FAGOR AUTOMATION

Ordering Handbook

CNC 8060 *elite* GL / CNC 8070 *elite* OL

Ref.2210

Original instructions

FAGOR AUTOMATION

DENOMINATIONS

CNC 8060*elite* GENERAL LINE □-□-□-□□□□-□-□□□□-□□

Type of CNC	
CNC (LCD and Central Unit)	QC-C60
U. Central cabinet (without LCD)	QC-U60
Monitor type (only for CNC)	
10" LCD + Keyboard	10K
10" LCD Horizontal	10H
10" LCD Horizontal Touch Screen	10HT
10" LCD Vertical	10V
10" LCD Vertical Touch Screen	10VT
15" LCD	15
15" LCD Multitouch Screen	15AT
U. Central cabinet	
Without LCD	-
Type of function	
General Line machine	GL
Processor	
Basic Processor	B
Flash memory	
20 GB	20
Interface	
Sercos III	S3
Windows	
Windows 10	10

Internal Code	10
Advanced software	
- Standard software	
AV Advanced software	

Software options (1)	
b	Kinematic Calibration
B	Tool radius compensation
C	HSSA II Machining System
h	Gap Control
H	C axis
i	i4.0 CONNECTIVITY PACK
J	Synchronism
K	Tangential control
M	RTCP
P	Third party drive system
Q	Drilling cycles on OL
r	Third Party IOs
R	Open system
U	Conversational User Cycles
z	Operating Terms

Channels	1
Magazines	1
Spindles	1
Axes	From 3 to 9

CNC 8070*elite* OPEN LINE □-□-□-□□□□-□-□□□□-□□-□

Type of CNC	
CNC (LCD and Central Unit)	QC-C70
U. Central cabinet (without LCD)	QC-U70
Monitor type (only for CNC)	
10" LCD + Keyboard	10K
10" LCD Horizontal	10H
10" LCD Horizontal Touch Screen	10HT
10" LCD Vertical	10V
10" LCD Vertical Touch Screen	10VT
15" LCD	15
15" LCD Multitouch Screen	15AT
Type of Central Unit (without LCD)	
Without possibility of BUS PCI	M
Type of function	
General purpouse	OL
Processor	
High level Processor	P
Flash memory	
20 GB	20
40 GB	40
Interface	
Sercos III	S3
Windows	
Windows 10	10

MDU	
Dual-use products (2)	
Internal Code	10
Advanced software	
- Standard software	
AV Advanced software	

Software options (1)	
A	4 axes interpolation limit
b	Kinematic Calibration
B	Tool radius compensation
C	HSSA II Machining System
d	Dynamic Machining Control
E	Profile editor
h	Gap Control
H	C axis
i	i4.0 CONNECTIVITY PACK
I	Tandem axes
J	Synchronism and cams
K	Tangential control
m	Fagor Machining Calculator
M	RTCP
P	Third party drive system
Q	Drilling cycles on OL
r	Third Party IOs
R	Open system
U	Conversational User Cycles
v	Volumetric Compensation, Standard
V	Volumetric Compensation, Medium
W	Volumetric Compensation, High
x	Fagor Collision Avoidance System
z	Operating Terms
Z	PWM control

Channels	From 1 to 4
Magazines	From 1 to 4
Spindles	From 1 to 6
Axes	From 3 to 31

(1) Depends on the type of function.
(2) Products manufactured by FAGOR AUTOMATION.

Reduced Name

The Full Name of the CNC has a variable length and can exceed 40 characters. But the label allows only up to 40 characters for that field.

Therefore, the label will show a "Reduced Name", where the data related to 'Axes', 'Spindles', 'Magazines', 'Channels', 'Software options' and 'Advanced software' are replaced by a 4-digit code as in the following example:

QC - C70 - 10K - OL - P 16 S3 10 - 4 - 1 1 1 BCI - 10 --> QC - C70 - 10K - OL - P 16 S3 10 - S010 - 10

The label will display the replaced characters on a lower line.

