



**Ingersoll Rand
System Automation X4I
Application & Compressor Interconnect Guide**

Before installing or starting this unit for the first time, this manual should be studied carefully to obtain a working knowledge of the unit and/or the duties to be performed while operating and maintaining the unit.

RETAIN THIS MANUAL WITH UNIT. This Technical manual contains IMPORTANT SAFETY DATA and should be kept with the unit at all times.

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SECTION 1 — TABLE OF CONTENTS

SECTION 1 — TABLE OF CONTENTS.....	2	X4I Interconnect To Ingersoll Rand Intellisys Redeye Controlled Compressors	22
SECTION 2 — INTRODUCTION.....	4	SSR Redeye 1of3.....	23
SECTION 3 — SAFETY.....	4	SSR Redeye FV 2of3.....	24
INSTALLATION	4	SSR Redeye SD 3of3	25
OPERATION.....	4	X4I Interconnect To Ingersoll Rand Intellisys SE Controlled Compressors	26
MAINTENANCE AND REPAIR	4	SE UP 1of2.....	27
SECTION 4 — INSTALLATION	6	SE UP 2of2.....	28
Unit Location	6	SE ESA 1of2	29
Power Supply	7	SE ESA 2of2	30
Pressure Sensor Location	7	SE DSA 1of2	31
SUPPLY (WET) Side Pressure Control	7	SE DSA 2of2	32
DEMAND (DRY) Side Pressure Control.....	7	X4I Interconnect To Ingersoll Rand Intellisys SG Controlled Compressors	33
Pressure Sensor Connection.....	8	SG SSR 1of2.....	34
IR-PCB Interface Module	8	SG SSR 2of2.....	35
Input Functions.....	9	SG Sierra 1of2	36
Ready Input	9	SG Sierra 2of2	37
Ready Input, Alternative Connection Method	9	X4I Interconnect To Ingersoll Rand Pressure Switch Controlled Compressors	38
Run Input	10	SSR UP5 11-22 SD 1of2	39
Warning Input (optional).....	10	SSR UP5 11-22 SD 2of2	40
Output Functions	11	SSR UP5 22-37 SD 1of2	41
Pressure Switch Regulation.....	11	SSR UP5 22-37 SD 2of2	42
Digital Regulation Control Terminal C01	11	SSR UP6 15-30 FV 1of2.....	43
Service Maintenance Switch	12	SSR UP6 15-30 FV 2of2.....	44
Auxiliary Input (Option)	12	SSR UP6 15-30 SD 1of2	45
Auxiliary Output (Option)	13	SSR UP6 15-30 SD 2of2	46
RS485 Communications	13	SSR UP6 40-50 FV 1of2.....	47
SECTION 5 — ASSISTANCE	13	SSR UP6 40-50 FV 2of2.....	48
SECTION 6 — X4I Overview and Interconnect Drawings 13		SSR UP6 40-50 SD 1of2	49
X4I Overview.....	11	SSR UP6 40-50 SD 2of2	50
X4I Interconnect To Ingersoll Rand Unigy & Nirvana 15 - 30KW (20-40HP) Compressors	15	UP6 5-15 FV 1PH 60Hz 1of2	51
Unigy 1 1of2	11	UP6 5-15 FV 1PH 60Hz 2of2	52
Unigy 1 2of2	11	UP6 5-15 FV 3PH 60Hz 1of2	53
Unigy 2/3 1of2.....	11	UP6 5-15 FV 3PH 60Hz 2of2	54
Unigy 2/3 2of2.....	11	UP6 5-15 SD 3PH 60Hz 1of2	55
Nirvana 15 - 30KW (20-40HP) 1of2	20	UP6 5-15 SD 3PH 60Hz 2of2	56
Nirvana 15 - 30KW (20-40HP) 2of2	21	UP6 5-15 FV 3PH 50Hz 1of2.....	57
		UP6 5-15 FV 3PH 50Hz 2of2.....	58

X4I Interconnect To Ingersoll Rand Pressure Switch Controlled Compressors	Continued
UP6 5-15 SD 3PH 50Hz 1of2.....	59
UP6 5-15 SD 3PH 50Hz 2of2.....	60
SSR M15-22c 20-30HP XF EP HP HXP 50-60Hz 1of2	61
SSR M15-22c 20-30HP XF EP HP HXP 50-60Hz 2of2	62
M37-50 1of2	64
M37-50 2of2	65
EP 20-30 ESP FV 1of2.....	66
EP 20-30 ESP FV 2of2.....	67
EP 20-30 ESP SD 1of2	68
EP 20-30 ESP SD 2of2	69
X4I Interconnect To Ingersoll Rand Intellisys SGN / SGNe Controlled Compressors	70
Nirvana SGN/SGNe 1of3	71
Nirvana SGN/SGNe 2of3	72
Nirvana SGN/SGNe 3of3	73
S11 Interface to Redeye, SE, SG Controllers	73
X4I Interconnect To Ingersoll Rand Intellisys S3	74
Intellisys S3 1of2	75
Intellisys S3 2of2	76
X4I Interconnect to Ingersoll Rand Small Reciprocating Air Compressors	77
UP6RE 7.5-15 175, UP6RX 7.5-15 175 1of3	78
UP6RE 7.5-15 175, UP6RX 7.5-15 175 2of3	79
UP6RE 7.5-15 175, UP6RX 7.5-15 175 3of3	80
Models 2340, 2475, 2545, 7100, 15T & 3000 10f3.....	81
Models 2340, 2475, 2545, 7100, 15T & 3000 20f3.....	82
Models 2340, 2475, 2545, 7100, 15T & 3000 30f3.....	83
Excessive Pressure Shutdown Switch Example Before Installation	84
Excessive Pressure Shutdown Switch Example After Installation	85

SECTION 2 — INTRODUCTION

The X4I is a specialized controller designed to provide safe, reliable, and energy-efficient control of your compressed air system. The X4I is capable of controlling up to four positive displacement air compressors. The

compressors may have electro-pneumatic or microprocessor based controls. The X4I is completely customizable to meet the specific needs of your compressed air system.

SECTION 3 — SAFETY



WARNING : Risk of Danger



WARNING : Risk of Electric Shock



WARNING : Risk of High Pressure



WARNING : Consult Manual

- Before installing or operating the X4I, take time to carefully read all the instructions contained in this manual, all compressor manuals, and all manuals of any other peripheral devices that may be installed or connected to the unit.
- Electricity and compressed air have the potential to cause severe personal injury or property damage.
- The operator should use common sense and good working practices while operating and maintaining this system. All applicable codes should be strictly adhered to.
- Maintenance must be performed by adequately qualified personnel that are equipped with the proper tools.

INSTALLATION

- Installation work must only be carried out by a competent person under qualified supervision.
- A fused isolation switch must be fitted between the main power supply and the X4I.
- The X4I should be mounted in such a location as to allow operational and maintenance access without obstruction or hazard and to allow clear visibility of indicators at all times.
- If raised platforms are required to provide access to the X4I, they must not interfere with normal operation or obstruct access. Platforms and stairs should be of grid or plate construction with safety rails on all open sides.

OPERATION

- The X4I must only be operated by competent personnel under qualified supervision.
- Never remove or tamper with safety devices, guards or insulation materials fitted to the X4I.
- The X4I must only be operated at the supply voltage and frequency for which it is designed.
- When main power is switched on, lethal voltages are present in the electrical circuits and extreme caution must be exercised whenever it is necessary to carry out any work on the unit.
- Do not open access panels or touch electrical components while voltage is applied unless it is necessary for measurements, tests or adjustments. Such work should be carried out only by a qualified electrician equipped with the correct tools and wearing appropriate protection against electrical hazards.
- All air compressors and/or other equipment connected to the unit should have a warning sign attached stating "THIS UNIT MAY START WITHOUT WARNING" next to the display panel.
- If an air compressor and/or other equipment connected to the unit is to be started remotely, attach two warning signs to the equipment stating "THIS UNIT CAN BE STARTED REMOTELY". Attach one sign in a prominent location on the outside of the equipment, and the other sign inside the equipment control compartment.

MAINTENANCE AND REPAIR

- Maintenance, repairs or modifications must only be carried out by competent personnel under qualified supervision.
- If replacement parts are required, use only genuine parts from the original equipment manufacturer, or an alternative approved source.

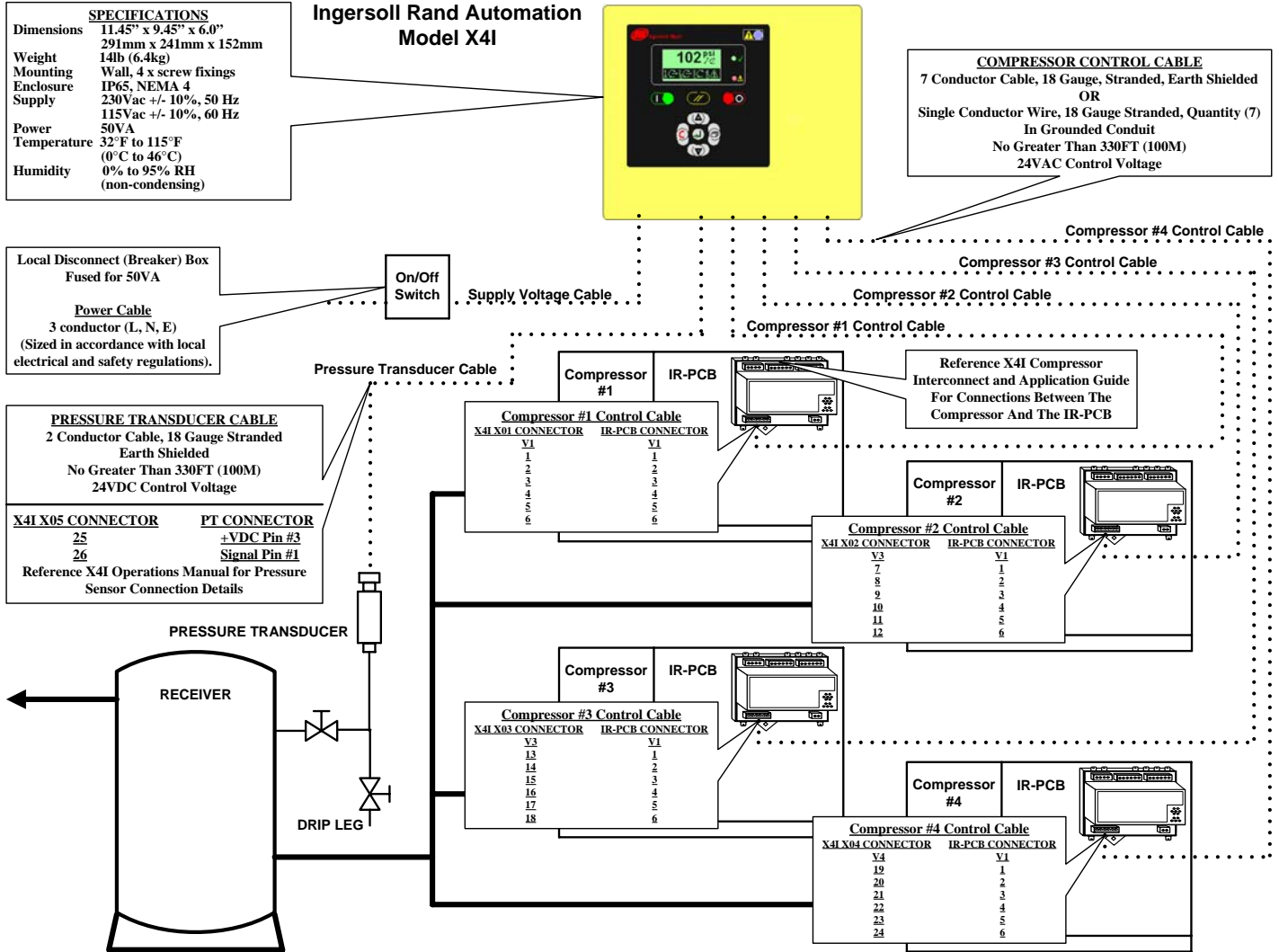
- Carry out the following operations before opening or removing any access panels or carrying out any work on the X4I:
 - i. Isolate the X4I from the main electrical power supply. Lock the isolator in the “OFF” position and remove the fuses.
 - ii. Attach labels to the isolator switch and to the unit stating “WORK IN PROGRESS - DO NOT APPLY VOLTAGE”. Do not switch on electrical power or attempt to start the X4I if such a warning label is attached.
- Make sure that all instructions concerning operation and maintenance are strictly followed and that the complete unit, with all accessories and safety devices, is kept in good working order.
- The accuracy of sensor devices must be checked on a regular basis. They must be calibrated when acceptable tolerances are exceeded. Always ensure any pressure within the compressed air system is safely vented to atmosphere before attempting to remove or install a sensor device.
- The X4I must only be cleaned with a damp cloth, using mild detergents if necessary. Avoid the use of any substances containing corrosive acids or alkalis.
- Do not paint the control faceplate or obscure any indicators, controls, instructions or warnings.

SECTION 4 — INSTALLATION

It is recommended that installation and commissioning be carried out by an authorized and trained product supplier.

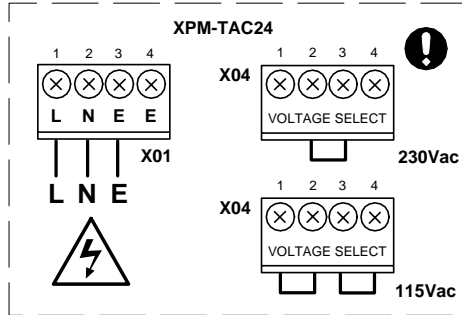
UNIT LOCATION

The X4I can be mounted on a wall using conventional bolts. The X4I can be located remotely from the compressors as long as it is within 330 feet (100 meters) of cable length. The X4I must also be located within 330 feet (100 meters) of the system pressure transducer.



POWER SUPPLY

A fused switching isolator must be installed to the main incoming power supply, external to the X4I. The isolator must be fitted with a properly sized fuse to provide adequate protection to the power supply cable used (in accordance with local electrical and safety regulations).



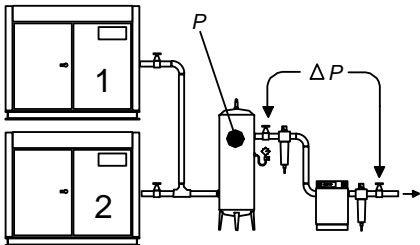
Power Supply Terminals

⚠ Ensure that the voltage select input is properly jumpered for the incoming power. Default voltage configuration is 230Vac.

PRESSURE SENSOR LOCATION

The system pressure sensor (P) must be located where it will see the air pressure that is common to all of the compressors.

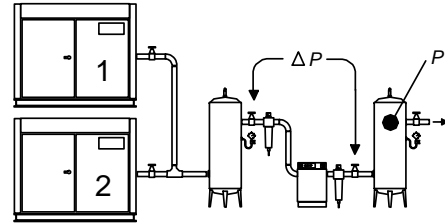
SUPPLY (WET) SIDE PRESSURE CONTROL



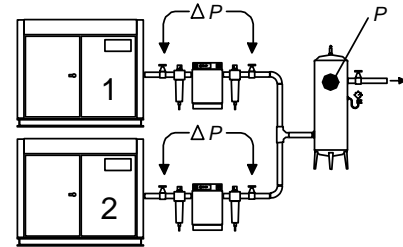
Pressure Sensor Located Before Cleanup Equipment

⚠ Dry side pressure will be lower than the system pressure due to pressure differential losses across air treatment equipment. The nominal system pressure will reduce as the air treatment differential pressure increases.

