

CHAPTER 2

INSTALLATION AND CUSTOMISING

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2.1 MOUNTING AND SITING

2.1.1 Mounting

The unit may be desktop or bulkhead mounted.

The control panel may be mounted integral with the main unit, or may be remotely mounted.

Both items are in screened enclosures

When remotely mounted the length of the cable between the main unit and the control panel should not exceed 65 metres.

If when the unit is bulkhead mounted the control panel legends are inverted; the control panel may be rotated through 180°.

The remotely mounted control panel is designed to drop into a desktop.

A blanking plate is supplied for fitting to the main unit when the control panel is remotely mounted.

Figures 2.3 and 2.4 show the unit dimensions and mounting arrangements.

2.1.2 Siting

The following should be considered when siting the unit:

- a) **Environment:** the unit is designed for use in a below decks environment, care should be taken to ensure temperatures do not exceed those specified in Chapter 1
- b) **Cable lengths:** when operating with standard BridgeMaster E transceivers the total cable length between the transceiver and the video control unit should not exceed 67 metres.

For longer cable lengths a low loss coaxial cable must be used for the video. Care must be taken in selecting the coaxial cable to ensure the differential delays between trigger and video are maintained.

Failure to maintain the differential delay may result in a range offset, and an increase in the closest range at which a target may be detected.

Suitable cables are listed in the cabling section of this chapter.

- c) **Standby supply:** the standby supply if used could be derived from the transceiver, from the display, or from a separate power supply.

For a masthead system the supply would probably be derived from the display, with a bulkhead mounted system it could be derived from the transceiver or the display. The siting should be chosen such that the cable length, does result in a voltage drop greater than 0.5V when a current of 200mA is assumed.

- d) Compass safe distance.

- e) Ease of access for servicing.
- f) Local vibration.

2.2 SYSTEM CONFIGURATIONS.

Figures 2.5 - 2.7 show examples of typical system configurations
The diagrams show the use of an optional standby power supply.

The unit includes interfaces:

to convert the RS422 trigger to coaxial trigger,
to accept positive or negative video inputs,
to provide positive or negative variable amplitude video outputs.

In the event of mains power failure to the unit or failure of the internal power supply these interfaces would cease to function.

The standby power supply maintains these interface functions in the event of such power failures. In this condition all video processing is inhibited.

If the video input and output amplitude and polarities are the same, and the trigger inputs and outputs are coaxial and the same amplitude, then the standby power supply is not required for fail safe operation.

The VCU can be configured such that relays route the input video and trigger signals directly to the video and trigger output sockets in the event of a power failure.

2.3 CABLE DETAILS

2.3.1 General

In order to maintain EMC integrity all inter unit cables must be screened cables.

With the exception of the DATA, and coaxial cables all screened cables should have a screen coverage of at least 85%.

Cables manufactured to DEF STAN 61-12 Part 5 are suitable.

Details of DEF STAN 61-12 Part 5 are given in Table 1

The DATA cable used should be as specified in Table 2.

The coaxial cables should either have a solid outer screen or be double screened with insulation between the screens.

Each screen should provide 95% coverage.

It is recommended that the coaxial cable listed in Table 3 is used between NGSM supplied units.

All cables are available in PVC or LSZH versions.

Cable Type	Service Code	Cable Diameter mm	Number of Cores	Core Strands/ Diameter mm	Resistance per 1000m (at 20°C) Ohms	Current Rating A	Voltage (RMS) V
16-2-2C	3218376	6.9	2	16/0.2	40.1	2.5	440
16-2-4C	3209342	7.7	4	16/0.2	40.1	2.5	440
16-2-6C	3211274	8.7	6	16/0.2	40.1	2.5	440
16-2-12C	3211266	11.0	12	16/0.2	40.1	2.5	440
37-3-2R	3228207	10.3	2	37/0.32	6.79	13	440
37-3-4R	3214044	11.8	4	37/0.32	6.79	13	440

LSZH Equivalent Cables	
Cable Type	Service Code
16-2-2C	MA00014100
16-2-4C	MA00014167
16-2-6C	MA00014175
16-2-12C	MA00014183
37-3-2R	MA00014191
37-3-4R	MA00014209

TABLE 1 Power and Control Cables

DATA Cable

The DATA cable (Service Code MA00007419) conforms to UL Type CL2, AWM 2919 and CSA PCC FT4.

Cable Type	Service Code	Cable Diameter mm	Number of Cores	Core Strands/ Diameter mm	Resistance per 1000m (at 20°C) Ohms	Velocity of Propag.	Voltage (RMS) V
6224C	MA00007419	8.4	4 pairs	7/0.2	76.4	0.78C	30

Core Colour Coding

B/W	Blue/White
W/B	White/Blue
G/W	Green/White
W/G	White/Green

BN/W	Brown/White
W/BN	White/Brown
O/W	Orange/White
W/O	White/Orange

Note - Blue/White is predominately Blue with a narrow white trace, and White/Blue is predominately White with a narrow Blue trace. Similarly with the other pairs.

LSZH Equivalent

Service Code	Cable Diameter mm	Number of Cores	Core Strands/ Diameter mm	Resistance per 1000m (at 20°C) Ohms	Velocity of Propag.	Voltage (RMS) V
MA00014126	7.8	4 pairs	7/0.2	92	0.78C	30

Core Colour Coding for LSZH Equivalent

B	Blue
Bk	Black twisted with blue core
G	Green
Bk	Black twisted with green core

W	White
Bk	Black twisted with white core
R	Red
Bk	Black twisted with red core

TABLE 2 Data Cable

Coaxial Cable

Service Code	Cable Diameter mm	Nominal Impedance Ohms	Attenuation at 100 Mhz db/100m	Velocity of Propagation	Comments
3236862 (PT1YM)	6.0	75	3.9	0.66C	Double screened, each screen coverage >95% mylar insulation between screens. For use where total cable length between transceiver and VCU does not exceed 75 metres
MA00012534 (FSJ1-75)	7.4	75	1.9	0.78C	Solid copper screen. For use where cable lengths do not exceed 180 metres. Use with adaptor cable 65801521. If used with aloft transceiver waterproof seal 65830274, and EMC gasket 65830275 will be required

Table 3 Coaxial Cables

Part Number for LSZH equivalent of 3236862 is: 91005248

Part Number for LSZH equivalent of MA00012534 is: MA0001412

2.3.2 Earthing

The common earth point of the power supply of the Ship must be connected to the chassis (case) of each radar unit, receiving the supply. Use the crimp tags at the cable entry points to make this earth connection.

