

TD-201 Rev No. 00	Form No.	 	PRODUCT STANDARD PROJECT ENGINEERING & SYSTEMS DIVISION, HYDERABAD	ANNEXURE-2A to PY55295 Rev No. 00 Page 1 of 15
COPYRIGHT AND CONFIDENTIAL The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED, It must not be used directly or indirectly in any way detrimental to the interest of the company. ANNEXURE-2A TO PY55295 REFERENCE SCHEMES FOR 11kV HT SWITCHGEAR <i>(These Schemes are FOR REFERENCE ONLY and may not cover all protection & operational aspects needed for safe and healthy operation of the system. These shall also be referenced for estimating DI/DOs of Numerical Relays for bid purpose and for preparing various schemes during detailed engineering.</i> <i>The Final Schemes shall be designed to meet all the requirements specified in the Main Specification and its Annexures-1A, 1B, 1C, 2A, 2B, 2C, 3, 4 & 6 without any price/time impact.)</i> PROJECT 75MW VISAKH REFINERY MODERNIZATION PROJECT (VRMP) CUSTOMER M/S HINDUSTAN PETROLEUM CORPORATION LIMITED,VIZAG,A.P CONSULTANT ENGINEERS INDIA LIMITED				

DRG. NO. PY-AZ-4-M104-8801-02

SH. 01 OF 14

HT SWITCHBOARD SCHEMES STANDARDISED LOGICS

LEGEND:

I/C – INCOMER

B/C – BUS COUPLER

O/G – OUTGOING

NR – NUMERICAL RELAY

L/R – LOCAL/REMOTE SELECTOR SWITCH

A/I/M – AUTO/INDEPENDENT/MOMENTARY

PARALLELING (MOM. PARL.) SELECTOR SWITCH

TSS – TRIP SELECTOR SWITCH

TNC – TRIP-NEUTRAL-CLOSE SWITCH

86 – MASTER TRIP RELAY (LOCKOUT RELAY)

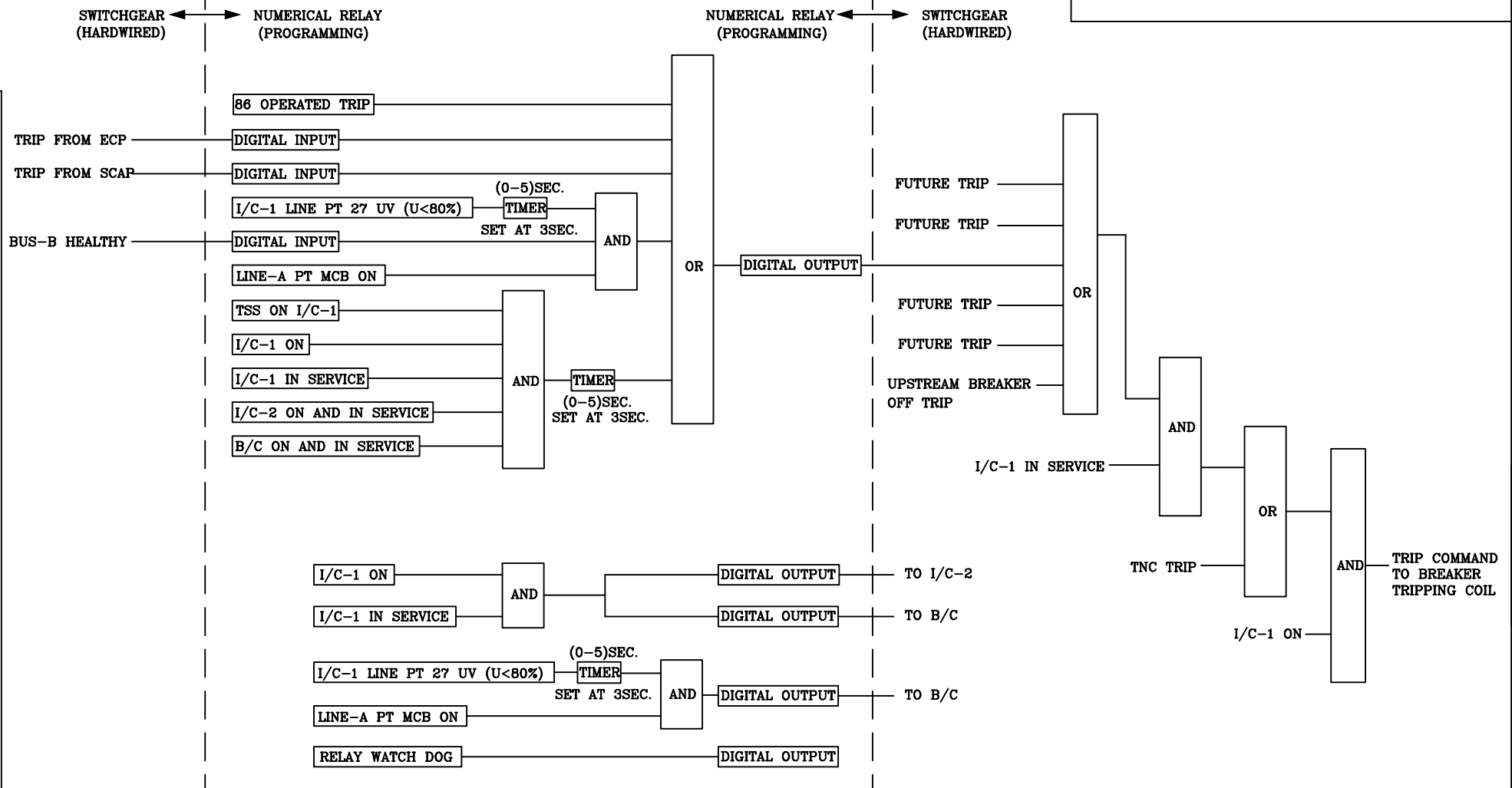
95 – TRIP CIRCUIT SUPERVISION RELAY

TCS – TRIP CIRCUIT SUPERVISION

 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD					NAME	SIGN.	DATE	NO.OF VAR.
				DRN.	GRM/AVS		25.05.2018	
				CHD.	P.SURESH		25.05.2018	
					APPD.	J.K.PATTANIK		25.05.2018
DEPT.	UNTOL. DIMS. GR. <i>G/M/F</i>		SCALE	WEIGHT (KG)	REF. TO ASSY. DRG. -N.A.-	ITEM NO. -N.A.-	NO.OF ITEMS -N.A.-	
CODE								
TITLE HT SWITCHBOARD SCHEMES STANDARDISED LOGICS				CARD CODE N.A.	DRAWING NO. PY-AZ-4-M104-8801-02		REV. 00	
					SHT. No 01	NO. OF SHT. 14		

(ALL DIMENSIONS ARE IN mm)

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261



CLOSING OF INCOMERS AND BUS COUPLERS ON MOMENTARY PARALLELING ACTIVITY SHALL BE POSSIBLE FROM SCAP ALSO



BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN.	DATE	NO.OF VAR.
D.	DRN. GRM/AVS		25.05.2018	
	CHD. P.SURESH		25.05.2018	
	APPD. J.K.PATTANIK		25.05.2018	-N.A.-
GHT (KG)	REF. TO ASSY. DRG.		ITEM NO.	NO.OF ITEMS
	-N.A.-		-N.A.-	-N.A.-
CARD CODE	DRAWING NO. PY-AZ-4-M104-8801-02			REV. 00
N.A.	SHT. No 03	NO. OF SHT. 14		