DEMAND (DRY) SIDE PRESSURE CONTROL



Pressure Sensor Located After Shared Cleanup Equipment



Pressure Sensor Located After Individual Cleanup Equipment

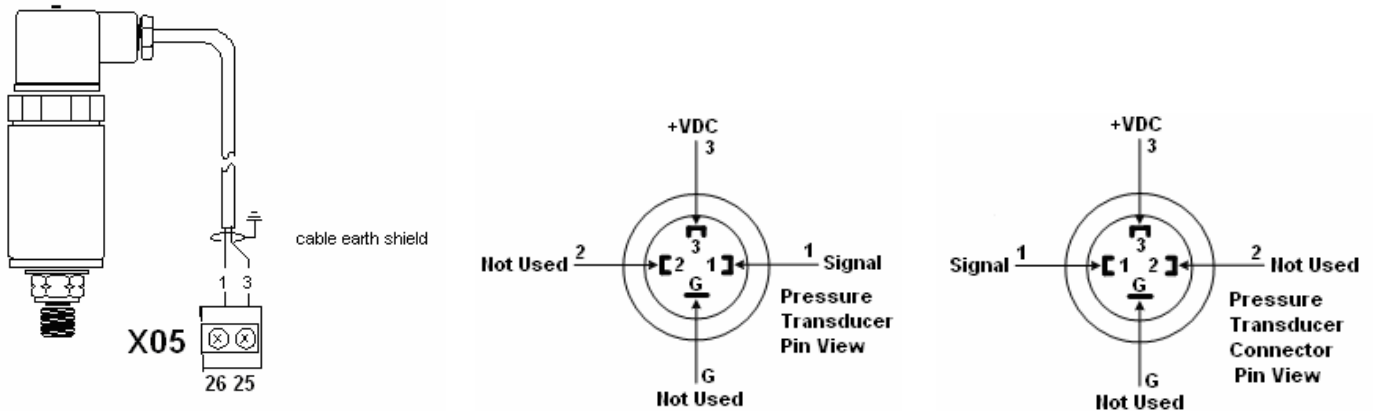
⚠ Ensure each compressor is equipped with independent excess pressure shutdown. An increase in pressure differential across air treatment equipment can result in excess compressor discharge pressure.

⚠ Regular routine monitoring of pressure differential across air treatment equipment is recommended.

PRESSURE SENSOR CONNECTION

The pressure sensor connects to terminal X05 of the X4I terminal PCB using a shielded 18 AWG maximum 2-

conductor cable no more than 330 feet (100 meters) in length. The transducer threads are BPT. It is the equivalent of 1/4" NPT.



Pressure Sensor Wiring and Location

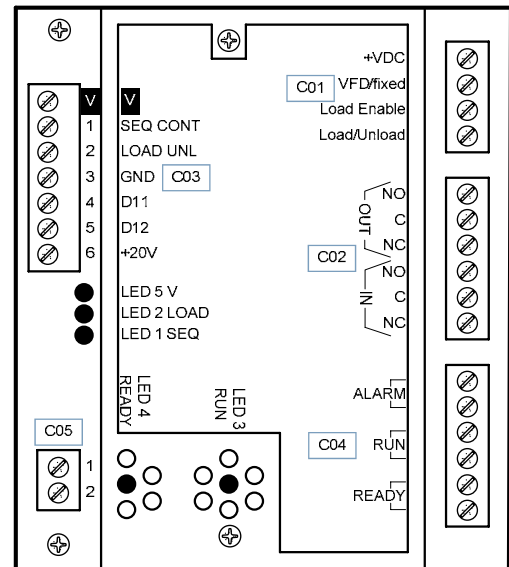
⚠ Wire polarity is important.

IR-PCB INTERFACE MODULE

The IR-PCB is designed to interface a compressor with the X4I using a 7-conductor shielded cable or individual wires run through grounded conduit no greater than 330 feet (100 meters) in length.

Each compressor in the system must be assigned a unique identification number from 1 up to the number of compressors in the system. The identification number should be clearly indicated on each compressor for operational reference.

For each compressor utilizing an IR-PCB, connection to the X4I the signal wires must be made to the correct X4I terminals for that compressor number. Compressor 1 should be wired to terminal X01 on the terminal PCB, Compressor 2 should be wired to terminal X02 on the terminal PCB, etc.



IR-PCB Interface Module

The IR-PCB is a DIN rail mountable module designed to be installed within the compressor starter enclosure.

Each air compressor must be equipped with a load/unload regulation system and, if not regulated with a single electro-mechanical pressure switch, have a facility for a remote load/unload control with the ability to accept a volt-free switching contact input for remote load/unload. Each air compressor must have Auto Restart capability.

Ⓥ For variable speed compressor(s) equipped with a "variable/fixed" digital input function, install a 7-conductor shielded cable from the IR-PCB to the X4I.

⚠ Consult the air compressor manual or your air compressor supplier/specialist for details before installing the X4I.

Each air compressor must be equipped with an online/offline pressure regulation system capable of accepting a remote load/unload signal through a volt free switching contact or a single electro-mechanical pressure switch.

The IR-PCB accepts a 12V to 250V input voltage detection system and utilizes universal relay contact control outputs (250V “CE” / 115V “UL” @ 5A maximum) integrated directly into the circuits of an air compressor. The IR-PCB avoids the need for additional relays or remote inputs. The IR-PCB also acts as an electrical barrier between the compressor and the X4I providing protection and voltage isolation.

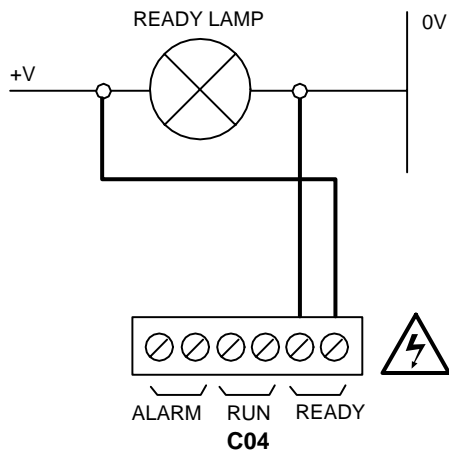
⚠ Consult the X4I Interconnect and Application Guide prior to the installation of the X4I and the IR-PCB to the air compressor.

INPUT FUNCTIONS

The IR-PCB is fitted with a six-pin terminal, C04, for compressor monitoring. The IR-PCB uses two inputs, Ready and Run, to determine compressor status. An alarm input can be used if compressor warning indication is available and required. The alarm input is optional and is not necessary for system operation.

READY INPUT

The ‘Ready’ connection is intended to indicate that the compressor is in a “started” state, has no alarm condition that has shut down the compressor, and is ready to respond to X4I regulation without manual intervention.



Typical Ready Input Wiring

The READY input will accept 12V to 250V ac (50/60Hz) or dc.

⚠ Do not connect a voltage greater than 250Vac/dc to this input.

This input must be connected to a circuit of the compressor control system that will be energized when

the compressor is in a started (standby or running) condition. For example, locate the circuit across the ready or operating lamp as shown.

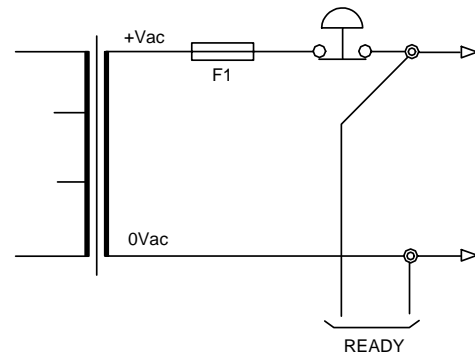
The voltage to this input must de-energize when the compressor is stopped and unavailable to produce air upon a load signal, or the emergency stop button is pressed, or when the compressor experiences a fault that prevents the compressor from running.

When the compressor ready lamp or other control circuit is energized, the IR-PCB will detect the voltage and signal the X4I that the compressor is ready and available to load and produce air when a load request signal is given.

⚠ The IR-PCB common input terminal must always be connected to the neutral, common or 0V line of the applied input voltage.

READY INPUT, ALTERNATIVE CONNECTION METHOD

In instances where a convenient voltage signal for a compressor ready condition is not available, the “ready” input can be connected directly to a constant compressor control voltage (12V to 250Vac or dc). This will signal the X4I that the compressor is ready and available at all times when power is applied to the compressor. The X4I has a built-in function to determine when a compressor is not responding, or is in a shutdown condition, even if the “ready” signal says otherwise. If the X4I requests a compressor to run/load, but fails to detect a RUN signal within 60 seconds, the X4I will regard the compressor as “not ready” and indicate the compressor as not available. If a RUN signal is reacquired at any time, the X4I will automatically reset the compressor “not ready” condition and re-establish control.

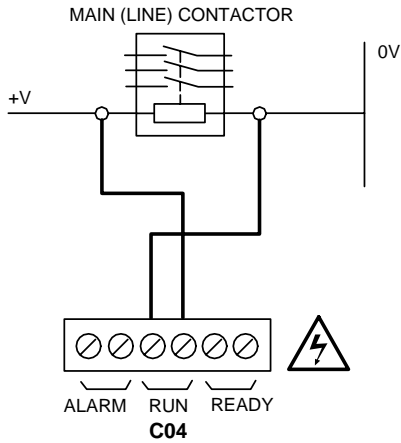


Alternative Ready Signal Connection

⚠ Never connect the “Ready” input positive voltage connection directly to the output of a control system transformer. Always connect after a fuse or circuit breaker.

If a normally closed contact of an emergency stop button is included in the compressor power supply circuit, connect after the emergency stop button contacts. This will instantly indicate a compressor “not ready” condition if the emergency stop button is activated.

RUN INPUT



Run Signal Circuit

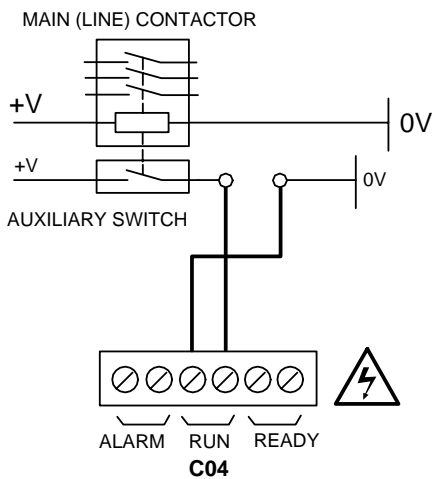
The RUN input will accept 12V to 250V AC (50/60Hz) only. DC cannot be used.

! Do not connect a voltage greater than 250V to this input.

12V to 250Vac must be applied to the “run” terminals when the compressor motor is running.

This input can be connected to the control terminals A1 and A2 (coil) of the main starter contactor of the compressor. When the compressor control system energizes the main contactor, the IR-PCB will detect the voltage across the contactor coil terminals and signal the X4I that the compressor is running.

Alternatively, if the main contactor coil voltage is greater than 250Vac, a contactor auxiliary switch can be used to apply a suitable voltage to the “run” input terminals.



Run Signal Circuit with Auxiliary Switch

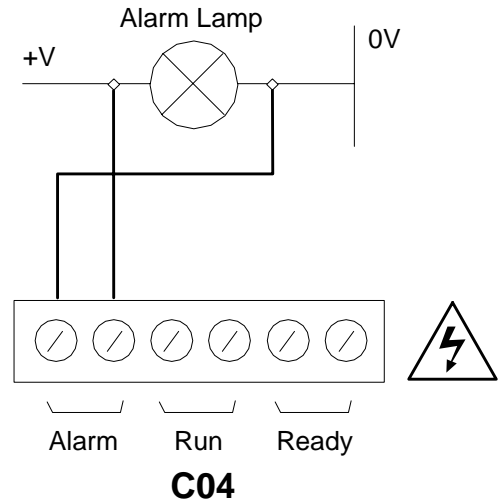
In instances where a motor starter contactor is not available or accessible, any part of a compressor control circuit that is energized when the compressor is running can be monitored. For example: fan contactor or voltage signal to a remote starter.

! The IR-PCB input common terminal must always be connected to the neutral, common or 0V line of the applied input voltage.

WARNING INPUT (OPTIONAL)

The IR-PCB is equipped with a warning input that can be used to detect warning conditions.

! An alarm that stops the compressor, and/or prevents the compressor from running is determined from the “run” and “ready” inputs. Warning detection is optional and is not a requirement.



Warning Input Circuit

The warning input will accept 12V to 250V AC (50/60Hz) or DC.

! Do not connect a voltage greater than 250Vac/DC to this input.

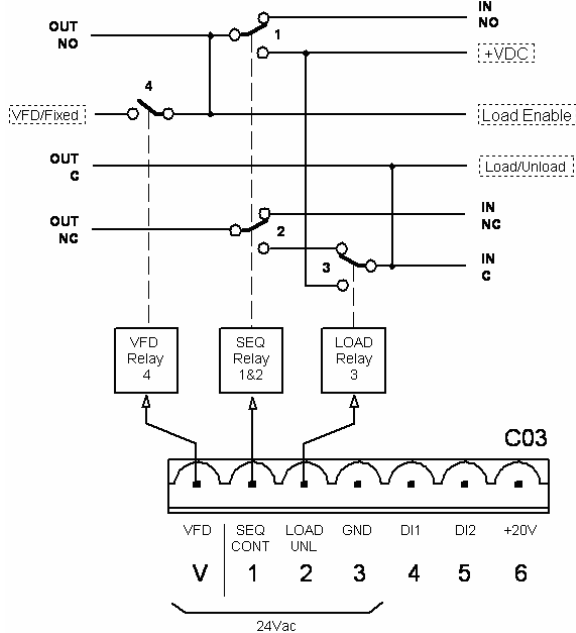
This input can be connected to the terminals of an alarm lamp or other accessible part of the control circuit that is energized when the compressor is in a warning condition.

If a warning condition is experienced the compressor warning lamp, or warning circuit, will energize. The IR-PCB will detect the voltage and signal the X4I that a warning has occurred. If the compressor has no accessible warning circuit, or this function is not required, the IR-PCB alarm terminals can be ignored.

! The IR-PCB input common terminal must always be connected to the neutral, common or 0V line of the applied input voltage.

OUTPUT FUNCTIONS

The X4I will control the IR-PCB load/unload relay outputs based on the active system load and unload pressure setpoints. The IR-PCB load/unload relay contacts can be used for compressor controllers that have electro-mechanical pressure switch load/unload regulation.



IR-PCB Internal Output Circuits

The C01 and C02 terminals of the IR-PCB are intended to control load and unload regulation of the compressor.

PRESSURE SWITCH REGULATION

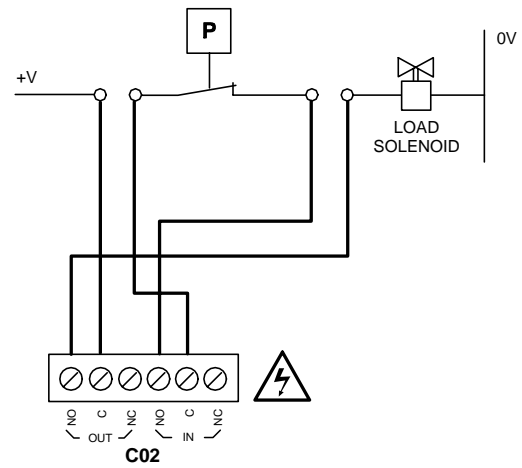
For air compressors fitted with an electro-mechanical pressure switch, a six-pin terminal C02 has been provided to enable connection to a pressure switch that has a two-wire or three-wire connection.

When connected, the pressure switch can be switched in and out of circuit automatically. If the X4I is stopped or experiences a failure or loss of power, pressure control will automatically revert back to the pressure switch and the compressor will continue to operate in “local” mode.

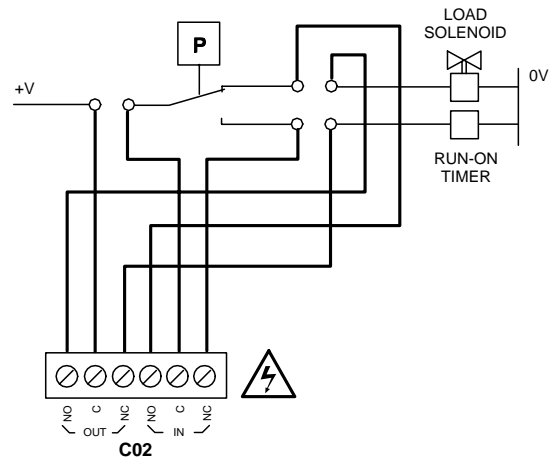
! The local pressure settings of all compressors in the system should be set in a cascaded manner such that the system will operate normally in the event of X4I inoperability.

! The NC (normally closed) and NO (normally open) terminal references of the IR-PCB are related to internal connection functions and should not be referenced to the connections of a compressor pressure switch, which will generally be in reverse order.

! Lethal voltages may be present on the terminals of the air compressor pressure switch. Isolate the air compressor power supply before starting any work.