2.3.3 Bonding

The object of a bonding system is to ensure that the exposed metal case or chassis of each piece of equipment is brought to a common earth potential. Bonding is needed both to achieve EMC (electromagnetic compatibility) and in some instances to prevent stray currents causing electrolytic action.

The effectiveness of bonding is dependent on ensuring a very low resistance and inductance of the bonding cables or straps to ground. Bonding connections must also be protected from corrosion. The most suitable materials for bonding connections between the stainless steel earthing bolt and steel, are aluminium or tinned copper straps. For the aluminium strap it is essential to ensure that the contact areas are oxide-free, and that they are coated with a thin layer of conducting paste before assembly to seal the joint and provide a large contact area. A zinc plated washer should be used at the stainless steel end of the connection. If a tinned copper strap is connected directly to aluminium, an aluminium washer should be used between the strap and the aluminium.

The connections should be made from each piece of equipment to a common connection earth point - not looped from unit to unit.

A 6mm stainless steel earth bolt is provided on each unit of the system for the bonding connection. No other connection must be made to the earth bolt as the bonding earth is a non current carrying connection.

2.3.4 Braids

Where cables pass through cable clamps the outer sheath is to be removed so that the cable is clamped over the braid not the insulated sheath. The braid is to be continued through the clamp and made into a pigtail to which the supplied crimp tags are fitted. The tag is to be secured as shown on the installation drawings.

2.4 CABLE TABLES

The cable tables listed below only refer to those cables connected to the VCU for all other cables see the appropriate manual.

Cable No: 328		EMC CAT —		Cable Type: DATA	
From: Interswitch				To : Video Control Unit	
Unit Connector No: TSDD				Unit Connector: No TSA	
Cable Connector Type: 171638 BL5.08/8				Cable Connector Type: 171638 BL5.08/8	
Manufacturer: Weidmuller				Manufacturer: Weidmuller	
Line No.	Function	Pin No.	Colour	Pin No.	Remarks
1	TX DATA+	3	O/W	3	Twisted pair
2	TX DATA-	4	W/O	4	
3	TX TRIG+	5	G/W	5	Twisted pair
4	TX TRIG-	6	W/G	6	
5	SART+	6	BN/W	7	Twisted pair
6	SART-	7	W/BN	8	
7	SCREEN	E/TAG	BRAID	E/TAG	

Cable No: 329		EMC CAT —		Cable Type: PT1YM	
From Interswitch				To: Video Control Unit	
Unit Connector No: SKVD				Unit Connector: No VIDEO INPUT	
Cable Connector Type: L734PNI				Cable Connector Type: 11BNC-75-4-2	
Manufacturer; Belling Lee				Manufacturer: Huber&Suhner	
Line No.	Function	Pin No.	Colour	Pin No.	Remarks
1	VIDEO -VE	PIN	INNER	PIN	Coaxial cable
2	SCREEN	OUTER	BRAID	OUTER	

Cable No: 330		EMC CAT —		Cable Type: 16 - 2 - 6C	
From: Video Control Unit				To: Control Panel	
Unit Connector No: TSC				Unit Connector No: SK1	
Cable Connector Type:171639 BL5.08/9				Cable Connector Type: DE-9P and backshell MHDTZK 9	
Manufacturer: Weidmuller				Manufacturer: Connector: McMurdo Backshell – MH Connectors	
Line No.	Function	Pin No.	Colour	Pin No.	Remarks
1	KBD TX	2	W	3	
2	KBD RX	3	G	2	
3	0V	5	BK	5	
4	+9V	6	R	6	
5	KBD RTS	7	B	7	
6	+9V	8	Y	8	
7	SCREEN	TBA	BRAID	Shell	

Cable No: 331		EMC CAT —		Cable Type: TBA	
From Video Control Unit				To: THIRD PARTY	
Unit Connector No: TRIGGER OUTPUT				Unit Connector: TBA	
Cable Connector Type: 11BNC-75-4-2				Cable Connector Type: TBA	
Manufacturer; Huber&Suhner				Manufacturer: TBA	
Line No.	Function	Pin No.	Colour	Pin No.	Remarks
1	TRIGGER OUTPUT	PIN	INNER	PIN	Coaxial cable
2	SCREEN	OUTER	BRAID	OUTER	

Cable No: 332		EMC CAT —		Cable Type: TBA	
From Video Control Unit				To: THIRD PARTY	
Unit Connector No: VIDEO OUTPUT				Unit Connector: TBA	
Cable Connector Type: 11BNC-75-4-2				Cable Connector Type: TBA	
Manufacturer; Huber&Suhner				Manufacturer: TBA	
Line No.	Function	Pin No.	Colour	Pin No.	Remarks
1	VIDEO OUTPUT	PIN	INNER	PIN	Coaxial cable
2	SCREEN	OUTER	BRAID	OUTER	

Cable No: 333		EMC CAT —		Cable Type: PT1YM	
From Slave Junction Box				To: Video Control Unit	
Unit Connector No: SKMD				Unit Connector: No MIS TRIGGER INPUT	
Cable Connector Type: L734PNI				Cable Connector Type: 11BNC-75-4-2	
Manufacturer; Belling Lee				Manufacturer: Huber&Suhner	
Line No.	Function	Pin No.	Colour	Pin No.	Remarks
1	MIS TRIGGER	PIN	INNER	PIN	Coaxial cable
2	SCREEN	OUTER	BRAID	OUTER	

Cable No: 334		EMC CAT —		Cable Type: DATA	
From: Slave Junction Box				To : Video Control Unit	
Unit Connector No: TSDD				Unit Connector: No TSA	
Cable Connector Type: 171638 BL5.08/8				Cable Connector Type: 171638 BL5.08/8	
Manufacturer: Weidmuller				Manufacturer: Weidmuller	
Line No.	Function	Pin No.	Colour	Pin No.	Remarks
1	TX DATA+	3	O/W	3	Twisted pair
2	TX DATA-	4	W/O	4	
3	TX TRIG+	5	G/W	5	Twisted pair
4	TX TRIG-	6	W/G	6	
5	SART+	6	BN/W	7	Twisted pair
6	SART-	7	W/BN	8	
7	SCREEN	E/TAG	BRAID	E/TAG	

