TB-D5001 HRT-003

SIL 3 HART® Multiplexer Termination Board 1 position for up to 64 channels (extendable to 256 channels)

Characteristics:

General description:

The HART® Termination Board model TB-D5001-HRT-003 allows the remote monitoring of any HART®-compatible 4/20 mA field loop.
This is obtained by one locally mounted HART® Multiplexer Modem 5700 and by interface connectors to access the relevant loops.
The single TB-D5001-HRT-003 Termination Board supports 64 channels. Yet, it could be extended with additional TB-D5001-HRT-003 units (up to 4) to manage all 256 channels available on the HART® Multiplexer Modem 5700.
The Mux unit connects, via the RS-485 interface, to an external PC running an FDT-based software package (PACTware™, etc...) through a dedicated Device Type Manager (DTM). The PC can communicate with multiple Mux units, located on different boards, in a multi-drop RS-485 mode.
The HART® Termination Board TB-D5001-HRT-003 is SIL 3 certified as non-interfering with the signal loops.

Functional Safety Management Certification:

G.M. International is certified by TUV to conform to IEC61508:2010 part 1 clauses 5-6 for safety related systems up to and included SIL3.

FSM SIL 3

Technical Data:

Supply:

24 Vdc nom (20 to 30 Vdc) reverse polarity protected, redundant terminal blocks, OR diodes to select higher supply source.
Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm².
2 LEDs indication: green.
Protection fuse: 2 A time lag (spare fuse provided on Termination Board).

HART® interface:

Connection: 4 flat cable 34 poles male connectors (requires female mating connector).
DC Isolation: dual capacitor for each channel.
Common mode voltage: up to 50 V.

Additional TBs interface:

Connection: 2 flat cable 10 poles male connectors (requires female mating connector).

Compatibility:

CE mark compliant, conforms to Directives:
2014/34/EU ATEX, 2014/30/EU EMC, 2014/35/EU LVD, 2011/65/EU RoHS.

Environmental conditions:

Operating: temperature limits – 40 to + 70 °C, relative humidity 95 %, up to 55 °C.
Storage: temperature limits – 45 to + 80 °C.

Safety Description:

ATEX: II 3G Ex nA IIC T4 Gc
IECEx : II 3G Ex nA IIC T4 Gc
non-sparking electrical equipment.
Approvals:
ATEX conforms to EN60079-0, EN60079-15 (pending).
IECEx conforms to IEC60079-0, IEC60079-15 (pending).
TÜV Certificate No. C-IS-272994-01 SIL 3 conforms to IEC61508:2010 Ed.2.
TÜV Certificate No. C-IS-236198-09, SIL 3 Functional Safety Certificate conforms to IEC61508:2010 Ed.2, for Management of Functional Safety.

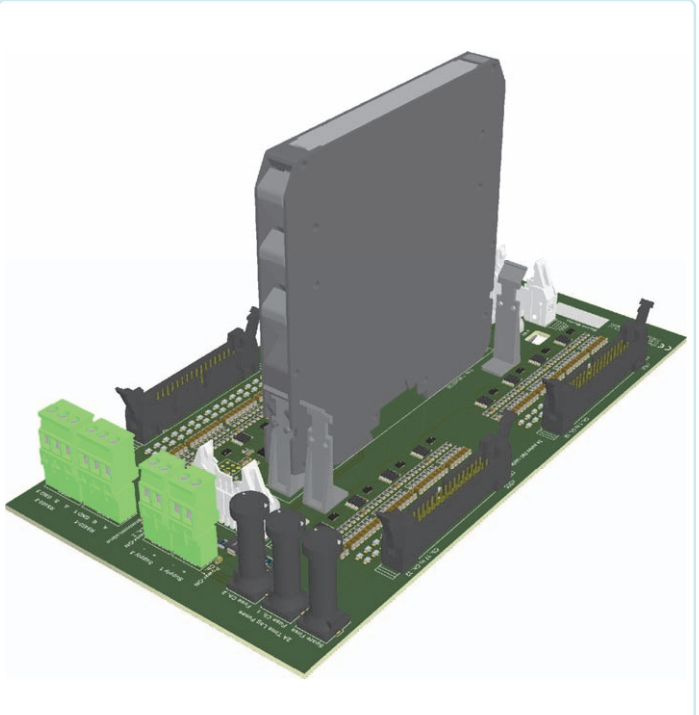
Mounting:

Surface (Wall) or DIN Rail mounting: TB-OPT-001 is a Kit including hardware for mounting on wall and DIN rail.
Weight: about 200 g (excluding modules and mounting options).
Location: installation in Safe Area or Zone 2, Group IIC T4.
Dimensions: Width 176 mm, Depth 147 mm, Height 125 mm.