Two Wire Pressure Switch Connections



Three Wire Pressure Switch Connections

DIGITAL REGULATION CONTROL TERMINAL C01

A 4-pin connector, C01, has been provided for air compressor controllers fitted with digital inputs allowing remote pressure regulation control.

This terminal provides volt free contact closure, referenced to a common terminal pin, for:

- Remote Load Enable (remote/local pressure regulation control)
- Remote Load (remote load/unload)
- Remote Variable Speed Regulation Inhibit (remote variable/fixed speed regulation control)

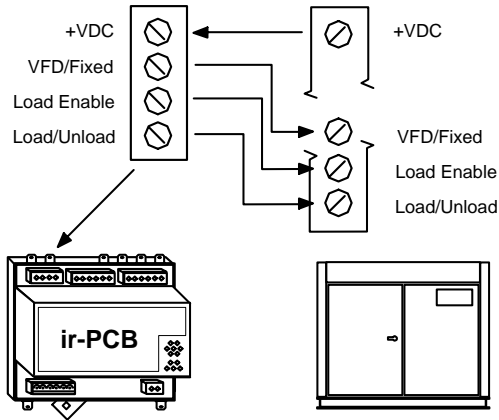
The “remote load enable” function provides the facility to change the compressor load regulation from internal control to a remote switching source (local/remote).

V The “remote variable/fixed” function provides for multiple variable speed compressor regulation control on variable speed compressor(s) equipped with this facility.

! When using the “Variable/Fixed” function, the “V” terminal of the IR-PCB must be connected to the appropriate “V” terminal of the X4I (according to

compressor number) with an additional wire. Use a 7-conductor shielded cable in this instance.

! Compressors that use electronic pressure detection but are not equipped with a remote pressure control enable feature will not automatically revert to local control if the X4I is stopped or experiences a fault or loss of power.



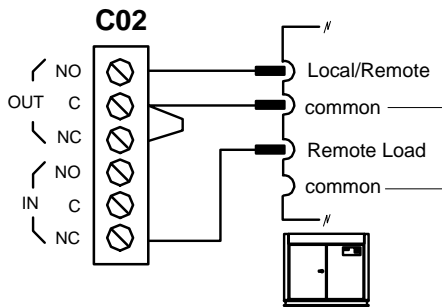
Load, Sequence, and VFD Connections

! Compressor controller inputs common voltage may be 0V or +V.

The local/remote pressure regulation input and/or remote load input logic of some electronic pressure sensor type controllers are reversed. In this instance, the “pressure switch” outputs (terminal C02) can be used to establish alternative logic control connections.

For Example:

If the compressor controller “Local/Remote Pressure Control” input is a normally open type (local when open, remote when closed), but the “Remote Load” input is a normally closed type (load when open), the IR-PCB pressure switch terminal contacts can be used to achieve the correct switching logic.



Alternate Logic

Examine the “i-PCB” internal output circuit diagram to establish any desired switching logic that may differ from normal practice.

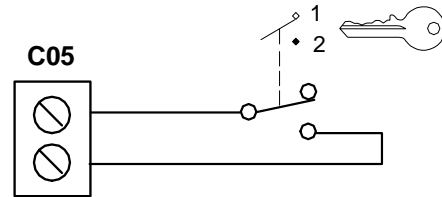
! Do not attempt to utilize “Digital Pressure Regulation Control” (terminal C01) and the “Pressure Switch Control” (terminal C02) output connections at the same time for different products. These two output

functions are internally connected and a short circuit condition and/or malfunction may result.

The IR-PCB connection examples shown in this manual are intended to provide a guide for the majority of compressor control systems in use. Some compressors have variations in operation and/or function; consult your compressor supplier/specialist for advice.

SERVICE MAINTENANCE SWITCH

The IR-PCB is equipped with a volt-free input (terminal C05) that can be used to remove the compressor from X4I control, without generating a fault condition, during short-term maintenance or servicing periods.



Service Maintenance Switch Circuit

When the “Service Maintenance Switch” input terminal pins are connected together using a volt-free switching contact, the X4I will indicate that the compressor is not available but will not generate a warning, alarm, or shutdown condition. The X4I will also remove the compressor from the sequence strategy and substitute with an alternative available compressor if necessary. When the “Service Maintenance Switch” input circuit is open again, the compressor will automatically be accepted back in to the sequence strategy and will be utilized when next required.

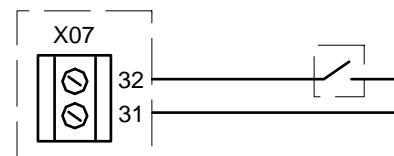
The use of a “key switch” is recommended for this purpose in order to prevent the switch contacts being inadvertently left in the closed circuit condition after service maintenance is complete.

! DO NOT connect any external voltage source to the pins of terminal C05.

AUXILIARY INPUT (OPTION)

The X4I is equipped with an auxiliary input at terminals 31 and 32 (X07).

The function of the input is menu selectable and can be adapted for differing application requirements.



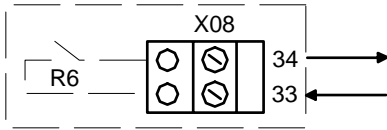
Auxiliary Input Circuit

The input is designed to detect a remote “volt-free” switching contact (rated for a minimum 24VDC @ 10mA).

AUXILIARY OUTPUT (OPTION)

The X4I is equipped with a remote relay contact output at terminals 33 and 34 (X08).

The function of the output is menu selectable and can be adapted for differing application requirements.



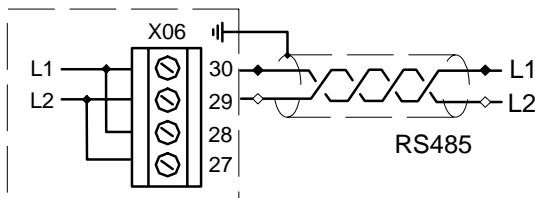
Auxiliary Output Circuit

The remote output relay contacts are rated for 240V “CE” / 115V “UL” @ 5A maximum.

RS485 COMMUNICATIONS

The X4I is equipped with an RS485 network communications capability using the proprietary Multi485 protocol.

! This can be only used for remote connectivity to optional X4I expansion networked units and modules with proprietary Multi485 communications capabilities.

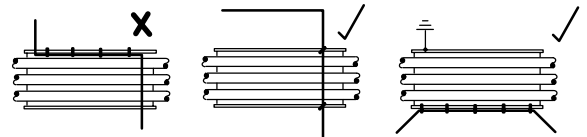


RS-485 Connection Circuit

⚡ RS485 data communications and other low voltage signals can be subject to electrical interference. This potential can result in intermittent malfunction or

anomaly that is difficult to diagnose. To avoid this possibility, always use shielded cables, securely bonded to a known ground at one end. In addition, give careful consideration to cable routing during installation.

- Never route an RS485 data communications or low voltage signal cable alongside a high voltage or 3-phase power supply cable. If it is necessary to cross the path of a power supply cable(s), always cross at a right angle.
- If it is necessary to follow the route of power supply cables for a short distance (for example: from a compressor to a wall along a suspended cable tray), attach the RS485 or signal cable on the outside of a grounded cable tray such that the cable tray forms a grounded electrical interference shield.
- Where possible, never route an RS485 or signal cable near to equipment or devices that may be a source of electrical interference. For example: 3-phase power supply transformer, high voltage switchgear unit, frequency inverter drive module, radio communications antenna.



SECTION 5 — ASSISTANCE

Contacting Technical Support Services or Service Bulletins listed on the IR ServiceNet can provide further assistance if there are other questions or concerns during Installation and Start-up. Also, additional Application and Compressor Interconnect Guides will be posted and available on the IR ServiceNet as they are developed and created.

SECTION 6 — X4I OVERVIEW AND INTERCONNECT DRAWINGS

The following pages are to assist with the connection of the X4I to variety of Ingersoll Rand Compressors. These drawings are for **Guidance Only**; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor’s original control circuit diagram.

SPECIFICATIONS

Dimensions 11.45" x 9.45" x 6.0"
291mm x 241mm x 152mm

Weight 14lb (6.4kg)

Mounting Wall, 4 x screw fixings

Enclosure IP65, NEMA 4

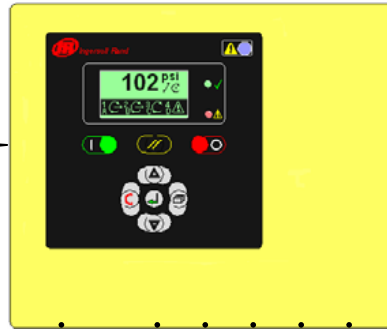
Supply 230Vac +/- 10%, 50 Hz
115Vac +/- 10%, 60 Hz

Power 50VA

Temperature 32°F to 115°F
(0°C to 46°C)

Humidity 0% to 95% RH
(non-condensing)

Ingersoll Rand Automation Model X4I



COMPRESSOR CONTROL CABLE
7 Conductor Cable, 18 Gauge, Stranded, Earth Shielded
OR
Single Conductor Wire, 18 Gauge Stranded, Quantity (7)
In Grounded Conduit
No Greater Than 330FT (100M)
24VAC Control Voltage

Local Disconnect (Breaker) Box
Fused for 50VA

Power Cable
3 conductor (L, N, E)
(Sized in accordance with local
electrical and safety regulations).

On/Off
Switch

Supply Voltage Cable

Compressor #4 Control Cable
Compressor #3 Control Cable
Compressor #2 Control Cable
Compressor #1 Control Cable

PRESSURE TRANSDUCER CABLE
2 Conductor Cable, 18 Gauge Stranded
Earth Shielded
No Greater Than 330FT (100M)
24VDC Control Voltage

X4I X05 CONNECTOR	PT CONNECTOR
25	+VDC Pin #3
26	Signal Pin #1

Reference X4I Operations Manual for Pressure
Sensor Connection Details

Pressure Transducer Cable

Compressor #1 IR-PCB

Compressor #1 Control Cable

X4I X01 CONNECTOR	IR-PCB CONNECTOR
Y1	Y1
1	1
2	2
3	3
4	4
5	5
6	6

Reference X4I Compressor
Interconnect and Application Guide
For Connections Between The
Compressor And The IR-PCB

Compressor #2 IR-PCB

Compressor #2 Control Cable

X4I X02 CONNECTOR	IR-PCB CONNECTOR
V3	V1
7	1
8	2
9	3
10	4
11	5
12	6

Compressor #3 IR-PCB

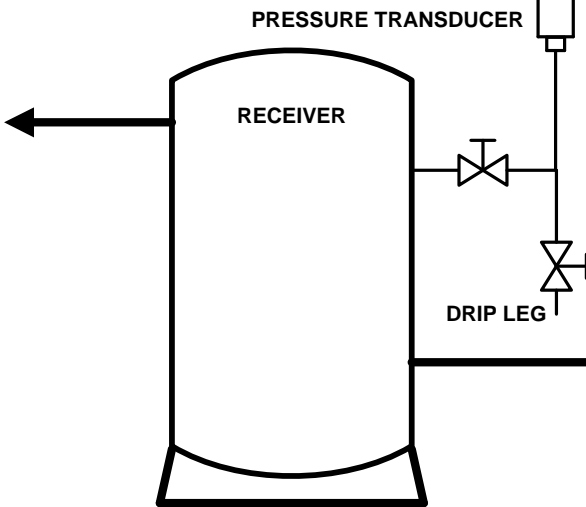
Compressor #3 Control Cable

X4I X03 CONNECTOR	IR-PCB CONNECTOR
V3	V1
13	1
14	2
15	3
16	4
17	5
18	6

Compressor #4 IR-PCB

Compressor #4 Control Cable

X4I X04 CONNECTOR	IR-PCB CONNECTOR
V4	V1
19	1
20	2
21	3
22	4
23	5
24	6



X4I Interconnect To Ingersoll Rand Unigy & Nirvana 20-40 HP Compressors

- Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 X01 to IR-PCB terminal connections

For Unigy Compressors::

- All Unigy Phase 1 compressors “MUST” be converted to Phase 2 or higher. Contact Technical Support Services for the CCN's required for this conversion.

For Nirvana 20-40HP Compressors:

- Remote Control “MUST” be set to on.
- Check the Nirvana Software revision level. It “MUST” be updated to Version 1.10 or greater. Contact Technical Support Services to acquire the update.

Drawing Notes For Unigy Phase 1 Machines:

- Note: All Unigy Phase 1 compressors “MUST” be converted to Phase 2 or higher. Contact Technical Support Services for the CCN's required for this conversion. This Drawing on Page 16 is a representation for “AFTER” the conversion is completed.
- Note: The Unigy Target Pressure “MUST” be set equal to the “midpoint” of the X4I pressure control band.

Drawing Notes For Unigy Phase 2/3 Machines:

- Note: The Unigy Target Pressure “MUST” be set equal to the “midpoint” of the X4I pressure control band.

Drawing Notes For Nirvana 20-40HP Machines:

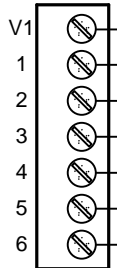
- Note: Remote Control “MUST” be set to on.
- Note: The Nirvana Target Pressure “MUST” be set equal to the “midpoint” of the X4I pressure control band.



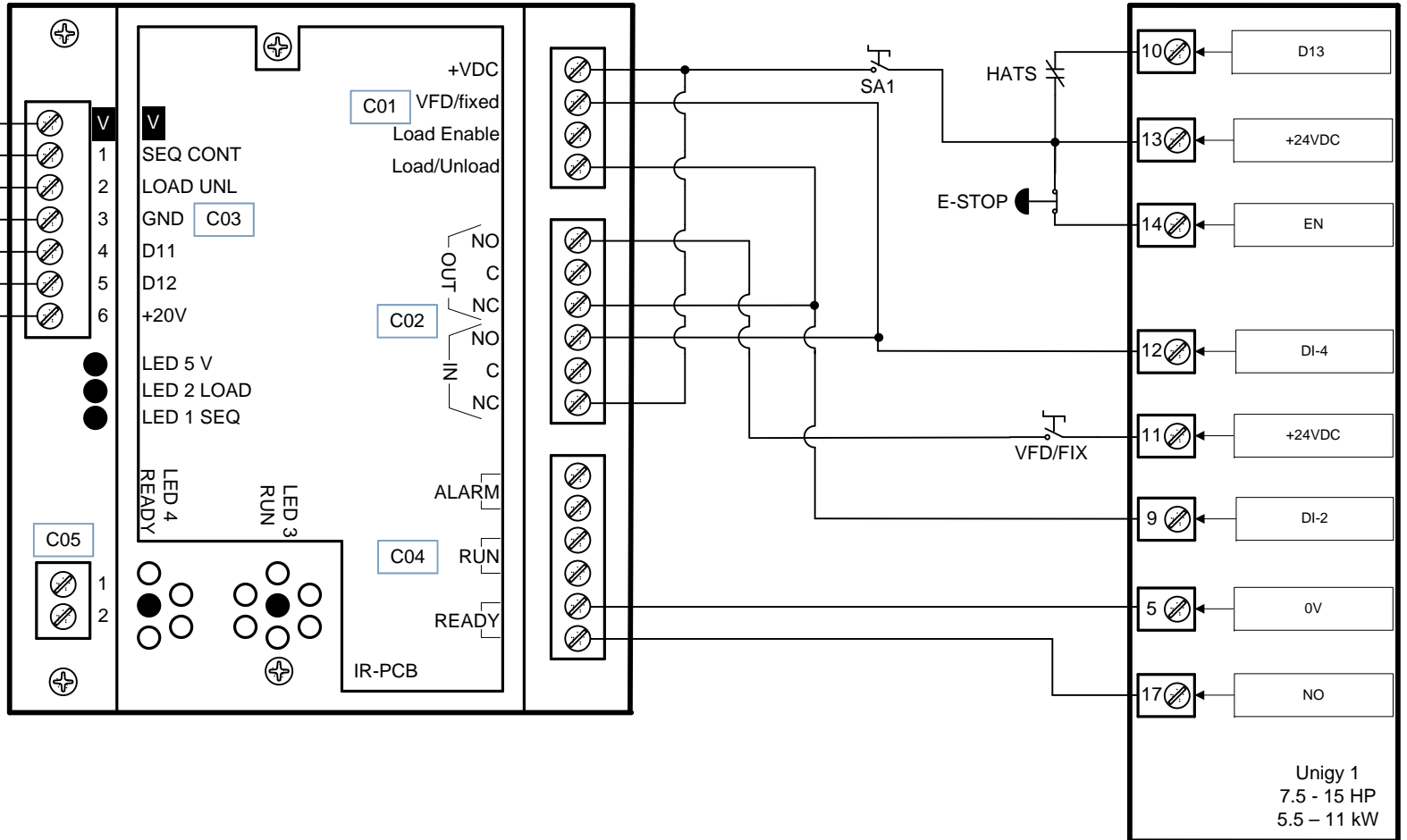
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor’s original control circuit diagram.

