

FAGOR AUTOMATION

Ordering Handbook

CNC 8060 Power

Ref.2101

Original instructions



FAGOR AUTOMATION

DENOMINATIONS

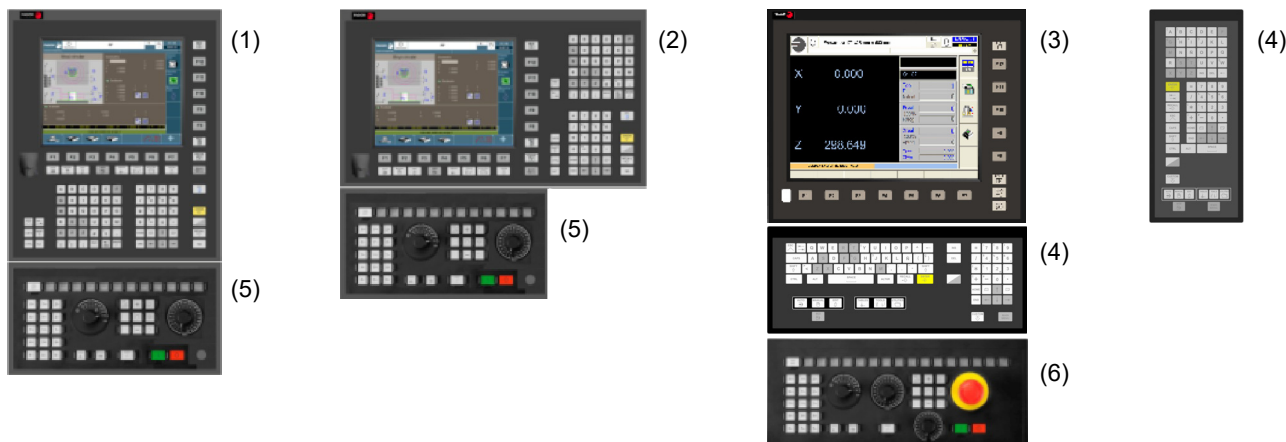
		[] - [] - [] - [] [] [] [] - [] - [] [] [] [] - [] []											
Type of CNC CNC (LCD and Central Unit) C60P U. Central cabinet (without LCD) U60P													
Monitor type (only for CNC) 10" LCD Horizontal 10H 10" LCD Horizontal Touch Screen 10HT 10" LCD Vertical 10V 10" LCD Vertical Touch Screen 10VT 15" LCD 15 15" LCD Multitouch Screen 15AT U. Central cabinet Without LCD -													
Type of function Milling machines & Centers M Lathes and Turning Centers T													
Processor Basic Processor B													
Nand Flash 4 GB 4													
Interface Sercos S													
Windows Windows 7 7 Windows 7 Multitouch 7A													
Axes From 3 to 6													
		Internal code 09											
		Advanced software - Standard software AV Advanced software											
		Software options (1) H C axis G Probe d DMC (Dynamic Machining Control) a Conversational (IIP) f FFC (Fagor Feed Control) S Fagor HD Graphics C HSSA II Machining System I Tandem axes i i4.0 CONNECTIVITY PACK M RTCP U Conversational User Cycles m FMC (Fagor Machining Calculator) J Synchronism X PROGTL3 editing Y CNC program translator r Third Party IOs N Y Axis z Operating Terms											
		Channels From 1 to 2											
		Magazines From 1 to 2											
		Spindles From 1 to 3											

(1) Depends on the type of function

CONFIGURATION

MONITOR & OPERATOR PANEL

8060 CNC with 10.4" LCD & Key board, 15" LCD, separate Key board and separate Operator Panel



Monitor (choose one of them)

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	
83700053	MONITOR-LCD-15	15" LCD monitor	(3)
83700059	MONITOR-LCD-15A-MULTITOUCH	15" LCD Capacitive MultiTouch monitor screen	

Keyboard (choose one of them. Only needed with 15" LCD configuration)

Code	Model	Description	
83760019	HORIZONTAL KEYB 2.0+TOUCHPAD	2.0 Horizontal Qwerty keyboard with touchpad mouse	(4)
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	

Operator Panel (choose one of them)

Code	Model	Description	
83600010	OP PANEL 329	JOG Panel, 329 mm	(5)
83760024	OP PANEL	JOG Panel	(6)
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	

CENTRAL UNIT IN FRONTAL PANEL



Central Unit (choose one of them)