CONFIGURATION

CENTRAL UNIT - 8060elite GL

(a)

Code	Model	Description	
83600136	8060elite-GL-ICU	*elite* Integrated Central Unit with EtherCAT for General Line machines	(a)
83600135	8060elite-GL-MCU	*elite* Modular Central Unit with EtherCAT for General Line machines	(b)

(b)

Code	Model	Description	
83600057	SERCOS-3	Sercos 3 module	(1)
83600206	MP-BASIC-e	*elite* Basic Processor	(1)
83700250	MOD-4GB-RAM	4 GB RAM module	(1)
83701130	M.2-SATA-20	20 GB M.2 SATA	(1)

(1) Required always

Code	Model	Description	
83740098	SOFT WINDOWS 10	WINDOWS 10 software	(1)

(1) Required always

CENTRAL UNIT - 8070elite OL

(a)

Code	Model	Description	
83701040	8070elite-OL-ICU	*elite* Integrated Central Unit with EtherCAT for General Pourpose machines	(a)
83701041	8070elite-OL-MCU	*elite* Modular Central Unit with EtherCAT for General Pourpose machines	(b)

(b)

Code	Model	Description	
83600057	SERCOS-3	Sercos 3 module	(1)
83600207	MP-PLUS-e	*elite* High level Processor	(1)
83700250	MOD-4GB-RAM	4 GB RAM module	(1)
83701130	M.2-SATA-20	20 GB M.2 SATA	(2)
83701131	M.2-SATA-40	40 GB M.2 SATA	

(1) Required always
(2) Choose one of them

Code	Model	Description	
83740098	SOFT WINDOWS 10	WINDOWS 10 software	(1)

(1) Required always

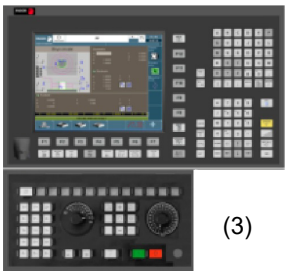
CONFIGURATION

MONITOR & OPERATOR PANEL

10.4” LCD and Operator Panel

(1)

(3)



(2)

(3)

(4)

Code	Model	Description	
83600000	MONITOR-LCD-10 VERTICAL	10" LCD Vertical monitor	(1)
83600001	MONITOR-LCD-10 TOUCH VERTICAL	10" LCD Touch screen Vertical monitor	
83600002	MONITOR-LCD-10 HORIZONTAL	10" LCD Horizontal monitor	(2)
83600003	MONITOR-LCD-10 TOUCH HORIZONTAL	10" LCD Touch screen Horizontal monitor	
83600004	MONITOR-LCD-10K-001	10" LCD Monitor + Keyboard	(4)

Code	Model	Description	
83600010	OP PANEL 329	JOG Panel, 329 mm	(3)

15” LCD and Operator Panel

(1)

(2)

(4)

(1) (3)

(4)

Monitor (choose one of them)

Code	Model	Description	
83700053	MONITOR-LCD-15	15" LCD monitor	(1)
83700059	MONITOR-LCD-15A-MULTITOUCH	15" LCD Capacitive MultiTouch monitor screen	

Keyboard (choose one of them)

Code	Model	Description	
83760019	HORIZONTAL KEYB 2.0+TOUCHPAD	2.0 Horizontal Qwerty keyboard with touchpad mouse	(2)
83760028	HORIZONTAL KEYB 2.0-A	2.0-A Horizontal Qwerty keyboard with touchpad mouse and thin profile	
83760020	HORIZONTAL KEYB	Horizontal Qwerty keyboard	
83760022	VERTICAL KEYB	Vertical alphanumeric keyboard	(3)

Operator Panel (choose one of them)

Code	Model	Description	
83760024	OP PANEL	JOG Panel	(4)
83760025	OP PANEL+SPDL RATE	JOG Panel with Spindle override	
83760029	OP PANEL-A	JOG Panel with thin profile	
83760030	OP PANEL+SPDL RATE-A	JOG Panel with Spindle override with thin profile	

CONFIGURATION

19" and 21" Panel PC (for Modular Central Unit)

(1)

(2)

(3)

(4)

PPC (choose one of them)