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

VCB I/C-2

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

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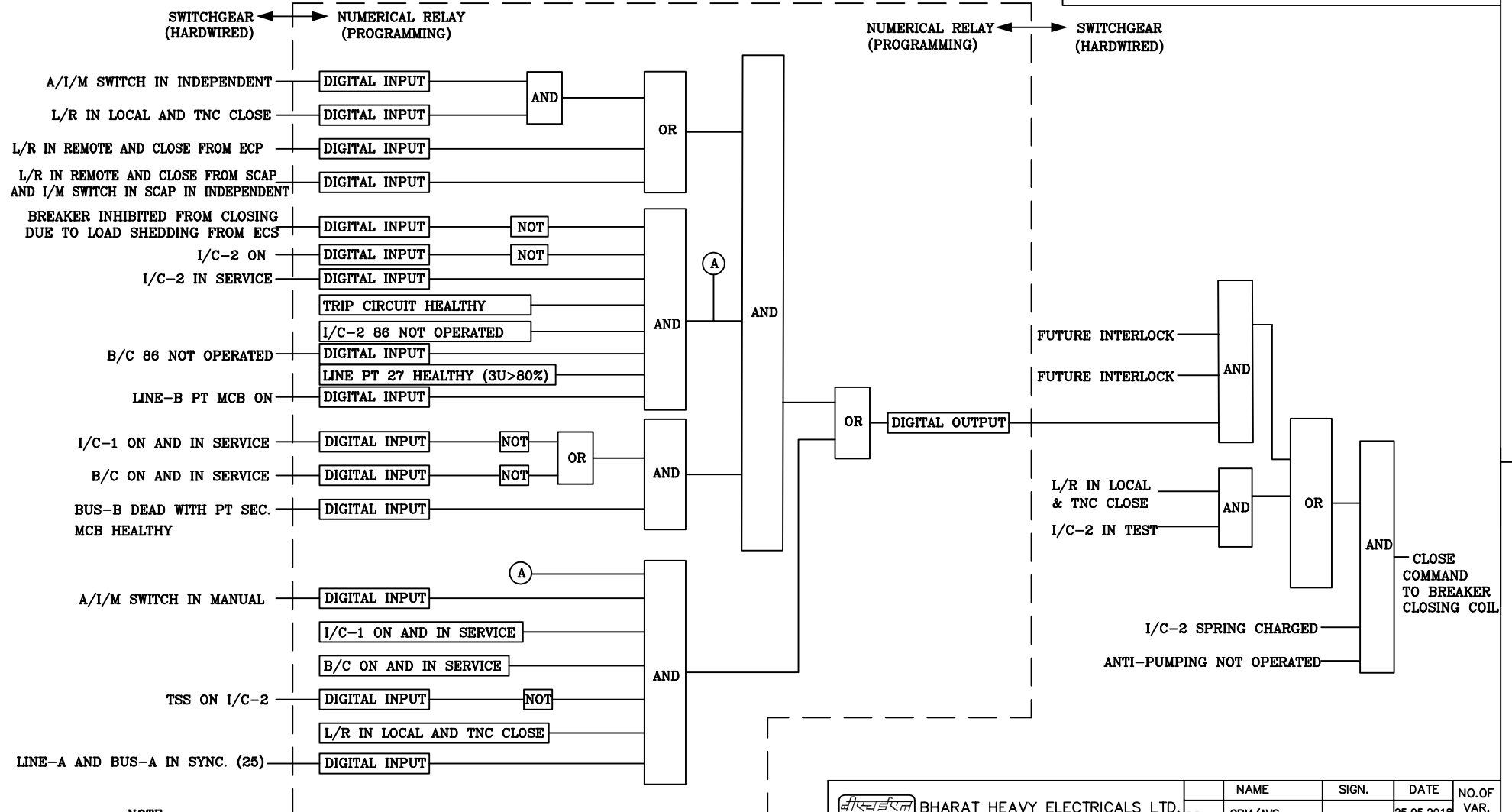
REF. DRG. NO.

SIGN. AND DATE

INVENTORY NO

DRG. NO. PY-AZ-4-M104-8801-02

SH. 04 OF 14

**NOTE:**

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BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

NAME	SIGN.	DATE	NO. OF VAR.
DRN. GRM/AVS		25.05.2018	
CHD. P.SURESH		25.05.2018	
APPD. J.K.PATTANIK		25.05.2018	-N.A.-

REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS
-N.A.-	-N.A.-	-N.A.-

DRAWING NO.	REV.
PY-AZ-4-M104-8801-02	00

SHT. No	NO. OF SHT.
04	14

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT (KG)
CODE	GA/F		
TITLE HT SWITCHBOARD SCHEMES STANDARDISED LOGICS			
CARD CODE	N.A.		

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

VCB I/C-2

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

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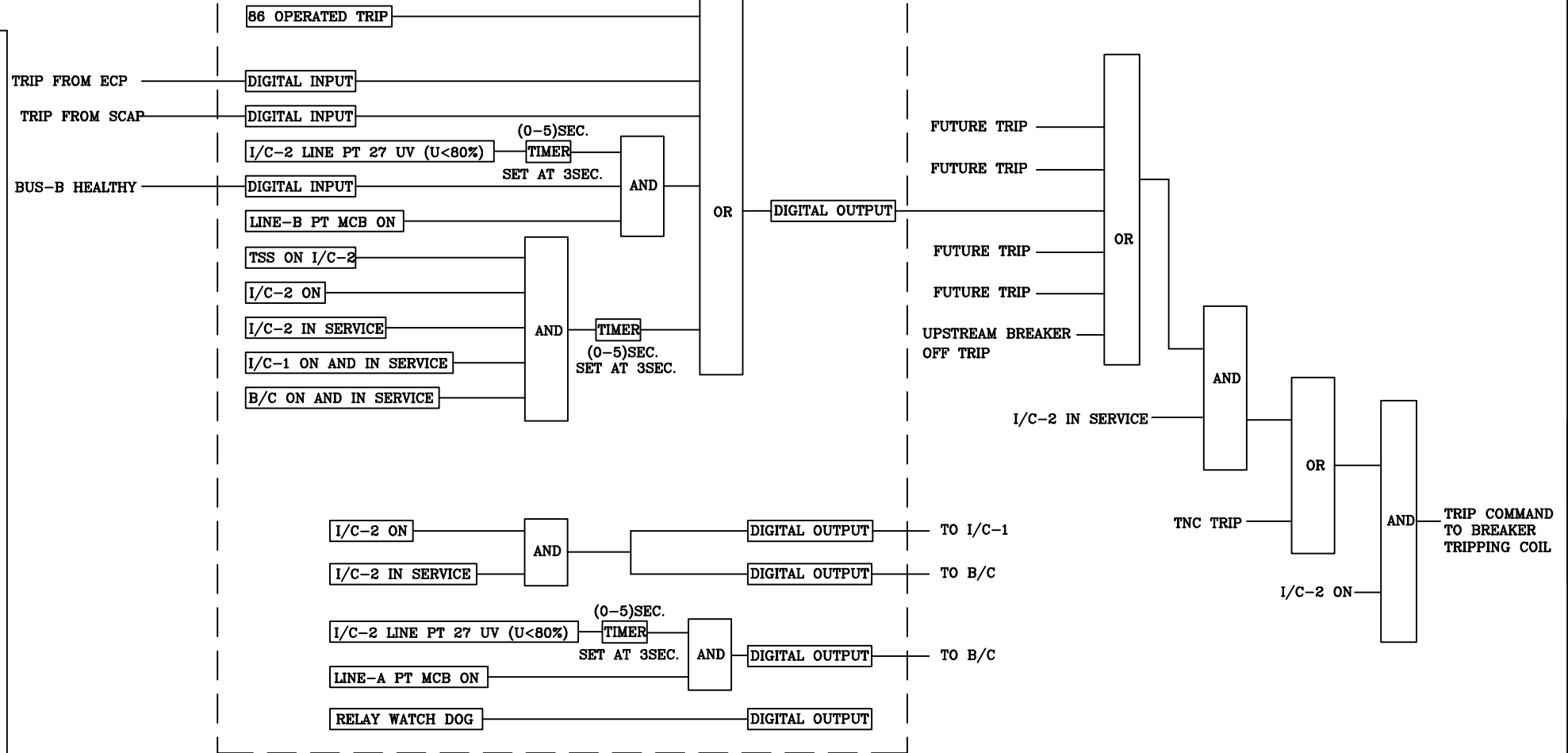
REF. DRG. NO.