Features:

- SIL 3 according to IEC 61508:2010 Ed. 2 (see Safety Manual ISM0436 for more information).
- Systematic capability SIL 3.
- HART® Multiplexing Board of up to 64 analog signals (extendable to 256 channels with 3 additional TB-D5001-HRT-003 units).
- Redundant Power Supply connection by screw terminals.
- Supply is fuse protected and with LED indication.
- Dedicated terminal to connect RS-485 communication cable shield.
- RS-485 interface terminals to communicate with the HART® Mux unit.
- HART® channels isolated with dual capacitors (short circuit proof).
- Spare fuse provided.
- Includes hardware for Easy installation in three modes:
  Wall mounting, M4 Threads,
  Wall mounting, Self Threading,
  Din Rail mounting.

Image:



Ordering Information:

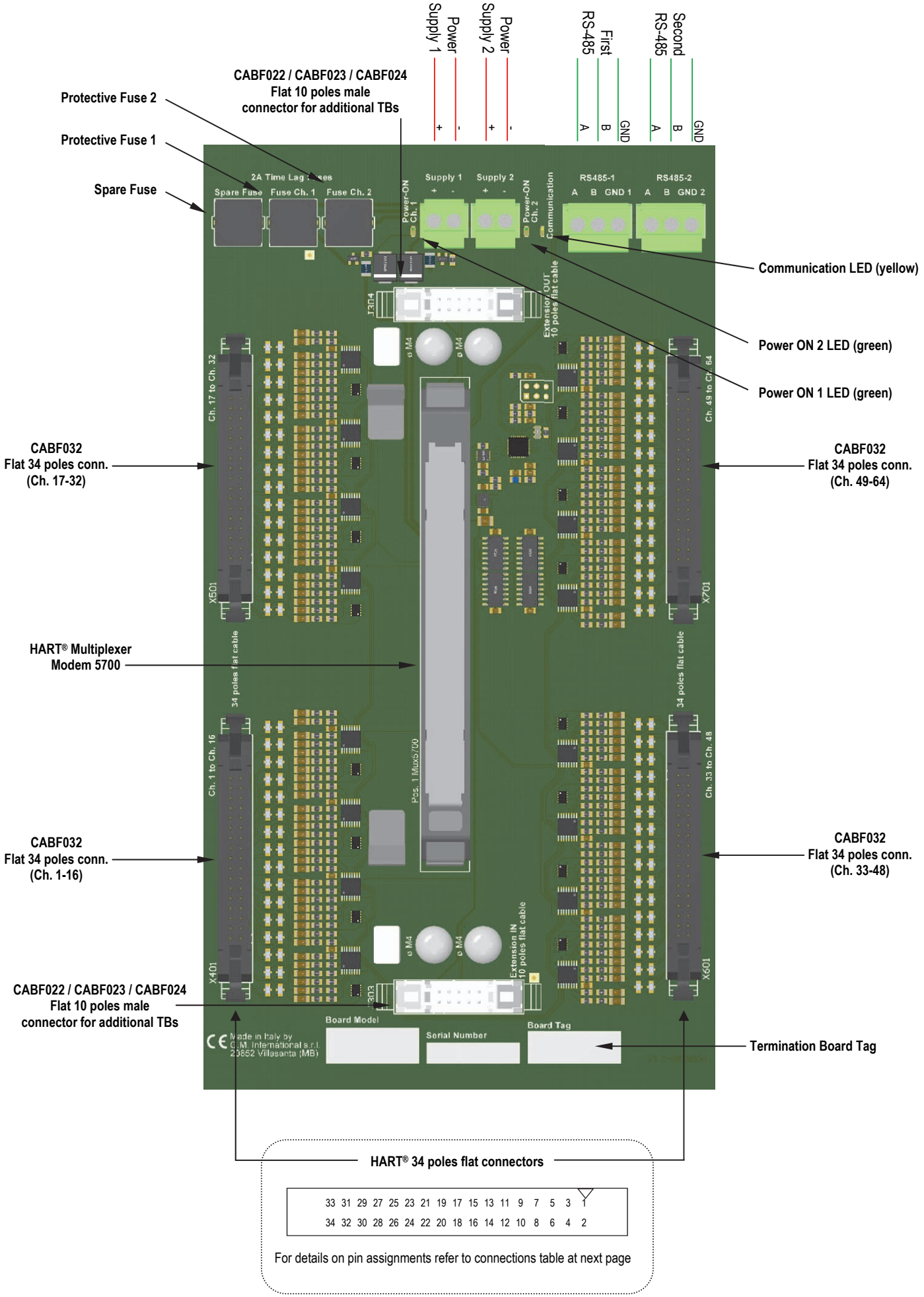
Model: TB-D5001-HRT-003

Accessories:

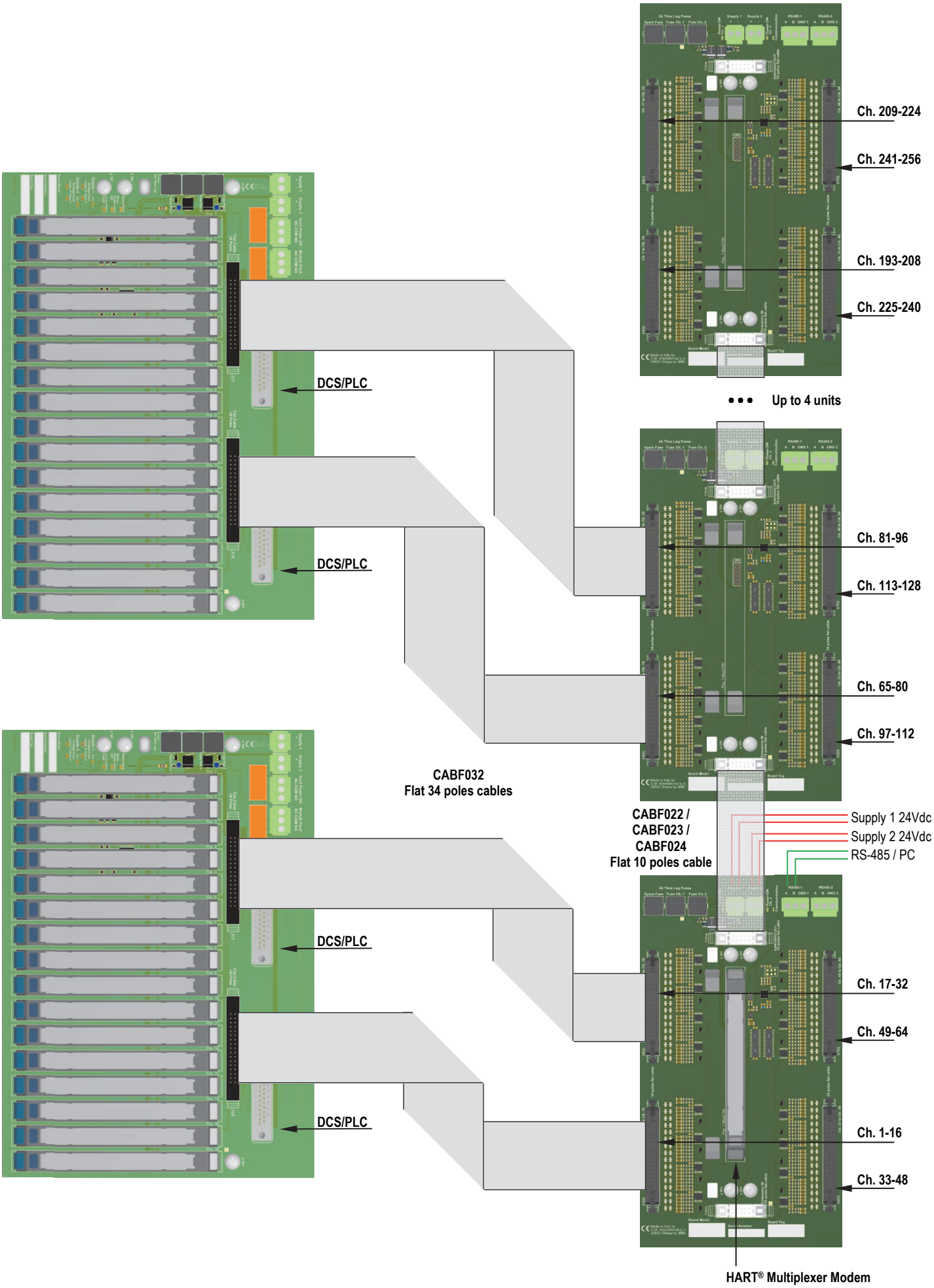
Extension cables 15 cm CABF022	Term. board flat cable 1 m CABF032
Extension cables 30 cm CABF023	Term. board flat cable xx m CABF032/xx
Extension cables 50 cm CABF024	. (max 5 m)