Cable No: 335		EMC CAT —		Cable Type: PT1YM	
From: Slave Junction Box				To: Video Control Unit	
Unit Connector No: SKVD				Unit Connector: No ViIDE0 INPUT	
Cable Connector Type: L734PNI				Cable Connector Type: 11BNC-75-4-2	
Manufacturer; Belling Lee				Manufacturer: Huber&Suhner	
Line No.	Function	Pin No.	Colour	Pin No.	Remarks
1	MIS TRIGGER	PIN	INNER	PIN	Coaxial cable
2	SCREEN	OUTER	BRAID	OUTER	

Cable No: 336		EMC CAT —		Cable Type: 16 - 2 - 4C	
From: Display				To: Video Control Unit	
Unit Connector No: TSD				Unit Connector No: TSD	
Cable Connector Type: 171635 BL5.08/5				Cable Connector Type: 171635 BL5.08/5	
Manufacture: Weidmuller				Manufacture: Weidmuller	
Line No.	Function	Pin No.	Core No.	Pin No.	Remarks
1	STANDBY SUPPLY+	10	R	1	
2	STANDBY SUPPLY+	10	Y	1	
3	0V	12	B	3	
4	STANBY SUPPLY-	13	G	5	
5	SCREEN	E/TAG	BRAID	E/TAG	

Cable No: 336A		EMC CAT —		Cable Type: 16 - 2 - 4C	
From: Standby Power Supply				To: Video Control Unit	
Unit Connector No: TBA				Unit Connector No: TSD	
Cable Connector Type: TBA				Cable Connector Type: 171635 BL5.08/5	
Manufacture: TBA				Manufacture: Weidmuller	
Line No.	Function	Pin No.	Core No.	Pin No.	Remarks
1	STANDBY SUPPLY+	TBA	R	1	
2	STANDBY SUPPLY+	TBA	Y	1	
3	0V	TBA	B	3	
	STANBY SUPPLY-	TBA	G	5	
5	SCREEN	E/TAG	BRAID	E/TAG	

Cable No: 337		EMC CAT —		Cable Type: DATA	
From: Video Control Unit				To : Third Party Display	
Unit Connector No: TSA				Unit Connector: No TBA	
Cable Connector Type: 171638 BL5.08/8				Cable Connector Type: TBA	
Manufacturer: Weidmuller				Manufacturer:	
Line No.	Function	Pin No.	Colour	Pin No.	Remarks
1	TX DATA+	3	O/W	TBA	Twisted pair
2	TX DATA-	4	W/O	TBA	
3	TX TRIG+	5	G/W	TBA	Twisted pair
4	TX TRIG-	6	W/G	TBA	
5	SART+	6	BN/W	TBA	Twisted pair
6	SART-	7	W/BN	TBA	
7	SCREEN	E/TAG	BRAID	E/TAG	

Note: When this configuration is used LK3 , LK4, LK5 should be set to position 1-2. and the cable should be terminated at the receiving end.

Cable No: 338		EMC CAT —		Cable Type: TBA	
From: Scanner Unit			To: Third Party Display		
Unit Connector No: TSD			Unit Connector No: TBA		
Cable Connector Type: MA00010850			Cable Connector Type:		
Manufacturer: Weidmuller			Manufacturer:		
Line No.	Function	Pin No.	Core No.	Pin No.	Remarks
1	S1	1	TBA	TBA	
2	S2	2	TBA	TBA	
3	S3	3	TBA	TBA	
4	R1	4	TBA	TBA	
5	R2	5	TBA	TBA	
6	R3	6	TBA	TBA	
7	H/MKR 1	7	TBA	TBA	
8	H/MKR 1 RET	8	TBA	TBA	
9	BUFFERED AZI	9	TBA	TBA	
10	RAD SIL	10	TBA	TBA	
11	RAD SIL RET	11	TBA	TBA	
12	H/MKR+ (RS422)	12	TBA	TBA	
13	H/MKR- (RS422)	13	TBA	TBA	
14	AZIMUTH+ (RS422)	14	TBA	TBA	
15	AZIMUTH- (RS422)	15	TBA	TBA	
16	SCREEN	E/TAG	BRAID	E/TAG	

Cable No: 339		EMC CAT —		Cable Type: PT1YM	
From Interswitch Unit			To: Video Control Unit		
Unit Connector No: SKMD			Unit Connector: No MIS TRIGGER INPUT		
Cable Connector Type: L734PNI			Cable Connector Type: 11BNC-75-4-2		
Manufacturer; Belling Lee			Manufacturer: Huber&Suhner		
Line No.	Function	Pin No.	Colour	Pin No.	Remarks
1	MIS TRIGGER	PIN	INNER	PIN	Coaxial cable
2	SCREEN	OUTER	BRAID	OUTER	

2.5 CUSTOMISING

The unit has to be customised for the system in which it is being used. This customising includes:

- Setting the mains input voltage selector.
- Selecting the value of the terminations for the incoming signals.
- Selecting the type of trigger input.
- Selecting the input and output polarity of the video signals.
- Selecting the type of transceiver
- Setting the video output amplitude
- Setting the anti-clutter sea law.
- Setting the anti-clutter sea spike

Customising is by a combination of potentiometer, link and switch settings

2.5.1 Customising Settings for Power Supply Unit 65841803

Links

LKA – Start Test Link

Remote Operation FITTED in position 2 - 3

Normal Operation FITTED in position 1 - 2

For this application the link should be fitted 1 - 2.

LK1 - High Voltage Isolation Link

Normal Operation ALWAYS FITTED

(This link is only removed for Factory Testing)

