3F07-16IN-32OUT

Card management functions-wheel drive

Features of the board are:
16 Digital inputs
32 Digital outputs
2 Analog inputs (0-5V)
2 Analog outputs (0-5V)
2 CAN-BUS terminated by jumpers
Microcontroller RENESAS M16C 16 bit
Alternatively microcontroller RENESAS RX 32-bit
EEPROM memory
Optional 2nd EEPROM
24V / 48V DC battery
PCB size 184 x 107.5 mm
weight 210g

J1 Connector Mini Fit → Digital Inputs
Connector female contacts male 16-pin (8x2)

Pin 1	+VB
Pin 2	+VB
Pin 3	+VB
Pin 4	+VB
Pin 5	+VB
Pin 6	+VB
Pin 7	+VB
Pin 8	+VB
Pin 9	IN0
Pin 10	IN1
Pin 11	IN2
Pin 12	IN3
Pin 13	IN4
Pin 14	IN5
Pin 15	IN6
Pin 16	IN7

J2 Connector Mini Fit → Digital Inputs
Connector female contacts male 16-pin (8x2)
Pin 1 +VB
Pin 2 +VB
Pin 3 +VB
Pin 4 +VB
Pin 5 +VB
Pin 6 +VB
Pin 7 +VB
Pin 8 +VB
Pin 9 IN8
Pin 10 IN9
Pin 11 IN10
Pin 12 IN11
Pin 13 IN12
Pin 14 IN13
Pin 15 IN14
Pin 16 IN15

optional
J3 Connector Mini Fit → Analog inputs
Connector female contacts male 16-pin (8x2)
Pin 1 GND
Pin 2 GND
Pin 3 GND
Pin 4 GND
Pin 5 GND
Pin 6 GND
Pin 7 GND
Pin 8 GND
Pin 9 IN_AD0
Pin 10 IN_AD1
Pin 11 IN_AD2
Pin 12 IN_AD3
Pin 13 IN_AD4
Pin 14 IN_AD5
Pin 15 IN_AD6
Pin 16 IN_AD7

optional
J4 connector Mini Fit → Battery
Connector female contacts male 2-pin (1x2)
Pin 1 GND
Pin 2 IN_Batteria

J5 connector Mini Fit → Analog Outputs
Connector female contacts male 4-pin (2x2)
Pin 1 GND
Pin 2 GND
Pin 3 OUT_DA0
Pin 4 OUT_DA1

J6 Connector Dubox → Analog Outputs
Connector female contacts male 4-pin
Pin 1 OUT_DA0
Pin 2 OUT_DA1
Pin 3 GND
Pin 4 GND

J7 Connector Mini Fit
Connector female contacts male 4-pin (2x2) → BUS-CAN0
Pin 1 CANH0
Pin 2 CANL0
Pin 3 GND
Pin 4 GND

J8 Connector Mini Fit → BUS-CAN0
Connector female contacts male 4-pin (2x2)
Pin 1 CANH0
Pin 2 CANL0
Pin 3 GND
Pin 4 GND

J9 Connector Mini Fit → BUS-CAN1
Connector female contacts male 4-pin (2x2)
Pin 1 CANH1
Pin 2 CANL1
Pin 3 GND
Pin 4 GND

J10 Connector Mini Fit → BUS-CAN1
Connector female contacts male 4-pin (2x2)
Pin 1 CANH1
Pin 2 CANL1
Pin 3 GND
Pin 4 GND

Optional with µC RX
J11 Connector Mini Fit → BUS-CAN2
Connector female contacts male 4-pin (2x2)
Pin 1 CANH2
Pin 2 CANL2
Pin 3 GND
Pin 4 GND

Optional with µC RX
J12 Connector Mini Fit → BUS-CAN2
Connector female contacts male 4-pin (2x2)
Pin 1 CANH2
Pin 2 CANL2
Pin 3 GND
Pin 4 GND

optional

J13 Connector Mini Fit → Expansion

Connector female contacts male 20-pin (10x2)

Pin 1	I2C_SDA	*Jumper with UART_TX0 with µC M16C / direct connection with µC RX*
Pin 2	UART_RX1	*only µC RX*
Pin 3	UART_TX0	*Jumper with I2C_SDA with µC M16C / direct connection with µC RX*
Pin 4	SPI_CS1	*only µC RX*
Pin 5	SPI_CLK	
Pin 6	SPI_CS0	*only µC RX*
Pin 7	IO6	*only µC RX*
Pin 8	IO4	*only µC RX*
Pin 9	IO2	*only µC RX*
Pin 10	IO0	*only µC RX*
Pin 11	+VB	
Pin 12	I2C_SCL	*Jumper with UART_TX1 with µC M16C / direct connection with µC RX*
Pin 13	UART_TX1	*only µC RX*
Pin 14	UART_RX0	*Jumper with I2C_SCL with µC M16C / direct connection with µC RX*
Pin 15	SPI_MOSI	
Pin 16	SPI_MISO	
Pin 17	IO7	*only µC RX*
Pin 18	IO5	*only µC RX*
Pin 19	IO3	*only µC RX*
Pin 20	IO1	*only µC RX*