Code	Model	Description	
83760040	PPC-19-F-B-16-7A	PANEL PC 19" 16Gb	(1)
83760041	PPC-19-N-B-16-7A	PANEL PC 19" 16Gb (without logo)	
83760042	PPC-21W-F-B-16-7A	PANEL PC 21" Widescreen 16Gb	(2)
83760043	PPC-21W-N-B-16-7A	PANEL PC 21" Widescreen 16Gb (without logo)	
83760044	PPC-21W-F-B-16-7A-M128	PANEL PC 21" Widescreen 16Gb - 128Gb expansion	
83760045	PPC-21W-N-B-16-7A-M128	PANEL PC 21" Widescreen 16Gb - 128Gb expansion (without logo)	

Keyboard (choose one of them)

Code	Model	Description	
83760019	HORIZONTAL KEYB 2.0+TOUCHPAD	2.0 Horizontal Qwerty keyboard with touchpad mouse	(3)
83760028	HORIZONTAL KEYB 2.0-A	2.0-A Horizontal Qwerty keyboard with touchpad mouse with thin profile	
83760020	HORIZONTAL KEYB	Horizontal Qwerty keyboard	

Operator Panel (choose one of them)

Code	Model	Description	
83760024	OP PANEL	JOG Panel	(4)
83760025	OP PANEL+SPDL RATE	JOG Panel with Spindle override	
83760029	OP PANEL-A	JOG Panel with thin profile	
83760030	OP PANEL+SPDL RATE-A	JOG Panel with Spindle override with thin profile	

Monitor 18W and 21W (for Modular Central Unit)

(1)

Monitor 18W and 21W (choose one of them)

Code	Model	Description	
83700067	MONITOR-18W MULTITOUCH	18" Widescreen LCD monitor	(1)
83700057	MONITOR-21W MULTITOUCH	21" Widescreen LCD monitor	
83700058	MONITOR-21W MULTITOUCH NEUTRO	21" Widescreen LCD monitor (without logo)	

Complete the configuration with:

(3) Keyboard as shown above.

(4) Operator panel as shown above.

MODELS & SOFTWARE OPTIONS

			8060*elite* GL	8070*elite* OL	
		AXES	3 .. 9	3 .. 31	
		INTERPOLATED AXES	4	3 .. 31	
		SPINDLES	1	1 .. 6	
		MAGAZINES	1	1 .. 4	
		CHANNELS	1	1 .. 4	
		Max. AXES + SPINDLES	10	32	
83740030		SOFT ADDIT AXES	( )	( )	Aditional axes
83740031		SOFT ADDIT SPINDLES	(-)	( )	Aditional spindles
83740032		SOFT ADDIT TOOL MAGAZ	(-)	( )	Aditional magazines
83740033		SOFT ADDIT CHANNELS	(-)	( )	Aditional channels
83740008	A	SOFT 4 AXES INTERPOLATION LIMIT	(-)	( )	Up to 4 axis interpolated simultaneously
83740011	B	SOFT TOOL RADIUS COMP	( )	( )	Tool radius compensation, G40 ... G43 functions
83740013	C	SOFT HSSA II MACHINING SYSTEM	( )	( )	High Speed algorithm
		SOFT EDIT/SIMUL	(A)	(A)	Edition - Simulation
83740018	E	SOFT PROFILE EDITOR	(-)	( )	Profile Editor
		SOFT DIGITAL SERCOS	(A)	(A)	Sercos driver system
		SOFT PROBE (1)	(A)	(A)	Probe
83740010	H	SOFT C AXIS	( )	( )	C axis
83740034	I	SOFT TANDEM AXES	(-)	( )	2 axes acting as Tandem (Backlash rack & Pinion)
83740035	J	SOFT SYNCHRONISM	( )	( )	Spindle / Axes Synchronization
83740012	K	SOFT TANGENTIAL CONTROL	( )	( )	Tangential control
83740067	h	SOFT GAP CONTROL	( )	( )	GAP CONTROL
83740009	M	SOFT RTCP	( )	( )	RTCP option
83740041	Q	SOFT DRILL CYCL OL	( )	( )	Drilling canned cycles for OL models
83740043	R	SOFT OPEN SYSTEM	( )	( )	Open system, to install others softwares
83740042	P	SOFT THIRD PARTY DRIVES	( )	( )	Third party drive system
83740065	r	SOFT THIRD PARTY IOS	( )	( )	Third party IOs
83740072	U	SOFT CONVERS USER CYCLES	( )	( )	Conversational User Cycles
83740071	v	SOFT FVC (Fagor Volumetric compensation) STANDARD	(-)	( )	Volumetric compensation, standard
83740078	V	SOFT FVC (Fagor Volumetric compensation) UP TO 10m3	(-)	( )	Volumetric compensation, up to 10 m3
83740079	W	SOFT FVC (Fagor Volumetric compensation) MORE 10m3	(-)	( )	Volumetric compensation, for more than 10 m3
83740062	Z	SOFT PWM CONTROL	(-)	( )	PWM control
83740045	i	SOFT i4.0 CONNECTIVITY PACK	( )	( )	i4.0 Connectivity pack
83740068	z	SOFT 60/65/70 OPERATING TERMS	( )	( )	Operating Terms
83740066	b	SOFT KINEMATIC CALIBRATION	( )	( )	Kinematic Calibration
83740055	d	SOFT DMC	(-)	( )	Dynamic Machining Control
83740056	m	SOFT FMC	(-)	( )	Fagor Machining Calculator
83740069	x	SOFT FCAS	(-)	( )	Fagor Collision Avoidance System