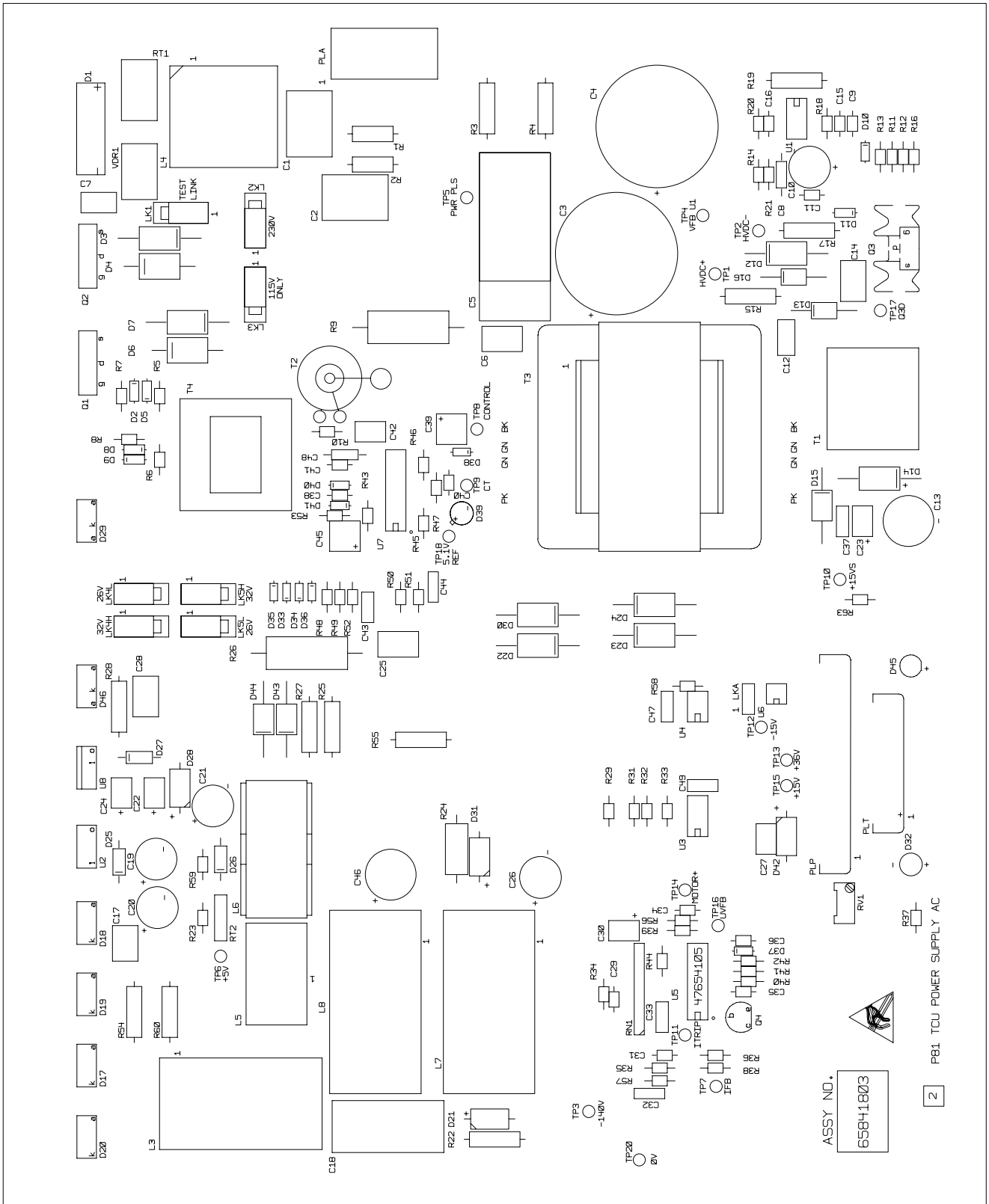
LK2 or LK3 - Input Voltage Select Links (AC power supply only)

230V LK2 FITTED

115V LK3 FITTED

LK4L, LK4H, LK5L LK5H - Motor Supply Select Links.

For Video Control unit use, NONE OF THESE LINKS ARE FITTED



FILE REF. 65841803.ECW

Figure 2.1 Power Supply PCB 65841803 Layout

2.5.2 Customising Settings for Video Control Unit Logic PCB 65857801

The default settings shown are for when the VCU is used with a BridgeMaster E transceiver. Video output selected to be negative.

Links

LK1 and LK2—Factory Test Links

LK1 is always fitted.
LK2 is not normally fitted.

LK3, LK4, LK5—RS422 Terminations

Set the terminating impedance for the RS422 data signals. They can be set for 120 ohm termination or high impedance. Normally they are set for 120 ohm termination. If the signals are being looped through in a daisy chain, then the links should be set for high impedance. In this case the cables must be terminated at the receiving end i.e. at the last unit in the chain.

LK3 TX Data

High impedance	Fitted 1 — 2	
120 ohms	Fitted 2 — 3	default

LK4 RS422 Trigger

High impedance	Fitted 1 — 2	
120 ohms	Fitted 2 — 3	default

LK5 RS422 SART (not used)

High impedance	Fitted 1 — 2	
120 ohms	Fitted 2 — 3	default

LK6— Cable Compensation

This link allows for high frequency compensation to be applied to the video signal to compensate for cable bandwidth limitations.

Long	Fitted 1 — 2 (>40 metres)	
Short	Fitted 2 — 3 (10-40 metres)	
Normal	Fitted 3 — 4	default (no compensation)

The default setting is 3 — 4, and need not be changed for normal usage. Some signal processing systems such as the Bridgemaster E Vision system may require compensation to achieve optimum performance.

LK7—Trigger Input Selector

This link selects between the RS422 trigger input and the coaxial trigger input. It has a third option that allows a delayed trigger output to be generated from the coaxial trigger input.

Note: delayed trigger is not maintained when power to the unit is lost.

Coaxial input	Fitted 1 — 2	
RS422 input	Fitted 3 — 4	default
Delayed output	Fitted 5 — 6	

LK8, LK9, LK10—Coaxial Input Cable Termination.

There are three termination options for the coaxial inputs: 75 Ohms, 50 Ohms, or high impedance.

The high impedance option can only be used when the signals are looped through in a daisy chain. In this case the cables must be terminated at the receiving end.

This option should only be used if the cable run between the Video Control Unit and the source of the signals is short.

LK8 MIS Trigger Input

50 ohm input	Fitted 3 — 4	
75 ohm input	Fitted 1 — 2	default
High impedance input	Fitted 2 — 3	

LK9 Coaxial Trigger Input

50 ohm input	Fitted 3 — 4	
75 ohm input	Fitted 1 — 2	default
High impedance input	Fitted 2 — 3	

LK10 Video Input

50 ohm input	Fitted 3 — 4	
75 ohm input	Fitted 1 — 2	default
High impedance input	Fitted 2 — 3	

LK11—Video Input Polarity

This link selects between positive and negative video input signals.

Positive input	Fitted 1 — 2	
Negative input	Fitted 2 — 3	default

LK12 and LK14—Video and Trigger Bypass

These links determine in the event of mains power failure whether the output video and trigger is routed through the internal interfaces or bypasses them. In the latter case the signals are routed straight through the unit, and the output video, and trigger will be the same as the input. This bypass mode is normally used when the trigger and video inputs are coaxial and the required amplitude and polarity of the video and trigger outputs are the same as the input.

LK12—Video Bypass

Bypass	Fitted 1 — 2	
Bypass special	Fitted 2 — 3	
No bypass	Parked on pin3	default

The bypass special case is for applications where the impedance of the input video coaxial cable is 75Ω and the output coaxial cable is 50Ω.

