HT-183200 UNIVERSAL WIRE-IN HARNESS FOR NEXUS R3 VCU

NOTES

INJECTORS
8 X INJECTOR OUTPUTS
CURRENT CONTROLLED
- 0A TO 8A PEAK CURRENT
- 0A TO 2A HOLD CURRENT

WIRE INJECTOR OUTPUT TO CYLINDER NUMBER

ALL SPARE INJECTOR OUTPUTS CAN BE USED AS GENERIC DPO'S WITH 2A MAX OUTPUT OR 0-12V DIGITAL SWITCH INPUTS

RECOMMENDED WIRE GAUGE: 20 AWG

OUTPUT: GROUND

[L]	INJECTOR 1	1	
[L/B]	INJECTOR 2	2	
[L/BR]	INJECTOR 3	3	
[L/R]	INJECTOR 4	4	
[L/O]	INJECTOR 5	5	
[L/Y]	INJECTOR 6	6	
[L/G]	INJECTOR 7	7	
[L/V]	INJECTOR 8	8	

DPO
6 X DIGITAL PULSED OUTPUTS
- LOW SIDE DRIVE
- 3A MAX CURRENT
- 10 kHz SWITCHING SPEED
- OVERCURRENT PROTECTED
- FLYBACK PROTECTED
- INDIVIDUAL 4K7 PULL-UP TO 5V OR 12V OR DISABLE

UNUSED DPO'S CAN ALSO BE USED AS 0-12V DIGITAL SWITCH INPUTS WITH PULLUP ENABLE

RECOMMENDED WIRE GAUGE: 20 AWG

OUTPUT: GROUND

[V/B]	DPO 1	9	
[V/BR]	DPO 2	12	
[V/R]	DPO 3	14	
[V/O]	DPO 4	15	
[V/Y]	DPO 5	16	
[V/G]	DPO 6	17	

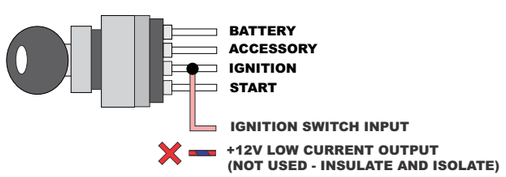
IGNITION SWITCH
INPUT AND OUTPUT

CONNECT EACH CONNECTION TO EACH SIDE OF IGNITION SWITCH OR
CONNECT IGN SW INPUT TO ANY SWITCHED 12V SOURCE

DO NOT USE THE +12V LOW CURRENT OUTPUT TO POWER ANY OTHER DEVICE APART FROM THE IGNITION SWITCH INPUT.

[P]	IGNITION SWITCH INPUT	13
[R/L]	+12V LOW CURRENT OUTPUT	26

SWITCHING THE NEXUS R3 VCU ON METHOD 1 - CONNECTING TO EXISTING IGNITION KEY SWITCH WIRING



SWITCHING THE NEXUS R3 VCU ON METHOD 2 - USING A GENERIC TOGGLE SWITCH

34 PIN CONNECTOR (A)

HBO
6 X HALF BRIDGE OUTPUTS
- HIGH/LOW SIDE DRIVE
- 8A MAX CURRENT
- 18kHz SWITCHING SPEED (DBW MODE, 5A MAX)
- OVERCURRENT PROTECTED

RECOMMENDED WIRE GAUGE: 20 AWG

OUTPUT: BATTERY VOLTAGE OR GROUND

HBO 1	[BR/B]	19	
HBO 2	[BR/R]	20	
HBO 3	[BR/G]	21	
HBO 4	[BR/P]	22	
HBO 5	[P/R]	18	(H) +12V POWER FOR CAN, TRIGGER AND HOME - SHEET 2
HBO 6	[P/BR]	25	+12V POWER FOR DPO AND SPI CONNECTIONS

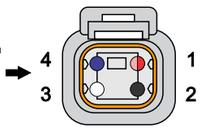
CAN (ISO 11898)
SUPPORTS SPEEDS UP TO 1MBit/s