SIGN. AND DATE

INVENTORY NO

DRG. NO. PY-AZ-4-M104-8801-02

SH. 05 OF 14

SWITCHGEAR
(HARDWIRED)NUMERICAL RELAY
(PROGRAMMING)NUMERICAL RELAY
(PROGRAMMING)SWITCHGEAR
(HARDWIRED)**NOTE:**

CLOSING OF INCOMERS AND BUS COUPLERS ON MOMENTARY PARALLELING ACTIVITY SHALL BE POSSIBLE FROM SCAP ALSO



BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

	NAME	SIGN.	DATE	NO.OF VAR.
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APPD.	J.K.PATTANIK		25.05.2018	-N.A.-
GHT (KG)	REF. TO ASSY. DRG.		ITEM NO.	NO.OF ITEMS
	-N.A.-		-N.A.-	-N.A.-
CARD CODE	DRAWING NO.			REV.
	PY-AZ-4-M104-8801-02			00
N.A.	SHT. No	05	NO. OF SHT.	14

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT (KG)
CODE	GA/F		
TITLE	CARD CODE		
HT SWITCHBOARD SCHEMES STANDARDISED LOGICS	N.A.		

VCB B/C

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

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COMPUTER FILE NAME

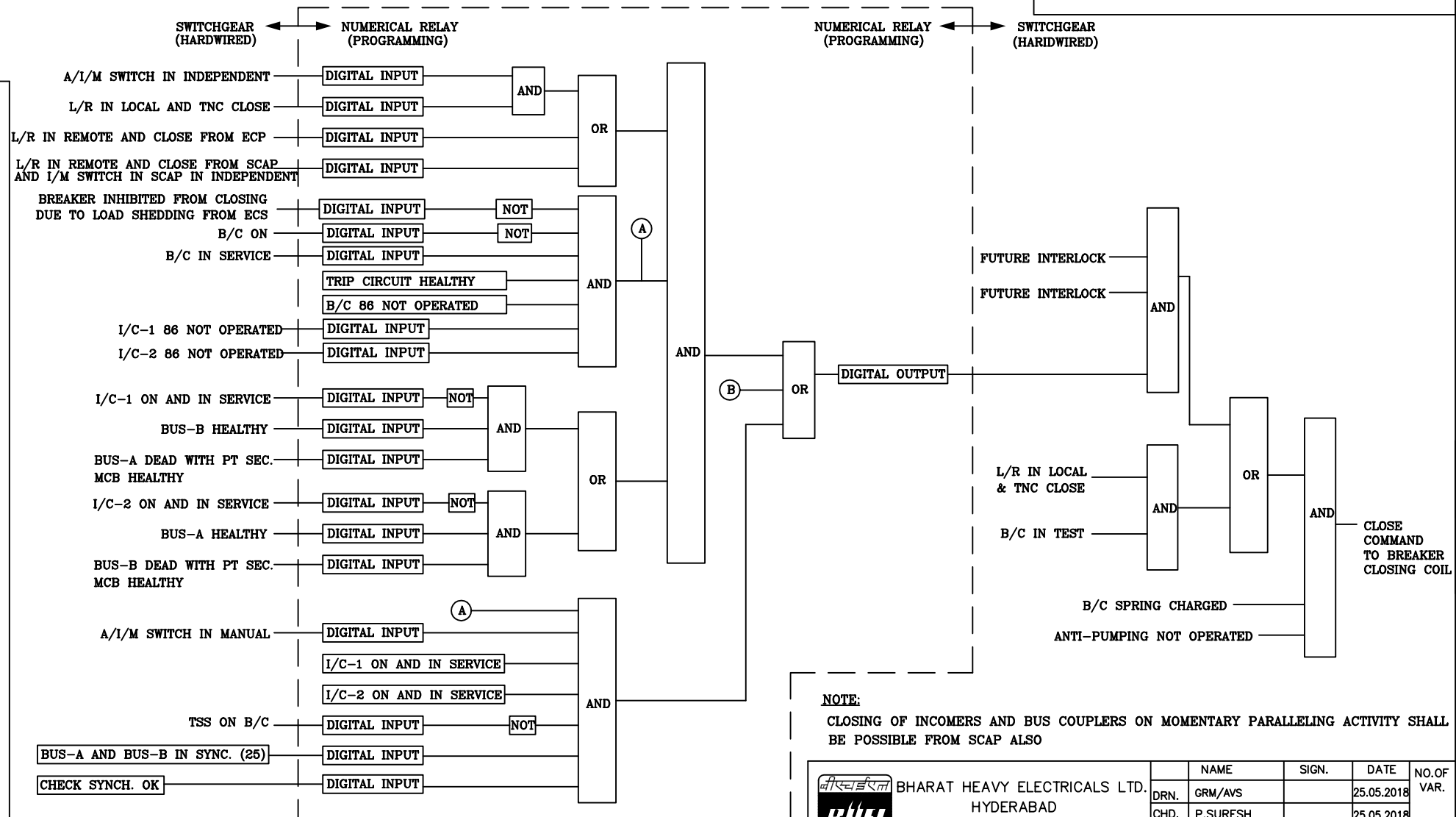
REF. DRG. NO.

