FAGOR 8065 CNC

Ordering Handbook.

Ref. 1403



FAGOR

FAGOR AUTOMATION

Denominations

□-□-□-□□□-□-□-□-□-□-□□-□-□

Type of CNC

CNC 8065	CN65
CNC 8065 Power	CN65P

Monitor type

10" LCD + Keyboard	10K
15" LCD	15
15" LCD Touch Screen	15T

Type of function

Milling machines & Centers	M
Lathes and Turning Centers	T

Microprocessor

BASIC	B
PLUS	P

Compact Flash

2 GB	2
4 GB	4
8 GB	8
32 GB	32

Interface

Sercos-CAN I/O	S

Software pack

Basic soft pack	P0
Soft pack 1	P1

MDU
Dual-use products (2)

Internal code

Advanced software

-	Standard software
AV	Advanced software

Software options (1)

A	Up to 4 interpolated axes
C	High speed machining (HSSA)
G	Probing cycles
H	C axis
I	Tandem axes
J	Position and velocity synchronism
K	Tangential control
L	Dual-purpose machine M and T cycles
M	RTCP
O	IEC 61131
R	Open system
S	HD graphics
T	Conversational (IIP)
V	Volumetric comp. (FVC) up to 10 m3
W	Volumetric comp. (FVC) more than 10 m3
X	ROGTL3 editing
Y	CNC program translator

Channels	From 1 to 4
Magazines	From 1 to 4
Spindles	From 1 to 4
Axes	From 3 to 28

(1) Depends on the type of function
(2) Products manufactured by FAGOR AUTOMATION since April 1st 2014 will include "-MDU" in their identification if they are included on the list of dual-use products according to regulation UE 428/2009 and require an export license depending on destination.

Configuration

Monitor & Operator Panel

8065 CNC with 10.4" LCD and Operator Panel



Code	Model	Description
83600004	MONITOR-LCD-10K-001	10" LCD Monitor + Keyboard

8065 CNC with 15" LCD and Operator Panel

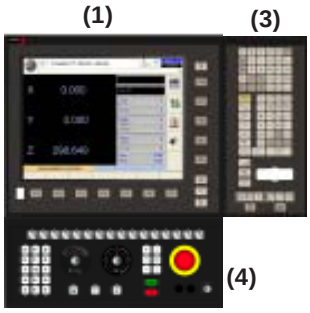


Monitor (choose one of them)

Code	Model	Description	
83700053	MONITOR-LCD-15	15" LCD monitor	(1)
83700054	MONITOR-LCD-15-TOUCH	15" LCD Touch Screen monitor	

Keyboard (choose one of them)

Code	Model	Description	
83760020	HORIZONTAL KEYB	Horizontal Qwerty keyboard	(2)
83760021	HORIZONTAL KEYB+MOUSE	Horizontal Qwerty keyboard with mouse	
83760022	VERTICAL KEYB	Vertical alphanumeric keyboard	(3)
83760023	VERTICAL KEYB+MOUSE	Vertical alphanumeric keyboard with mouse	



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	

Central Unit

Code	Model	Description	
83700111	8065-M-ICU	Integrate Central Unit for Milling machines	(1)
83700115	8065 Power-M-ICU	Integrate Central Unit for Milling machines	
83700112	8065-T-ICU	Integrate Central Unit for Lathes	
83700116	8065 Power-T-ICU	Integrate Central Unit for Lathes	

(1) Choose one of them

Central Unit components

Code	Model	Description	
83700033	SER-CAN-8I-8IO	Sercos - CAN - 8I - 8O module	(1)
83700080	MP-BASIC-3	Basic Microprocessor	(2)
83700036	MP-PLUS	High level Microprocessor	
83740054	CF-2GB	2 GB Compact Flash	(2)
83740051	CF-4GB	4 GB Compact Flash	
83740050	CF-8GB	8 GB Compact Flash	

(1) Required always

(2) Choose one of them

Other working area

15" LCD Monitor and Operator Panel



Code	Model	Description	
83700055	MONITOR-SVGA-15	15" SVGA LCD monitor	(1)
83760020	HORIZONTAL KEYB	Horizontal Qwerty keyboard	(2)
83760021	HORIZONTAL KEYB+MOUSE	Horizontal Qwerty keyboard with mouse	
83760022	VERTICAL KEYB	Vertical alphanumeric keyboard	(3)
83760023	VERTICAL KEYB+MOUSE	Vertical alphanumeric keyboard with mouse	
83760024	OP PANEL	JOG Panel	(4)
83760025	OP PANEL+SPDL RATE	JOG Panel with Spindle override	



Models & Software Options

The new sales configuration of the CNC 8065 is based on the machine's configuration. It offers the most appropriate configuration (hardware and software) for the application and machine type.

We offer different models.

