ABB motion control products

Wall chart MicroFlex e100

Part numbers

MFE230A003BW

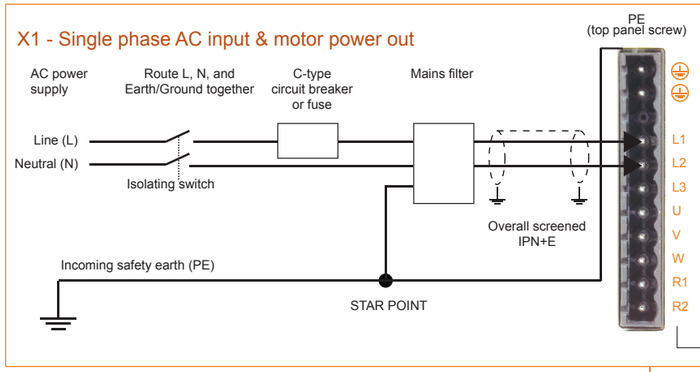
MFE	MFE = MicroFlex e100 family
230	230 = 115-230 VAC (1Ø or 3Ø) AC input
A003	A003 = 3 A, A06 = 6 A, A09 = 9 A continuous output
B	B = Revision
W	W = ABB white

Cooling requirements

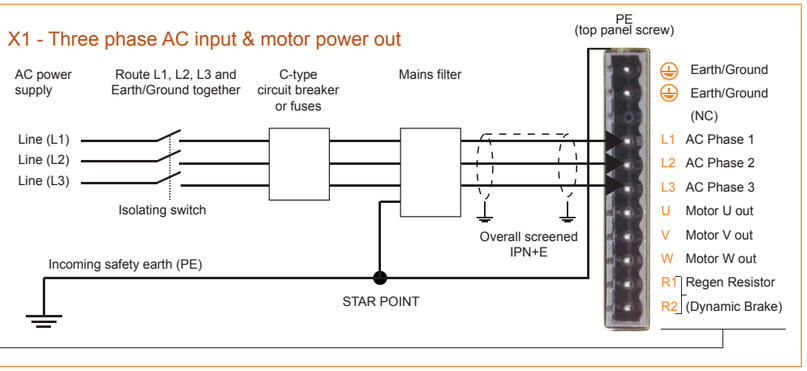
Control continuous current rating	Air flow velocity
3 A 6 A 9 A	No additional cooling required. 1.0 m/s (3.3 ft/s) or greater. 2.5 m/s (8.2 ft/s) or greater.

IMPORTANT! 6 A and 9 A models require additional cooling. Optional fan tray FAN001-024 provides sufficient cooling for all models.

X1 - Single phase AC input & motor power out



X1 - Three phase AC input & motor power out



Recommended power filters

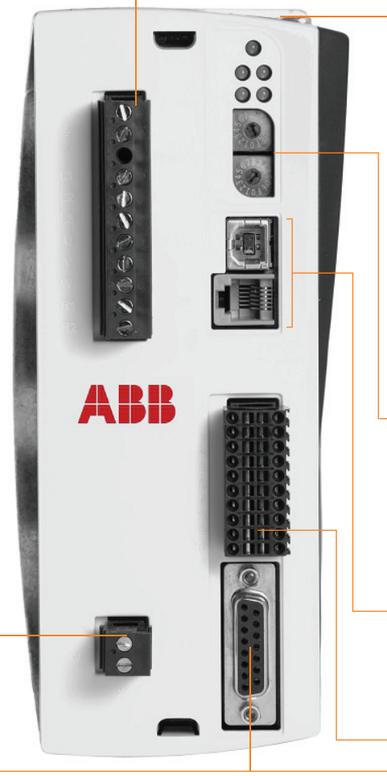
Drive continuous current rating	1Ø AC power ABB catalog number	3Ø AC power ABB catalog number	24 VDC control supply ABB catalog number
3 A 6 A 9 A	FI0015A00† FI0015A02† FI0029A00	FI0018A00 FI0018A00 FI0018A03	FI0014A00 (all models)

IMPORTANT! Compliant with EN61000-6-3 (Class B).

†Alternatively, foot-mount filter FI0029A00 may be used. This filter is specially designed for use with any single-phase MicroFlex e100.