Code	Model	Description	
83600023	8060 Power-M-ICU-A	Integrate Central Unit with EtherCAT for Milling machines	(1)
83600025	8060 Power-T-ICU-A	Integrate Central Unit with EtherCAT for Lathes	

(1) Choose one of them

Central Unit components

Code	Model	Description	
83600033	MP-603	Microprocessor	(1)
83600056	SERCOS-2-A	Sercos module	(1)
83700250	MOD-4GB-RAM	4 GB RAM module	(1)

(1) Required always

Operating System (choose one of them)

Code	Model	Description	
83740063	SOFT WINDOWS 7	WINDOWS 7 software (for no touch monitors)	(1)
83740059	SOFT WINDOWS 7A	WINDOWS 7 multi touch software (for touch monitors)	

(1) Choose one of them

CONFIGURATION

CENTRAL UNIT IN ELECTRICAL CABINET



Code	Model	Description	
83600123	8060 Power-M-MCU-A	Modular Central Unit with EtherCAT for Milling machines	(1)
83600125	8060 Power-T-MCU-A	Modular Central Unit with EtherCAT for Lathes	

(1) Choose one of them

Code	Model	Description	
83600056	SERCOS-2-A	Sercos module	(1)
83600033	MP-603	Microprocessor	(1)
83700250	MOD-4GB-RAM	4 GB RAM module	(1)

(1) Required always

Code	Model	Description	
83740063	SOFT WINDOWS 7	WINDOWS 7 software (for no touch monitors)	(1)
83740059	SOFT WINDOWS 7A	WINDOWS 7 multi touch software (for touch monitors)	

(1) Choose one of them

19" and 21" Panel PC



(1)

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)	



(2)



(3)

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 and thin profile	

Complete the configuration with:

(4) Operator panel as shown in page 3.

Monitor 18W and 21W



(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:

(2) or (3) Keyboard as shown in page 3 (except 83760019 HORIZONTAL KEYB 2.0+TOUCHPAD).

(4) Operator panel as shown in page 3.

MODELS & SOFTWARE OPTIONS

			8060 Power	
			M	T
	AXES	(min.-max.)	3 .. 6	3 .. 6
	INTERPOLATED AXES	(max.)	4	4
	SPINDLES	(min.-max.)	1 .. 2	1 .. 3
	MAGAZINES	(min.-max.)	1	1 .. 2
	CHANNELS	(min.-max.)	1	1 .. 2
	Max. AXES + SPINDLES		7	7
83600076		SOFT 8060 ADDIT AXES	()	()
83600078		SOFT 8060 ADDIT SPINDLES	()	()
83600079		SOFT 8060 ADDIT TOOL MAGAZ	(-)	()
83600077		SOFT 8060 ADDIT CHANNELS	(-)	()
		SOFT TOOL RADIUS COMP	(A)	(A)
		SOFT EDIT/SIMUL	(A)	(A)
		SOFT PROFILE EDITOR	(A)	(A)
		SOFT DIGITAL SERCOS	(A)	(A)
83600084	C	SOFT 60 HSSA II MACHINING SYSTEM	()	()
83600081	G	SOFT 60 PROBE	()	()
83600080	H	SOFT 60 C AXIS	()	()
83600097	N	SOFT 60 Y AXIS	()	()
83600094	I	SOFT 60 TANDEM AXES	()	()
83600092	J	SOFT 60 SYNCHRONISM	(-)	()
83600086	M	SOFT 60 RTCP	()	(-)
83740065	r	SOFT THIRD PARTY IOS	()	()
83600083	S	SOFT 60 HD GRAPHICS	()	()
83600082	a	SOFT 60 IIP CONVERSATIONAL	()	()
83600089	U	SOFT 60 CONV USER CYCLES	()	()
83600095	X	SOFT 60 PROGTL3	()	(-)
83600096	Y	SOFT 60 PPTRANS	()	()
83740045	i	SOFT i4.0 CONNECTIVITY PACK	()	()
83740068	z	SOFT 60/65/70 OPERATING TERMS	()	()
83740055	d	SOFT DMC	()	(-)
83740056	m	SOFT FMC	()	()
83740057	f	SOFT FFC	()	()

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

SOFTWARE DESCRIPTIONS

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 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 60 HSSA MACHINING SYSTEM (HSSA II)

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 60 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, 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 60 C AXIS

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

SOFT 60 Y AXIS

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

SOFT 60 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 60 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 60 RTCP

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

SOFT THIRD PARTY IOs

Enables the use of non-Fagor IO modules.

SOFT 60 HD GRAPHICS

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.