CNC 8065 M	with basic features for Milling machines & VMC
CNC 8065 Power M	with power features for Milling machines & VMC
CNC 8065 T	with basic features for Lathes
CNC 8065 Power T	with power features for Lathes

Machine configurations with more than 8 axes or various magazines or channels required the "CNC 8065 Power" model. Also, there are some features, like volumetric compensation, axis or spindle synchronism, or PC applications, that required the "CNC 8065 Power" model.

Considering the requirements of the most typical applications, the features have been grouped by packages. Which:

- Simplifies the product configuration.
- Prevents placing wrong purchase orders.
- The package system allows to have several offers for different models

Configurations for Milling machine & VMC

CNC 8065 M basic

- For simple 3 axes machines up to 6 axes maximum
- Focused on VMC with ARC and rotary table
- Optional features: Probing canned cycles, HD graphics, IIP conversational programming system

CNC 8065 M with Feature pack 1

- For 5 axes machines up to 8 axes maximum.
- Focused on gantry machines with tandem and RTCP optional
- Standard features: Probing canned cycles, Tangential control
- Optional features: Tandem axes, Dynamic RTCP, HD graphics, IEC 61131 language,IIP conversational programming system

CNC 8065 Power M basic

- For 5 axes machines up to 12 axes, up to 4 spindles
- Standard features: Probing canned cycles, Tandem axes, Tangential control, HD graphics
- Optional features: Axis or spindle synchronism, Dual purpose for milling and lathe operations, Dynamic RTCP, IEC 61131 language, Open System for PC applications, IIP conversational programming system, FVC volumetric compensation.

CNC 8065 Power M with Feature pack 1

- For 8 axes machines up to 28 axes, several magazines, several channels
- Standard features: Probing canned cycles, Tandem axes, Axis or spindle synchronism, Tangential control, Dual purpose for milling and lathe operations, Dynamic RTCP, HD graphics
- Optional features: IEC 61131 language, Open System for PC applications, IIP conversational programming system, FVC volumetric compensation.

Configurations for Lathes

CNC 8065 T basic

- For simple 2 axes machines up to 5 axes maximum
- XZC axes, tailstock, auxiliary axis and live tool.
- Optional features: HSSA machining system, Probing canned cycles, C axis, HD graphics, IIP programming system

CNC 8065 T with Feature pack 1

- Focused on machines with tailstock tandem, up to 7 axes maximum or simple double channel lathes.
- Live tool, tandem, tailstock and magazine axis.
- Standard features: HSSA machining system, Probing canned cycles, C axis.
- Optional features: Tandem axes, Axis or spindle synchronism, HD graphics, IEC 61131 language, IIP programming system.

CNC 8065 Power T basic

- For machines up to 12 axes, up to 2 channels, several spindles
- Live tool, C and Y axes
- Standard features: HSSA machining system, Probing canned cycles, C axis, Tandem axes, HD graphics
- Optional features: Spindle synchronism, Tangential control, Milling cycles for Y axis (dual purpose), Dynamic RTCP, IEC 61131 language, Open System for PC applications, IIP programming system, FVC volumetric compensation.

CNC 8065 Power T with Feature pack 1

- For machines up to 28 axes, several magazines, several channels
- Standard features: HSSA machining system, Probing canned cycles, C axis, Tandem axes, Spindle synchronism, Tangential control, Milling cycles for Y axis (dual purpose), Dynamic RTCP, HD graphics
- Optional features:IEC 61131 language, Open System for PC applications, IIP programming system, FVC volumetric compensation.

Software Options for Milling machine & VMC

CNC 8065 M
- For simple 3 axes machines up to 6 axes maximum

CNC 8065 M with Feature pack 1
- For 5 axes interpolation RTCP machines, up to 8 axes maximum
- Gantry axis, tandem axes and magazine axis.

CNC 8065 Power M
- For 5 axes machines up to 12 axes, up to 4 spindles

CNC 8065 Power M with Feature pack 1
- For 8 axes machines up to 28 axes, several magazines, several channels