X1 - Regenerating resistors

ABB catalog number	Power W	Res Ω
RGJ139	100	39
RGJ160	100	60
RGJ260	200	60
RGJ360	200	60



X6 - CANopen

1	(NC)
2	CAN-
3	CAN GND
4	(NC)
5	Shield
6	CAN GND
7	CAN+
8	(NC)
9	CAN V+

Standard CANopen pinout

E1 and E2

1	TX+
2	TX-
3	RX+
4	(NC)
5	(NC)
6	RX-
7	(NC)
8	(NC)

Two identical RJ45 connectors with standard Ethernet pinout. Interface supports TCP/IP and provides a 2-port hub for ETHERNET Powerlink.

Node ID (address) selection

Example shows 0xD3 = Node 211

IP address = 192.168.100.211

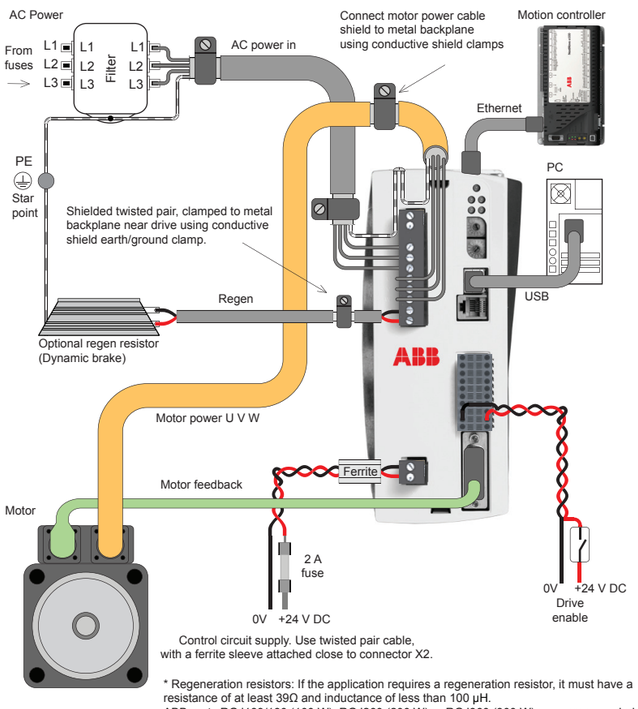
USB port

1	(NC)
2	Data-
3	Data+
4	GND

Auxiliary serial port

1	TXA
2	TXB
3	GND
4	+7V out
5	(NC)
6	(NC)

Recommended system wiring



* Regeneration resistors: If the application requires a regeneration resistor, it must have a resistance of at least 39Ω and inductance of less than 100 µH.
ABB parts RGJ139/160 (100 W), RGJ260 (200 W) or RGJ360 (300 W) are recommended.

X2 - 24 V control circuit input

1	0 V
2	+24 VDC in

A 24 VDC supply must be provided to power the controlling electronics.

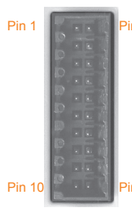
Continuous current 0·6 A.

X8 - Feedback in

Incremental encoders				BiSS, SSI or EnDat 2.2				Smart Abs				EnDat 2.1				SinCos			
1	CHA+	9	CHA-	1	Data+	9	Data-	1	Data+	9	Data-	1	Data+	9	Data-	1	(NC)	9	(NC)
2	CHB+	10	CHB-	2	Clock+	10	Clock-	2	(NC)	10	(NC)	2	Clock+	10	Clock-	2	(NC)	10	(NC)
3	CH7+	11	CHZ-	3	(NC)	11	(NC)	3	(NC)	11	(NC)	3	(NC)	11	(NC)	3	(NC)	11	(NC)
4	Sense	12	+5 V out	4	Sense	12	+5 V out	4	Sense	12	+5 V out	4	Sense	12	+5 V out	4	Sense	12	+5 V out
5	Hall U-	13	DGND	5	(NC)	13	DGND	5	(NC)	13	DGND	5	Sin-*	13	DGND	5	Sin-	13	DGND
6	Hall U+	14	Hall W-	6	(NC)	14	(NC)	6	(NC)	14	(NC)	6	Sin+*	14	(NC)	6	Sin+	14	(NC)
7	Hall V-	15	Hall W+	7	(NC)	15	(NC)	7	(NC)	15	(NC)	7	Cos-*	15	(NC)	7	Cos-	15	(NC)
8	Hall V+			8	(NC)			8	(NC)			8	Cos+*			8	Cos+		