SOFT 60 IIP (Interactive Icon-based Pages) CONVERSATIONAL

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 60 CONVERS USER CYCLES

Allows to integrate user cycles in conversational mode.

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.

SOFTWARE DESCRIPTIONS

SOFT PPTRANS

Part-program translator.

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 FFC (Fagor Feed Control)

During the execution of a canned cycle of the editor, the FFC function makes it possible to replace the feedrate and speed programmed in the cycle with the active values of the execution, which are acted upon by the feed override and speed override.

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.

REMOTE MODULES - RIOW-E serie

RIOW-E series. Remote modules with EtherCAT protocol



Code	Model	Description
03300060	F-IL EC BK-PAC	EtherCAT INLINE Bus coupler
03300061	IB IL 24 DI 8/HD-ECO	INLINE module 8 digital inputs
03300062	IB IL 24 DI 32/HD-PAC	INLINE module 32 digital inputs
03300063	IB IL 24 DO 8/HD-ECO	INLINE module 8 digital outputs
03300064	IB IL 24 DO 32/HD-PAC	INLINE module 32 digital outputs
03300065	IB IL AI 4/U-PAC	INLINE module 4 analog inputs
03300066	IB IL AO 2/UI-PAC	INLINE module 2 analog outputs
03300067	IB IL RTD 4/PT100-ECO	INLINE module 4 inputs resistance thermometer
03300090	IB IL 24 PWR IN-PAC	24V Power Expansion Accessory

REMOTE MODULES - RIOR-E serie

RIOR-E series. Remote modules with EtherCAT protocol



Code	Model	Description
83720202 (*)	RIOR-E-48I32O	Module with 48 digital inputs and 32 digital outputs.
83720203 (*)	RIOR-E-48I32O-ANALOG	Module with 48 DI, 32 DO, 2 AI, 4 AO and 2 Pt100.

(*) In creation.

REMOTE MODULES - RCS-S

RCS-S series. Remote counter Station - Sercos protocol

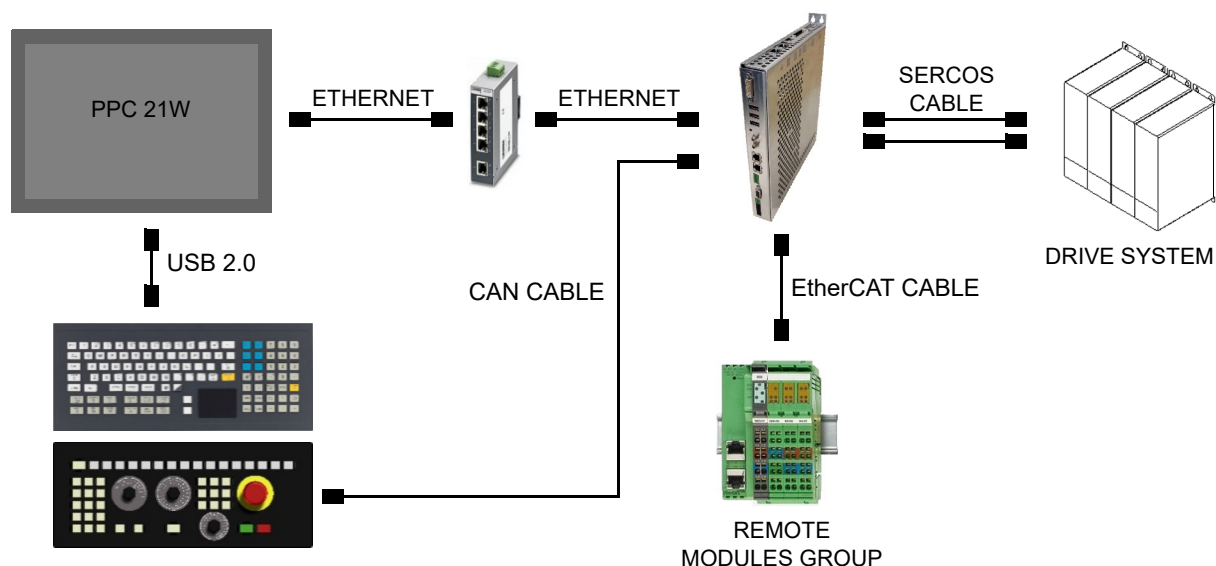


Code	Model	Description
83720500	RCS-S-4F4AO	Module with 4 feedback inputs and 4 analog outputs.