LK14—Trigger Bypass

Bypass	Fitted 1 — 2	
No bypass	Parked on pin2	default

LK13—Trigger Output Load

This link adds resistance in series with the trigger output, it can be used to reduce the maximum trigger amplitude. Normally the link will be fitted 3 — 4. The trigger output coaxial cable should be terminated in the correct impedance at the receiving end.

		Trigger Amplitude	
10Ω in series	Fitted 3 — 4	8V min into 50Ω	14.5V max into 75Ω default
39Ω in series	Fitted 1 — 2	5.8V min into 50Ω	10.8V max into 75Ω
49Ω in series	Fitted 2 — 3	5.3V min into 50Ω	10.0V max into 75Ω

LK15—Video Output Load

This link is used to match the video output to the coaxial cable being driven.

Note: dependant on the minimum value of the standby power supply it may not be possible to use the optimum matching. Where the standby supply is at the lower specified limit it may be necessary to select a lower than optimum value for the matching resistor. The video output coaxial cable should always be terminated in the correct impedance at the receiving end.

Output matching 30Ω	Fitted 3 — 4	
Output matching 50Ω	Fitted 1 — 2	default
Output matching 75Ω	Fitted 2 — 3	

LK16—Video Output Polarity

This link selects between negative and positive video output.

Positive output	Fitted 1 — 2	
Negative output	Fitted 2 — 3	default

Switches

S1 — Spike

These switches set the depth of clutter suppression at the centre of the picture.

Normally when working with a BridgeMaster E transceiver it should not be necessary to change the default setting.

For other transceivers the switches should be adjusted for optimum performance.

S1-1	S1-2	
OFF	OFF	Max
ON	OFF	Default
OFF	ON	
ON	ON	Min

Note: S1 - 3 and S1 - 4 are not used.

S2 — AC Law

These switches set the radar range over which the sea clutter control operates when in MANUAL mode of operation. The setting needs to be adjusted dependant on antenna height.

S2-1	S2- 2	S2 - 3	Antenna height above sea level (m)
OFF	OFF	OFF	3 and below
ON	OFF	OFF	4 - 11
OFF	ON	OFF	12 - 15
ON	ON	OFF	16 - 19
OFF	OFF	ON	20 - 23
ON	OFF	ON	24 - 27
OFF	ON	ON	28 - 31
ON	ON	ON	32 and above

S3 — Setting DATA

These switches set system parameters

S3 - 1, S3 - 2 Transceiver type

These switches allow the video processing characteristic to be optimised for the type of transceiver in use.

S3-1	S3- 2	Transceiver Type
OFF	OFF	Non-Decca
ON	OFF	Series 90
OFF	ON	BM1 and BM2
ON	ON	BME (Default)

S3 - 3, S3 - 4 Reserved for future use

S3-3	S3-4	Not used at present
OFF	OFF	Not used
ON	OFF	Not used
OFF	ON	Not used
ON	ON	Not used

S3 - 5, S3 - 6 Turn down setting

These switches set the maximum amount of clutter suppression that is allowed; if the setting is too low insufficient rain and sea clutter will be removed, if the setting is too high dark holes will appear in the video and targets may be lost. It should not be necessary to change the default settings.

S3-5	S3-6	Level
OFF	OFF	-1
ON	OFF	0 (Default)
OFF	ON	+1
ON	ON	+2

S3 - 7, S3 - 8 Initial Gain

This function is normally disabled. When enabled an automatic gain control (agc) circuit sets the video level to the video processing circuits. Hence if the input video amplitude varies the processing circuits always receive video at the optimum amplitude. This agc is not applied to unprocessed video, so enabling this function may result in the amplitude of the video output being different in RAW mode to that in MANUAL or AUTO modes.

Normally the video level is set by RV4.

The function Should only be used if the radar input to the VCU is unstable.

The switches should only be adjusted at commissioning. S3 -7 should be set to ON if the initial video level is greater than 3V, and OFF for initial levels less than 3V.

When S3 - 8 is ON the function is disabled, this the normal setting.

S3-7	Initial Video Level
ON	>3V peak
OFF	<3V peak

S3-8	AGC
ON	Disabled (normal)
OFF	Enabled (special)

Presets

RV1 — Delayed Trigger Delay

This potentiometer sets the delay between the leading edge of the trigger input, and the leading edge of the trigger output. It only functions when the coaxial trigger input is selected, and power is applied to the unit.

The minimum settable delay is 500ns, and the maximum is 7.5us.

RV3 — Interference Rejection Level

This potentiometer is factory set and should not be adjusted.

RV4 — Video Input Level Set

This potentiometer sets the video input level to the video processing circuits.

RV2 — Video Output Level Set

This potentiometer sets the video output level.

2.6 SETTING TO WORK

2.6.1 Link and DIL Switch Settings

Set links and DIL switches as detailed in section 2.5.

Note: It may be necessary to make further adjustments of S1, S2, and S3 to optimise performance during sea trials.

2.6.2 Setting RV4 and RV2, Video Input and Output Levels

Before attempting to set these levels the video inputs and outputs must be terminated in the correct impedances.

RV4 — Video Input Level Set

This potentiometer sets the video input level to the video processing circuits.

With normal video present at SKVI, use an oscilloscope to monitor TP21 on VCU Logic PCB 65857801.

Adjust RV4 to set the peak amplitude of the video at TP21 to 3V.

RV2 — Video Output Level Set

This potentiometer sets the video output level.

RV4 must be set before setting RV2.

Select RAW mode of operation, and set the gain control fully clockwise.

Use an oscilloscope to monitor the video either at the Video Output BNC connector (or at LK15 pin 4 on VCU Logic PCB 65857801), adjust RV2 to set the video level to the value required.

2.6.3 Setting Up Record

Record the settings on “The Setting Up Record Sheet” in Appendix A of this manual.