Unigy Phase 1

X4I
COMPRESSOR #1
X01 TERMINAL

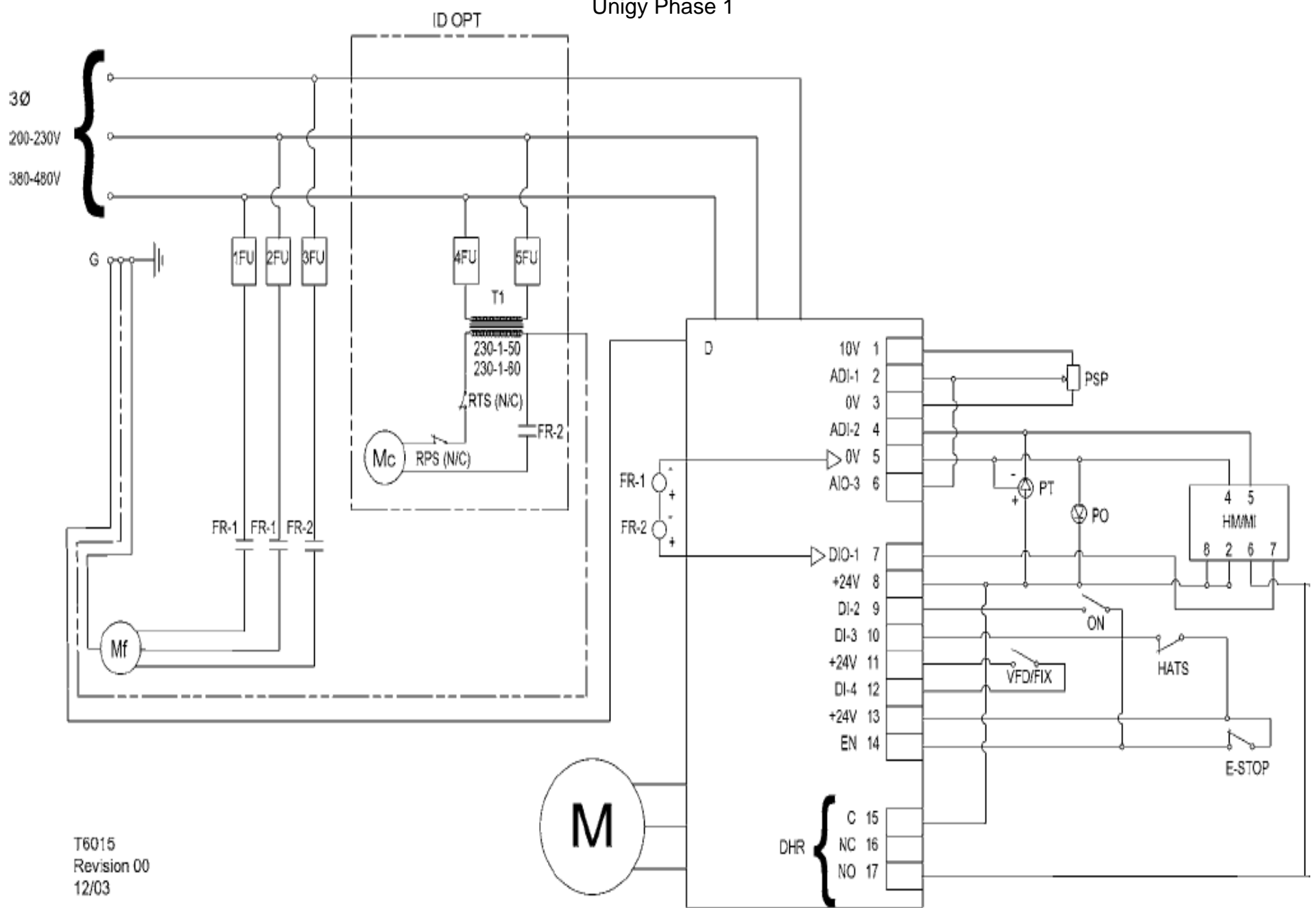


Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 terminal connections



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

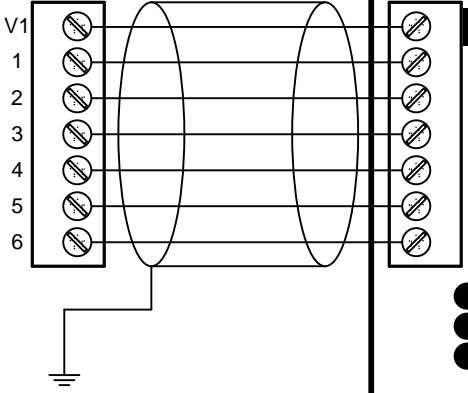
Unigy Phase 1



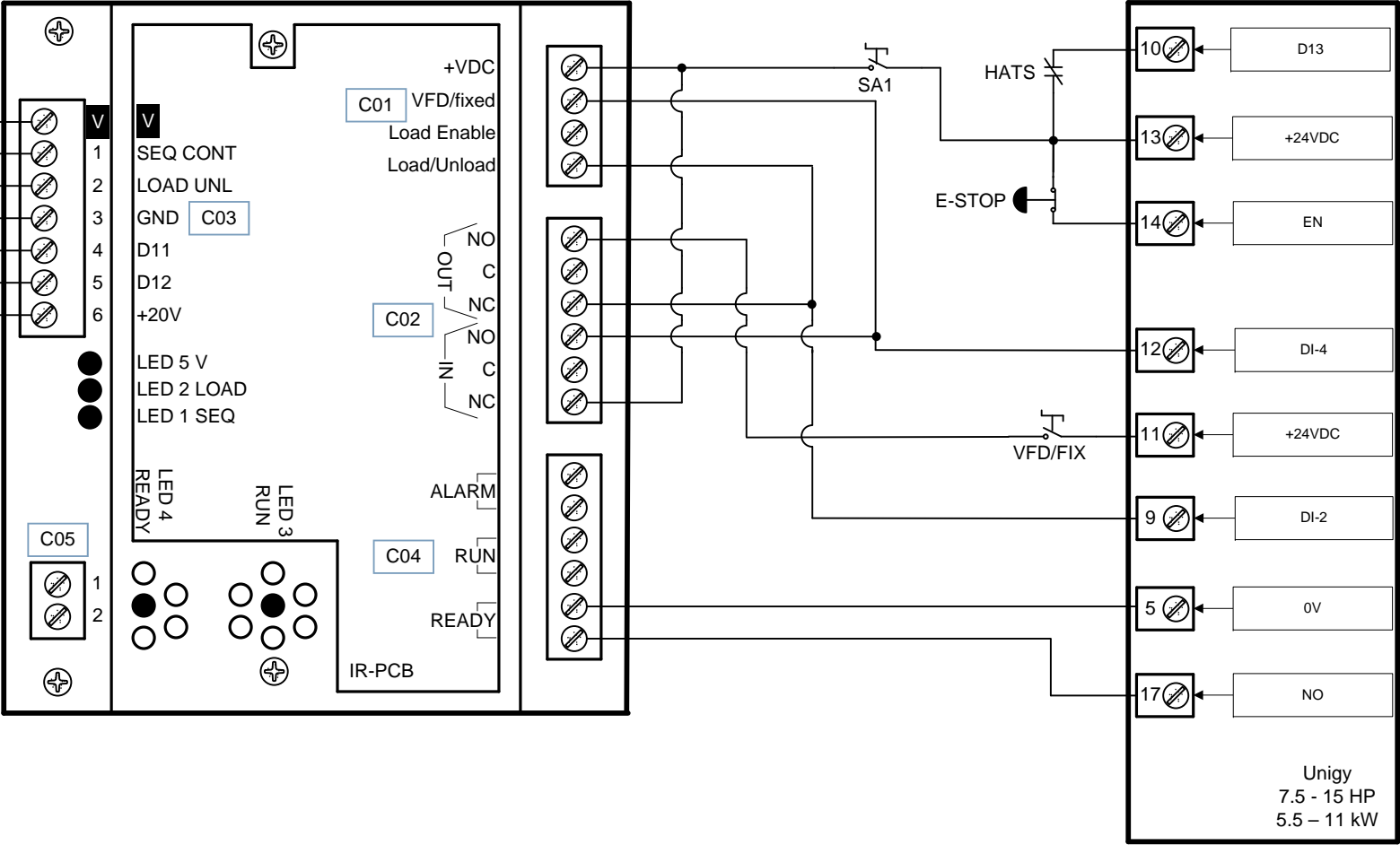
T6015
Revision 00
12/03

Unigy Phase 2/3

X41
COMPRESSOR #1
X01 TERMINAL

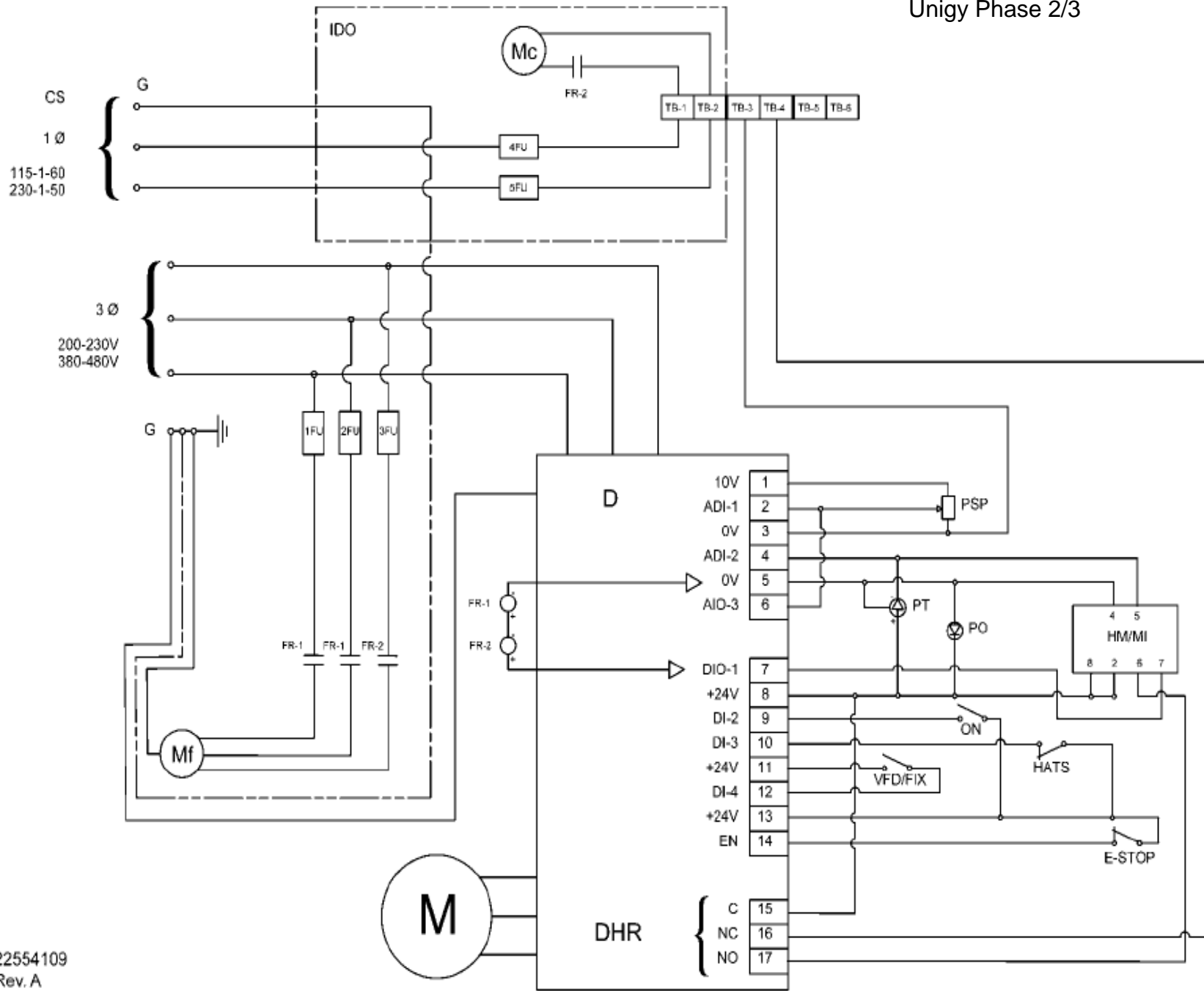


Refer to the X41 Overview Drawing for the X41 Compressor 2 through 4 terminal connections



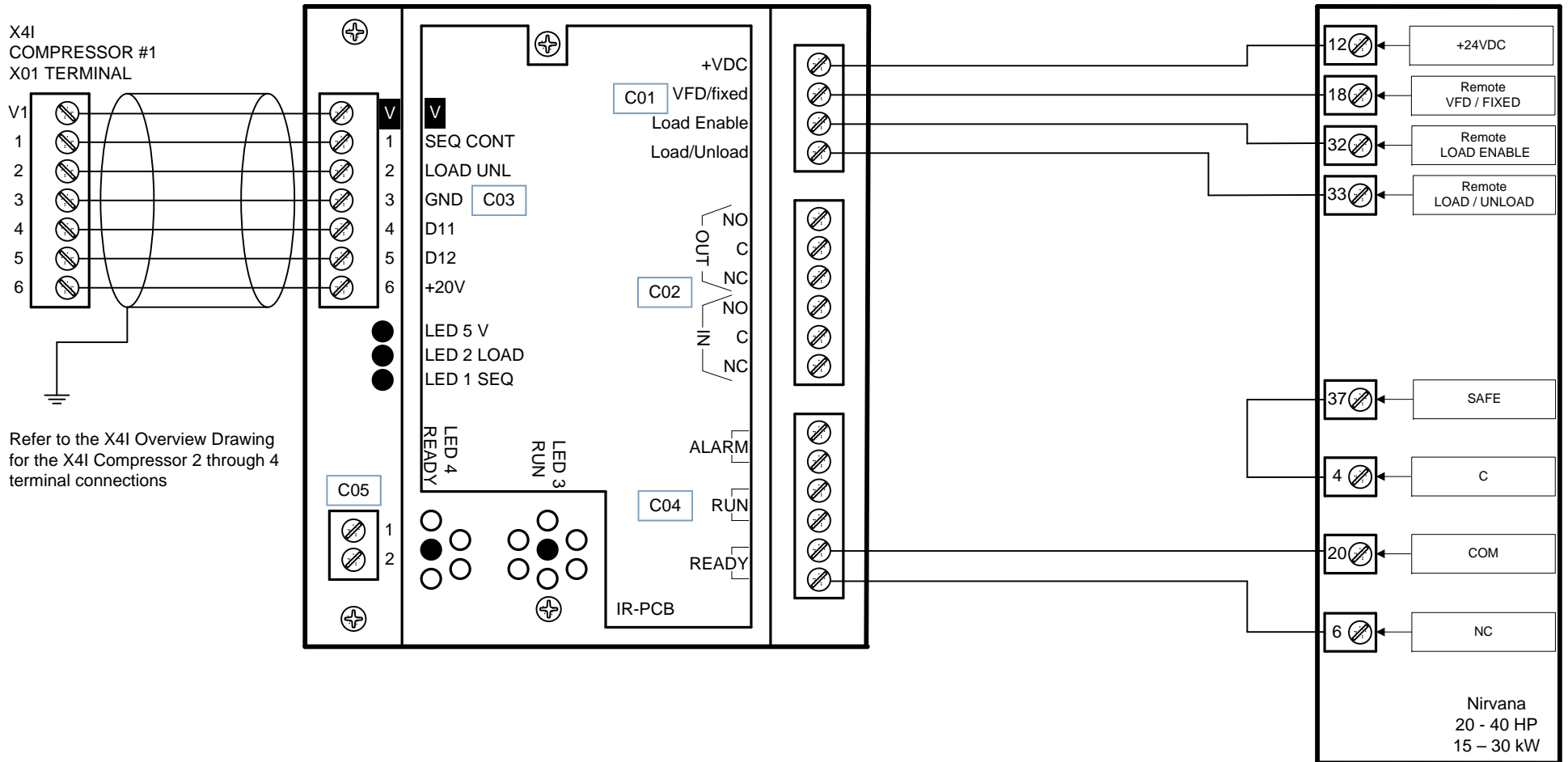
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

