iMOTIONCUBE Intelligent Servo Drive   20 A, 80V_{DC}

For Brushless, Brushed, Linear or Step Motors

Description

The iMOTIONCUBE is a new member of the iPOS family of Technosoft intelligent drives. It is based on a new design concept for high power density drives, offering a very compact and cost effective solution for the control of rotary or linear brushless, DC brush, and step motors of powers up to 1,6kW.

Designed to cover low to medium volume applications, the iMOTIONCUBE embeds motion controller, drive, and PLC functionalities into a single unit.

When used as an intelligent drive - like all other members of the iPOS family - the iMOTIONCUBE is empowered by the extreme flexibility offered by the TML (Technosoft Motion Language) instruction set.The unit can replace the host in various single or multi-axis stand-alone applications.

Advanced positioning profiles like the PVT or electronic caming, I/O and program flow control, data transfer between axes, subroutines, ISRs and multiple homing modes ease the motion application implementation task.

In systems that require a host, the iPOS operates as an intelligent slave executing motion sequences triggered via commands received on RS-232 or TMLCAN while fully supporting as well the CiA402 CANopen drive profile.

Dual Loop

Equipped with 2 feedback connectors, the iMOTIONCUBE provides advanced dual-loop control schemes that minimize the transmission backlash negative effects.

EasyMotion Studio

The configuration, tuning and programming of the iMOTIONCUBE drive is easy with Technosoft's powerful graphical platform, EasyMotion Studio.
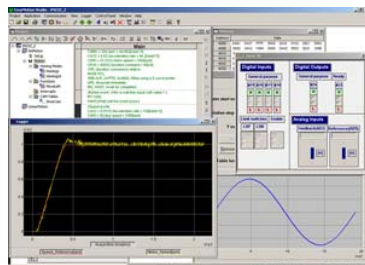
Features :

- **Motion controller and drive in a single compact unit**
- **Universal drive solution for brushless, brushed, linear or step (true closed loop) motors**
- **Advanced motion control capabilities (PVT, S-curve, electronic cam)**
- **Motion programming via TML (Technosoft Motion Language) or motion libraries for Visual C / VB / LabVIEW / Linux and PLC**
- **Standalone operation with stored motion sequences**
- **Drive enable circuit**
- **Communication :**
  - **RS-232 serial**
  - **CAN-Bus with TMLCAN**
  - **or CANopen (CiA301, 305, 402) protocols**
- **Digital and analogue I/Os:**
  - **4 digital programmable inputs, 5 - 36 V**
  - **4 digital outputs, 5 - 36 V, 0.5 A**
  - **2 analogue inputs: 12 bit resolution, 0 - 5 V**
- **Feedback devices (dual-loop supported) :**
  - **1st Feedback :**
  - **Incremental quad encoder (differential)**
  - **Analogue sine/cosine encoder (differential 1Vpp)**
  - **Digital Hall sensors**
  - **2nd Feedback : Incremental quad encoder (single ended)**
- **Programmable protections :**
  - **Over-current, over-temperature, short circuit**
  - **Over and undervoltage, i2t, control error**

Electrical Specifications :

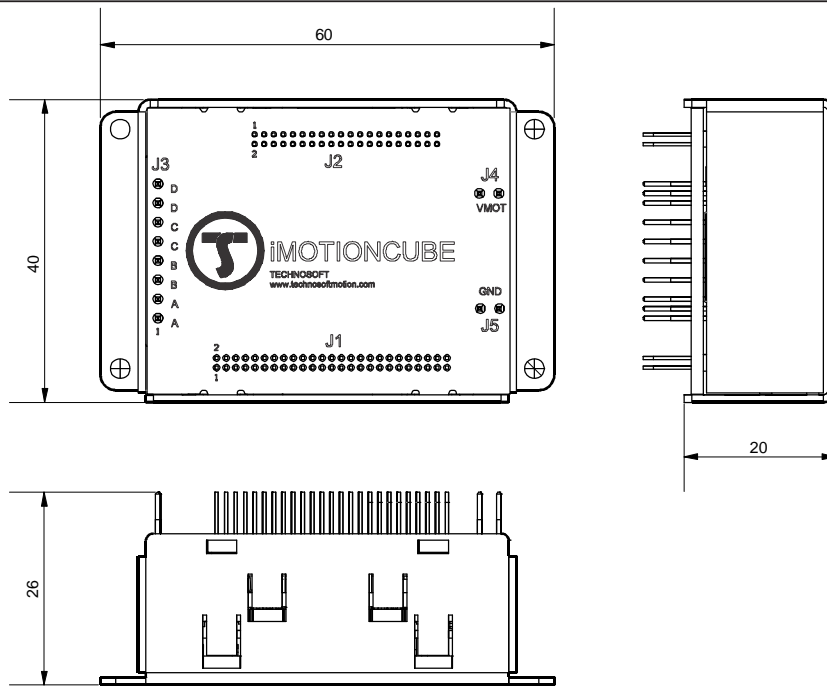|	
Motor power supply:	12 - 80 V_{DC}
Logic supply :	12 - 36 V_{DC}
Continuous phase current	20 A
Peak current (2.4 sec. max.)	40 A
PWM switching frequency	20 - 100 kHz
Ambient operating temperature	0 °C - 40 °C