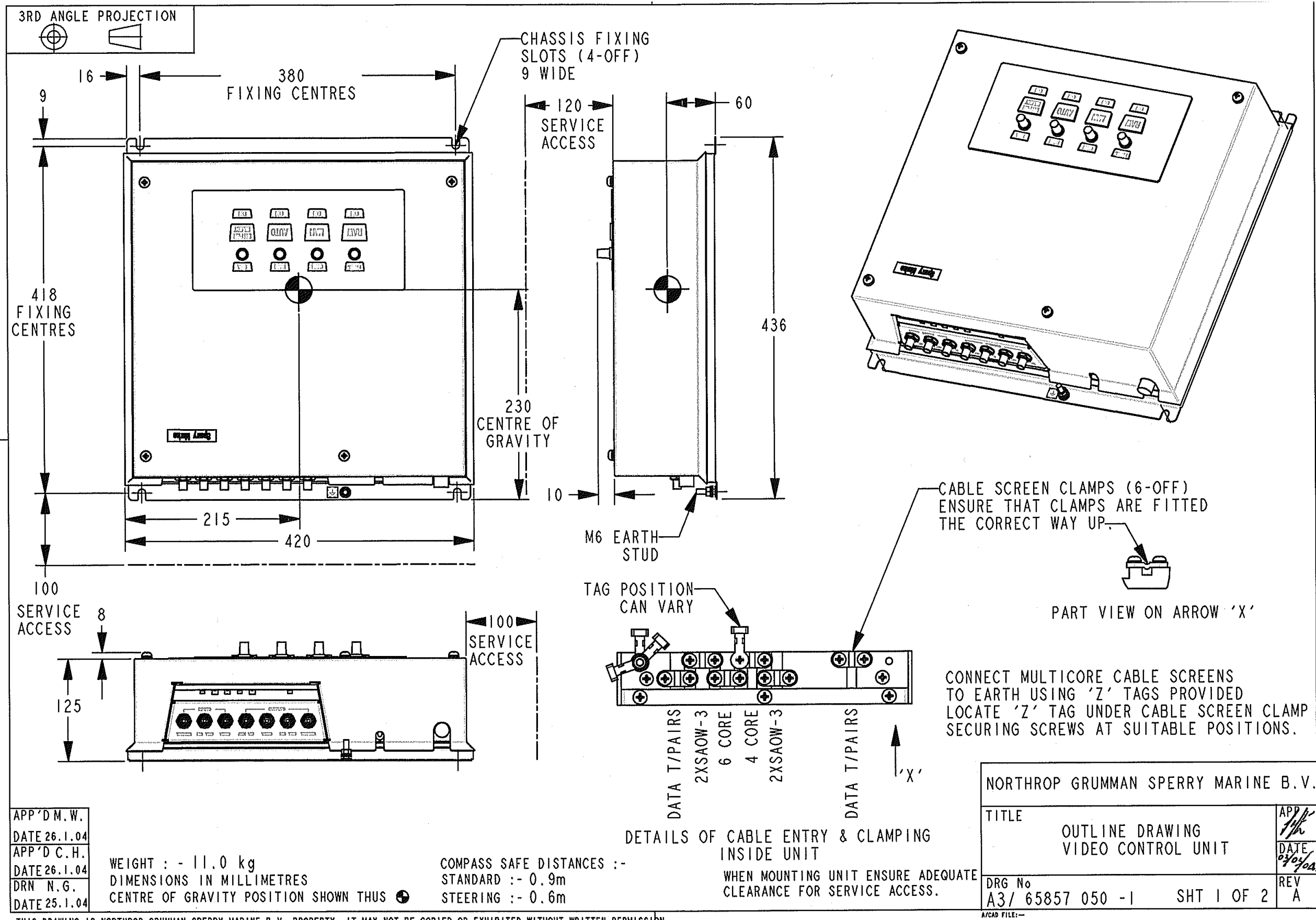


Figure 2.3 Outline Drawing Video Control Unit

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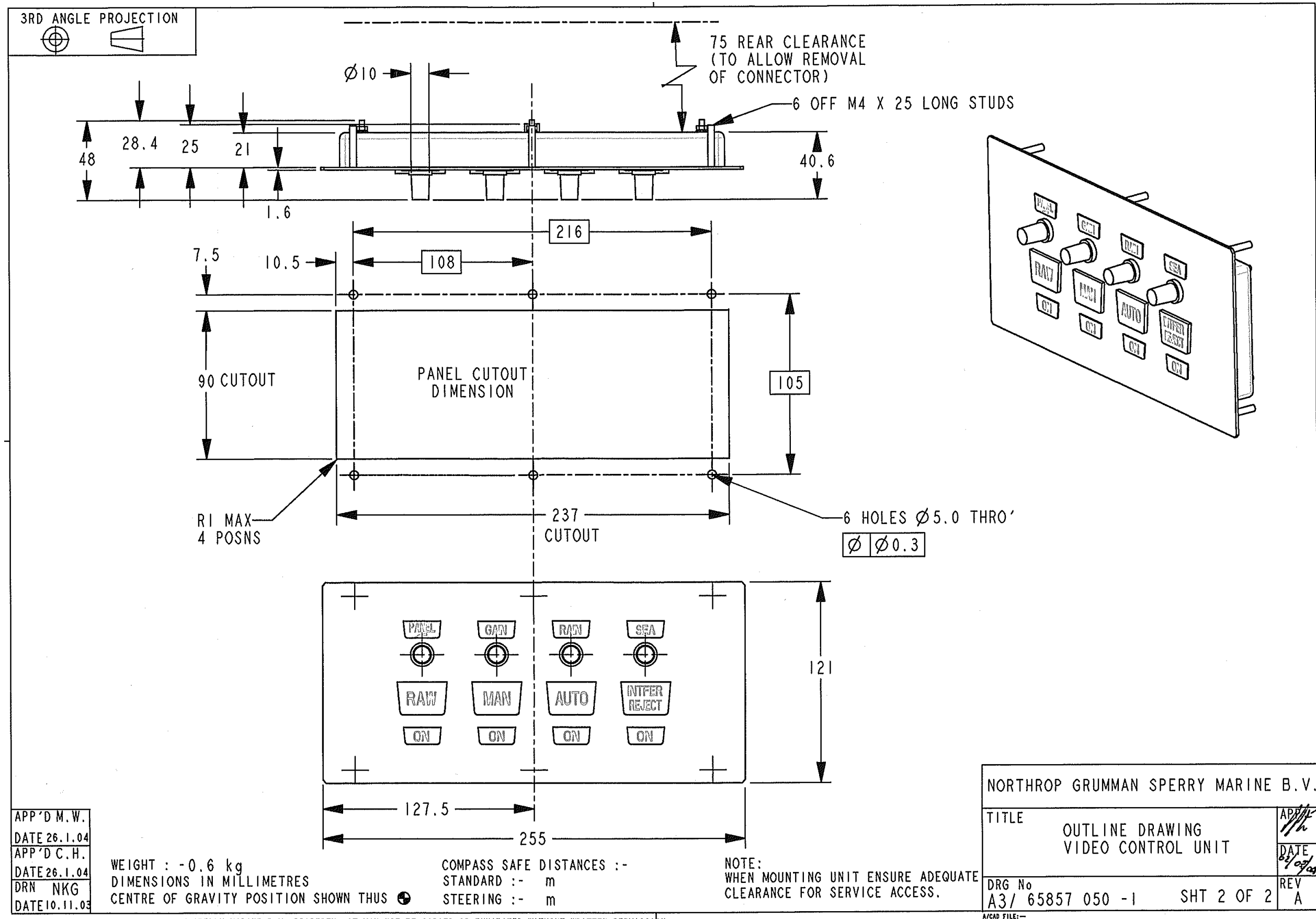