		8065 M		8065 M Power	
	Software Pack	Basic	Pack 1	Basic	Pack 1
	Microprocessor	MP-Basic MP-Plus	MP-Basic MP-Plus	MP-Plus	MP-Plus
	Compact Flash (GB)	2, 4, 8, 32	4, 8, 32	4, 8, 32	4, 8, 32
	AXES (minimum - maximum)	3 to 6	5 to 8	5 to 12	8 to 28
	SPINDLES (minimum - maximum)	1	1 to 2	1 to 4	1 to 4
	MAGAZINES (minimum - maximum)	1	1	1 to 2	1 to 4
	CHANNELS (minimum - maximum)	1	1	1	1 to 4
83740008	SOFT 4 AXES INTERPOLATION LIMIT	( )	( )	( )	( )
83740011	SOFT TOOL RADIUS COMP	(S)	(S)	(S)	(S)
83740013	SOFT HSSA MACHINING SYSTEM	(S)	(S)	(S)	(S)
83740019	SOFT EDIT/SIMUL	(S)	(S)	(S)	(S)
83740018	SOFT PROFILE EDITOR	(S)	(S)	(S)	(S)
83740021	SOFT DIGITAL SERCOS	(S)	(S)	(S)	(S)
83740007	SOFT PROBING CANNED CYCLES	( )	(S)	(S)	(S)
83740010	SOFT C AXIS	(S)	(S)	(S)	(S)
83740034	SOFT TANDEM AXES	(-)	( )	(S)	(S)
83740035	SOFT SYNCHRONISM	(-)	(-)	( )	(S)
83740012	SOFT TANGENTIAL CONTROL	(-)	(S)	(S)	(S)
83740036	SOFT DUAL-PURPOSE (milling & lathe cycles)	(-)	(-)	( )	(S)
83740009	(*) SOFT RTCP	(-)	( )	( )	(S)
83740070	(*) SOFT IEC 61131 LANGUAGE	(-)	( )	( )	( )
83740043	SOFT OPEN SYSTEM	(-)	(-)	( )	( )
83740076	(*) SOFT HD GRAPHICS (High Definition)	( )	( )	(S)	(S)
83740077	SOFT IIP (Interactive Icon-based Pages) CONVERSATIONAL (only with 1 channel)	( )	(S)	(S)	(S)
83740078	SOFT FVC (Fagor Volumetric compensation) UP TO 10m3	(-)	(-)	( )	( )
83740079	SOFT FVC (Fagor Volumetric compensation) MORE 10m3	(-)	(-)	( )	( )
83740074	SOFT PROGTL3	( )	( )	( )	( )
83740075	SOFT PPTRANS	( )	( )	( )	( )

(-)	Not available
( )	Optional feature
(S)	Standard

(*) *SOFT RTCP and SOFT IEC 61131 LANGUAGE features requires a MP-PLUS (High level Microprocessor)*
Having more than one channel, SOFT HD GRAPHICS features requires a MP-PLUS (High level Microprocessor)

Software Options for Lathe

CNC 8065 T

- For simple 3 axes machines up to 6 axes maximum

CNC 8065 T with Feature pack 1

- For machines with tailstock tandem, up to 7 axes maximum
- Live tool, tandem, tailstock and magazine axis.

CNC 8065 Power T

- For machines up to 12 axes, up to 4 spindles
- Live tool, C and Y axes

CNC 8065 Power T with Feature pack 1

- For machines up to 28 axes, several magazines, several channels

		8065 T		8065 T Power	
	Software Pack	Basic	Pack 1	Basic	Pack 1
	Microprocessor	MP-Basic MP-Plus	MP-Basic MP-Plus	MP-Plus	MP-Plus
	Compact Flash (GB)	2, 4, 8, 32	4, 8, 32	4, 8, 32	4, 8, 32
	AXES (minimum - maximum)	3 to 5	5 to 7	5 to 12	8 to 28
	SPINDLES (minimum - maximum)	2	2	3 to 4	3 to 4
	MAGAZINES (minimum - maximum)	1	1 or 2	1 or 2	1 to 4
	CHANNELS (minimum - maximum)	1	1 or 2	1 or 2	1 to 4
83740008	SOFT 4 AXES INTERPOLATION LIMIT	( )	( )	( )	( )
83740011	SOFT TOOL RADIUS COMP	(S)	(S)	(S)	(S)
83740013	SOFT HSSA MACHINING SYSTEM	( )	(S)	(S)	(S)
83740019	SOFT EDIT/SIMUL	(S)	(S)	(S)	(S)
83740018	SOFT PROFILE EDITOR	(S)	(S)	(S)	(S)
83740021	SOFT DIGITAL SERCOS	(S)	(S)	(S)	(S)
83740007	SOFT PROBING CANNED CYCLES	( )	(S)	(S)	(S)
83740010	SOFT C AXIS	( )	(S)	(S)	(S)
83740034	SOFT TANDEM AXES	(-)	( )	(S)	(S)
83740035	SOFT SYNCHRONISM	(-)	( )	( )	(S)
83740012	SOFT TANGENTIAL CONTROL	(-)	(-)	( )	(S)
83740036	SOFT DUAL-PURPOSE (milling & lathe cycles)	(-)	(-)	( )	(S)
83740009	(*) SOFT RTCP	(-)	(-)	( )	(S)
83740070	(*) SOFT IEC 61131 LANGUAGE	(-)	( )	( )	( )
83740043	SOFT OPEN SYSTEM	(-)	(-)	( )	( )
83740076	(*) SOFT HD GRAPHICS (High Definition)	( )	( )	(S)	(S)
83740077	SOFT IIP (Interactive Icon-based Pages) CONVERSATIONAL (only with 1 channel)	( )	(S)	(S)	(S)
83740078	SOFT FVC (Fagor Volumetric compensation) UP TO 10m3	(-)	(-)	( )	( )
83740079	SOFT FVC (Fagor Volumetric compensation) MORE 10m3	(-)	(-)	( )	( )
83740074	SOFT PROGTL3	(-)	(-)	(-)	(-)
83740075	SOFT PPTRANS	(-)	(-)	(-)	(-)

