PATH/FANUCLOGO	2018/01/30 15:06:34	2018/01/30 15:06:40	0.10
Main Program	NCGuide	path1	//CNC_MEM_USER_PATH/FANUCLOGO	2018/01/30 15:05:18	2018/01/30 15:05:01	0.10

程式履歷

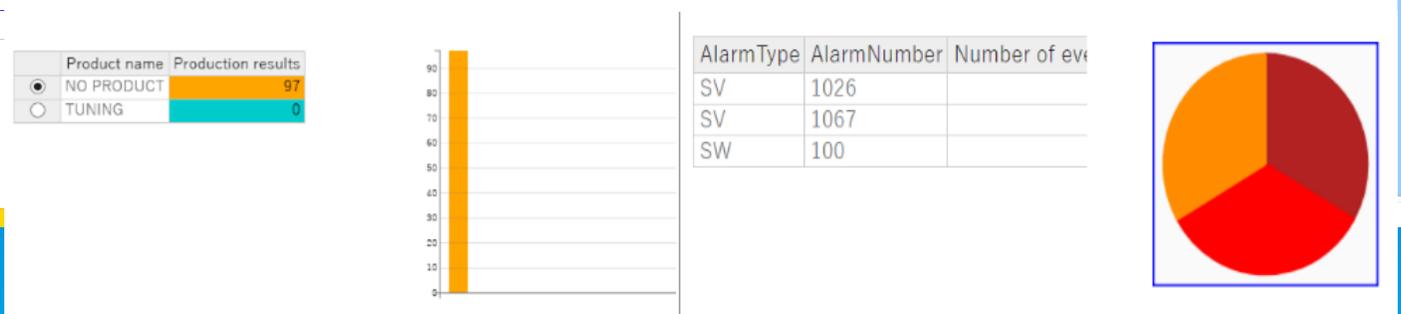
Operational Results - Ratio Scale

* Calendar has the upper limit for time span (Upper limit [day]: 30).

Start date: 2019/10/22 Start time: 上午 08:26:12 End date: 2019/10/22 End time:



Facility Name	Equipment Name	OPERATE	MANUAL	DISCONNECT	ALARM	EMERGENCY	STOP	SUSPEND	WARMUP
FANUC	FCT	0.00%	0.00%	12.05%	0.00%	0.00%	0.00%	0.00%	0.00%
FANUC	FineSurfaceTech	0.00%	0.00%	1.66%	0.00%	0.00%	0.10%	0.00%	0.00%
FANUC	Five_Axis	0.07%	0.00%	0.11%	6.21%	0.00%	93.60%	0.00%	0.00%
FANUC	Maintenance	0.00%	0.00%	11.85%	0.00%	0.00%	88.15%	0.00%	0.00%
FANUC	NewMachining	0.00%	0.00%	6.47%	0.00%	0.00%	93.53%	0.00%	0.00%
FANUC	SmartFeedAxis	0.00%	0.00%	11.86%	0.00%	0.30%	87.84%	0.00%	0.00%
FANUC	ThreeD_Check	89.62%	0.00%	0.07%	0.00%	7.58%	0.72%	0.00%	0.00%
FANUC	Contec_OPC	76.72%	0.00%	0.03%	0.00%	0.00%	23.25%	0.00%	0.00%



This Week's State of Operation

Equipment Name: NCGuide
Collection Period: 2018/01/24~2018/01/30
Processing Time: 09:00~17:00

This Week's Daily Status Occurrence Time

Index	week	Day1	Day2	Day3	Day4	Day5	Day6	Day7	Unit [h]
E Time	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
T Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ne	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NCY Time	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
J Time	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ECT Time	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0