Figure 2.4 Outline Drawing Video Control Unit Control Panel

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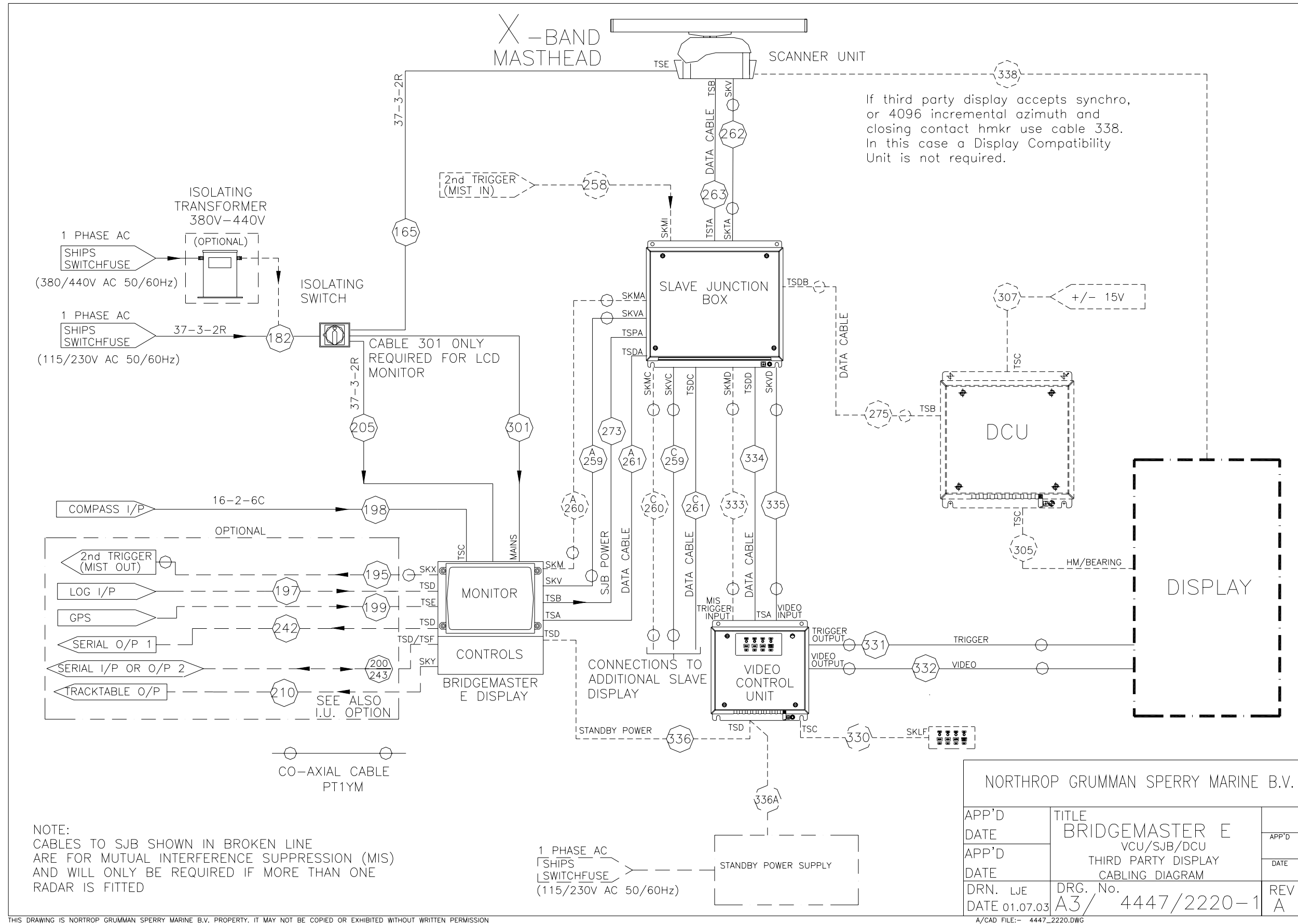


