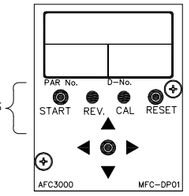
AFC3000 MFC–S120 MASTER UNIT
WITH MFC–DP01 DISPLAY AND FIELDBUS I/O MODULE

OPTIONAL MFC–DP01 DISPLAY UNIT



EXTERNAL MONITORING OUTPUT
(LOCATED ON THE TOP OF CONTROLLER)

PIN No.	SIGNAL NAME	IN/OUT	DETAILS
1	EA2	OUT	NOT USED
2	EB2	OUT	NOT USED
3	ANGLE PULSE	OUT	ANGLE PULSE MONITOR OUTPUT (5V TTL SIGNAL)
4	ANGLE CW/CCW	OUT	ANGLE DIRECTION OUTPUT (5V TTL SIGNAL)
5	GND		MONITOR SIGNAL OUTPUT GND
6	TD2	OUT	NOT USED
7	MON1	OUT	CURRENT MONITOR OUTPUT (10V=CONTROLLER MAX. CURRENT)
8	MON2	OUT	SPEED MONITOR OUTPUT (10V=MAX. MOTOR ROTATION SPEED)
9	LOAD OUT	OUT	LOAD ANALOG VOLTAGE MONITOR OUTPUT

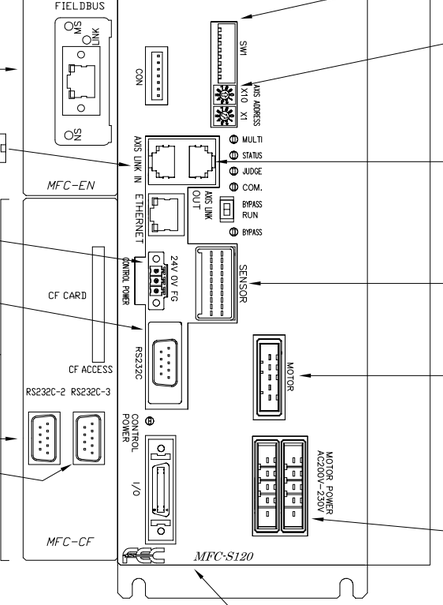
D–SUB 9–PIN
FEMALE CONN.

SW1 SPECIAL FUNCTION
SWITCH SETTINGS

No.	FACTORY SETTING	FUNCTION	SETTING DETAILS
1	OFF	CAL/ZERO LEVEL ACCEPTANCE SELECTION	SELECTS THE ACCEPTABLE RANGE OF THE CAL AND ZERO LEVEL DURING THE SELF CHECK OF THE TORQUE TRANSDUCER. SET THIS TO ON IF NUISANCE SELF–CHECK ABNORMALS OCCUR FREQUENTLY AT THE START OF THE CYCLE. ON = ±10% OF FULL SCALE FORCE OFF = ±4% OF FULL SCALE FORCE
2	OFF	START INPUT TYPE SELECTION (STAND ALONE SINGLE MODE ONLY)	ON – DEADMAN TYPE – START INPUT MUST REMAIN ON FOR THE ENTIRE FASTENING CYCLE OFF – AUTO START TYPE – START INPUT PULSE INTIATES AUTOMATIC CYCLE
3	OFF	NOT USED	
4	OFF	PARAMETER SAVE SELECTION	ON: PARAMETERS ARE NOT SAVED ON FLASHROM. THIS WOULD BE USED IN SPECIAL CIRCUMSTANCES ONLY. WHEN PARAMETER SETTINGS ARE CHANGED FREQUENTLY (BY PLC OR PC) THE FLASHROM LIFE IS SHORTENED, SO PARAMETERS IN THIS CASE SHOULD BE STORED TO SDROM INSTEAD. (PARAMETERS WOULD BE LOST AT POWER DOWN IN THIS CASE AND WOULD REQUIRE PARAMETER WRITE AT POWER UP.) OFF: PARAMETERS ARE SAVED ON FLASHROM AND REMAIN AT POWER DOWN.
5–7	OFF	NOT USED	
8	OFF	CONTROLLER SETTING FOR MASTER/SLAVE COMMUNICATION	OFF: SLAVE SPINDLE SPECIFICATION – IF THE SWITCH IS OFF WHEN POWER TURNS ON, THIS SPINDLE WILL OPERATE AS A SLAVE SPINDLE AND LINK COMMUNICATION WILL BE VIA THE MASTER CONTROLLER. (SLAVES CAN BE PROGRAMMED VIA THE MASTER USING THE USER CONSOLE SOFTWARE) ON: MASTER SPINDLE SPECIFICATION – IF THE SWITCH IS ON WHEN POWER TURNS ON, THIS SPINDLE WILL OPERATE AS A MASTER SPINDLE. ANY SLAVE SPINDLES CONNECTED TO IT WILL BE CONTROLLED BY THE MASTER. EACH MASTER IN A SYSTEM WILL REQUIRE SEPERATE PLC & IP CONFIG. FOR THE USER CONSOLE.