SELECT THE CABLES NECESSARY FOR EACH CONFIGURATION

CENTRAL UNIT IN ELECTRICAL CABINET AND PPC MONITOR

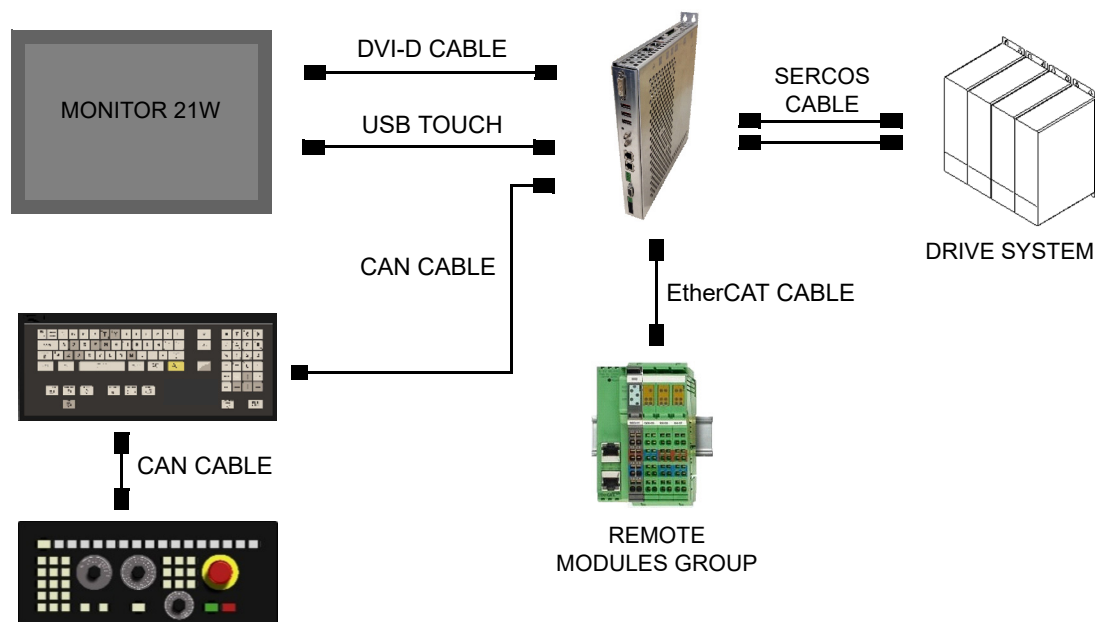
Ready Made cables for EtherCAT bus (ECAT-CABLE), CAN Bus (CAN CABLE) and Sercos ring (SFO & SFO-FLEX).



CENTRAL UNIT IN ELECTRICAL CABINET AND MONITOR

Any passive monitor possible.

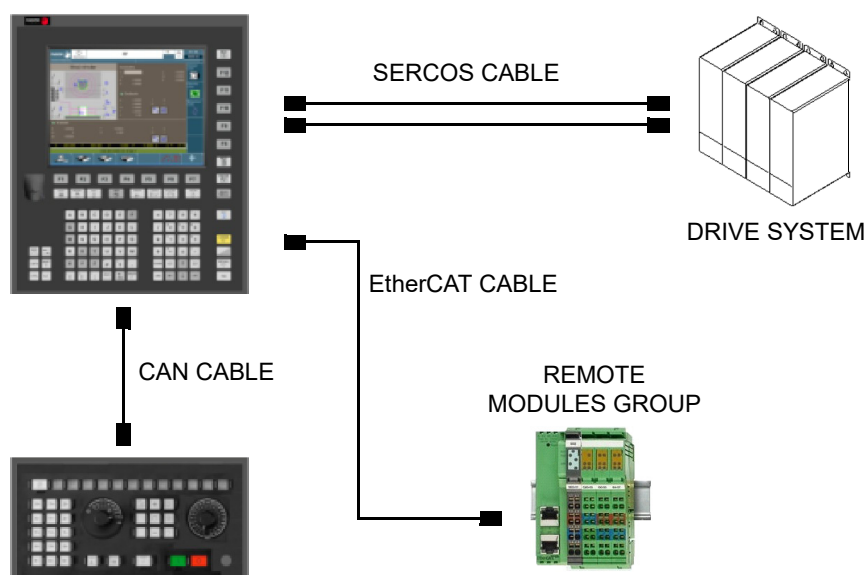
Ready Made cables for monitor (DVI-D and USB TOUCH), EtherCAT bus (ECAT-CABLE), CAN Bus (CAN CABLE) and Sercos ring (SFO & SFO-FLEX).