Included:
TB-OPT-001 Universal Board mounting kit

Termination Board Connection Diagrams:



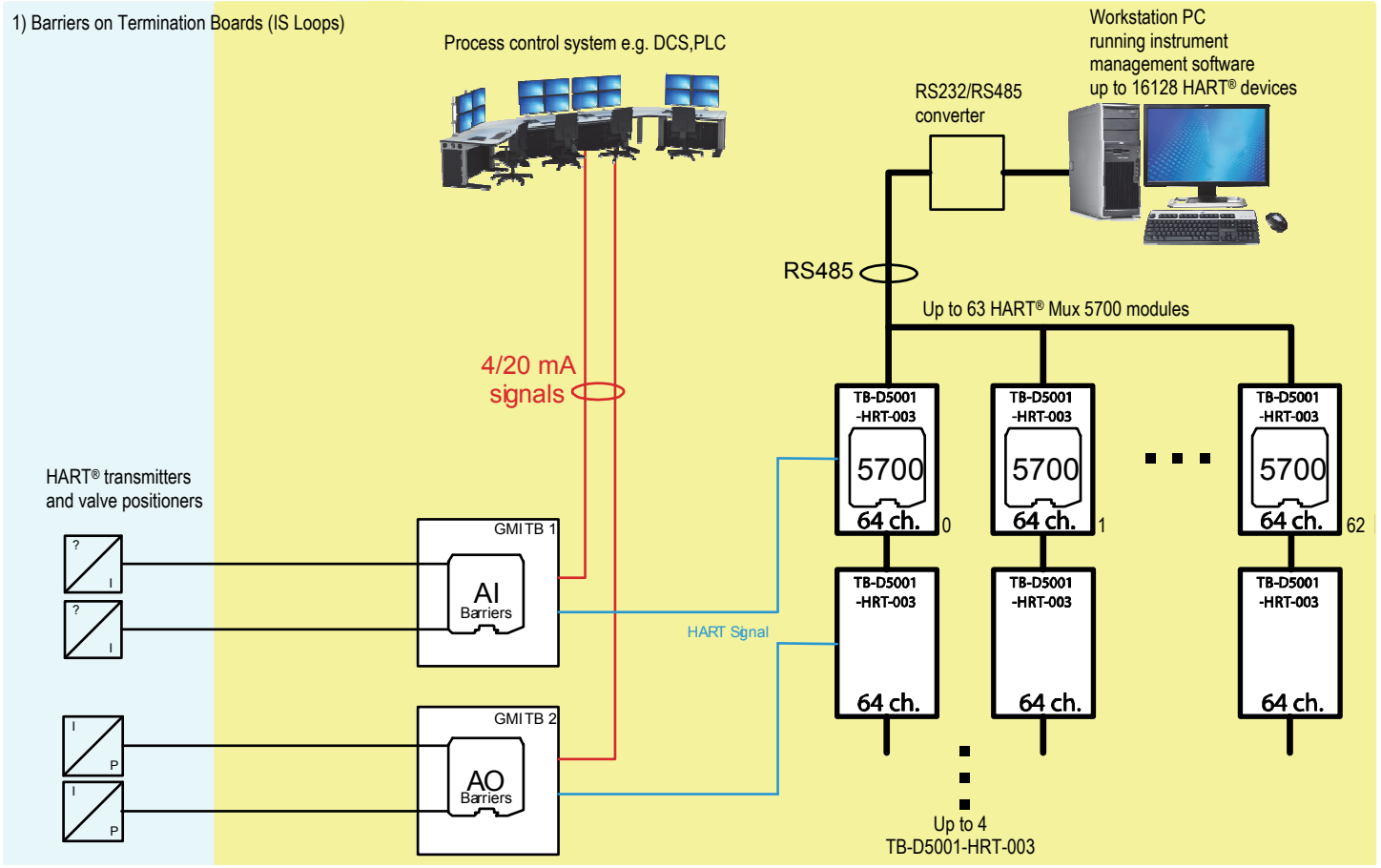
Termination Board Network:



