

Data sheet

OCON F

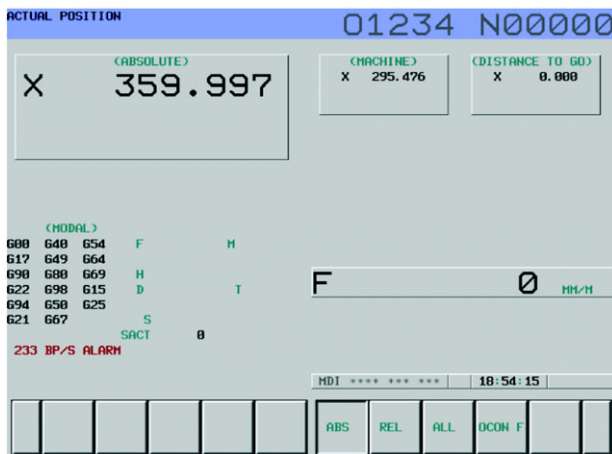
Software-only solution for
GE Fanuc control systems

- missing tool detection for rotating shaft tools
- call via NC commands
- sensor-free method
- no sensitive sensors in the machine working area
- also suitable for GE Fanuc compact controls (16i, 18i, 21i)
- distance or time-controlled
- no configuring necessary in the PMC
- ideal for retrofitting



Application

Secondary damage resulting from unnoticed tool breakage may occur when incompletely machined parts reach downstream machining stations or even the user. OCON F recognises such production faults at the latest during the next machining process with the same tool.



Integration in Fanuc user interface

Use

OCON F machine tool monitoring is particularly suitable for use in mass production. For this the processes must be easily reproducible, i.e. fluctuations in dimensions and hardness must lie within the normal tolerance range and the spindle speed must be reached before machining commences. In such cases shaft tools from a diameter of 3 mm upwards in steel (depending on the spindle performance) can be monitored for 'missing'. In-process monitoring has the advantage over post-process monitoring (as in optical or mechanical systems) that the monitoring process requires less time.

Function

OCON F is a monitoring software program based on a C-Executor program, which is installed in the GE Fanuc control system (see requirements). Monitoring and the user interface run entirely in the NC core. For monitoring purposes the torque data of the spindle or feed drives in the driver regulators

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are measured for a specific point of time or distance and evaluated. OCON F offers 2 monitoring channels, i.e. a maximum of 2 machining processes (= stations) or axles/spindles can be independently monitored at different times. Depending on the process, it is possible to change flexibly between the spindle and feed axle. For example, evaluation of the feed axle is often better for monitoring small tools. For installation at least one command for each tool to be monitored is required in the NC program. During the first machining process the tool monitoring system determines the relevant data. Start-up of OCON F can be supported by the Fanuc Tool Servo Guide (although as a rule this is not necessary). The OCON F actual value display can be used for a rapid and simple check.

VISUALISIERUNG OCON F		ARTIS GMBH		Date of comp May 30 2006 11:38:53	
KANAL 1			KANAL 2		
FEHLT WERT	0	FEHLT WERT	0		
FEHLT GRENZE	??	FEHLT GRENZE	1		
NULLUNGSWERT	0	NULLUNGSWERT	0		
AKTUELLER WERT	3	AKTUELLER WERT	0		
PH	1	PH	0		
TN	2	TN	0		
BN	10	BN	0		
ID	0	ID	1		
0					
0					

MANUAL START	PARAM KANAL 1	SYSTEM	LOGIN	MANUAL STOP	RESET ALARM	PARAM KANAL 2	LERNEN EIN	LERNEN AUS	ZURÜCK
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Simple parameter page

Features of OCON F

- software-only solution for Fanuc control systems
- parallel monitoring of up to 2 machining stations
- monitoring of up to 10 rotating shaft tools for 'missing'
- tools to be monitored as of 3 mm and upwards, independent of spindle performance, in steel material (independent of machine)

- evaluation of internal drive data
- no sensor installation
- distance or time-dependent monitoring
- greater reliability of monitoring due to idling compensation
- all workpiece-specific settings are stored in the control system
- support of optimal monitoring setting by means of Fanuc Servo Guide (not included in package)

Example NC program

```
N100 T1 M6
N110 S2000 M3
N120 G0 G54 X0 Y0 F6000
N130 Z3
N140 #101=42 #104=1 #108=1
(Program number 42, OCON F on, Counting on)
N150 G01 X0 Y0 Z-10 F1200
N160 G0 Z3
N170 #104=0 (OCON F off)
```

Control requirements

- GE Fanuc controls 16i, 160i, 18i, 180i, 21i, 210i
- No other C-Executor application
- Standard system software
- Free PCMCIA slot in the NC for OCON-F flashcard
- PMC CPU > 00 e.g. PMC CPU: 01
- Output G0 / G1 - signal

Scope of delivery

- operator manual with examples
- CD with C-Executor program, example NC programs and documentation
- PCMCIA flashcard with OCON F program