SIGN. AND DATE

INVENTORY NO

DRG. NO. PY-AZ-4-M104-8801-02

SH. 06 OF 14

**NOTE:**

CLOSING OF INCOMERS AND BUS COUPLERS ON MOMENTARY PARALLELING ACTIVITY SHALL BE POSSIBLE FROM SCAP ALSO

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

NAME	SIGN.	DATE	NO.OF VAR.
DRN. GRM/AVS		25.05.2018	
CHD. P.SURESH		25.05.2018	
APPD. J.K.PATTANIK		25.05.2018	-N.A.-
REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS	REV.
-N.A.-	-N.A.-	-N.A.-	00
SHT. No 06	NO. OF SHT. 14		

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT (KG)	CARD CODE
CODE	GA/F			N.A.
TITLE	HT SWITCHBOARD SCHEMES			
	STANDARDISED LOGICS			

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

VCB B/C

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

SIGN. AND DATE

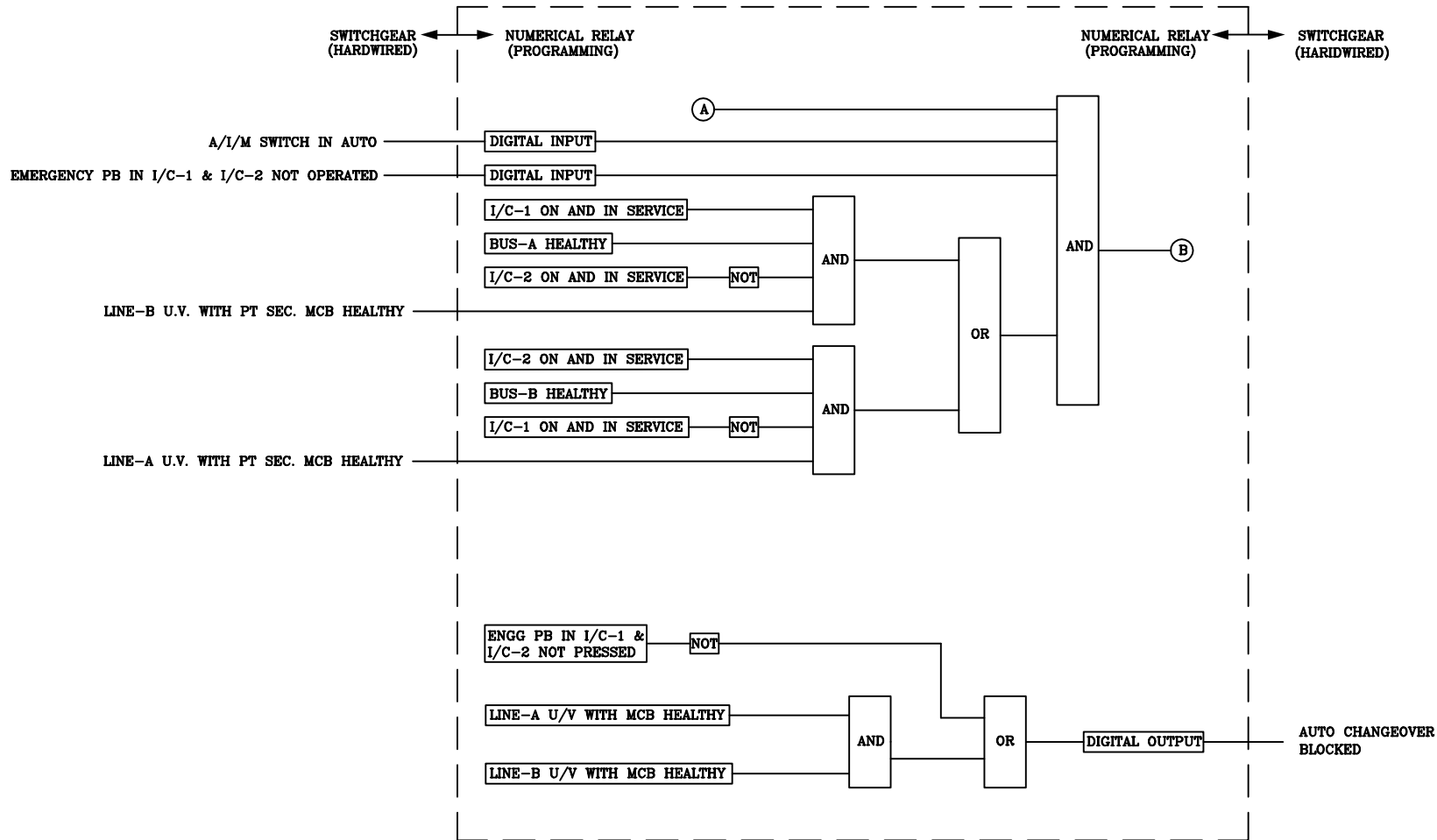
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DRG. NO. PY-AZ-4-M104-8801-02

SH. 07 OF 14



 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD					NAME	SIGN.	DATE	NO.OF VAR.	
				DRN.	GRM/AVS		25.05.2018	-N.A.-	
				CHD.	P.SURESH		25.05.2018		
				APPD.	J.K.PATTANIK		25.05.2018		
DEPT.	UNTOL. DIMS. GR.		SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.		ITEM NO.	NO.OF ITEMS	
CODE	G/M/F				-N.A.-		-N.A.-	-N.A.-	
TITLE HT SWITCHBOARD SCHEMES STANDARDISED LOGICS					CARD CODE	DRAWING NO.			REV.
					N.A.	PY-AZ-4-M104-8801-02			00
						SHT. No 07		NO. OF SHT. 14	

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

VCB B/C

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

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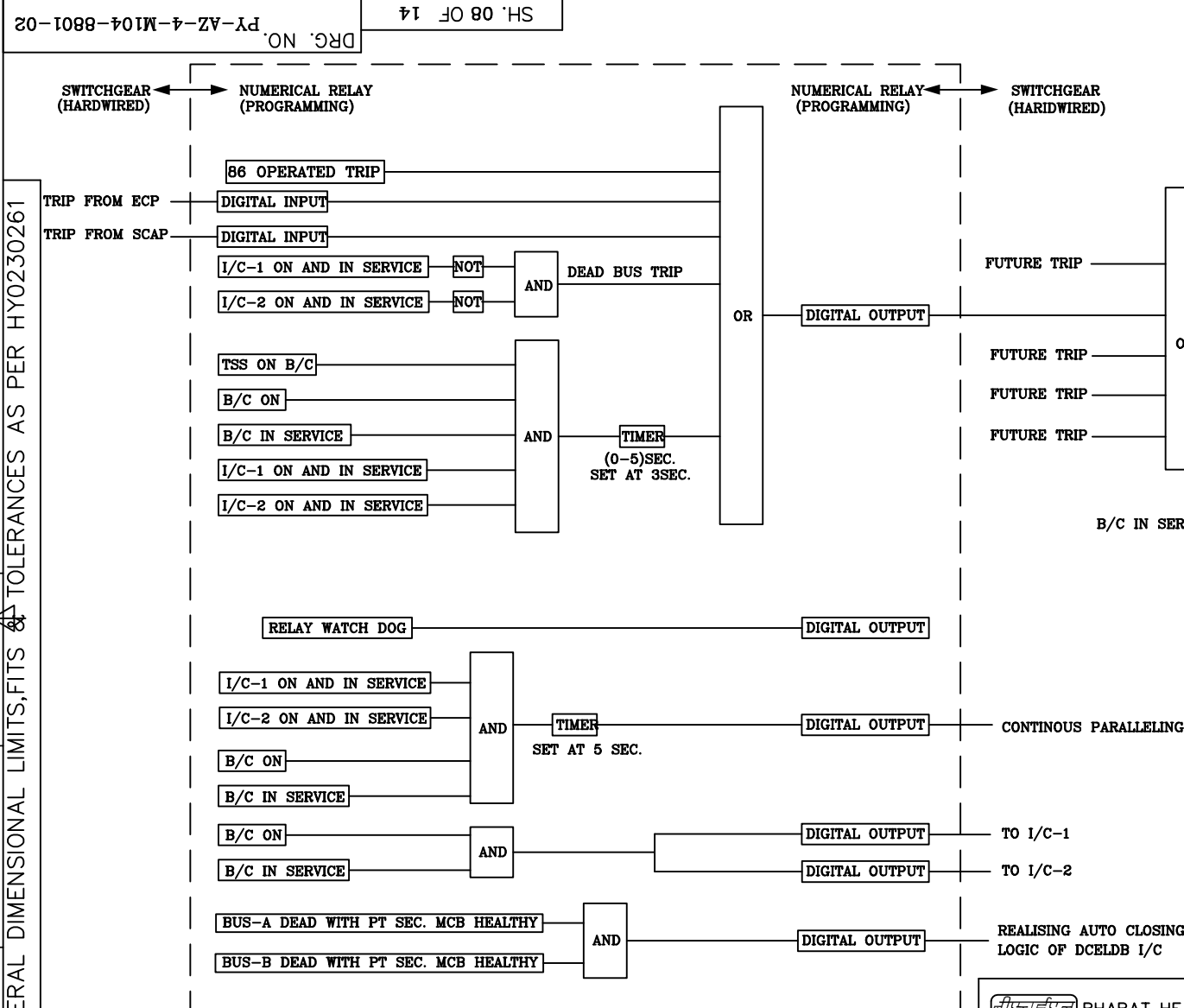
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REF. DRG. NO.