(-)	Not available
( )	Optional feature
(S)	Standard

(*) *SOFT RTCP and SOFT IEC 61131 LANGUAGE features requires a MP-PLUS (High level Microprocessor)*
Having more than one channel, SOFT HD GRAPHICS features requires a MP-PLUS (High level Microprocessor)

Software descriptions

Compact Flash (GB)

It may be of 2GB, 4GB, or 8 GB. It must be present in all the configurations. By default, the option with the least capacity is always offered. The 2GB compact flash is only available on the lowest models, the rest come with 4 GB by default.

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 (Standard on all models)

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 MACHINING SYSTEM

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 EDIT/SIMUL (Standard on all models)

It allows editing, modifying and simulating a part-program.

SOFT PROFILE EDITOR (Standard on all models)

It allows editing part profiles graphically and importing DXF files.

SOFT DIGITAL SERCOS (Standard on all models)

Sercos drive system bus

SOFT PROBING CANNED CYCLES

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, G103 and G104 for programming probing moves.

This feature activates the probing canned cycles that help measuring part surfaces and calibrating tools updating their dimensions.

SOFT C AXIS

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

The 8065 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. For example, on a large 3-axis lathe (XZ and tailstock), if the tailstock is a Tandem axis, the final purchase order for the machine must indicate 4 axes.

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 DUAL-PURPOSE

It allows having milling and turning machining cycles.

On lathes with Y axis, it allows making pockets, bosses and even irregular pockets with islands with the Y axis using milling cycles. Turning cycles may be used on mills that have a rotary axis working as C axis.

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

SOFT RTCP

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

This feature requires a MP-PLUS (High level Microprocessor)

SOFT IEC 61131 LANGUAGE

The IEC 61131 is PLC programming language, very popular on alternative markets and is entering the machine-tool market little by little.

When activating this feature, the PLC may be programmed either in the usual Fagor language or in IEC 61131 format.

This feature requires a MP-PLUS (High level Microprocessor)

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.

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

SOFT HD GRAPHICS (High Definition)

It offers high definition solid 3D graphics during the execution and simulation of the machining operation.

While machining, a high definition 3D graphic simulation shows the tool removing material from the part. This is a real time graphic representation that shows the status of the part at all times. The image may be turned, rotated, enlarged or reduced, and even 2 or 4 views of the part may be displayed.

Having more than one channel, a MP-PLUS (High level Microprocessor) is required to use this feature

SOFT IIP (Interactive Icon-based Pages) PROGRAMMING SYSTEM

This programming system is a conversational language, especially designed for people with no prior programming knowledge or not familiarized with Fagor CNC’s. Therefore, an operator of a conventional machine can start working on Fagor CNC in a couple of hours.

Working in conversational mode is easier than in ISO mode. It ensures proper data entry and minimizes the number of operations to be defined. There is no need to work with part-programs.

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 2 choices depending on the size of the machine, up to 10 m3 and over 10 m3

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

SOFT PROGTL3

Profile programming using geometric language without having to use external CAD systems. Program integration and interaction with real-time simulation and creating solids defined by a plane profile and one or several section profiles.

SOFT PPTRANS

Part-program translator

Accessories

Code	Model	Description
83760005	CNC FPU	Fagor Power Unit
83700075	TRANSP-KEYS & EXTRACTOR	20 transparent key caps and an extractor tool
83700076	TRANSP-KEYS	20 transparent key caps
83700077	WHITE-KEYS	20 white key caps

Remote I/O modules

Are easy to install, they can be mounted at strategic points of the machine for having extra inputs and outputs distributed next to each device. They are distributed in groups and are connected to the central unit through the CAN bus.

There three different RIOs: RIOW & RI05 series use CANopen protocol and RIO70 serie use CANfagor protocol. The RIO70 serie can not be combined with the others.

There are digital inputs/outputs and analog inputs/outputs in three series, but feed-back module is only available in RIO70 series.

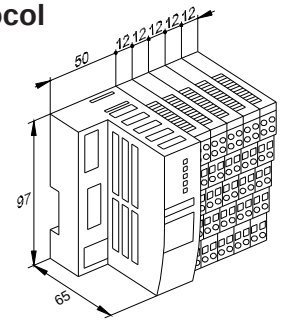
RIOW modules are smaller than RIO5 and RIO70, but the RIO70 modules have double half-card and you can configure modules to your needs.

Analog configurations need RIO7 modules, because feed-back inputs are only available in this model.