HALTECH BUS
- SUPPORTS ALL HALTECH EXPANSION PRODUCTS

VEHICLE BUS
- SELECTABLE PRECONFIGURED VEHICLE CAN INTERFACE
- OBDII COMPLIANT

CAN 1 H	23	
CAN 1 L	24	

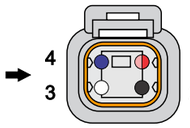
DTM04-4P



LOOKING INTO CONNECTOR

CAN 1 IN-CABIN CONNECTOR (LENGTH: 250mm)

DTM04-4P



LOOKING INTO CONNECTOR

CAN 1 ENGINE BAY CONNECTOR (LENGTH: 1250mm)

BATTERY GROUND OUT
GROUND OUT FOR SHIELDS, LOW-CURRENT CAN DEVICES, DIGITAL SENSORS
- 3A MAX LOAD PER PIN

DO NOT CONNECT TO ENGINE, CHASSIS, OR BATTERY GROUND.

BATTERY GROUND OUT	[B]	10	
BATTERY GROUND OUT	[B]	11	
			(G) TO CABLE SHIELDING - SHEET 2

IGNITION
8 X IGNITION OUTPUTS
- 3A MAX CURRENT
- OVERCURRENT PROTECTED
- FLYBACK PROTECTED
- GLOBAL 12V OR 5V PULL-UP VOLTAGE
- PER OUTPUT 270R PULL-UP ENABLE
- VOLTAGE MONITORED

WIRE IGNITION OUTPUT TO CYLINDER NUMBER FOR DIRECT FIRE

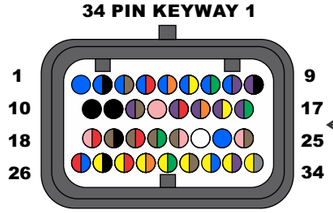
UNUSED IGNITION OUPUTS CAN BE USED AS GENERIC DPO'S WITH 3A MAX OUTPUT OR 0-12V DIGITAL SWITCH INPUTS

RECOMMENDED WIRE GAUGE: 20 AWG

OUTPUT: GROUND

IGNITION 1	[Y/B]	27	
IGNITION 2	[Y/R]	28	
IGNITION 3	[Y/O]	29	
IGNITION 4	[Y/G]	30	
IGNITION 5	[Y/BR]	31	
IGNITION 6	[Y/L]	32	
IGNITION 7	[Y/V]	33	
IGNITION 8	[Y/GY]	34	

CONNECTOR A
34 PIN KEYWAY 1



LOOKING INTO CONNECTOR ON NEXUS R3 VCU

NOTES

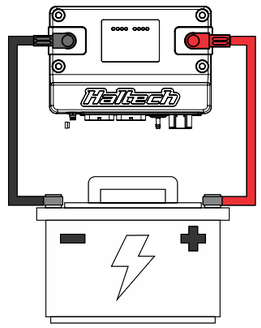
WARNING!

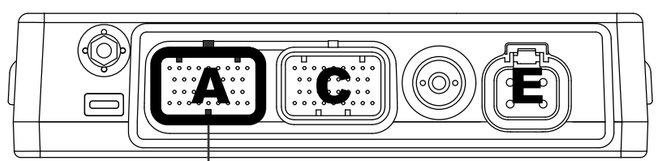
THIS HARNESS DOES NOT GROUND YOUR ENGINE. MAKE SURE THE ENGINE IS SUFFICIENTLY GROUNDED USING A GROUND / EARTHING STRAP TO THE BATTERY. KEEP ALL WIRES AWAY FROM THE EXHAUST MANIFOLD.

MAIN BATTERY CONNECTION

CONNECT THE POSITIVE BATTERY TERMINAL TO THE POSITIVE TERMINAL ON THE NEXUS R3 USING THE RED SURLOK CONNECTOR PROVIDED WITH THE VCU AND A RED 4 AWG BATTERY CABLE.

CONNECT THE NEGATIVE BATTERY TERMINAL TO THE NEGATIVE TERMINAL ON THE NEXUS R3 USING THE BLACK SURLOK CONNECTOR PROVIDED WITH THE VCU AND A BLACK 4 AWG BATTERY CABLE.