Unigy Phase 2/3



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Rev. A
10/04

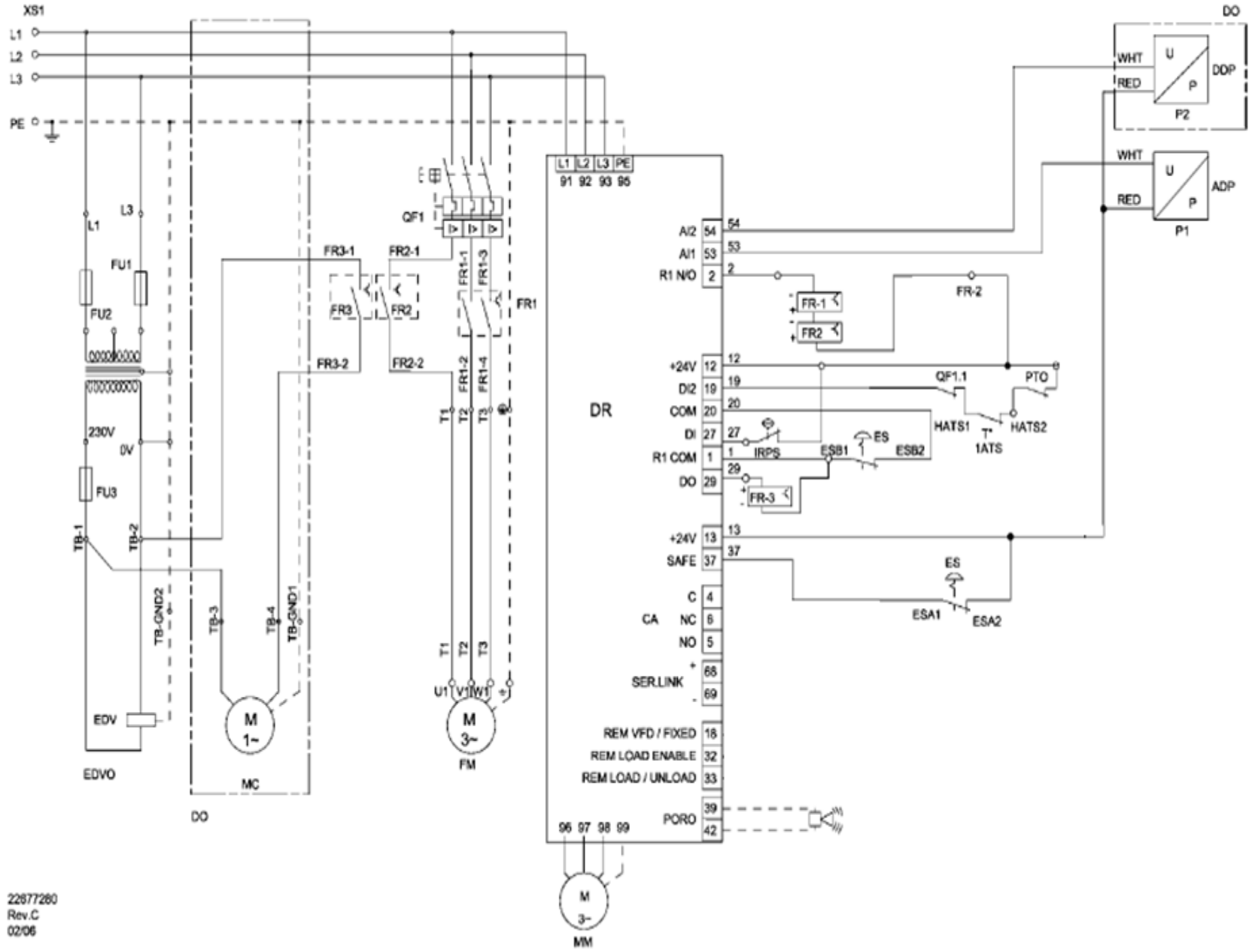
Nirvana 15 – 30KW (20 – 40HP)



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

Nirvana 15 - 30KW
(20-40HP)

TN, TT, IT 3+PE. 380-460V, 50Hz/60Hz.



22877280
Rev.C
02/06

X4I Interconnect To Ingersoll Rand Intellisys Redeye Controlled Compressors

Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 X01 to IR-PCB terminal connections

For Redeye Intellisys Controlled Machines:

- The 'MASTER CONTROL' setting of the Intellisys controller must be set to 'ON'
- The 'SEQUENCER' setting of the Intellisys controller must be set to 'ON'.
- Auto Restart must be turned 'ON' to allow the machines to stop in Auto restart when unloaded by the X4I.
- The Intellisys must be run in the Online/Offline regulation mode. Do not use Modulation or ACS.
- Check the Intellisys software revision level. Always update to the latest revision prior to operation.

- For DSA Redeye Controllers, the 'SEQUENCER Option' must be purchased, installed and then turned on.
CCN: 39225099

- For ESA Redeye Intellisys Controllers, the SI1 interface (CCN: 42425710) must be used to allow the Redeye to be controlled by the X4I

- For Sierra Redeye Intellisys Controllers, the SI1 interface (CCN: 42425710) must be used to allow the Redeye Controller to be sequenced/controlled by the X4I

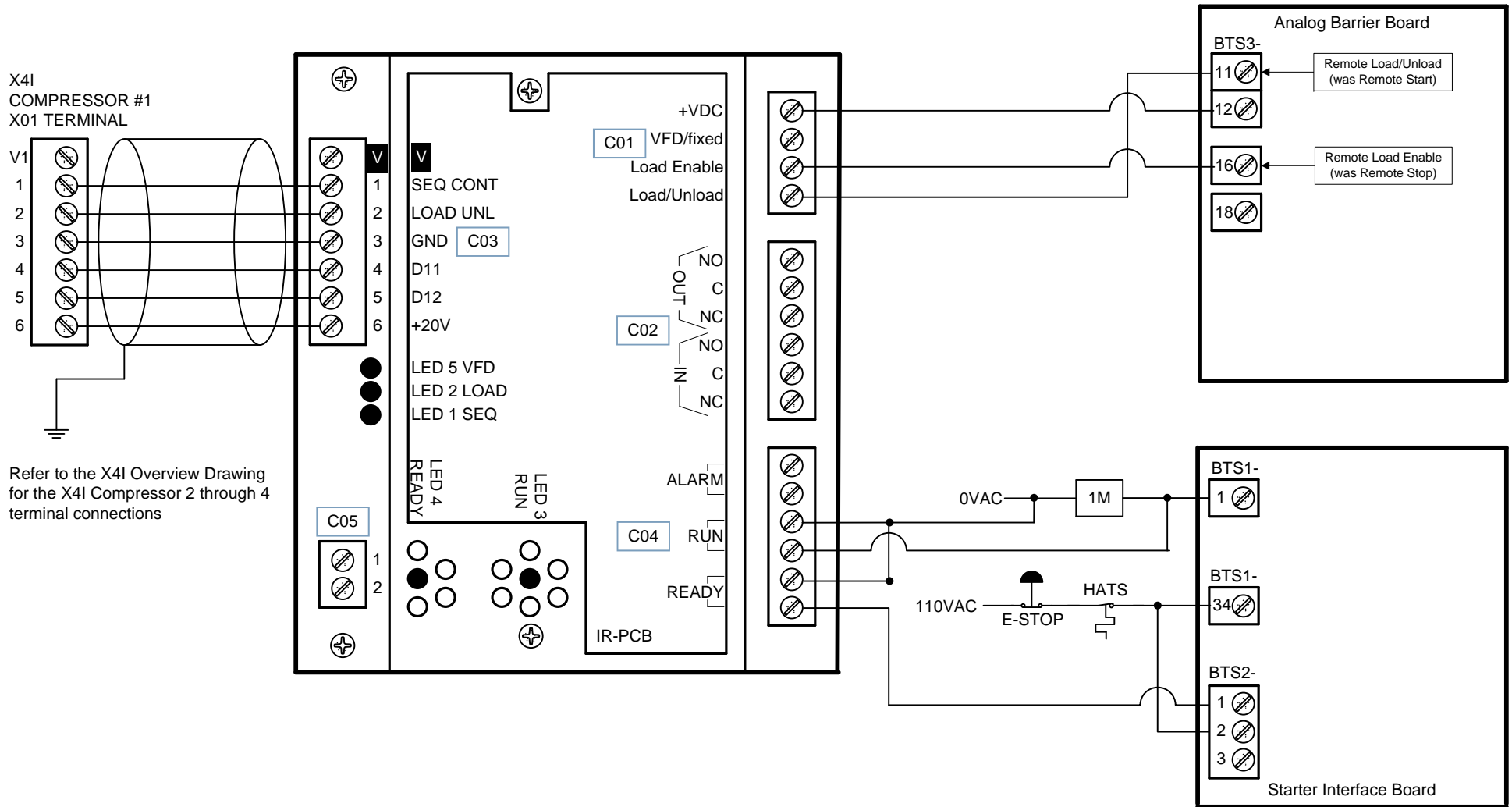
Drawing Notes For Redeye Intellisys Controlled Machines:

- Note: For Star Delta starter wiring the X4I Run signal should be connected directly to the 1M coil.
- Note: For Full voltage wiring the 1S (1Sb) interlock will not be used. The X4I Run signal can be connected directly to the Intellisys BTS1-28 terminal.



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

SSR Redeye



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

SSR Redeye FV

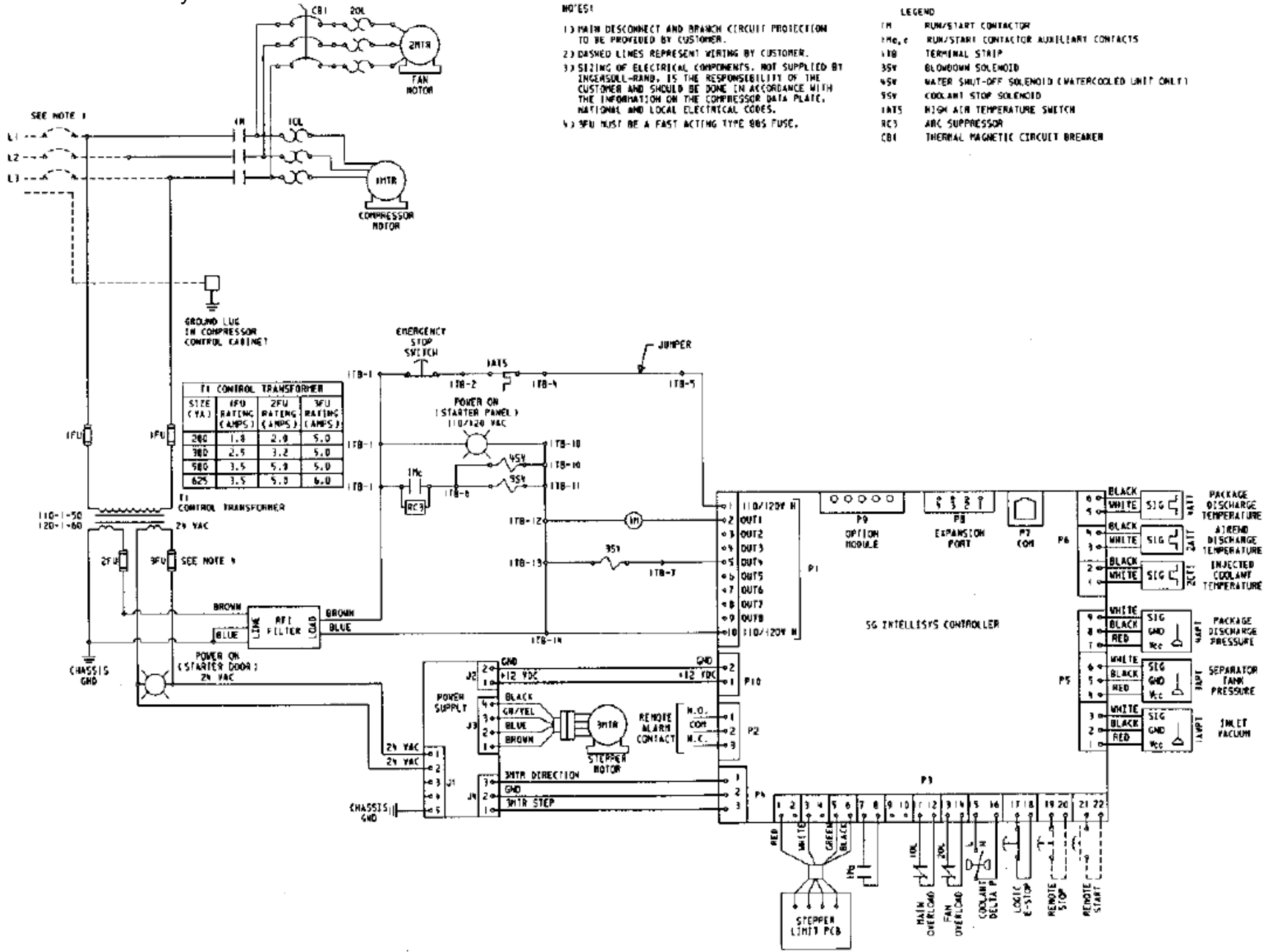
39878327
REV 04

NOTES:

- 1) MAIN DISCONNECT AND BRANCH CIRCUIT PROTECTION TO BE PROVIDED BY CUSTOMER.
- 2) DASHED LINES REPRESENT WIRING BY CUSTOMER.
- 3) SIZING OF ELECTRICAL COMPONENTS, NOT SUPPLIED BY INGERSOLL-RAND, IS THE RESPONSIBILITY OF THE CUSTOMER AND SHOULD BE DONE IN ACCORDANCE WITH THE INFORMATION ON THE COMPRESSOR DATA PLATE, NATIONAL AND LOCAL ELECTRICAL CODES.
- 4) SFU MUST BE A FAST ACTING TYPE BUS FUSE.