Remote Modules - RIOW serie

RIOW series. Remote modules with CANopen protocol





Header CANopen ..... **RIOW CANOPEN STAND** 03300010
Expansion module with 8 digital inputs ..... **RIOW 8DI-51205053** 03300008
Expansion module with 8 digital outputs ..... **RIOW 8DO-51205043** 03300007
Expansion module with 4 analog inputs ..... **RIOW 4AI-51205050** 03300006
Expansion module with 4 analog outputs ..... **RIOW 4AO-51205039** 03300005
Expansion module with 2 PT100 inputs ..... **RIOW 2AI PT100-51205048** 03300004
24V_{DC} 10A power supply for the modules ..... **RIOW PS24-51205036** 03300003
Line terminating module. ..... **RIOW END-51205037** 03300000

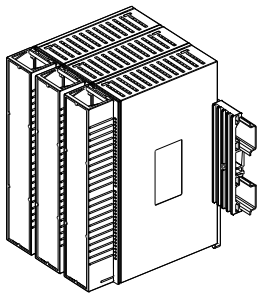
Remote Modules - RIO70 serie

RIO70 series. Remote modules with CANfagor protocol.

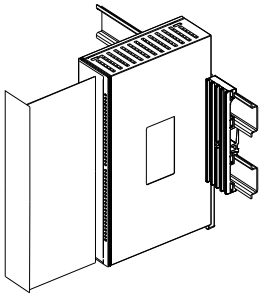
The CNC can handle up to 32 groups of Remote Modules.

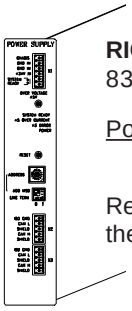
Each group carries an I/O Power Supply and may consist of up to 16 modules.

All groups are interconnected through a CAN Bus with the Central Unit and the Operator Panel.



Remote Modules. Full-card

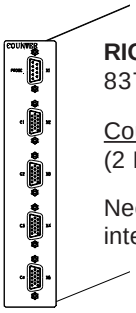




RIO70 POWER SUPPLY
83720100

Power Supply

Required always. Placed on the left side of the group.

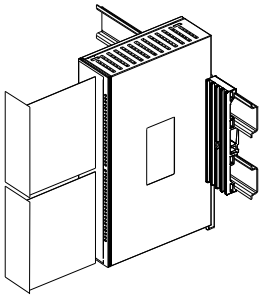


RIO70 4 FEED-BACK MOD
83720101

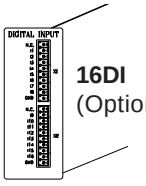
Counter (Option)
(2 Feed-Back + 2 Probe)

Needed when using an analog interface with the drive.

Remote Modules. Double half-card.

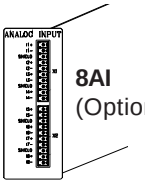


The double half-size Remote Modules are made of two of the following cards.



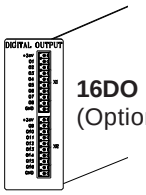
16DI
(Option)

16 Digital Inputs



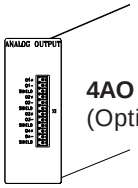
8AI
(Option)

8 Analog Inputs



16DO
(Option)

16 Digital Outputs



4AO
(Option)

4 Analog Outputs

These are the 14 possible combinations.

RIO70 16DI/—MOD	83720102
RIO70 16DI/16DI MOD	83720103
RIO70 16DI/16DO MOD	83720104
RIO70 16DI/8AI MOD	83720105
RIO70 16DI/4AO MOD	83720106
RIO70 16DO /—MOD	83720108
RIO70 16DO/16DO MOD	83720109
RIO70 16DO/8AI MOD	83720110
RIO70 16DO/4AO MOD	83720111
RIO70 8AI/—MOD	83720113
RIO70 8AI/8AI MOD	83720114
RIO70 8AI/4AO MOD	83720115
RIO70 4AO/—MOD	83720117
RIO70 4AO/4AO MOD	83720118

Consumption of the remote modules

The power supply is in charge of supplying to the rest of the modules through +5V and ±18V and managing the internal bus of the group. The total consumption of the group depends on the configuration of the modules.

		5V	±18V
DI	Digital inputs	0,40 watts	- - -
DO	Digital outputs	0,65 watts	- - -
AI	Analog inputs	0,30 watts	1,80 watts
AO	Analog outputs	0,35 watts	3,40 watts
CT	Counters	1,75 watts	- - -
CPU	CPU-CAN	0,60 watts	- - -

The consumption of the CPU-CAN is added to each module of the configuration. When mounting two half-size modules together (in the same box), the consumption of the CPU-CAN must only be added once.

The total consumption of the group must not exceed the following maximums:

- For +5V, a maximum consumption of 10 watts.
- For ±18V, a maximum consumption of 7.2 watts.