LEGEND - WIRE COLOUR
B = BLACK BR = BROWN G = GREEN GY = GREY L = BLUE
LL = LIGHT BLUE LG = LIGHT GREEN LY = LIGHT YELLOW O = ORANGE
P = PINK R = RED V = VIOLET Y = YELLOW W = WHITE
WHEN TWO COLOURS ARE USED IN A WIRE BY THE ALPHABETICAL CODE, THE FIRST LETTER INDICATES THE BASIC WIRE COLOUR, THE SECOND COLOUR INDICATES THE COLOUR OF THE STRIPE.

Haltech

HT-183200 UNIVERSAL WIRE-IN HARNESS FOR NEXUS R3 VCU - WIRING DIAGRAM

DOCUMENT REVISION: 1.0	HARNESS REVISION: C
DATE: JANUARY 2023	SHEET 1 OF 2

HT-183200 UNIVERSAL WIRE-IN HARNESS FOR NEXUS R3 VCU

NOTES

TRIGGER AND HOME INPUTS
- SUPPORTS RELUCTOR INPUTS
- SUPPORTS DIGITAL INPUTS
- SELECTABLE GROUND REFERENCE AND PULLUP TO 5V
- 48kHz MAX SIGNAL FREQUENCY

[Y] TRIGGER (CRANK) [GY] → TRIGGER + (1)
[G] → TRIGGER - (2)
[R] → +12V (H)
[B] SHIELDED 4 CORE → SIGNAL GROUND

NOTE: SHIELDED CABLES SHOULD BE EARTHED AT ONE END OF CABLE ONLY

[Y] HOME (CAM) [GY/B] → HOME + (3)
[G] → HOME - (4)
[R] → +12V (H)
[B] SHIELDED 4 CORE (G) → SIGNAL GROUND

SPI
6 X SYNCHRONISED PULSED INPUTS
- SUPPORTS RELUCTOR INPUTS
- SUPPORTS DIGITAL INPUTS
- SUPPORTS 0-5V ANALOG INPUTS
- 22.5kHz MAX FREQUENCY
- 25V MAX INPUT VOLTAGE
- SWITCHABLE 1K PULL-UP

RECOMMENDED WIRE GAUGE: 22 AWG

MEASUREMENT RANGE: -10V TO 10V

[GY/BR] SPI 1 (5)
[GY/R] SPI 2 (6)
[GY/O] SPI 3 (7)
[GY/Y] SPI 4 (8)
[GY/P] SPI 5 (19)
[GY/LG] SPI 6 (20)

SIGNAL GROUND
- 500mA MAX OUTPUT CURRENT

[B/W] → SIGNAL GROUND (26)

[W] SHIELDED 2 CORE [B/L] [B] (G) → KNOCK 1 (23), SIGNAL GROUND

NOTE: SHIELDED CABLES SHOULD BE EARTHED AT ONE END OF CABLE ONLY

[W] SHIELDED 2 CORE [B/G] [B] → KNOCK 2 (24), SIGNAL GROUND

KNOCK INPUTS
- -2.5V TO +2.5V AC INPUT ONLY
- 160Hz TO 48kHz SIGNAL FREQUENCY

34 PIN CONNECTOR (C)

CAN (ISO 11898)
SUPPORTS SPEEDS UP TO 1MBit/s

HALTECH BUS
- SUPPORTS ALL HALTECH EXPANSION PRODUCTS

VEHICLE BUS
- SELECTABLE PRECONFIGURED VEHICLE CAN INTERFACE
- OBDII COMPLIANT

(H) CAN 2 H (21), CAN 2 L (22), (G) → DTM04-4P

4 3 / 1 2 LOOKING INTO CONNECTOR

CAN 2 IN-CABIN CONNECTOR (LENGTH: 250mm)