(-)	Not available
( )	Optional Feature
(A)	Standard feature

(1) Only PROBE without cycles.

SOFTWARE DESCRIPTIONS

Live tool

The live tool must always be set as another spindle, both in open loop and in threading operations.

SOFT 4 AXES INTERPOLATION LIMIT

It limits the number of axes that may be interpolated at the same time. When having this software option, they can interpolate a maximum of 4 axes at the same time.

SOFT TOOL RADIUS COMP

Tool compensation allows programming the contour to be machined based on part dimensions and without taking into account the dimensions of the tool that will be used later on. This avoids having to calculate and define the tool path depending on the radius of the tool.

SOFT HSSA II MACHINING SYSTEM (HIGH SPEED)

The acronym “HSSA” means High Speed Surface Accuracy. It is the new improved version of HSC (High Speed Cutting).

HSSA algorithm calculations make it possible to optimize high speed machining. This achieves higher cutting speeds, smoother contours, better surface finish and higher accuracy.

SOFT PROFILE EDITOR

It allows editing and modifying profiles. The editor shows a graphic representation of the profile being defined.

SOFT EDIT/SIMUL (Standard on all models)

It allows editing, modifying and simulating a part-program.SOFT DIGITAL SERCOS (Standard on all models)

Sercos drive system bus.

SOFT DIGITAL SERCOS (Standard on all models)

Sercos drive system bus.

SOFT THIRD PARTY DRIVES

Enables the use of non-Fagor drive modules.

SOFT PROBE

The CNC may have two probes; usually a tabletop probe to calibrate tools and a measuring probe to measure the part.

It also offers functions G100 to G104 for programming probing moves; but the probing canned cycles are not included.

SOFT C AXIS

It activates the kinematics for working with C axis and their associated machining cycles.

The CNC may be used with several C axis spindles. The parameters of each spindle indicate whether it will work as a C axis or not and it won’t be necessary to activate another axis in the machine parameters.

SOFT TANDEM AXES

A tandem axis consists in two motors mechanically coupled (slaved) and making up a single transmission system (axis or spindle). This system is normally used to move the axes on large machines.

The CNC configuration contemplates both axes of the tandem. Only an axis is programmed (the master tandem). The other one (the slave tandem) cannot be programmed, but it is controlled by the CNC.

When activating this feature, it must be borne in mind that for each Tandem axis of the machine, another axis must be added to the whole configuration of the machine.

SOFT SYNCHRONISM

Axes and spindles may be synchronized in 2 ways, in velocity or in position.

The CNC configuration contemplates 2 axes or 2 spindles that are synchronized. Once synchronized, only the master is displayed and programmed.

SOFT TANGENTIAL CONTROL

“Tangential Control” Keeps a rotary axis always in the same orientation with respect to the programmed path. The machining path is defined in the axes of the active plane and the CNC keeps the orientation of the rotary axis along the whole path.

SOFT RTCP

The “RTCP” option is a must for machining in RTCP (Rotating Tool Center Point) with 4, 5 or 6-axis interpolation.