Figure 2.5 Schematic BME Scanner Unit Third Party Display

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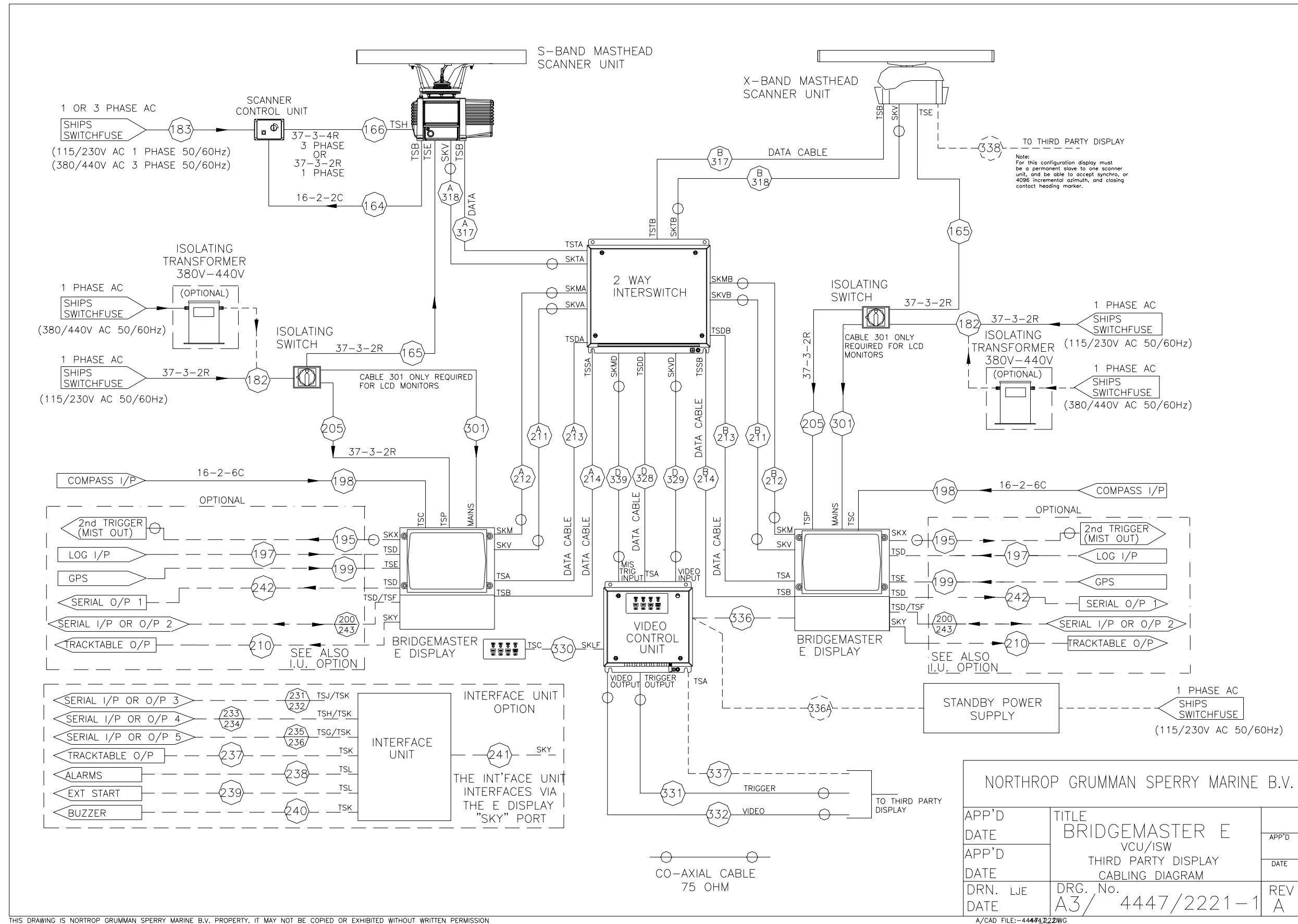
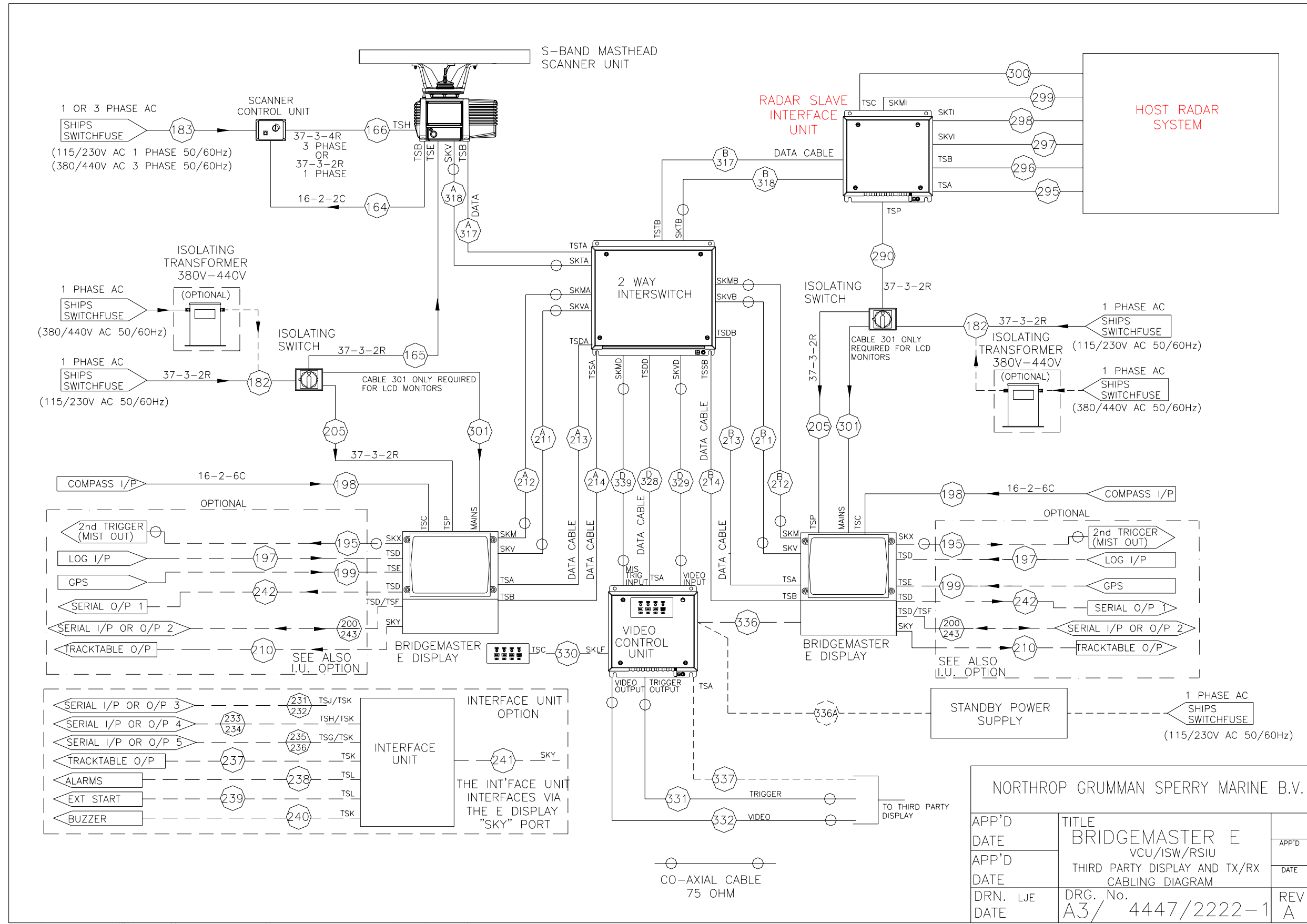


Figure 2.6 Schematic Interswitched BME Scanner Units

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NORTHROP GRUMMAN SPERRY MARINE B.V.

APP'D	TITLE	APP'D
DATE	BRIDGEMASTER E	
APP'D	VCU/ISW/RSIU	DATE
DATE	THIRD PARTY DISPLAY AND TX/RX	
DRN. LJE	DRG. No.	REV
DATE	A3/ 4447/2222-1	A

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A/CAD FILE:- 4447_2222.DWG

Figure 2.7 Schematic BME Scanner Unit Interswitched with Third Party Scanner Unit

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