SELECT THE CABLES NECESSARY FOR EACH CONFIGURATION

CENTRAL UNIT IN OPERATOR PANEL

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



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 and forth) or the ones joining the far between modules.

SERCOS cables

Sercos optic fiber

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

Flexible Sercos optic fiber

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

EtherCAT cables for Remote I/Os

5 m	ECAT-CABLE-5	03800004
7 m	ECAT-CABLE-7	03800005
10 m	ECAT-CABLE-FLEX-10	03800006
15 m	ECAT-CABLE-FLEX-15	03800007
20 m	ECAT-CABLE-FLEX-20	03800008

Ask HQ for the availability of other sizes.

CAN Cable for Keyboard and Operator Panel

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

DVI and USB TOUCH cables for passive Monitor

5m	CABLE DVI-D 5M	03780206
5m	CABLE USB 5M - SH	03500001

ACCESSORIES

Code	Model	Description	
83600039	CFAST 32GB	32GB CFAST Expansion	
83600040	CFAST 128GB	128GB CFAST Expansion	
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	
83600011	KEYS FOR OP PANEL 329	Keys to customize the OP PANEL 329	
83740230	ETHERCAT CONFIGURATOR	EtherCAT I/Os configuration software	(1)
03010000	CNC FPS	Fagor External Uninterruptible Power Supply	(2)
03200046	SWITCH SFNB 5TX-2891001	Switch 5 ports 10/100Mb/s	(3)
03200009	PS-SF-141005	Hand-Held box Safety 100 pulses 5 V TTL differential (RS422)	
03000003	PS-SF-SHORT CIRCUIT PLUG	Connector to jumper the contacts of the emergency stop.	(4)
03000004	PS-SF-FEMALE CONNECTOR	Female connector	
03000005	PS-SF-MALE CONNECTOR	Male connector	
03200015	HBA-119903	Hand-Held box 100 pulses 5 V TTL differential (RS422)	
03200016	HBA-119904	Hand-Held box 25 pulses 10 - 30 V non-differential square wave, Push-Pull	
03000000	HBA SHORT CIRCUIT PLUG	Connector to jumper the contacts of the emergency stop	(5)
03000001	HBA FEMALE CONNECTOR	Female connector	
03000002	HBA MALE CONNECTOR	Male connector	
03200010	UFO-01-2D-18	Ultra Flat Handwheel 5V	(6)
81003005	100E	Built-in Handwheel	(7)
83700078	VESA MOUNT ACCESSORY	VESA mounting accessory for monitors from 17" to 23"	(8)

(1)



(2)



(3)



(4)

(5)



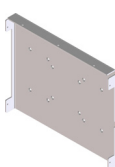
(6)



(7)



(8)



MANUALS

Printed manuals

03753900	M.CN8060-65 OEM-CAS	OEM manual in Spanish
03753901	M.CN8060-65 OEM-IN	OEM manual in English
03753910	M.CN8060-65 USER-CAS	User manual in Spanish
03753911	M.CN8060-65 USER-IN	User manual in English
03753912	M.CN8060-65 USER-FRA	User manual in French
03753913	M.CN8060-65 USER-ALE	User manual in German
03753914	M.CN8060-65 USER-ITA	User manual in Italian
03753915	M.CN8060-65 USER-BRA	User manual in Portuguese-Brazilian
03753920	M.CN8060-65 M CYC-CAS	Canned cycles manual for M model in Spanish
03753921	M.CN8060-65 M CYC-IN	Canned cycles manual for M model in English
03753922	M.CN8060-65 M CYC-FRA	Canned cycles manual for M model in French
03753923	M.CN8060-65 M CYC-ALE	Canned cycles manual for M model in German
03753924	M.CN8060-65 M CYC-ITA	Canned cycles manual for M model in Italian
03753925	M.CN8060-65 M CYC-BRA	Canned cycles manual for M model in Portuguese-Brazilian
03753930	M.CN8060-65 T CYC-CAS	Canned cycles manual for T model in Spanish
03753931	M.CN8060-65 T CYC-IN	Canned cycles manual for T model in English
03753932	M.CN8060-65 T CYC-FRA	Canned cycles manual for T model in French
03753933	M.CN8060-65 T CYC-ALE	Canned cycles manual for T model in German
03753934	M.CN8060-65 T CYC-ITA	Canned cycles manual for T model in Italian
03753935	M.CN8060-65 T CYC-BRA	Canned cycles manual for T model in Portuguese-Brazilian

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

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