SIGN. AND DATE

INVENTORY NO

	REV.	DATE	ALTERED	REV.	DATE	ALTERED	REV.	DATE	ALTERED
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	ZONE			ZONE			ZONE		
									+

BHARAT HEAVY ELECTRICALS LTD.
HYDERABAD

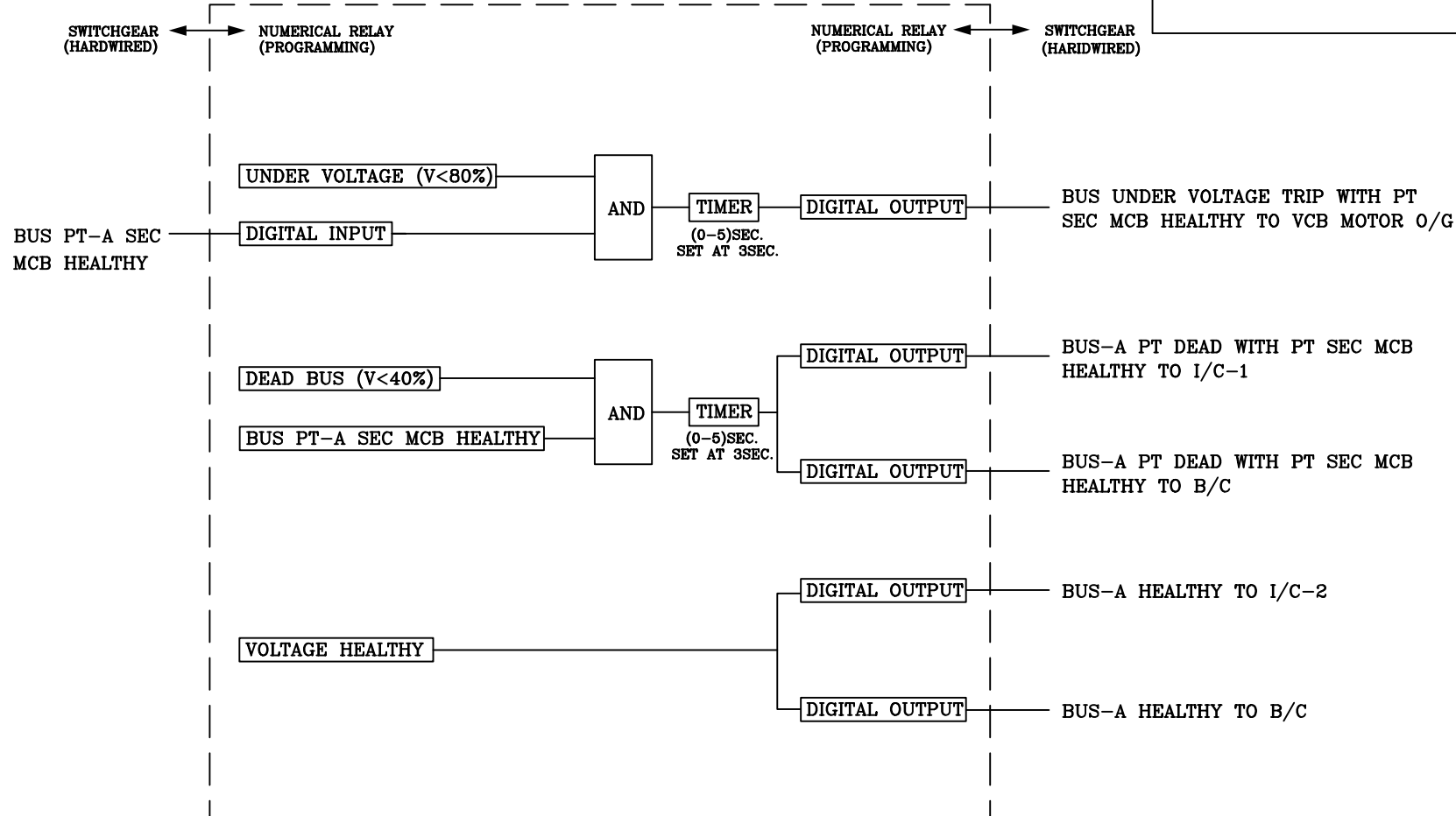
	NAME	SIGN.	DATE	NO. OF VAR.
DRN.	GRM/AVS		25.05.2018	
CHD.	P.SURESH		25.05.2018	
APPD.	J.K.PATTANIK		25.05.2018	-N.A.-
REF. TO ASSY. DRG.	ITEM NO.	NO. OF ITEMS		
-N.A.-	-N.A.-	-N.A.-		
DRAWING NO.		REV.		
PY-AZ-4-M104-8801-02		00		
SHT. No	08	No. OF SHT.		14

DEPT.	UNTOL. DIMS. GR.	SCALE	WEIGHT (KG)	CARD CODE
CODE	GA/M/F			N.A.
TITLE HT SWITCHBOARD SCHEMES STANDARDISED LOGICS				

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

BUS-A PT



COMPUTER FILE NAME

REF. DRG. NO.