Your **Next** Intelligent **Move**

TECHNOSOFT MOTION TECHNOLOGY

Weight : 45 g
All dimensions are in mm.

J1
1 232Rx
2 Enc1 A+/Sin1+
3 232Tx
4 Enc1 A-/Sin1-
5 AxisID0
6 Enc2 B+/Cos1+
7 AxisID1
8 Enc1 B-/Cos1
9 AxisID2
10 Enc1 Z+
11 CAN HI
12 Enc1 Z-
13 CAN Lo
14 Hall 1
15 ENA1
16 Hall 2
17 ENA2
18 Hall 3
19 Ref
20 Feedback
21 +Vlog
22 +5V
23 In0
24 Out0
25 In1
26 Out1
27 In2/LSP
28 Out2/Error
29 In3/LSN
30 Out3/Ready
31 AD in Motor temp.
32 Reserved
33 Reserved
34 Reserved
35 Gnd
36 Gnd
37 Reserved
38 Reserved
39 Reserved
40 Reserved
41 Enc2 A
42 Sin2
43 Enc2 B
44 Cos2
45 Enc2 Z
46 +5V
47 Reserved
48 Reserved
49 Reserved
50 Reserved

J2
1 to 28 - Reserved
29 CAN Hi
30 Reserved
31 CAN Lo
32. Reserved
33 +5V
34 Gnd
35 to 39 Reserved
40 Gnd

J3
1 - 2 Phase A
3-4 Phase B
5-6 Phase C
7-8 Phase D or Brake

J4
1-2 +Vmot IN

J5
1-2 Gnd Vmot IN

The high level graphical development environment EasyMotion Studio supports the configuration, parameterization and programming of the drive, through:
- Motion system set-up wizard
- Tuning assistance with capture functions
- Definition, programming and testing of motion sequences

MOTION CONTROL LIBRARIES

The TML_LIB Motion Control Libraries can be used to implement a motion control application on a PC from Visual C / C++, C#, Visual Basic, Delphi or LabVIEW under Windows or Linux operating systems.
If a PLC is used as host, implementations of the TML_LIB according with IEC-61131 standard are available for Siemens, B&R and Omron PLCs.

Application notes with TML program examples at :
www.technosoftmotion.com

ORDERING INFORMATION :

P025.126.E101	iMOTIONCUBE Intelligent Drive, 80V, 20A, CAN
P034.001.E002	EasyMotion Studio Software
P040.001.Exxx	TML_LIB Motion Library*

*ask for existing libraries types

FLEXIBILITY :

Control schemes supported by the iMOTIONCUBE Drive

Motor types	Torque Control	Speed Control	Position** Control
Brushless	√	√	√
Brushed	√	√	√
Step	√	√	√
Linear	√	√	√

** Dual-loop supported

CONNECTORS TYPE AND MATING CONNECTORS :

iMOTIONCUBE was designed to be mount on a printed circuit board (PCB) via 2,54 mm pitch square pins (0,635 mm) for power pins and 1,27 mm pitch square pins (0,41 mm) for I/O and communication signals.
In order to eliminate or reduce the development time of a new PCB, consider using the available iMOTIONCUBE-BX module with integrated connectors, to directly include the drive into the application.