If any of them is exceeded, double the group. Use two power supplies and distribute the modules.

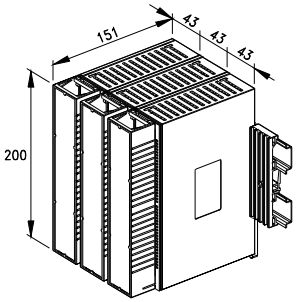
Example

Modules	5V	±18V
(CT) + (CPU)	1,75 + 0,6	- - -
(DI) + (DI) +(CPU)	0,4 + 0,4 + 0,6	- - -
(DO) + (DO) + (CPU)	0,65 + 0,65 + 0,6	- - -
(AO) + (CPU)	0,35 + 0,6	3,4
Total consumption	6,60 watts	3,4 watts

Remote Modules - RIO5 serie

RIO5 series. Remote modules with CANopen protocol





RIO5 PS-24I/16O 83070015
Header module with power supply, 24 digital inputs and 16 digital outputs

RIO5 PS-2PT100/4AI/4AO 83070018
Header module with 4 analog inputs, 4 analog outputs and 2 inputs for PT100 temperature gages

RIO5 24I/16O EXP MOD 83070016
Expansion module with 24 digital inputs and 16 digital outputs

RIO5 48I/32O EXP MOD 83070017
Expansion module with 48 digital inputs and 32 digital outputs

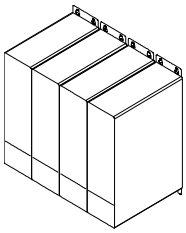
Select the cables necessary for each configuration.

Ready Made cables for CAN Bus (CAN CABLE) and Sercos ring (SFO & SFO-FLEX).



SERCOS CABLE





DRIVE SYSTEM

Each drive module having the Sercos interface option offers a small cable for connecting it to the adjacent module. Only the lines going to the CNC (Back anf forth) or the ones joining the far between modules.

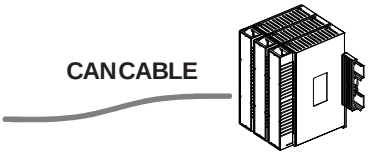
CAN CABLE





Remote Modules Group

CAN CABLE



CAN cable for Remote I/O's

5m	**CAN CABLE 5M**	03780100
10m	**CAN CABLE 10M**	03780101
15m	**CAN CABLE 15M**	03780102
20m	**CAN CABLE 20M**	03780103
25m	**CAN CABLE 25M**	03780104
30m	**CAN CABLE 30M**	03780106
35m	**CAN CABLE 35M**	03780107
40m	**CAN CABLE 40M**	03780108
45m	**CAN CABLE 45M**	03780109
50m	**CAN CABLE 50M**	03780110
75m	**CAN CABLE 75M**	03780111
100m	**CAN CABLE 100M**	03780112
150m	**CAN CABLE 150M**	03780113

SERCOS cables

Sercos optic fiber

1m	**SFO-1**	03900001
2m	**SFO-2**	03900002
3m	**SFO-3**	03900003
5m	**SFO-5**	03900005
7m	**SFO-7**	03900007
10m	**SFO-10**	03900010
12m	**SFO-12**	03900012

Flexible Sercos optic fiber

10m	SFO-FLEX-10	03910010
15m	SFO-FLEX-15	03910015
20m	SFO-FLEX-20	03910020
25m	SFO-FLEX-25	03910025
30m	SFO-FLEX-30	03910030
35m	SFO-FLEX-35	03910035
40m	SFO-FLEX-40	03910040
40m	SFO-V-FLEX-40	03920040
50m	SFO-V-FLEX-50	03920050
60m	SFO-V-FLEX-60	03920060
75m	SFO-V-FLEX-75	03920075
100m	SFO-V-FLEX-100	03920100

In order to complete its order

CONFIGURATION: 8065 CNC with 10.4" LCD and Operator Panel

	83600004	MONITOR-LCD-10K-001	10" LCD Monitor + Keyboard

CONFIGURATION: 8065 CNC with 15" LCD and Operator Panel

15" LCD Monitor (choose one of them)

	83700053	MONITOR-LCD-15	15" LCD monitor
	83700054	MONITOR-LCD-15-TOUCH	15" LCD Touch Screen monitor

Keyboard (choose one of them)

	83760020	HORIZONTAL KEYB	Horizontal Qwerty keyboard
	83760021	HORIZONTAL KEYB+MOUSE	Horizontal Qwerty keyboard with mouse
	83760022	VERTICAL KEYB	Vertical alphanumeric keyboard
	83760023	VERTICAL KEYB+MOUSE	Vertical alphanumeric keyboard with mouse

Operator Panel (choose one of them)