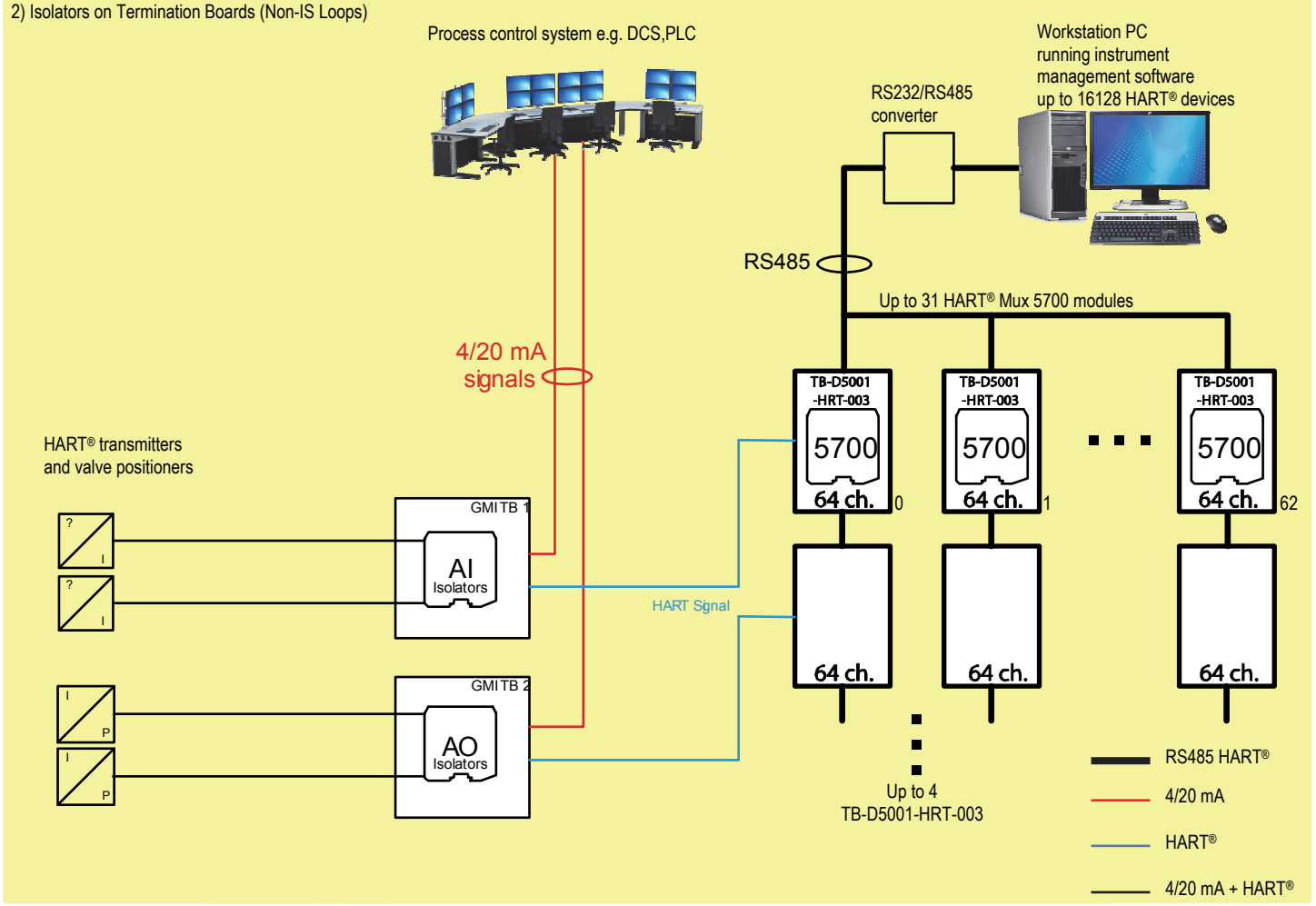
HAZARDOUS AREA ZONE 0 (ZONE 20) GROUP IIC