LEGEND:

- 1M RUN/START CONTACTOR
- 1M6,6 RUN/START CONTACTOR AUXILIARY CONTACTS
- 1T0 TERMINAL STRIP
- 35V BLOWDOWN SOLENOID
- 45V WATER SHUT-OFF SOLENOID (WATER-COOLED UNIT ONLY)
- 55V COOLANT STOP SOLENOID
- 1NT5 HIGH AIR TEMPERATURE SWITCH
- RC3 ARC SUPPRESSOR
- CB1 THERMAL MAGNETIC CIRCUIT BREAKER

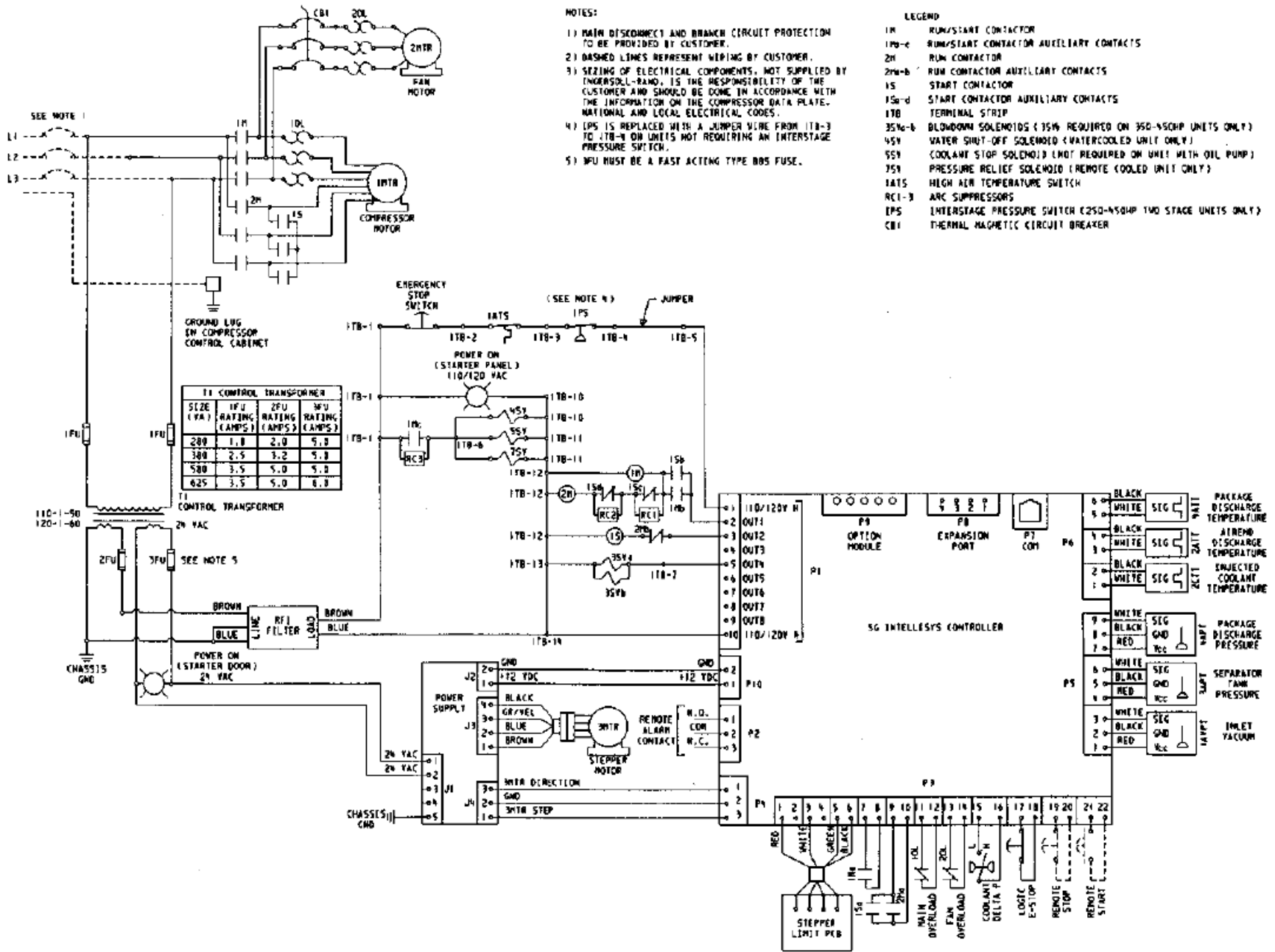


8.2 ELECTRICAL SCHEMATIC
FULL VOLTAGE

SSR Redeye SD

8.1 ELECTRICAL SCHEMATIC
STAR DELTA

8.0 REFERENCE DRAWINGS



39878236
REV 04

X4I Interconnect To Ingersoll Rand Intellisys SE Controlled Compressors

Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 X01 to IR-PCB terminal connections

For All SE Intellisys Controlled Machines:

- The 'SEQUENCER' setting of the Intellisys controller must be set to 'ON'.
- Auto Restart must be turned 'ON' to allow the machines to stop in Auto restart when unloaded by the X4I.
- The Intellisys must be run in the Online/Offline regulation mode. Do not use Modulation or ACS.
- Check the Intellisys software revision level. Always update to the latest revision prior to operation.

For UP SE Intellisys Controllers,

Minimum Software Version 1.11

CCN: 39217047 (w/o PORO)

CCN: 39217039 (w PORO)

When installing the Sequence Option to enable Remote Load/Unload, the Remote Start Stop input terminals are now used for the Remote Load inputs. Remote Start Stop will no longer be functional. The SI1 interface (CCN: 42425710) can be used in place of the Sequence Option to allow the SE controlled machines to function with both Remote Load Unload and Remote Start Stop.

Software Version 1.20 and Greater

The 'CONTACT SEQUENCE' setting of the Intellisys controller must be set to 'ON'.

Drawing Notes For UP SE Intellisys Controlled Machines:

- Note: For Star Delta starter wiring the X4I Run signal should be connected directly to the 1M coil.
- Note: For Full voltage wiring the 1S (1Sb) interlock will not be used. The X4I Run signal can be connected directly to the Intellisys J5-1 terminal.
- Note: For Pegasus machines wiring may be factory installed connecting the Intellisys Alarm Relay J5-9, J5-10 and J5-11 to a terminal strip but unused. Remove any factory installed wiring from the Intellisys Alarm Relay contacts and connect the X4I Interface board wiring directly to the Intellisys Alarm Relay terminals J5-9 and J5-10.

For ESA SE Intellisys Controllers, the 'SEQUENCER Option' must be purchased. installed and then turned on.

Minimum Software Version 1.40

CCN: 39217047 (w/o PORO)

CCN: 39217039 (w PORO)

When installing the Sequence Option to enable Remote Load/Unload, the Remote Start Stop input terminals are now used for the Remote Load inputs. Remote Start Stop will no longer be functional. The SI1 interface (CCN: 42425710) can be used in place of the Sequence Option to allow the SE controlled machines to function with both Remote Load Unload and Remote Start Stop.

Drawing Notes For ESA SE Intellisys Controlled Machines:

- Note: For Star Delta starter wiring the X4I Run signal should be connected directly to the 1M coil.
- Note: For Full voltage wiring the 1S (1Sb) interlock will not be used. The X4I Run signal can be connected directly to the Intellisys J5-1 terminal.

For DSA SE Intellisys Controllers, the 'SEQUENCER Option' must be purchased. installed and then turned on.

CCN: 22179238

When installing the Sequence Option to enable Remote Load/Unload, the Remote Start Stop input terminals are now used for the Remote Load inputs. Remote Start Stop will no longer be functional. The SI1 interface (CCN: 42425710) can be used in place of the Sequence Option to allow the SE controlled machines to function with both Remote Load Unload and Remote Start Stop.

Drawing Notes For DSA SE Intellisys Controlled Machines:

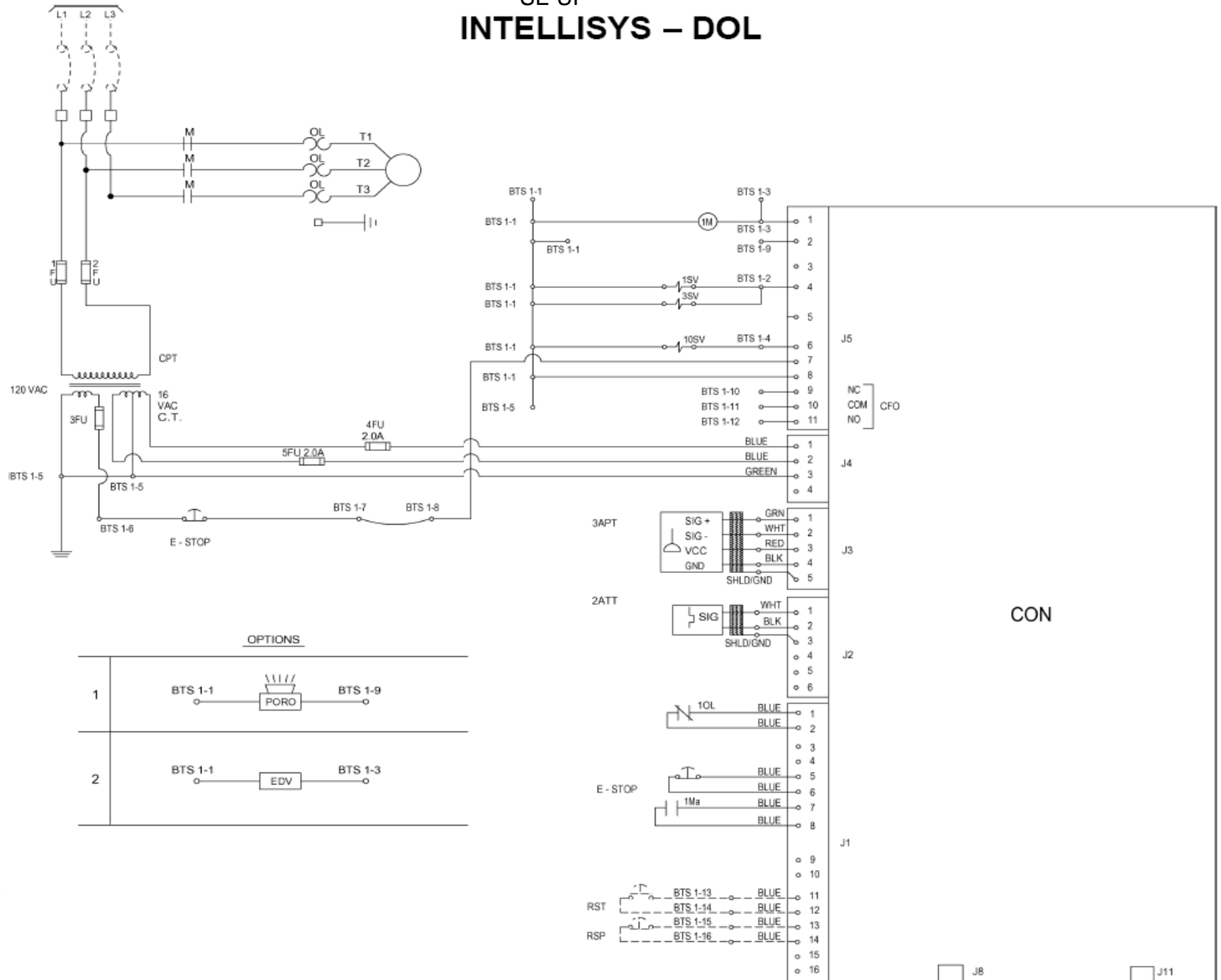
- Note: For Star Delta starter wiring the X4I Run signal should be connected directly to the 1M coil.
- Note: For Full Voltage wiring, the 1S (1Sb) interlock will not be used. The X4I Run signal can be connected directly to the Intellisys terminal 42.

For Sierra SE Intellisys Controllers, the SI1 interface (CCN: 42425710) must be used to allow the SE Controller to be sequenced/controlled by the X4I



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

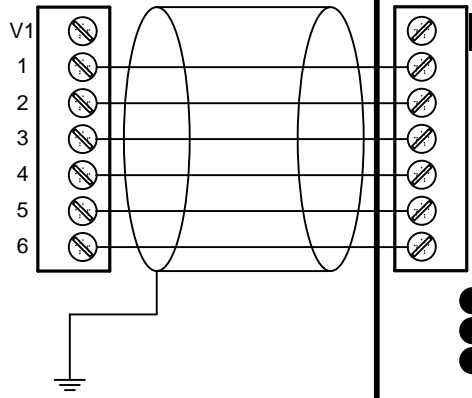
SE UP INTELLISYS – DOL



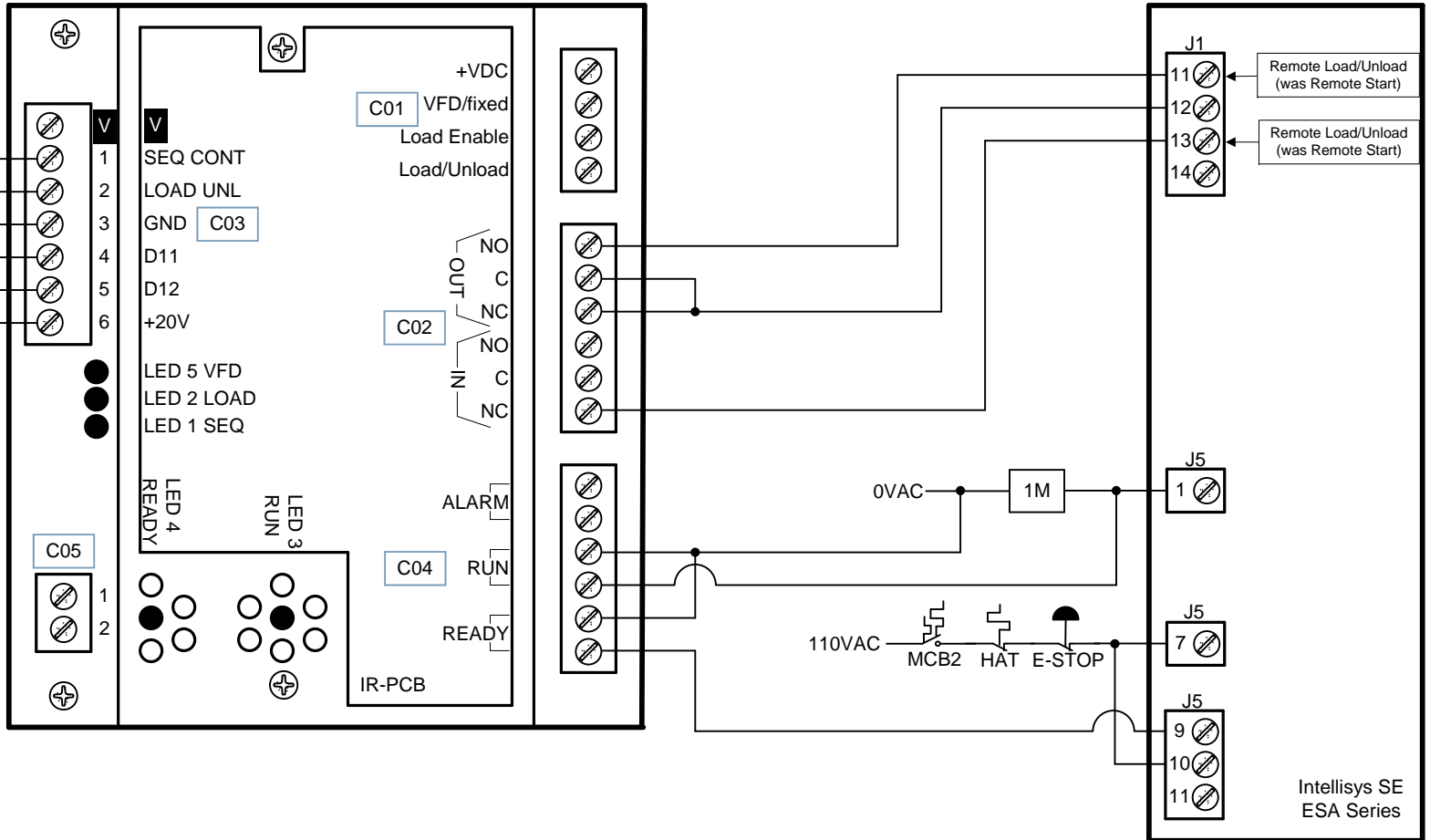
32343956
Revision C

SE ESA

X41
COMPRESSOR #1
X01 TERMINAL



Refer to the X41 Overview Drawing for the X41 Compressor 2 through 4 terminal connections