	83760024	OP PANEL	JOG Panel
	83760025	OP PANEL+SPDL RATE	JOG Panel with Spindle override

CONFIGURATION: Other working area 15" LCD Monitor and Operator Panel

15" LCD Monitor

	83700055	MONITOR-SVGA-15	15" SVGA LCD monitor

Keyboard

	83760020	HORIZONTAL KEYB	Horizontal Qwerty keyboard
	83760021	HORIZONTAL KEYB+MOUSE	Horizontal Qwerty keyboard with mouse
	83760022	VERTICAL KEYB	Vertical alphanumeric keyboard
	83760023	VERTICAL KEYB+MOUSE	Vertical alphanumeric keyboard with mouse

Operator Panel

	83760024	OP PANEL	JOG Panel
	83760025	OP PANEL+SPDL RATE	JOG Panel with Spindle override

CONFIGURATION: CENTRAL UNIT

Central Unit (choose one of them)

	83700111	8065-M-ICU	Integrate Central Unit for Milling machines
	83700115	8065 Power-M-ICU	Integrate Central Unit for Milling machines
	83700112	8065-T-ICU	Integrate Central Unit for Lathes
	83700116	8065 Power-T-ICU	Integrate Central Unit for Lathes

Central Unit components

	83700033	SER-CAN-8I-8IO	Sercos - CAN - 8I - 8O module	*compulsory*
	83700080	MP-BASIC-3	Basic Microprocessor	*choose one of them*
	83700036	MP-PLUS	High level Microprocessor for Power model	
	83740054	CF-2GB	2 GB Compact Flash. Only available on the lowest models.	*choose one of them*
	83740051	CF-4GB	4 GB Compact Flash	
	83740050	CF-8GB	8 GB Compact Flash	

SOFTWARE FEATURES For Milling machine & VMC

	83740082	SOFT 8065 M PACK1
	83740084	SOFT 8065 Power M PACK1

	83740030	SOFT ADDIT AXES
	83740033	SOFT ADDIT CHANNELS
	83740031	SOFT ADDIT SPINDLES
	83740032	SOFT ADDIT TOOL MAGAZ

	83740008	SOFT 4 AXES INTERPOLATION LIMIT
	83740007	SOFT PROBING CANNED CYCLES
	83740034	SOFT TANDEM AXES
	83740035	SOFT SYNCHRONISM
	83740012	SOFT TANGENTIAL CONTROL
	83740036	SOFT DUAL-PURPOSE (M-T)
	83740009	SOFT RTCP
	83740070	SOFT IEC 61131 LANGUAGE
	83740043	SOFT OPEN SYSTEM
	83740076	SOFT HD GRAPHICS
	83740077	SOFT IIP CONVERSATIONAL
	83740078	SOFT FVC UP TO 10m3
	83740079	SOFT FVC MORE 10m3
	83740074	SOFT PROGTL3
	83740075	SOFT PPTRANS

SOFTWARE FEATURES For Lathes

	83740086	SOFT 8065 T PACK1
	83740088	SOFT 8065 Power T PACK1

	83740030	SOFT ADDIT AXES
	83740033	SOFT ADDIT CHANNELS
	83740031	SOFT ADDIT SPINDLES
	83740032	SOFT ADDIT TOOL MAGAZ

	83740008	SOFT 4 AXES INTERPOLATION LIMIT
	83740013	SOFT HSSA MACHINING SYSTEM
	83740007	SOFT PROBING CANNED CYCLES
	83740010	SOFT C AXIS
	83740034	SOFT TANDEM AXES
	83740035	SOFT SYNCHRONISM
	83740012	SOFT TANGENTIAL CONTROL
	83740036	SOFT DUAL-PURPOSE (M-T)
	83740009	SOFT RTCP
	83740070	SOFT IEC 61131 LANGUAGE
	83740043	SOFT OPEN SYSTEM
	83740076	SOFT HD GRAPHICS
	83740077	SOFT IIP CONVERSATIONAL
	83740078	SOFT FVC UP TO 10m3
	83740079	SOFT FVC MORE 10m3

MANUALS

	03753900	M.CNC 8065 OEM-CAS	OEM manual in Spanish
	03753901	M.CNC 8065 OEM-ING	OEM manual in English

	03753910	M.CNC 8065 USER-CAS	User manual in Spanish
	03753911	M.CNC 8065 USER-ING	User manual in English
	03753912	M.CNC 8065 USER-FRA	User manual in French
	03753913	M.CNC 8065 USER-ALE	User manual in German
	03753914	M.CNC 8065 USER-ITA	User manual in Italian
	03753915	M.CNC 8065 USER-BRA	User manual in Portuguese-Brazilian

	03753920	M.CNC 8065 M CYC-CAS	Canned cycles manual in Spanish
	03753921	M.CNC 8065 M CYC-ING	Canned cycles manual in English
	03753922	M.CNC 8065 M CYC-FRA	Canned cycles manual in French
	03753923	M.CNC 8065 M CYC-ALE	Canned cycles manual in German
	03753924	M.CNC 8065 M CYC-ITA	Canned cycles manual in Italian
	03753925	M.CNC 8065 M CYC-BRA	Canned cycles manual in Portuguese-Brazilian