SIGN. AND DATE

INVENTORY NO

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GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

DRG. NO. PY-AZ-4-M104-8801-02

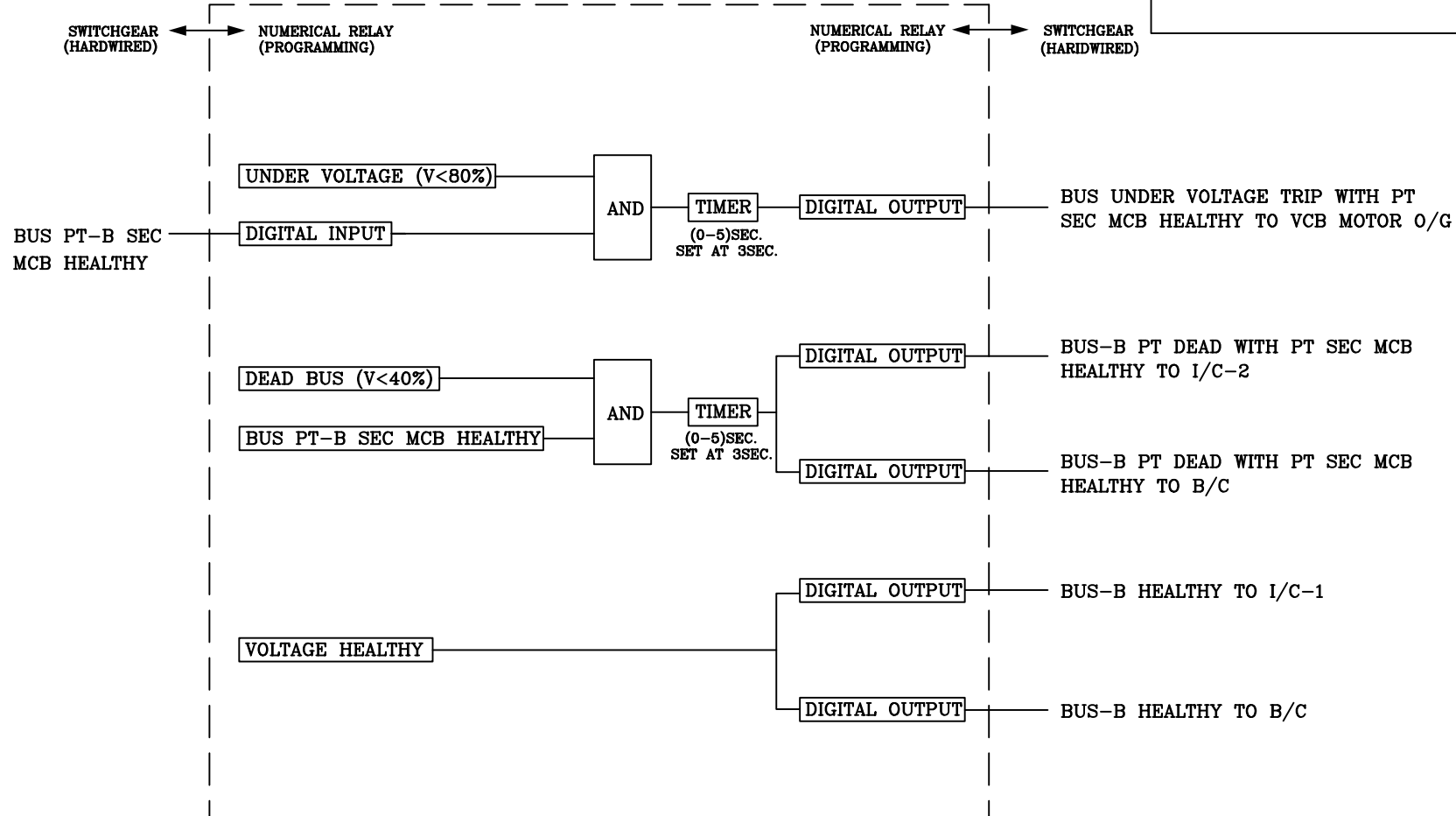
SH. 09 OF 14

 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD						NAME	SIGN.	DATE	NO.OF VAR.
				DRN.		GRM/AVS		25.05.2018	
				CHD.		P.SURESH		25.05.2018	
				APPD.		J.K.PATTANIK		25.05.2018	-N.A.-
DEPT.	UNTOL. DIMS. GR. G/M/F		SCALE	WEIGHT (KG)	REF. TO ASSY. DRG. -N.A.-		ITEM NO. -N.A.-	NO.OF ITEMS -N.A.-	
CODE									
TITLE HT SWITCHBOARD SCHEMES STANDARDISED LOGICS				CARD CODE	DRAWING NO. PY-AZ-4-M104-8801-02			REV. 00	
				N.A.					
				SHT. No		09	NO. OF SHT.		14

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

BUS-B PT



COMPUTER FILE NAME

REF. DRG. NO.

SIGN. AND DATE

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GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