SW1
= ON

MFC–S120 MASTER UNIT



MFC FIELDBUS INTERFACE OPTION

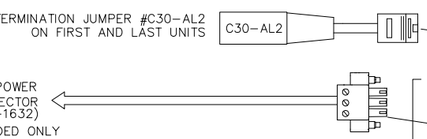
AVAILABLE INTERFACES	PART NUMBER
EXPANSION D–I/O CONNECTOR INPUT: 32CH / OUTPUT: 32CH	MFC–DT
CC–LINK VER2.00 (VER1.10)	MFC–CC
DEVICENET	MFC–DN
PROFIBUS DP–V1	MFC–PB
ETHERNET/IP	MFC–EN
PROFINET IO	MFC–PN

AXIS ADDRESS

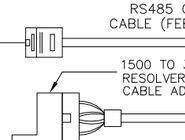
TENS DIGIT
ONES DIGIT

SET THE PRESS No. (1–32) OF EACH CONTROLLER VIA THE ROTARY SWITCHES ON THE FRONT OF THE CONTROLLER (DO NOT DUPLICATE PRESS NUMBERS)

TERMINATION JUMPER #C30–AL2
ON FIRST AND LAST UNITS



RS485 COMM.
CABLE (FEB–1635)

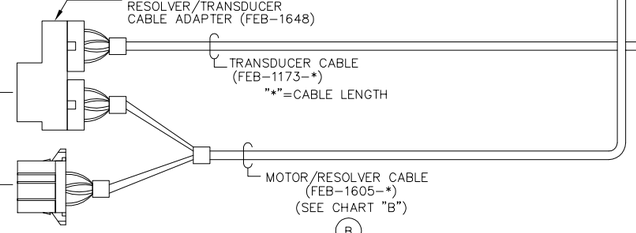


TO NEXT
MFC UNIT

24VDC CONTROL POWER
24V POWER CONNECTOR
REF. CABLE (FEB–1632)
CONNECTOR PROVIDED ONLY
* (WIRED BY CUSTOMER)

* WIRING THE WRONG POLARITY
WILL DAMAGE THE CONTROLLER

1500 TO 3000 SERIES
RESOLVER/TRANSDUCER
CABLE ADAPTER (FEB–1648)



TRANSDUCER CABLE
(FEB–1173–*)
"*"=CABLE LENGTH

MFC–CF
COMPACT FLASH DATA EXPANSION
CF CARD SLOT WITH ACCESS LED
RS232C IN / OUT EXPANSION

MOTOR/RESOLVER CABLE
(FEB–1605–*)
(SEE CHART "B")

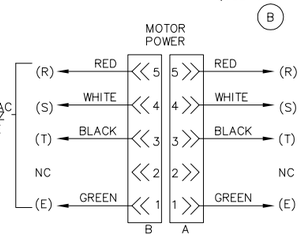
B

D–SUB 9–PIN
MALE CONN.

RS232C IN
RS232C OUT

MOTOR
POWER

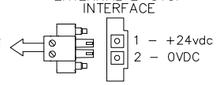
200–230VAC
50/60 HZ
3 PHASE



(CABLE #FEB–1607)
(10FT)

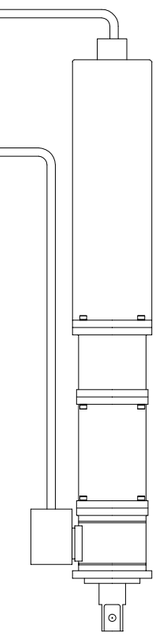
EXTERNAL E–STOP
INTERFACE

EXTERNAL E–STOP SIGNAL CONNECTOR
CONNECTOR PROVIDED ONLY
(WIRED BY CUSTOMER)