	03753930	M.CNC 8065 T CYC-CAS	Canned cycles manual in Spanish
	03753931	M.CNC 8065 T CYC-ING	Canned cycles manual in English
	03753932	M.CNC 8065 T CYC-FRA	Canned cycles manual in French
	03753933	M.CNC 8065 T CYC-ALE	Canned cycles manual in German
	03753934	M.CNC 8065 T CYC-ITA	Canned cycles manual in Italian
	03753935	M.CNC 8065 T CYC-BRA	Canned cycles manual in Portuguese-Brazilian

ACCESORIES

	83760005	CNC FPU	Fagor Power Unit
	83700075	TRANSP-KEYS & EXTRACTOR	20 transparent key caps and an extractor tool
	83700076	TRANSP-KEYS	20 transparent key caps
	83700077	WHITE-KEYS	20 white key caps

Spare parts

	83700049	SER-CAN-8I-8IO (RF)
	83701072	CF-2GB (RF)
	83740053	CF-4GB (RF)
	83740052	CF-8GB (RF)

REMOTE I/O MODULES

RIO70 series

	83720100	RIO70 POWER SUPPLY	Power Supply
	83720102	RIO70 16DI/--MOD	16 digital inputs
	83720103	RIO70 16DI/16DI MOD	32 digital inputs
	83720104	RIO70 16DI/16DO MOD	16 digital inputs / 16 digital outputs
	83720105	RIO70 16DI/8AI MOD	16 digital inputs / 8 analog inputs
	83720106	RIO70 16DI/4AO MOD	16 digital inputs / 4 analog outputs
	83720108	RIO70 16DO / --MOD	16 digital outputs
	83720109	RIO70 16DO/16DO MOD	32 digital outputs
	83720110	RIO70 16DO/8AI MOD	16 digital outputs / 8 analog inputs
	83720111	RIO70 16DO/4AO MOD	16 digital outputs / 4 analog outputs
	83720113	RIO70 8AI/--MOD	8 analog inputs
	83720114	RIO70 8AI/8AI MOD	16 analog inputs
	83720115	RIO70 8AI/4AO MOD	8 analog inputs / 4 analog outputs
	83720117	RIO70 4AO/--MOD	4 analog outputs
	83720118	RIO70 4AO/4AO MOD	8 analog outputs
	83720101	RIO70 4 FEED-BACK MOD	4 feedback inputs

REMOTE I/O MODULES

RIOW series

	03300010	RIOW CANOPEN STAND	Header module CANopen
	03300008	RIOW 8DI-51205053	Expansion module with 8 digital inputs
	03300007	RIOW 8DO-51205043	Expansion module with 8 digital outputs
	03300006	RIOW 4AI-51205050	Expansion module with 4 analog inputs
	03300005	RIOW 4AO-51205039	Expansion module with 4 analog outputs
	03300004	RIOW 2AI PT100-51205048	Expansion module with 2 inputs for PT100
	03300003	RIOW PS24-51205036	24 V DC 10 A power supply for the modules
	03300000	RIOW END-51205037	Line terminating module.

REMOTE I/O MODULES

RIO5 series

	83070015	RIO5 PS-24I/16O
	83070018	RIO5 PS-2PT100/4AI/4AO

	83070016	RIO5 24I/16O EXP MOD
	83070017	RIO5 48I/32O EXP MOD

CAN cable for Remote I/O's

	03780100	CAN CABLE 5M
	03780101	CAN CABLE 10M
	03780102	CAN CABLE 15M
	03780103	CAN CABLE 20M
	03780104	CAN CABLE 25M
	03780106	CAN CABLE 30M
	03780107	CAN CABLE 35M

	03780108	CAN CABLE 40M
	03780109	CAN CABLE 45M
	03780110	CAN CABLE 50M
	03780111	CAN CABLE 75M
	03780112	CAN CABLE 100M
	03780113	CAN CABLE 150M

Sercos optic fiber cables

	03900001	SFO-1
	03900002	SFO-2
	03900003	SFO-3
	03900005	SFO-5

	03900007	SFO-7
	03900010	SFO-10
	03900012	SFO-12

Flexible Sercos optic fiber cables

	03910010	SFO-FLEX-10
	03910015	SFO-FLEX-15
	03910020	SFO-FLEX-20
	03910025	SFO-FLEX-25
	03910030	SFO-FLEX-30
	03910035	SFO-FLEX-35
	03910040	SFO-FLEX-40

	03920040	SFO-V-FLEX-40
	03920050	SFO-V-FLEX-50
	03920060	SFO-V-FLEX-60
	03920075	SFO-V-FLEX-75
	03920100	SFO-V-FLEX-100