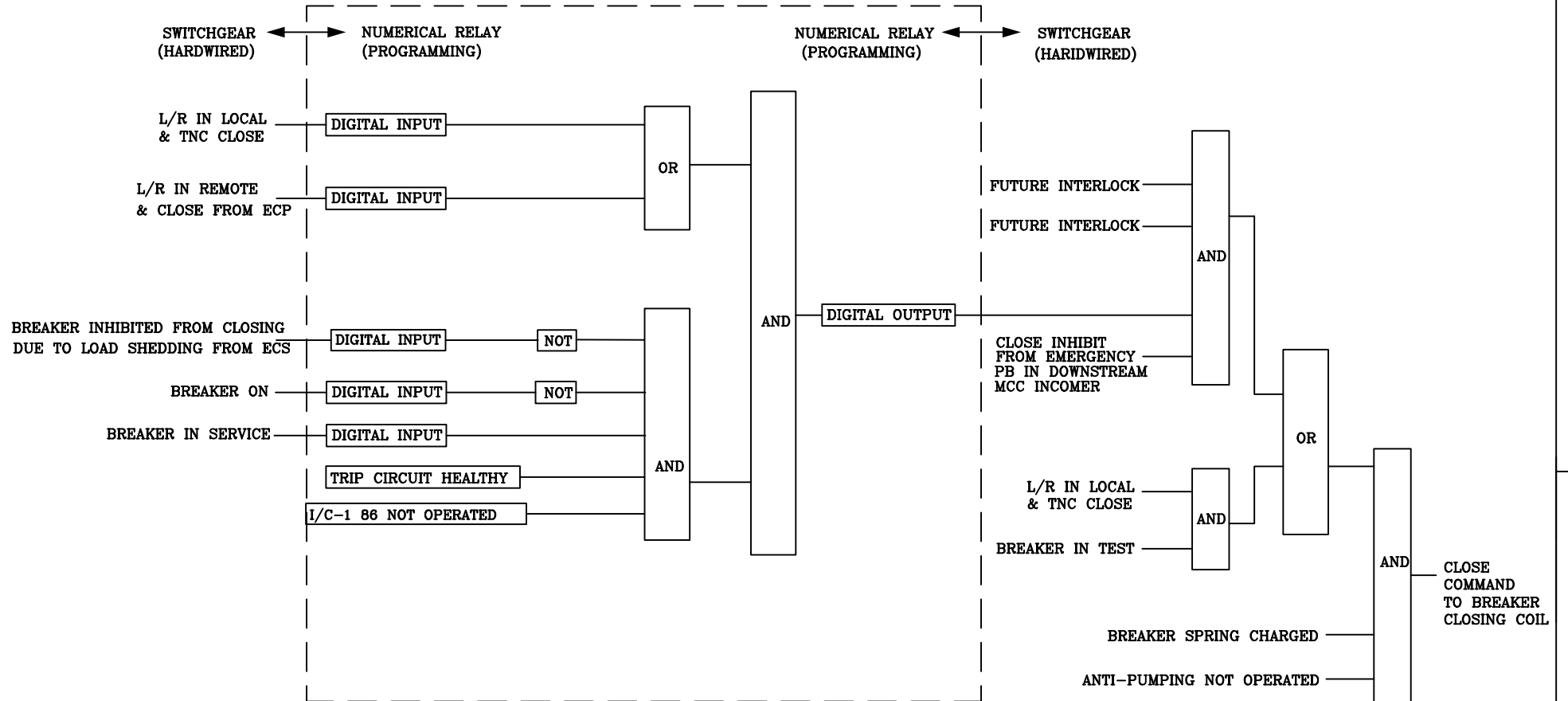
DRG. NO. PY-AZ-4-M104-8801-02

SH. 10 OF 14

 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD						NAME	SIGN.	DATE	NO.OF VAR.
					DRN.	GRM/AVS		25.05.2018	
					CHD.	P.SURESH		25.05.2018	
						APPD.	J.K.PATTANIK		25.05.2018
DEPT.	UNTOL. DIMS. GR. G/M/F		SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.		ITEM NO.	NO.OF ITEMS	
CODE					-N.A.-		-N.A.-	-N.A.-	
TITLE HT SWITCHBOARD SCHEMES STANDARDISED LOGICS					CARD CODE	DRAWING NO. PY-AZ-4-M104-8801-02			REV. 00
					N.A.	SHT. No 10		NO. OF SHT. 14	

(ALL DIMENSIONS ARE IN mm)

VCB NON-MOTOR 0/G

[illegible]

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

VCB NON-MOTOR O/G

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COMPUTER FILE NAME

REF. DRG. NO.

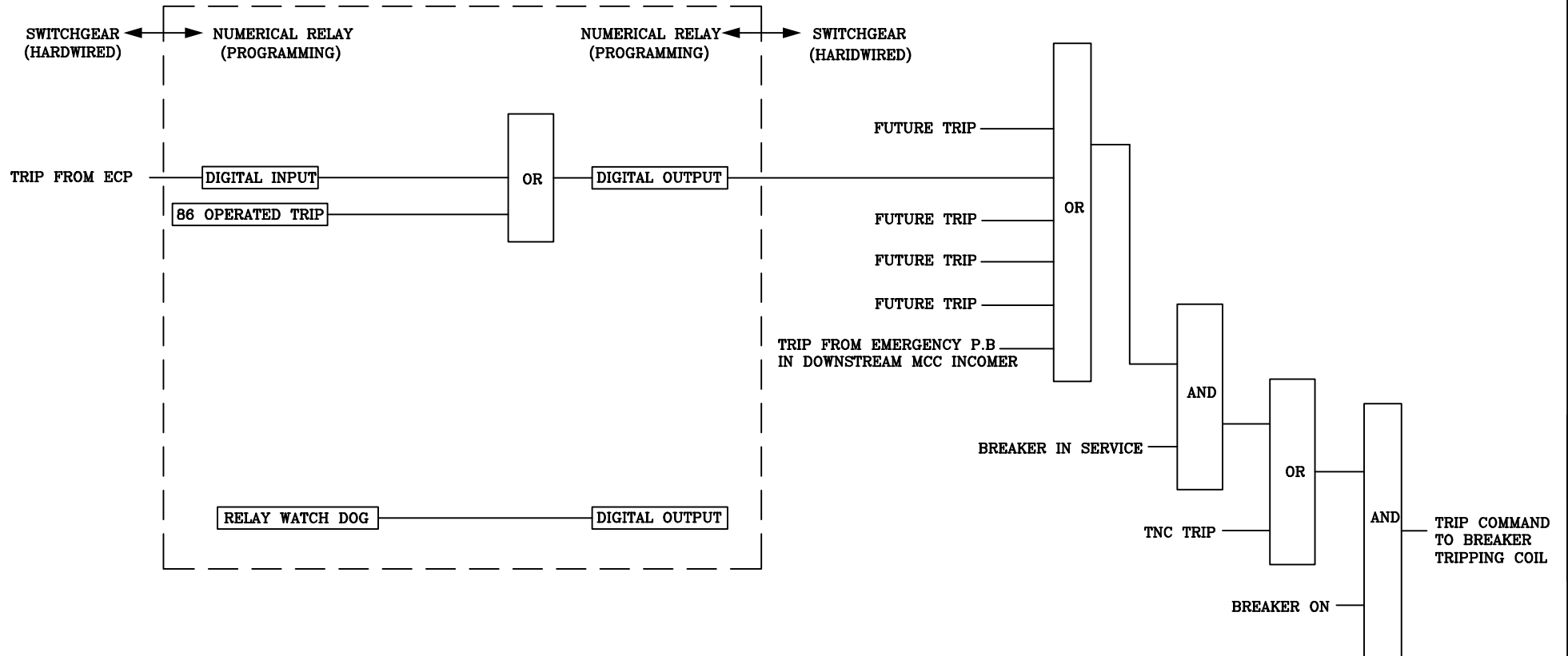
SIGN. AND DATE

INVENTORY NO

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

DRG. NO. PY-AZ-4-M104-8801-02

SH. 12 OF 14



 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD					NAME	SIGN.	DATE	NO.OF VAR.	
				DRN.	GRM/AVS		25.05.2018		
				CHD.	P.SURESH		25.05.2018		
				APPD.	J.K.PATTANIK		25.05.2018	—N.A.—	
DEPT.	UNTOL. DIMS. GR.		SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.		ITEM NO.	NO.OF ITEMS	
CODE	G/M/F				—N.A.—		—N.A.—	—N.A.—	
TITLE HT SWITCHBOARD SCHEMES STANDARDISED LOGICS				CARD CODE	DRAWING NO. PY—AZ—4—M104—8801—02			REV. 00	
				N.A.	SHT. No 12		NO. OF SHT. 14		

FIRST ANGLE PROJECTION

(ALL DIMENSIONS ARE IN mm)