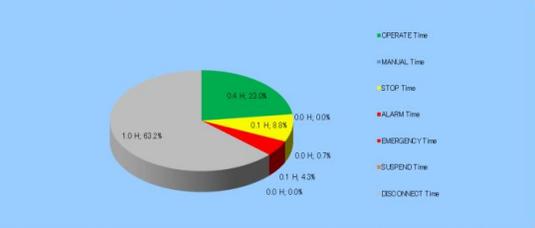


Fig1. This Week's Daily Status Occurrence Time and Ratio

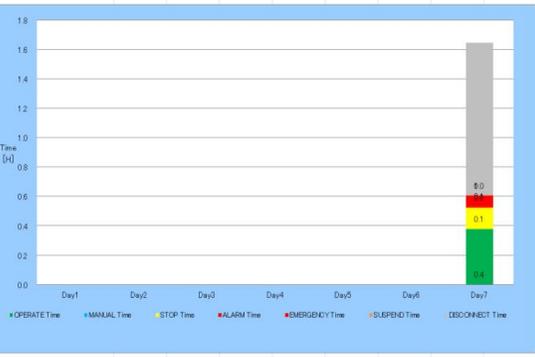
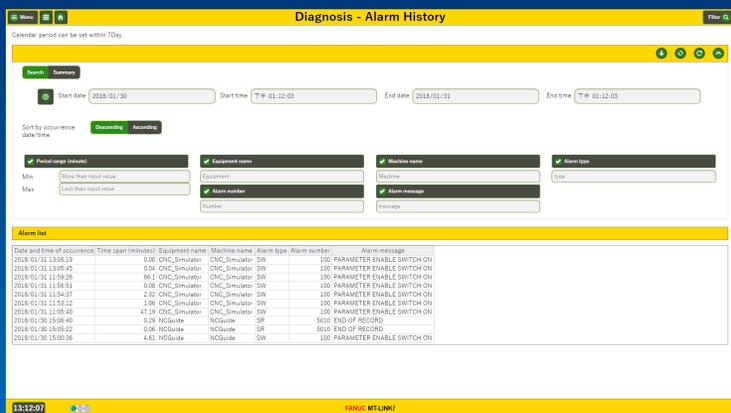