SOFT DRILL CYCL OL

Drilling canned cycles for OL models.

SOFT OPEN SYSTEM

The CNC is a closed system that offers all the features needed to machine parts. However, sometimes, specific customers use third-party applications for taking measurements, doing statistics or running other tasks besides machining a part.

This feature must be active when installing this type of applications, even if it is an Office file. Once the application has been installed, it is recommended to close the CNC back in order to prevent the operators from installing other kinds of applications that could slow the system down and affect the machining operations.

SOFT THIRD PARTY IOs

Enables the use of non-Fagor Input/Output modules.

SOFTWARE DESCRIPTIONS

SOFT FVC (Fagor Volumetric compensation) STANDARD
SOFT FVC (Fagor Volumetric compensation) UP TO 10m3
SOFT FVC (Fagor Volumetric compensation) MORE 10m3

5-axis machines are usually used to make large parts. The accuracy of the parts is limited by the machine manufacturing tolerances and by the effect of temperature while machining.

In industries like aerospace, the machining demands render the classical compensation tools insufficient. Volumetric compensation FVC comes in to complement the machine adjusting tools. By mapping the total work volume of the machine, the CNC knows the exact position of the tool at all times. After applying the necessary compensations, the resulting part has the desired accuracy and tolerance.

There are 3 choices depending on the size of the machine, basic, up to 10 m3 and over 10 m3.

STANDARD: Faster to calibrate (time), assuming that being less accurate than the other two, is sufficient for the precisions that are required.

UP TO 10m3 and MORE 10m3: More accurate, require precise calibration.

This feature is only available on the “8065 Power CNC” model.

SOFT PWM CONTROL

This feature is only available with Sercos drive system bus. Aimed mainly at Laser machines for cutting very thick sheet metal.

The CNC generates a series of PWM pulses to control the power of the Laser when drilling the starting point.

This feature is a must for cutting very thick sheet metal and requires two quick outputs available at the module “SER-CAN-8I-8IO-A (83700065)” of the central unit of the CNC 8070.

With this new feature, the OEM does not need to install external devices and programming them, thus reducing the cost of the machine and installing time. The end user also benefits because the “Cutting with PWM” feature is much easier to use and program.

SOFT i4.0 CONNECTIVITY PACK

Software feature defined to enable access to API8070, the library for the development of applications to communicate with the Fagor CNC.

SOFT 60/65/70 OPERATING TERMS

The “Operating Terms” option allows activating a temporary use license in the CNC, valid until a date determined by the OEM.

SOFT DMC (Dynamic Machining Control)

DMC adapts the feedrate during machining to maintain the cutting power as close as possible to ideal machining conditions.

SOFT FMC (Fagor Machining Calculator)

The FMC application consists of a database of materials to be machined and machining operations (milling and turning) with an interface to choose suitable cutting conditions for these operations.

SOFT FCAS (Fagor Collision Avoidance System)

The FCAS (Fagor Collision Avoidance System) option monitors automatically, in MDI/MDA, manually and tool inspection movements in real time, so as to avoid collisions between the tool and the machine.

FCAS is only available on the “8065 Power CNC” model, on single-channel machines that use HD graphics with a model configuration of the machine adjusted to reality (xca file). Default xca files supplied by Fagor are generic, which means they are not suitable for the FCAS option.

SOFT GAP CONTROL

Functionality that makes it possible to maintain a set distance between the laser nozzle and surface of the sheet (GAP).

The CNC is in charge of compensating for the existing undulations on the surface of the sheet to ensure the optimal positioning of the laser nozzle at all times.

SOFT CONVERS USER CYCLES

Allows to integrate user cycles in conversational mode.

SOFT KINEMATIC CALIBRATION

This work mode may be used to calibrate a kinematics for the first time and also, every so often, re-calibrate it to correct the possible deviations originated in the day-to-day machine work.

MANUALS

The manuals of the CNC may be downloaded from our FAGOR corporate website.
http://www.fagorautomation.com

Fagor Automation shall not be held responsible for any printing or transcribing errors in the Ordering Handbook and reserves the right to make any changes to the characteristics of its products without prior notice. You must always compare the data with that appearing in the manual.

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