VCB MOTOR O/G

GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

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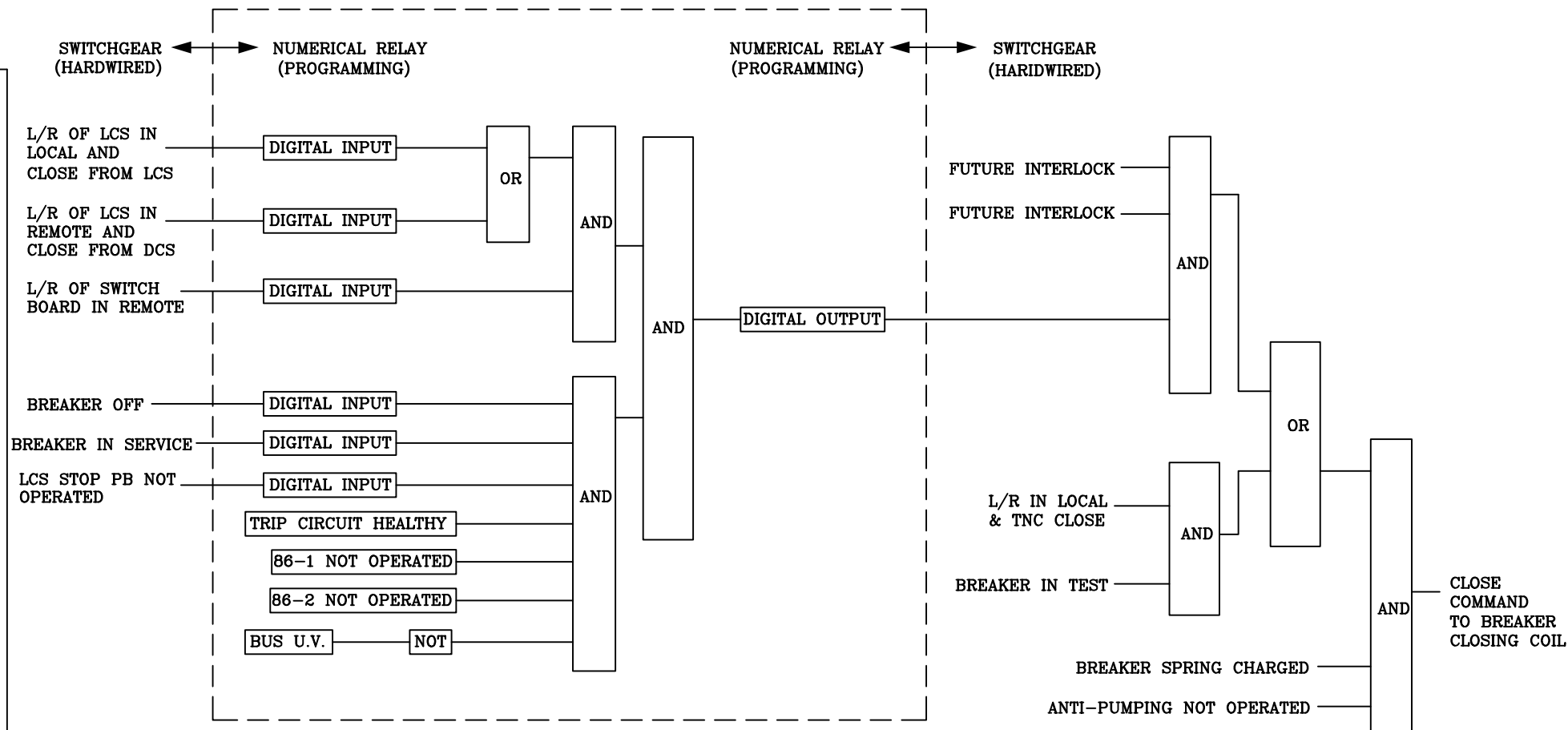
REF. DRG. NO.

SIGN. AND DATE

INVENTORY NO

DRG. NO. PY-AZ-4-M104-8801-02

SH. 13 OF 14



 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD						NAME	SIGN.	DATE	NO. OF VAR.
					DRN.	GRM/AVS		25.05.2018	
					CHD.	P.SURESH		25.05.2018	
					APPD.	J.K.PATTANIK		25.05.2018	-N.A.-
DEPT.	UNTOL. DIMS. GR. G/M/F		SCALE	WEIGHT (KG)	REF. TO ASSY. DRG. -N.A.-		ITEM NO. -N.A.-	NO.OF ITEMS -N.A.-	
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VCB MOTOR O/G

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REF. DRG. NO.

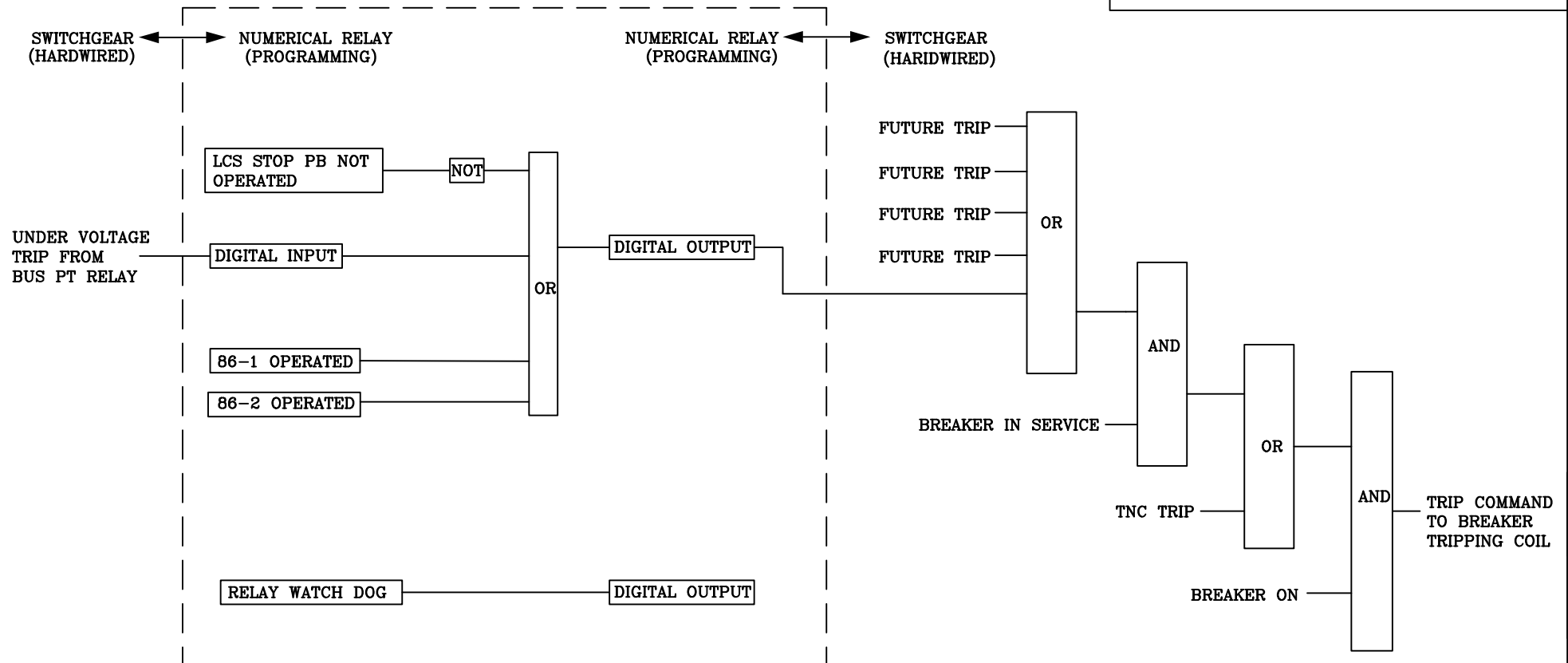
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GENERAL DIMENSIONAL LIMITS, FITS & TOLERANCES AS PER HY0230261

DRG. NO. PY-AZ-4-M104-8801-02

SH. 14 OF 14



 BHARAT HEAVY ELECTRICALS LTD. HYDERABAD						NAME	SIGN.	DATE	NO.OF VAR.
					DRN.	GRM/AVS		25.05.2018	
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						SHT. No 14		NO. OF SHT. 14	