Optional with uC RX

J14 Connector Mini Fit → Digital Inputs

Connector female contacts male 16-pin (8x2)

Pin 1	+VB
Pin 2	+VB
Pin 3	+VB
Pin 4	+VB
Pin 5	+VB
Pin 6	+VB
Pin 7	+VB
Pin 8	+VB
Pin 9	IN16
Pin 10	IN17
Pin 11	IN18
Pin 12	IN19
Pin 13	IN20
Pin 14	IN21
Pin 15	IN22
Pin 16	IN23

Optional with µC RX

J15 Connector USB type A → USB

Connector female 4-pin

Pin 1	+5V DC
Pin 2	USB0_DM
Pin 3	USB0_DP
Pin 4	GND

Optional with µC RX
J16 Connector USB type B → USB
Connector female 4-pin
Pin 1 +5V DC
Pin 2 USB0_DM
Pin 3 USB0_DP
Pin 4 GND

J17 Connector Mini Fit → Power
Connector female contacts male 4-pin (2x2)
Pin 1 +VB
Pin 2 GND
Pin 3 GND
Pin 4 GND

J26 Connector Mini Fit → Power
Connector female contacts male 4-pin (2x2)
Pin 1 +VB
Pin 2 +VB
Pin 3 +VB
Pin 4 +VB

optional
J27 Connector Mini Fit → Power for expansion J13
Connector female contacts male 6-pin (3x2)
Pin 1 GND
Pin 2 +5V DC
Pin 3 +24V DC
Pin 4 GND
Pin 5 +3V3 DC
Pin 6 +24V DC

Optional with µC RX
J28 Connector Mini Fit
Connector female contacts male 2-pin (1x2) → Horn
Pin 1 +24V DC
Pin 2 OUT_ Horn

J29 Connector Mini Fit → Digital outputs
Connector female contacts male 8- pin (4 x 2)
Pin 1 OUT1
Pin 2 OUT3
Pin 3 OUT4
Pin 4 GND
Pin 5 OUT2
Pin 6 GND
Pin 7 GND
Pin 8 GND

J30 Connector Mini Fit → Digital outputs
Connector female contacts male 8- pin (4 x 2)

Pin 1 OUT5
Pin 2 OUT7
Pin 3 OUT8
Pin 4 GND
Pin 5 OUT6
Pin 6 GND
Pin 7 GND
Pin 8 GND

J31 Connector Mini Fit → Digital outputs
Connector female contacts male 8- pin (4 x 2)

Pin 1 OUT9
Pin 2 OUT11
Pin 3 OUT12
Pin 4 GND
Pin 5 OUT10
Pin 6 GND
Pin 7 GND
Pin 8 GND

J32 Connector Mini Fit → Digital outputs
Connector female contacts male 8- pin (4 x 2)

Pin 1 OUT13
Pin 2 OUT15
Pin 3 OUT16
Pin 4 GND
Pin 5 OUT14
Pin 6 GND
Pin 7 GND
Pin 8 GND

J33 Connector Mini Fit → Digital outputs
Connector female contacts male 8- pin (4 x 2)

Pin 1 OUT17
Pin 2 OUT19
Pin 3 OUT20
Pin 4 GND
Pin 5 OUT18
Pin 6 GND
Pin 7 GND
Pin 8 GND

J34 Connector Mini Fit → Digital outputs
Connector female contacts male 8- pin (4 x 2)
Pin 1 OUT21
Pin 2 OUT23
Pin 3 OUT24
Pin 4 GND
Pin 5 OUT22
Pin 6 GND
Pin 7 GND
Pin 8 GND

J35 Connector Mini Fit → Digital outputs
Connector female contacts male 8- pin (4 x 2)
Pin 1 OUT25
Pin 2 OUT27
Pin 3 OUT28
Pin 4 GND
Pin 5 OUT26
Pin 6 GND
Pin 7 GND
Pin 8 GND

J36 Connector Mini Fit → Digital outputs
Connector female contacts male 8- pin (4 x 2)
Pin 1 OUT29
Pin 2 OUT31
Pin 3 OUT32
Pin 4 GND
Pin 5 OUT30
Pin 6 GND
Pin 7 GND
Pin 8 GND