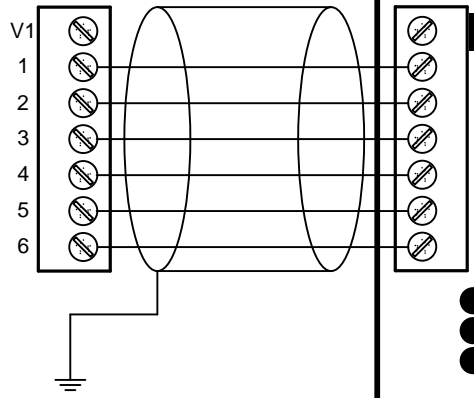
Intellisys SE
ESA Series



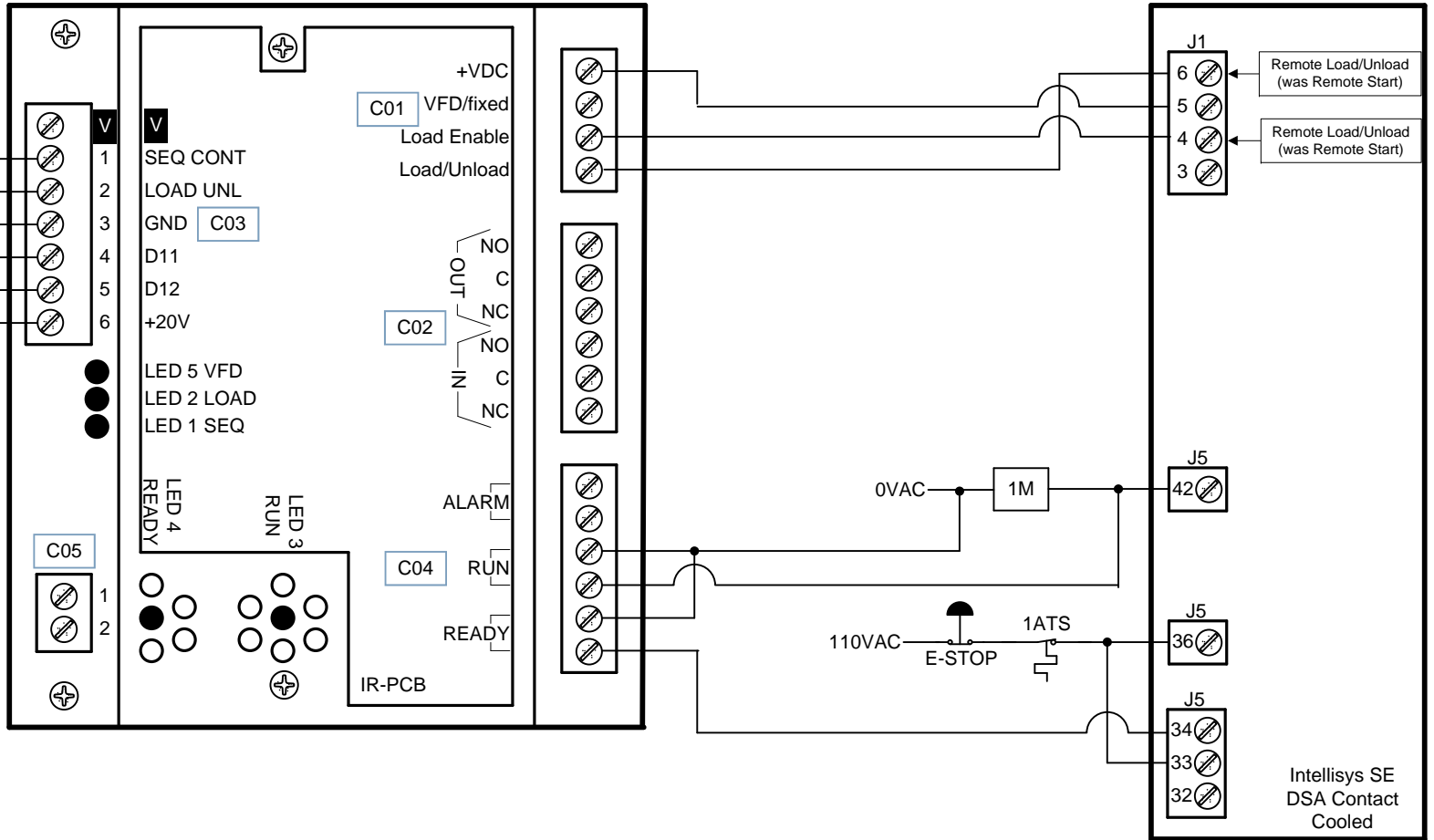
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

SE DSA

X41
COMPRESSOR #1
X01 TERMINAL

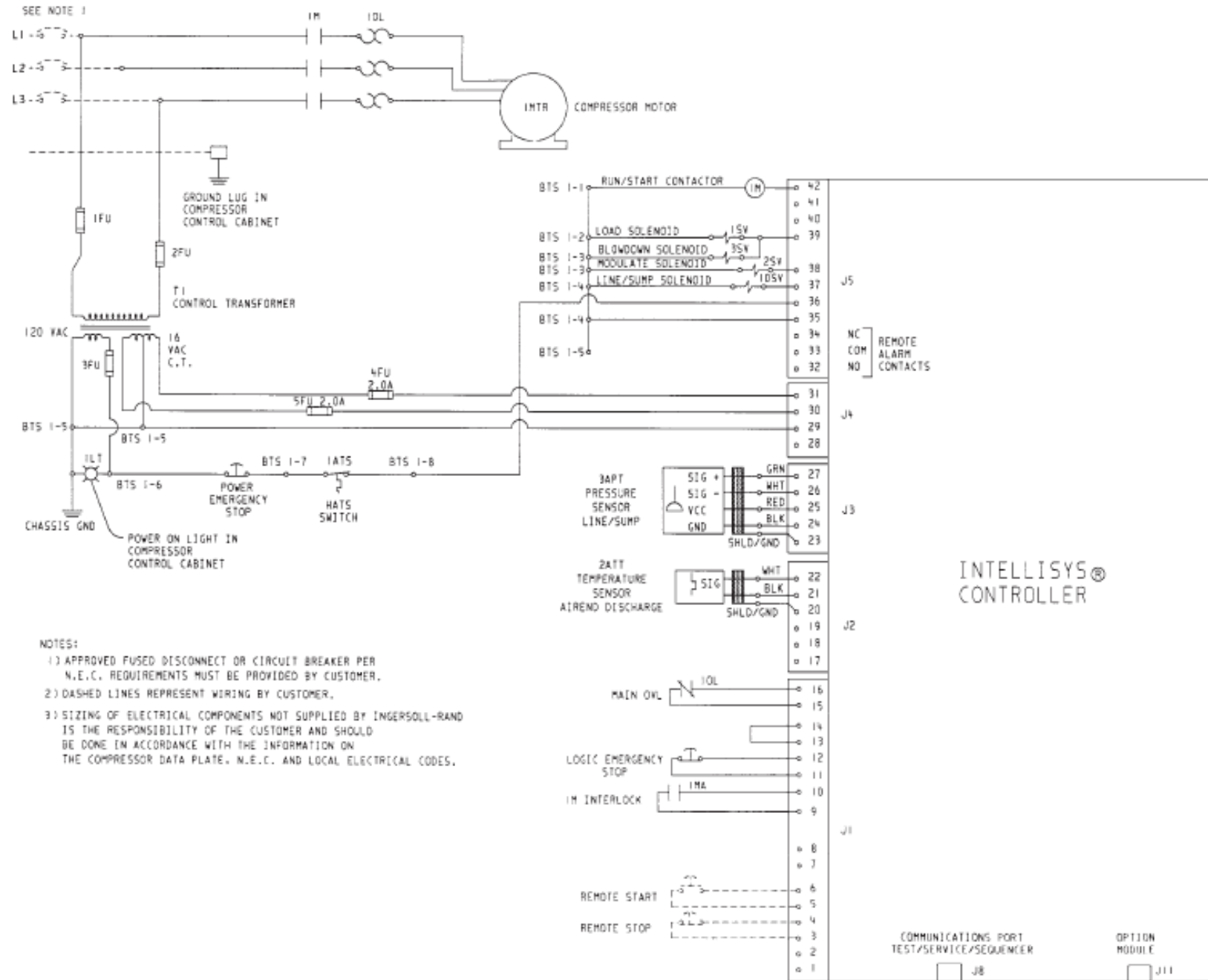


Refer to the X41 Overview Drawing for the X41 Compressor 2 through 4 terminal connections



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

SE DSA



FULL VOLTAGE

X4I Interconnect To Ingersoll Rand Intellisys SG Controlled Compressors

Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 X01 to IR-PCB terminal connections

For SG Intellisys Controlled Machines:

- The 'SEQUENCER' setting of the Intellisys controller must be set to 'ON'.
- Auto Restart must be turned 'ON' to allow the machines to stop in Auto restart when unloaded by the X4I.
- The Intellisys must be run in the Online/Offline regulation mode. Do not use Modulation or ACS.
- Check the Intellisys software revision level. Always update to the latest revision prior to operation.

- For Sierra SG Intellisys Controllers, the SI1 interface (CCN: 42425710) can be used as an alternative to allow the SG Controller to be sequenced/controlled by the X4I

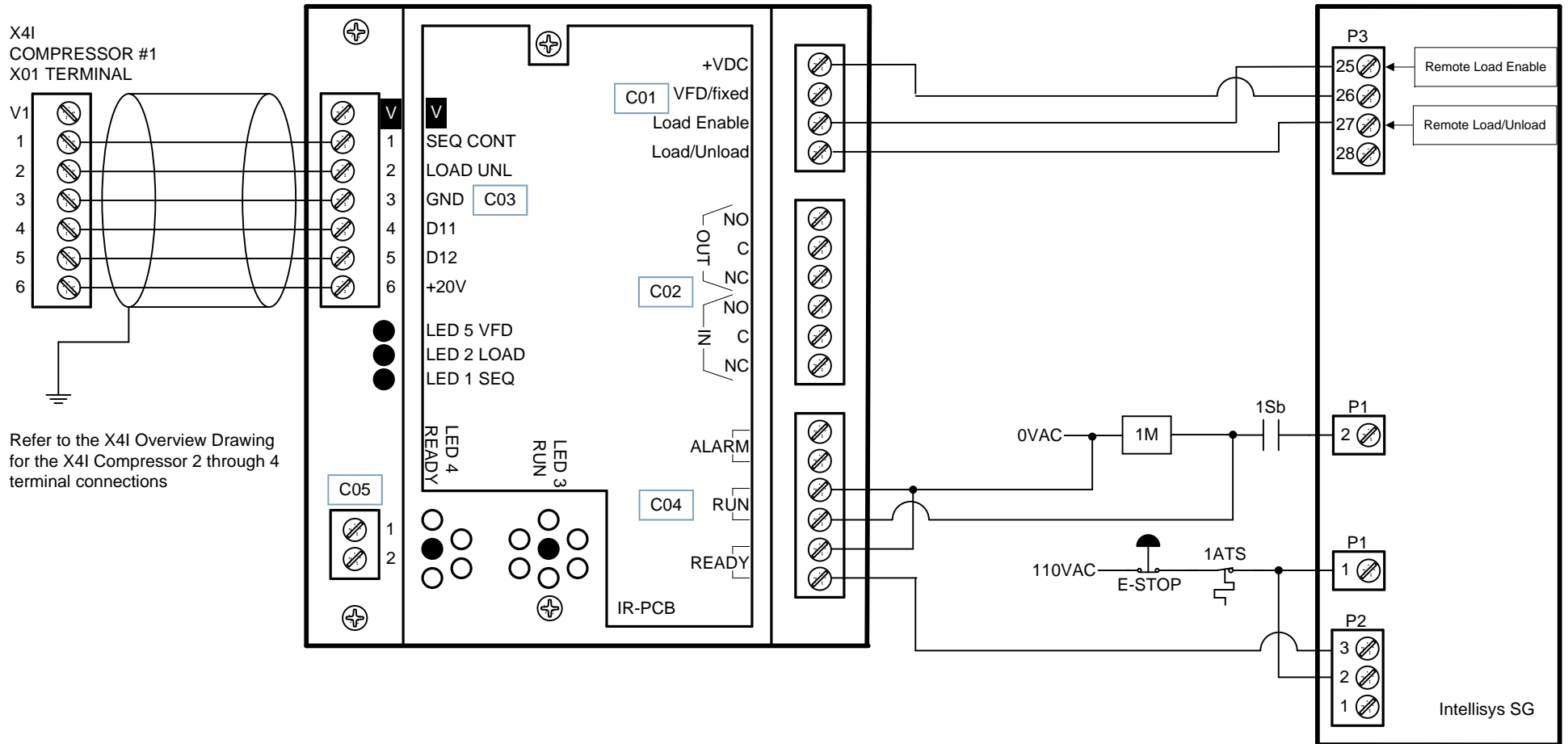
Drawing Notes For SG Intellisys Controlled Machines:

- Note: For Star Delta starter wiring the X4I Run signal should be connected directly to the 1M coil.
- Note: For Full Voltage wiring, the 1S (1Sb) interlock will not be used. The X4I Run signal can be connected directly to the Intellisys P1-2 terminal.
- Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 X01 to IR-PCB terminal connections



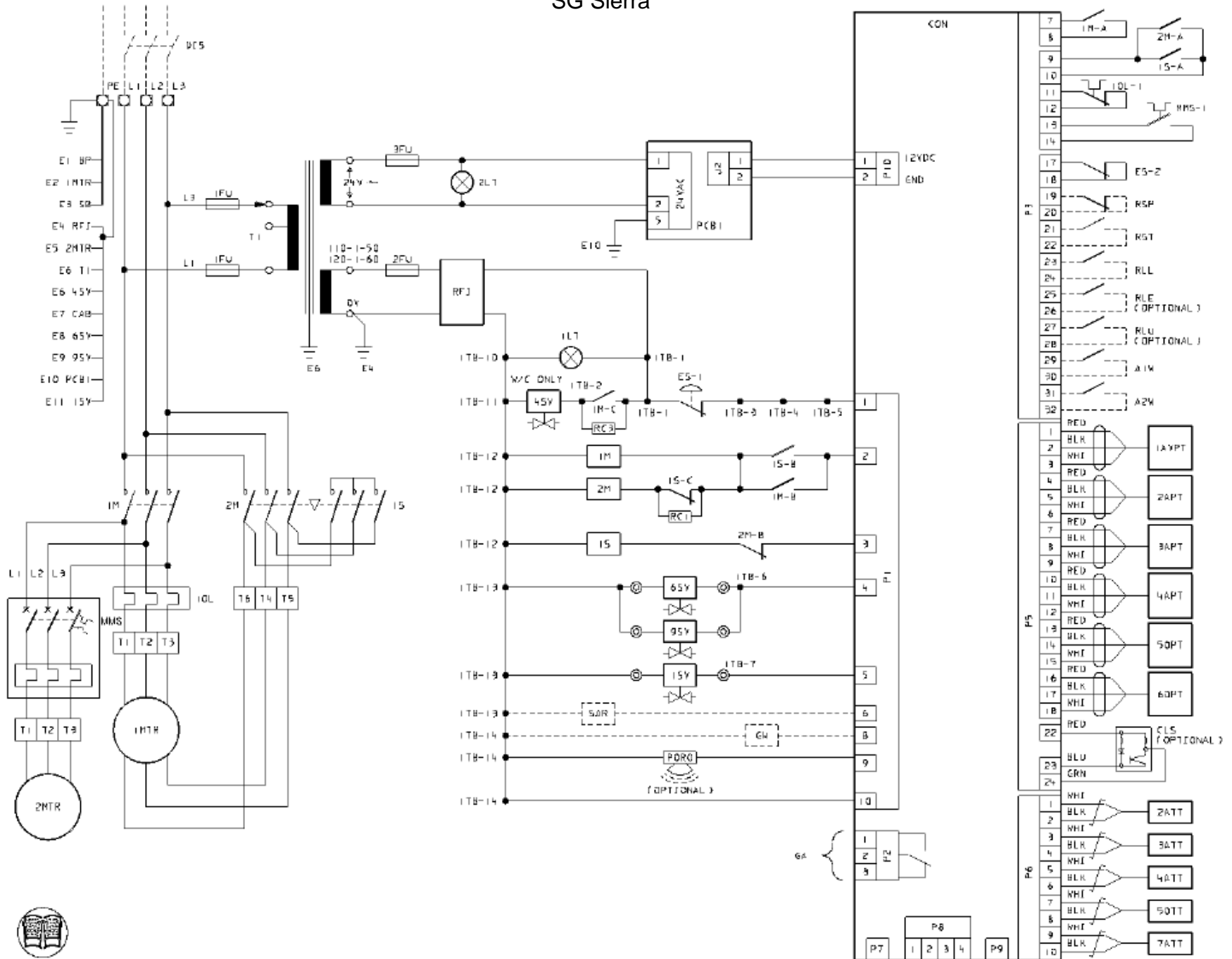
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

SG SSR



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

SG Sierra



FOR NOTES AND LEGEND
SEE OPERATORS MANUAL

3988655 | REV 06

X4I Interconnect To Ingersoll Rand Pressure Switch Controlled Compressors

Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 X01 to IR-PCB terminal connections

For All Compressors:

- Compressors to be connected must have automatic Start / Stop capability .