1 – +24vdc
2 – 0VDC

CONNECTOR LOCATED ON BOTTOM
(MASTER CONTROL UNIT ONLY)



SPINDLE TOOL

STANDARD RS232 INTERFACE

PIN No.	SIGNAL NAME	IN/OUT	DETAILS
1	N.C.		NOT USED
2	RXD	IN	RECEIVE DATA
3	TXD	OUT	DATA OUTPUT
4	DTR	OUT	ALWAYS ON OUTPUT
5	GND		SIGNAL GROUND
6	DSR		NOT USED
7	RTS	OUT	ALWAYS ON OUTPUT
8	CTS		NOT USED
9	N.C.		NOT USED

SHIPMENT SETTING
COMM. SPEED – 38400bps
PARITY – NONE
STOP BITS – 1 BIT
DATA BITS – 8 BITS

SW2
= ON

SW2 SWITCH SETTINGS (LOCATED ON BOTTOM OF UNIT)

No.	FACTORY SETTING	FUNCTION	SETTING DETAILS
1	ON	AUX. E–STOP SIGNAL VALID	ENABLES THE HARDWIRED AUX. E–STOP SIGNAL LOCATED ON THE BOTTOM OF THE CONTROLLER. WHEN SET TO ON, 24VDC POWER MUST BE SUPPLIED TO THE CONNECTOR TO ENABLE THE CONTROLLER.
2	OFF	CONTROLLER RUN/BYPASS SWITCH INVALID	IF SET TO ON, THE RUN/BYPASS SWITCH ON THE FRONT OF THE CONTROLLER CANNOT BE USED TO SWITCH TO BYPASS. THE BYPASS STATE IS ONLY AVAILABLE VIA PLC I/O SIGNAL
3	OFF	STOP SIGNAL ALWAYS ON	IF SET TO ON, THE PLC I/O "STOP" INPUT WILL BE PERMANANTLY ON. TO BE USED FOR TESTING ONLY.
4–8	OFF	NOT USED	

B

CHART "B"
MOTOR/RESOLVER TOOL CABLES

CABLE NAME	CABLE NUMBER
RM4 MOTOR/RESOLVER CABLE	FEB–1605–*
RM5 MOTOR CABLE	FEB–1604–*
RM5 RESOLVER CABLE	FEB–1603–*

"*" IN CABLE NUMBER REPRESENTS CABLE LENGTH
STANDARD LENGTH = 15FT–50FT
MAXIMUM LENGTH = 100FT

MFC CONTROLLER FRONT PANEL LED STATUS

MULTI LED
GREEN: FASTENING OR CAL/ZERO LEVEL CHECK OVERALL JUDGEMENT ACCEPT (ALL SPINDLES)
ORANGE: FASTENING SEQUENCE IN OPERATION
RED: FASTENING OR CAL/ZERO LEVEL CHECK OVERALL JUDGEMENT REJECT (ALL SPINDLES)

STATUS LED
GREEN: SYSTEM READY (TO OPERATE)
ORANGE: IN CYCLE (CW/CCW)
RED: SYSTEM ABNORMAL

JUDGE LED
GREEN: FASTENING OR CAL/ZERO LEVEL CHECK OVERALL JUDGEMENT ACCEPT (THIS SPINDLE)
RED: FASTENING OR CAL/ZERO LEVEL CHECK OVERALL JUDGEMENT REJECT (THIS SPINDLE)

COM. LED
ORANGE: PC COMMUNICATION IN PROGRESS (USER CONSOLE SOFTWARE)

BYPASS LED
LIGHT OFF: RUN (OPERATION) MODE
ORANGE: BYPASS MODE
RED: MOTOR POWER OFF (3PH. AC)

CONTROL POWER LED
GREEN: CONTROL POWER ON (24VDC)
RED: UNIT OPERATION ERROR

AMT	SYM	NAME	PART NUMBER	MFG.

FEC INC — AUTOMATION SYSTEMS — WWW.FEC–USA.COM

DES.BY BBG	DET.BY ACAD	TITLE
CHK.BY	SAFETY OK	AFC3000 MFC–S120 MASTER UNIT CONNECTION REFERENCE DRAWING
DATE 06/16	SCALE	
SHEET	SHEETS	DRAWING NO. FEB–1681