WIDEBAND SENSOR INPUT
COMPATIBLE WITH BOSCH LSU 4.9 AND NTK SENSORS

SELECT WHICH SENSOR IS BEING USED IN THE NSP SOFTWARE
- COMPATIBLE WITH ETHANOL
- MUST BE INSTALLED PRE CATALYTIC CONVERTOR
- OPTIONAL WIDEBAND HARDWARE PACK MAY BE PURCHASED IF REQUIRED (HT-010746 FOR LSU4.9) (HT-010747 FOR NTK)

WBI 1 (HTR+) (29)
WBI 1 (INPUT) (30)
WBI 1 (PUMP) (31)
WBI 1 (NERNST) (32)
WBI 1 (HTR-) (33)
WBI 1 (CAL) (34)
→ DTM04-6P

6 5 4 / 1 2 3 LOOKING INTO CONNECTOR

WIDEBAND O2 SENSOR CONNECTOR (LENGTH: 1250mm)

AVI
11 X ANALOG VOLTAGE INPUTS
- INDIVIDUAL SOFTWARE SELECTABLE 1K PULL-UP TO 5V
- USER DEFINABLE INPUTS CAN BE ALLOCATED TO AVAILABLE FUNCTIONS IN THE SOFTWARE
- 30V MAX INPUT VOLTAGE
- 1000 SAMPLES/SECOND
- 1.5kHz MAX INPUT FREQUENCY
- ALL AVIS CAN BE USED FOR NARROWBAND O2 AND DBW INPUTS

RECOMMENDED WIRE GAUGE: 22 AWG

INPUT: -10V TO 30V

AVI 1 (10) [W]
AVI 2 (11) [W/Y]
AVI 3 (12) [W/GY]
AVI 4 (13) [W/V]
AVI 5 (14) [W/G]
AVI 6 (15) [W/O]
AVI 7 (16) [W/B]
AVI 8 (17) [W/BR]
AVI 9 (18) [W/R]
AVI 10 (27) [LG]
AVI 11 (28) [LG/B]

+8V SENSOR SUPPLY
- 200mA MAX OUTPUT CURRENT

SENSOR +8V (9) [O/W]

+5V SENSOR SUPPLY
- 200mA MAX OUTPUT CURRENT

SENSOR +5V (A) (25) [O]

NOTES

4 PIN (E) CONNECTOR

25A HCO
4 X 25A HIGH CURRENT OUTPUTS
- HIGH/LOW SIDE DRIVE
- 25A MAX CURRENT
- CAPABLE OF 0-100% DUTY
- 1kHz SWITCHING SPEED
- SOFTWARE PROGRAMMABLE FUSE CURRENT, DELAY AND NO. OF RETRIES
- OVERCURRENT PROTECTION

RECOMMENDED WIRE GAUGE: 12 AWG

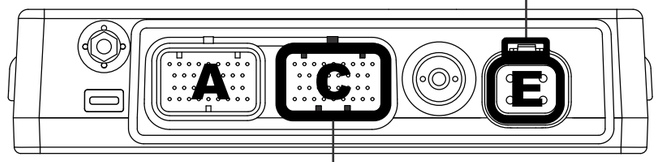
OUTPUT: BATTERY VOLTAGE OR GROUND

(1) 25A HCO 1 [R/L] → +12V POWER FOR INJECTORS
(2) 25A HCO 2 [R/Y] → +12V POWER FOR IGNITION COILS
(3) 25A HCO 3 [R/O]
(4) 25A HCO 4 [R/G]

CONNECTOR E
4 PIN DTP

4 3 / 1 2

LOOKING INTO CONNECTOR ON NEXUS R3 VCU



CONNECTOR C
34 PIN KEYWAY 2

1 10 18 26 / 9 17 25 34

LOOKING INTO CONNECTOR ON NEXUS R3 VCU

LEGEND - CONNECTION POINTS
(G) CONNECTION TO BATTERY GROUND OUTPUT ON CONNECTOR A - SHEET 1

(H) CONNECTION TO HBO 5 (+12V) - SHEET 1

LEGEND - WIRE COLOUR
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HT-183200 UNIVERSAL WIRE-IN HARNESS FOR NEXUS R3 VCU - WIRING DIAGRAM

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DATE: JANUARY 2023	SHEET 2 OF 2