SAFE AREA, ZONE 2 GROUP IIC T4

1) Barriers on Termination Boards (IS Loops)



2) Isolators on Termination Boards (Non-IS Loops)



Connections table:

MUX CHANNEL NUMBER	FLAT CONNECTOR PIN (+)	FLAT CONNECTOR PIN (-)
1	1 (CON1)	2 (CON1)
2	3 (CON1)	4 (CON1)
3	5 (CON1)	6 (CON1)
4	7 (CON1)	8 (CON1)
5	9 (CON1)	10 (CON1)
6	11 (CON1)	12 (CON1)
7	13 (CON1)	14 (CON1)
8	15 (CON1)	16 (CON1)
9	17 (CON1)	18 (CON1)
10	19 (CON1)	20 (CON1)
11	21 (CON1)	22 (CON1)
12	23 (CON1)	24 (CON1)
13	25 (CON1)	26 (CON1)
14	27 (CON1)	28 (CON1)
15	29 (CON1)	30 (CON1)
16	31 (CON1)	32 (CON1)
17	1 (CON2)	2 (CON2)
18	3 (CON2)	4 (CON2)
19	5 (CON2)	6 (CON2)
20	7 (CON2)	8 (CON2)
21	9 (CON2)	10 (CON2)
22	11 (CON2)	12 (CON2)
23	13 (CON2)	14 (CON2)
24	15 (CON2)	16 (CON2)
25	17 (CON2)	18 (CON2)
26	19 (CON2)	20 (CON2)
27	21 (CON2)	22 (CON2)
28	23 (CON2)	24 (CON2)
29	25 (CON2)	26 (CON2)
30	27 (CON2)	28 (CON2)
31	29 (CON2)	30 (CON2)
32	31 (CON2)	32 (CON2)

MUX CHANNEL NUMBER	FLAT CONNECTOR PIN (+)	FLAT CONNECTOR PIN (-)
33	1 (CON3)	2 (CON3)
34	3 (CON3)	4 (CON3)
35	5 (CON3)	6 (CON3)
36	7 (CON3)	8 (CON3)
37	9 (CON3)	10 (CON3)
38	11 (CON3)	12 (CON3)
39	13 (CON3)	14 (CON3)
40	15 (CON3)	16 (CON3)
41	17 (CON3)	18 (CON3)
42	19 (CON3)	20 (CON3)
43	21 (CON3)	22 (CON3)
44	23 (CON3)	24 (CON3)
45	25 (CON3)	26 (CON3)
46	27 (CON3)	28 (CON3)
47	29 (CON3)	30 (CON3)
48	31 (CON3)	32 (CON3)
49	1 (CON4)	2 (CON4)
50	3 (CON4)	4 (CON4)
51	5 (CON4)	6 (CON4)
52	7 (CON4)	8 (CON4)
53	9 (CON4)	10 (CON4)
54	11 (CON4)	12 (CON4)
55	13 (CON4)	14 (CON4)
56	15 (CON4)	16 (CON4)
57	17 (CON4)	18 (CON4)
58	19 (CON4)	20 (CON4)
59	21 (CON4)	22 (CON4)
60	23 (CON4)	24 (CON4)
61	25 (CON4)	26 (CON4)
62	27 (CON4)	28 (CON4)
63	29 (CON4)	30 (CON4)
64	31 (CON4)	32 (CON4)