J37 Connector Mini Fit → Digital outputs
Connector female contacts male 8-pin (4 x 2)
Pin 1 +5V DC
Pin 2 GND
Pin 3 IN_AD4
Pin 4 IN_AD3
Pin 5 IN_AD2
Pin 6 IN_AD1
optional
J38 Connector Mini Fit → Counter
Connector female contacts male 2-pin (1x2)
Pin 1 *n.c.*
Pin 2 IN_Counter

optional
J39 Connector Mini Fit → IN0_A (IN0_A & IN0_B = IN0)
Connector female contacts male 2-pin (1x2)
Pin 1 +VB
Pin 2 AUX0

optional
J40 Connector Mini Fit → IN0_B (IN0_A & IN0_B = IN0)
Connector female contacts male 2-pin (1x2)
Pin 1 AUX0
Pin 2 IN0

optional
J41 Connector Mini Fit → IN7_A (IN7_A & IN7_B = IN7)
Connector female contacts male 2-pin (1x2)
Pin 1 +VB
Pin 2 AUX1

optional
J42 Connector Mini Fit → IN7_B (IN7_A & IN7_B = IN7)
Connector female contacts male 2-pin (1x2)
Pin 1 AUX1
Pin 2 IN7

Optional with µC RX
BD1 Connector Strip-Line → Accelerometer
Contacts female 9-pin
Pin 1 OUT_ACCST
Pin 2 OUT_ACCSEL
Pin 3 OUT_ACC0GD
Pin 4 OUT_ACCSLP
Pin 5 IN_ACCX
Pin 6 IN_ACCY
Pin 7 IN_ACCZ
Pin 8 GND
Pin 9 +3V3

JM1 Jumper 3-pin → Settings connector J4 Battery or connector J17 Power
Pin 1 +VB J17
Pin 2 to the battery circuit
Pin 3 IN_ Battery J4

JM2 Jumper 3-pin → Setting analog input
Pin 1 from the battery circuit
Pin 2 µC
Pin 3 IN_AD0

JM3 Jumper 3-pin → Settings Termination BUS-CAN0 J7 J8
Pin 1 CANH0
Pin 2 R_CAN0
Pin 3 R_CAN0

JM4 Jumper 3-pin → Settings Termination BUS-CAN1 J9 J10
Pin 1 CANH1
Pin 2 R_CAN1
Pin 3 R_CAN1

Optional with µC RX
JM5 Jumper 3-pin → Setting Termination BUS CAN2 J11-J12
Pin 1 CANH2
Pin 2 R_CAN2
Pin 3 R_CAN2

Optional with µC RX
JM6 Jumper 3-pin → Setting analog input
Pin 1 IN_ACCX
Pin 2 µC
Pin 3 IN_AD5

optional
JM7 Jumper 3-pin → Setting input µC
Pin 1 SET_IN1
Pin 2 GND
Pin 3 GND

Optional with µC RX
JM8 Jumper 3-pin → Setting analog input
Pin 1 IO0
Pin 2 µC
Pin 3 IND_0

Optional with µC RX
JM9 Jumper 3-pin → Setting analog input
Pin 1 IO5
Pin 2 µC
Pin 3 IND_5

Optional with uC RX
JM17 Jumper 3-pin → Setting analog input
Pin 1 IN_ACCY
Pin 2 µC
Pin 3 IN_AD6

Optional with uC RX
JM18 Jumper 3-pin → Setting analog input
Pin 1 IN_ACCZ
Pin 2 µC
Pin 3 IN_AD7

JM23 Jumper 3-pin → 24V or 48V battery settings
Pin 1 24V
Pin 2 48V
Pin 3 48V

SW1 Switch
Button for reset

D1, D3, D5, D7, D9, D11, D13, D15, D17, D19, D21, D23, D25, D27, D29, D31 LED
Inputs 0 - 15

D48 LED
+VB Logic

D49 LED
+VB Inputs

D50 LED
+VB BUS

D51 LED
+5V Logic

D52 LED
+5V BUS

D53 LED
+3V3 Logic

D54 LED
+3V3 BUS

D55 LED
+VB Power

Optional with µC RX
D59 LED
Horn

D65 LED
Control

D74 LED
Control

D83 LED
Control

D63, D64, D68, D69, D72, D73, D77, D78, D81, D82, D86, D87, D99, D100, D104, D105, D108, D109, D113, D114, D117, D118, D122, D123, D126, D127, D131, D132 LED
Outputs 1-32

Optional with µC RX
D92, D110, D128, D134, D136, D138, D140, D142 LED
Inputs 16 - 23

Optional with µC RX
D146 LED
IO0

Optional with µC RX
D148 LED
IO5

F8 Fusibile
5x20mm 5A