Fig1.2 Daily Status Occurrence Time

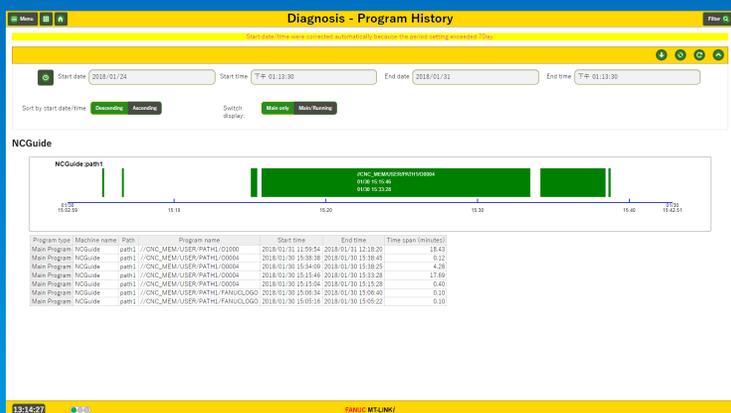
稼働率報表

跨整合伺服器

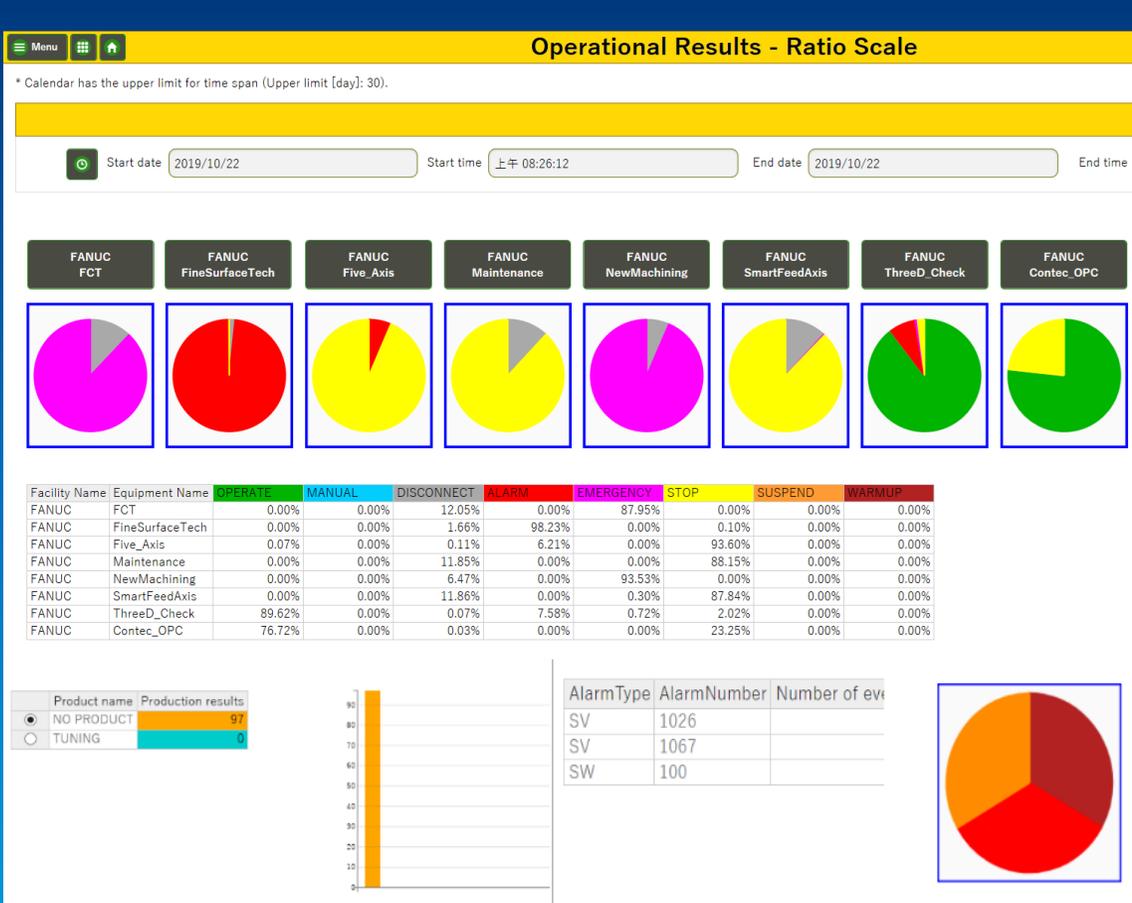
管理



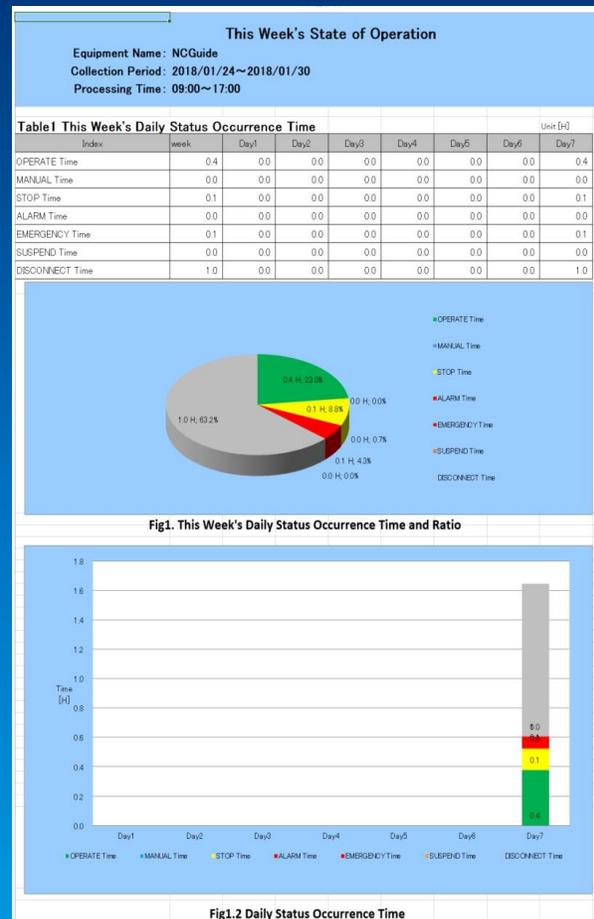
異常履歷



程式履歷



跨整合伺服器



稼働率報表

預防



自動備份

預防



自動備份



權限管理

預防



自動備份



客製化郵件通知



權限管理

預防



自動備份



權限管理



循環記錄



客製化郵件通知



預防



自動備份



客製化郵件通知



權限管理



循環記錄

MT-LINK*i* 四大重點

連結

- FANUC CNC
- FANUC ROBOT
- OPC UA 通訊協定
- MTConnect 通訊協定

可視化

- 全廠區監視
- 生產線監視
- 設備監視
- 操作監視
- 訊號監視
- 異警監視
- 生產監視
(操作者ID/產品名稱/編號/註解)

管理

- 異警履歷監視
- 程式履歷監視
- 變數履歷監視
- 稼動率報表
- 跨伺服器整合
- 參數/補正/操作履歷等
差異性比較

預防

- 客製化郵件通知
- 定期系統自動備份
(參數/變數/補正/操作履歷)
- 管理者權限
- 循環紀錄

進階應用

- 開放式資料庫 MongoDB、支援WebAPI(讀取資料)
- 適用於各種程式語言(C, C++, C#, php, JAVA, Python, Node.js, Ruby)

謝謝聆聽