MicroFlex e100 accepts incremental encoder (with or without Halls), Halls-only, SSI, EnDat, SmartAbs or SinCos feedback. Pin 12 provides a +5 V, 200 mA supply for feedback devices that require power. * Version 2.2 EnDat encoders do not use the Sin and Cos channels. (NC) = Not Connected

X3 - Input / Output



1	Status-	11	Status+
2	DGND	12	DGND
3	DOUT1-	13	DOUT1+
4	DIN2-	14	DIN2+
5	DGND	15	DGND
6	DIN1-	16	DIN1+
7	DIN01-	17	DIN0+
8	DGND	18	DGND
9	Drive enable-	19	Drive enable+
10	Shield	20	Shield

Drive Enable	Opto-isolated 24 VDC input. Must be activated to allow drive to operate.
DIN0	Opto-isolated 24 VDC input. Can be configured as a reset, error, stop or phase search input.
DIN1, 2	Opto-isolated 24 VDC inputs. Can be configured as reset, error, stop or phase search inputs. Fast response allows inputs to be used as Step & Direction demand inputs, or as real-time position capture inputs.
Status	Opto-isolated status/error output to indicate error status of drive. May also be used as a general purpose output. Current sourced from pin 11 is output on pin 1.
DOUT1	Opto-isolated general purpose digital output. Current sourced from pin 13 is output on pin 3.

Mating connector part: Weidmuller Minimate B2L 3.5/20. Tightening torque: 0.5-0.6 N·m (4.4-5.3 lb-in). Maximum wire size: 0.5 mm

Status LED

Green: AC power OK, drive enabled, normal operation.

Red: AC power OK, drive not enabled, no errors.

Green/Red alternating: AC power not present, no errors.

Green flickering : Firmware download in progress

Red flashing: An error has occurred. The number of flashes (followed by a pause) indicates which error has occurred:

Error code (flashes)	Meaning
1	DC bus overvoltage trip
2	IPM (integrated power module) trip
3	Overcurrent trip
4	Overspeed trip
5	Feedback trip
6	Motor overload (I t) trip
7	Overtemperature trip
8	Drive overload (It) trip
9	Following error trip
10	Error input triggered
11	Phase search error
12	All other errors, including: Internal supply error, encoder supply error, parameter restore failure, power base not recognized.

CAN LEDs

Code	Meaning
Off	Node initializing or not powered.
1 flash	Node in STOPPED state.
3 flashes	Software being downloaded.
Blinking	Node in PREOPERATIONAL state.
On	Node in OPERATIONAL state.
Flickering	Auto-baudrate detection or LSS services in progress.

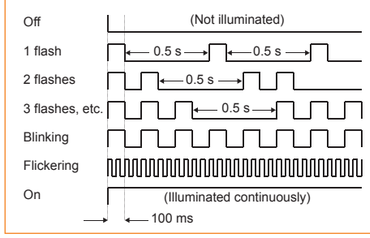
Code	Meaning
Off	No error.
1 flash	Warning: too many error frames.
2 flashes	Guard event or heartbeat event.
3 flashes	Sync error: SYNC message not received.
On	Node in bus-off state (removed from network).
Flickering	Auto-baudrate detection or LSS services in progress.

Ethernet LEDs

Code	Meaning
Off	NOT ACTIVE state, waiting to be triggered by the manager node.
1 flash	Pre-OPERATIONAL1 state. EPL starting.
2 flashes	PRE-OPERATIONAL2 state. EPL starting.
3 flashes	READY TO OPERATE state. The node is signalling its readiness to operate.
Blinking	STOPPED state. The node has been deactivated.
On	OPERATIONAL state. EPL is operating normally.
Flickering	BASIC ETHERNET state. EPL is not operating, but other Ethernet protocols may be used.

Code	Meaning
Off	EPL is working correctly.
On	An error has occurred.

LED definitions



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