1. GENERAL INFORMATION

The Duplomatic control unit is a compact system that controls all functions regarding positioning and driving of the **SM* turrets Duplomatic**. The interfacing to the lathe is powerful and simplified for an easy installation**.** Serial line RS232 is set for diagnostic and remote control by PC.

CODE OF THE CONTROL UNIT

DUPLOMATIC AUTOMATION	
MADE IN ITALY	
Model: DDC4-20-230/20	
Code: 0496304A03	
S/N *********	
DSP FW 2.8	
I/O FW 5	
TABLE SET	0489103
TABLE SELECT	3-SM16

INERTIA	LEV.1	LEV.2
J (kgm^2)	1,2	2,2
PTAB03	24V	0V

TOOLS	8	12
PTAB01	24V	0V
PTAB02	0V	24V

All information concerning the controller configuration are printed on a label like this one. It is possible to read the code, the FW release, the parameter set loaded and the actual configuration, with the turret model and the allowed inertia. The configuration of selectors PTAB01, PTAB02, PTAB03 and their effects are also stated.

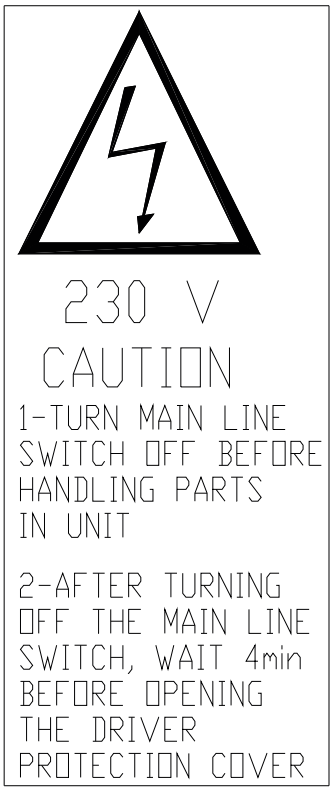
Sometimes the S/N of the controller is printed on a separate white label.

The code of DDC4 controller is composed by 7 digits to describe the HARDWARE, and a letter to describe the actual number of handled tools followed by two digits to indicate the parameter table loaded (related to turret size and inertia).

For example, in this label we have a DDC4 code 0496304 (for SM*-230V turret) set for 8 or 12 tools (letter A, to be chosen by applying 24V to PTAB01 or to PTAB02) and set to drive a turret SM-16 (table 03).

The allowed inertia of the tooldisc can be 1,2 kgm^2 or 2,2 kgm^2 according to the voltage on input PTAB03. The list of turret configured is printed at the beginning of the manual. Other settings are available on request.

IMPORTANT NOTE FOR SAFETY



Do not manipulate the inside of the unit
Only personnel authorized by Duplomatic may manipulate the inside of this unit.

Do not manipulate the connectors with the unit connected to AC power.
Before manipulating the connectors (inputs/outputs, feedback, etc.) make sure that the unit is not connected to AC power.

The control unit, even after the power off of the supply, stores internally electric power until the power capacitors are charged.
Be careful when operate on it.

ROHS AND WEEE DIRECTIVE

The DDC4 control unit does not belong to the scope of RoHS and WEEE directive, being used only on large an fixed machine. By the way since the beginning of 2007 the DDC4 is manufactured according to RoHS compliant processes. Some repaired spare part can still be delivered in non-RoHS configuration.

CE COMPLIANCE

The DDC4 controller belongs to the international product standard EN 61800.

The DDC4 controller has been tested with a turret under the condition reported as follows and obtained the compliance for product standards: CEI EN 61800-2 and CEI EN 61800-3 and CEI EN 61800-5-1.
The utilization class for this device is C3 (use in 'second environment' or use in industrial network line not connected to civil environment).
This type of device is not intended to be used on a low-voltage public network which supplies domestic premises. Radio frequency interference is expected If used on such a network.
Therefore, the use in civil environment could generate disturbance to some electrical and electronic equipment and it needs to provide additional solutions to avoid this effect.

Before main voltage power supply of DDC4 controller, an external filter (non supplied) is necessary for EMC compliance when DDC4 controller + turret are tested as stand-alone component.
A 'ROXBOURGH KMF06' EMC filter or better must be used.

The DDC4 controller, being transistorised drive for brushless motor, is not a safety device, and cannot work in stand-alone mode because requires supply and wiring by the installer. So it is not subject to the CE mark requirement.

By the way the CE mark is placed to show the compliance to the low-voltage directive about the electrical safety of the component. The compliance of EMC and general safety standard is in charge of the machine builder as stated also in the 2006/42/CE directive. The instruction stated in this installation manual provide a line-guide to keep the EMC compliance in almost all applications.

In order to comply with the EN-61800-5-1 it needs to respect what follows:

- The DDC4 controller must be connected in a TT or TN earthing system in industrial fixed network, providing Overvoltage Category III or better.
- The DDC4 controller must be fitted into a cabinet which provide Pollution Degree II or better, so a minimum protection degree of IP54 is required.
- An external circuit breaker (Fuses) and a power contactor must be provided on the DDC4 threephase main power supply.
- The cabinet must be designed in order to protect people against direct contact when the voltage is present: so mechanical interlock or automatic door-open switch-off devices must be foreseen.
- After power-off, wait more than 5 minutes before handling the DDC4 controller.

CHARACTERISTICS OF THE CONTROL UNIT

- Best path research.
- External selection of rotation direction.
- Automatic reference search.
- Parity control on position code.
- Enhanced diagnostic.
- Selection of two ranges of positions (eg. 8 and 12 or 6 and 12) with dedicated inputs.
- Selection of inertia on disc with dedicated input.
- Speed reduction for maintenance purposes with dedicated input.
- 'Safety' behaviour can be set by CNC or PC.

The entire unit is insulated from the external with optoinsulators to satisfy safety standards.
Parameters of the system are optimised and cannot be modified by the customer.

TECHNICAL CARACTERISTICS OF THE CONTROL UNIT

DRIVER SECTION SUPPLY	
Power input **3 Φ**	230V +15% - 10 % 50/60Hz ±2Hz 3 Φ 30 A max. (DDC4-30-230) 20 A max (DDC4-20-230)
Auxiliary input **DC**	24V DC±10% 35W

tab 1

Supply for I/O	
DC SUPPLY	24V DC±10% 5A max.
Digital inputs • Type • Voltage • Current	 Sink 24 VDC ±10% 5 mA @ 24 VDC
Digital outputs • Type • Max current for signals **Electrovalve** • Type • Max current for electrovalve	 • Transistor MOS N.O. (Source) • 0.1 A max (PTC protection) • Transistor MOS N.O. (Source) • 2A max (PTC protection)

tab 2

General specifications	
Operative Temperature	0 ÷ 55 ℃
Humidity	30.. 95%
Vibrations	4G RMS (for short period) 0,5 RMS (continuously)

tab 3