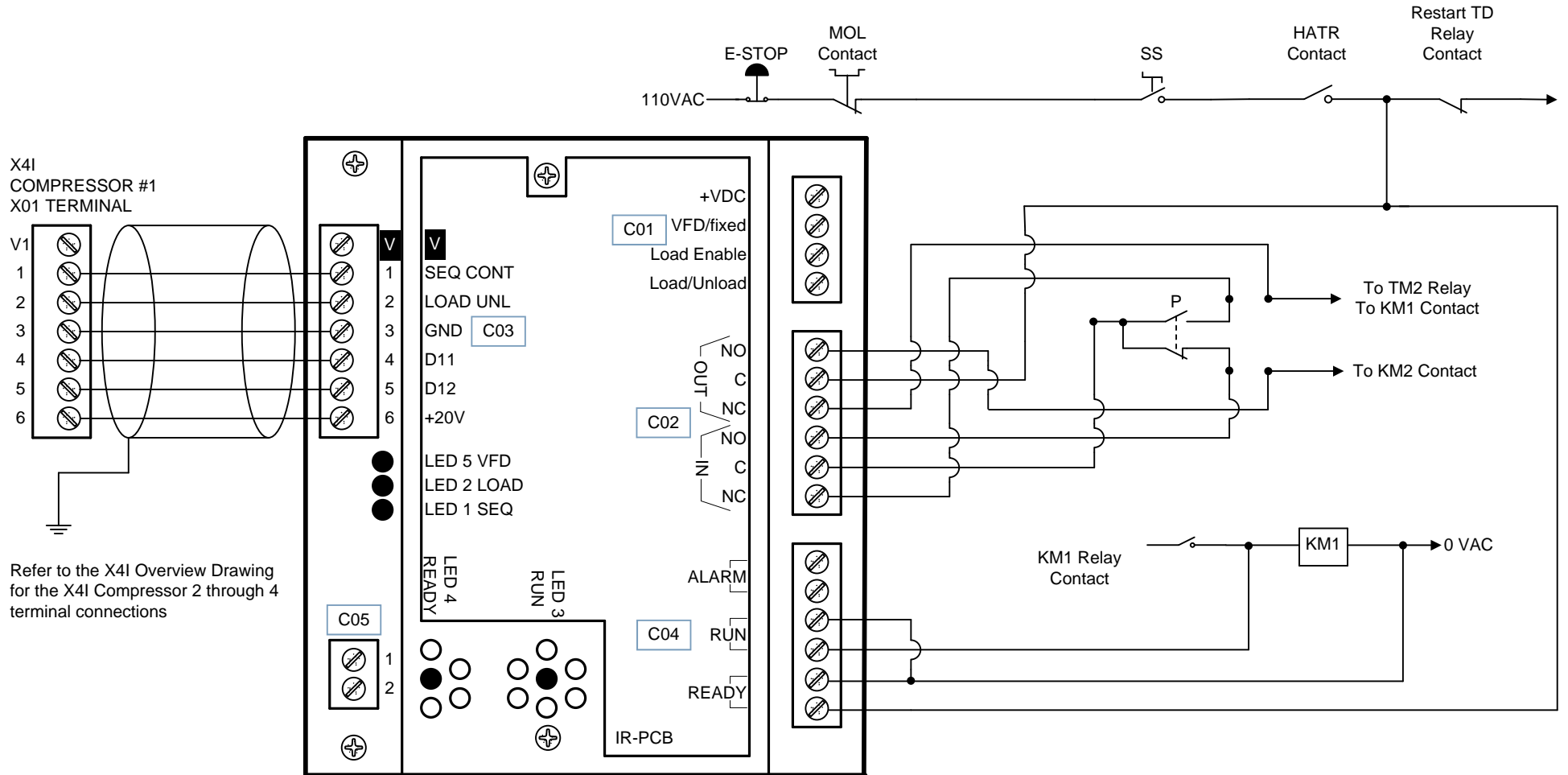
Drawing Notes For Pressure Switch Controller Machines:

- Ensure each compressor is equipped with independent Excessive Pressure Shutdown Switch. An increase in pressure differential across air treatment equipment can result in excess compressor discharge pressure. See Pages 84 and 85 for an example drawing. In most applications, the model and type of pressure switch supplied with the compressor can be used as the Excessive Pressure Shutdown Switch. If this is specific model/type of pressure switch is not readily available, any pressure switch can be utilized as long as it equals or exceeds the specifications of the pressure switch found on the compressor.
- Set the Excessive Pressure Shutdown Switch to “OPEN” 5 PSI less than the maximum discharge pressure recommended by the compressor manufacturer.



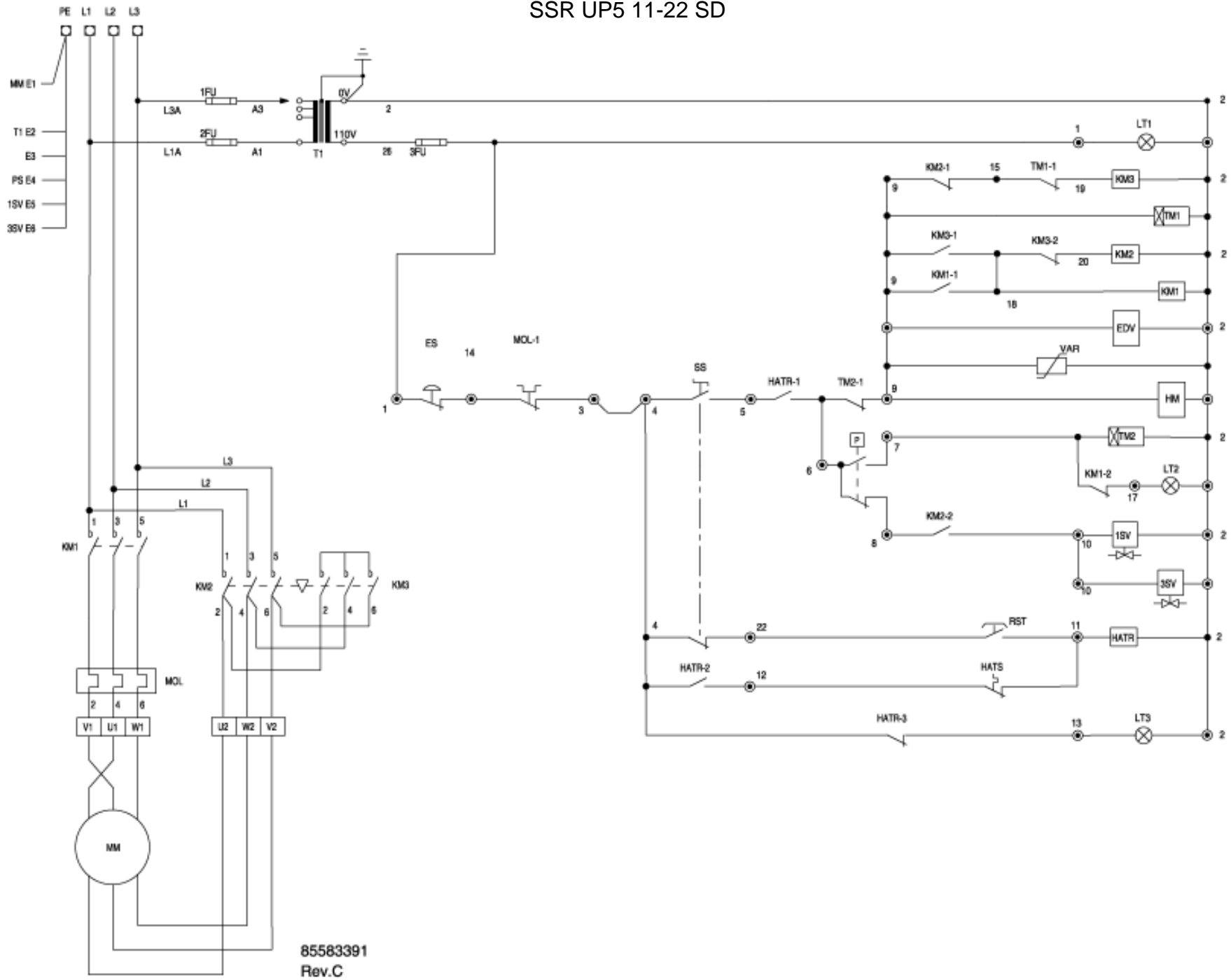
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor’s original control circuit diagram.

SSR UP5 11-22 SD

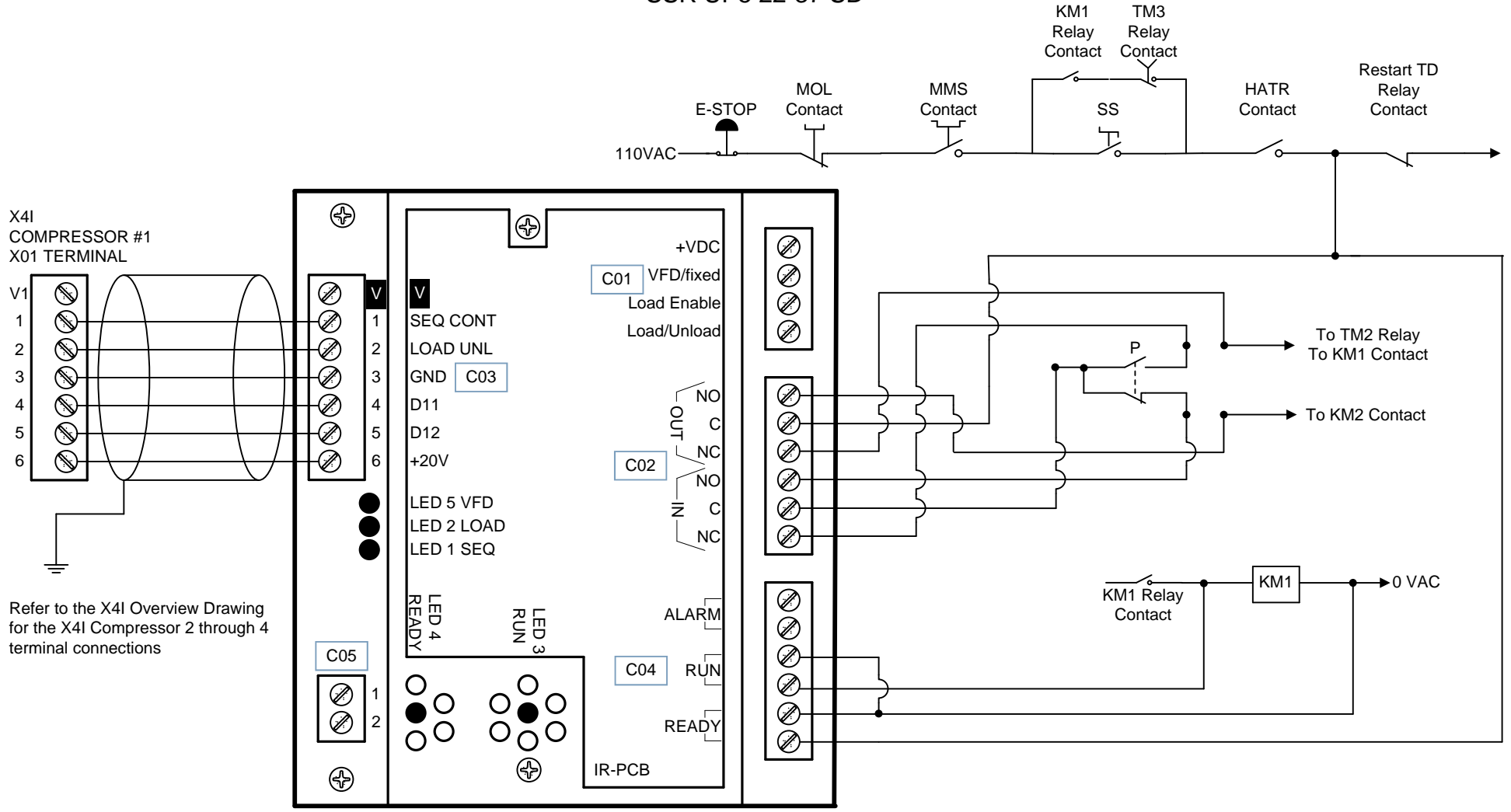


Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

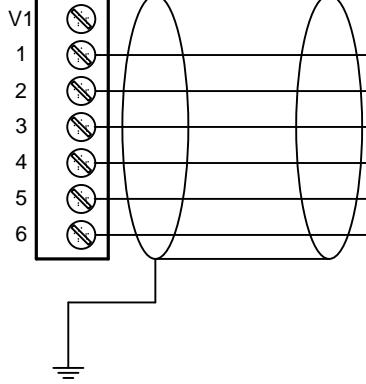
SSR UP5 11-22 SD



SSR UP5 22-37 SD



X41
COMPRESSOR #1
X01 TERMINAL

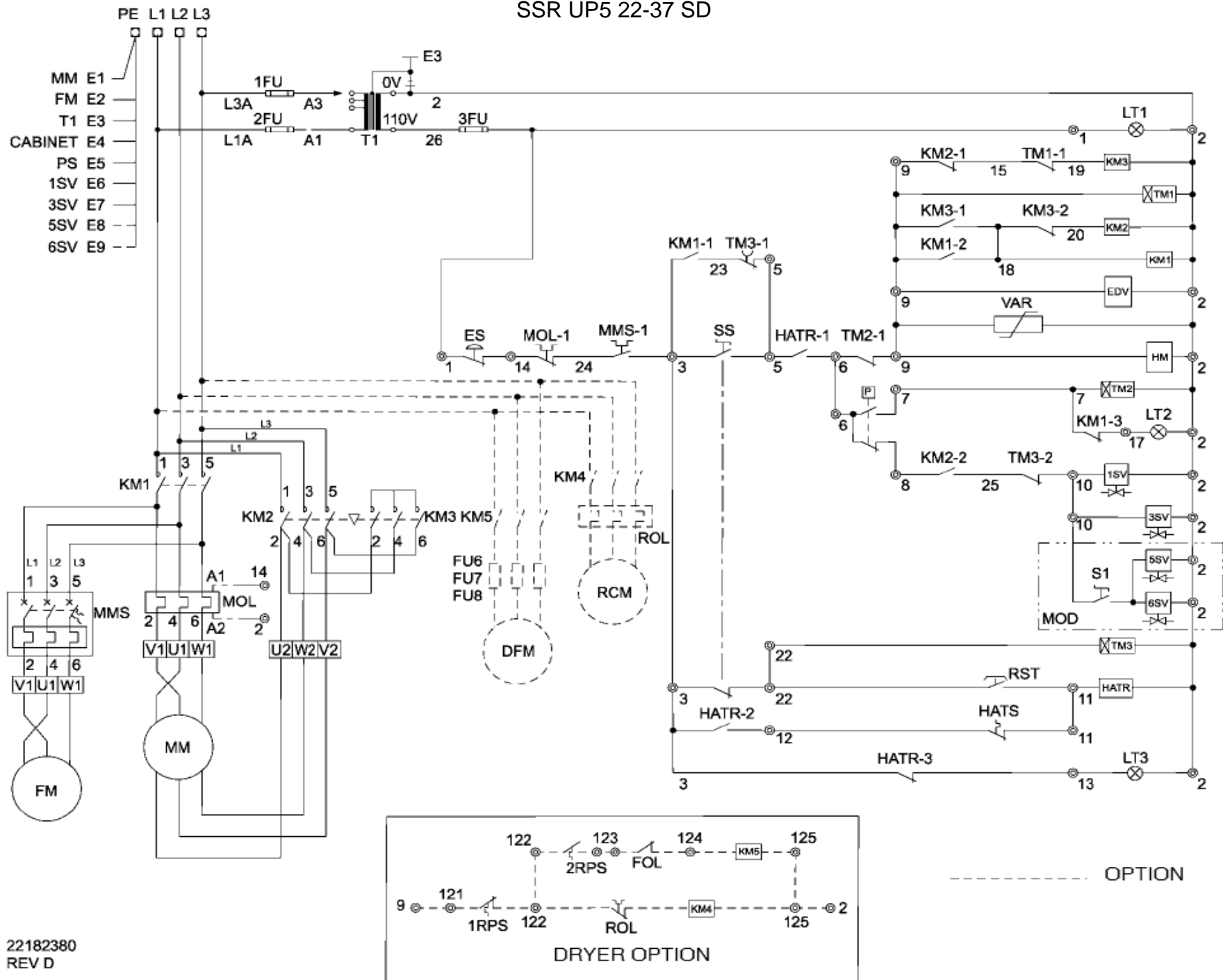


Refer to the X41 Overview Drawing for the X41 Compressor 2 through 4 terminal connections



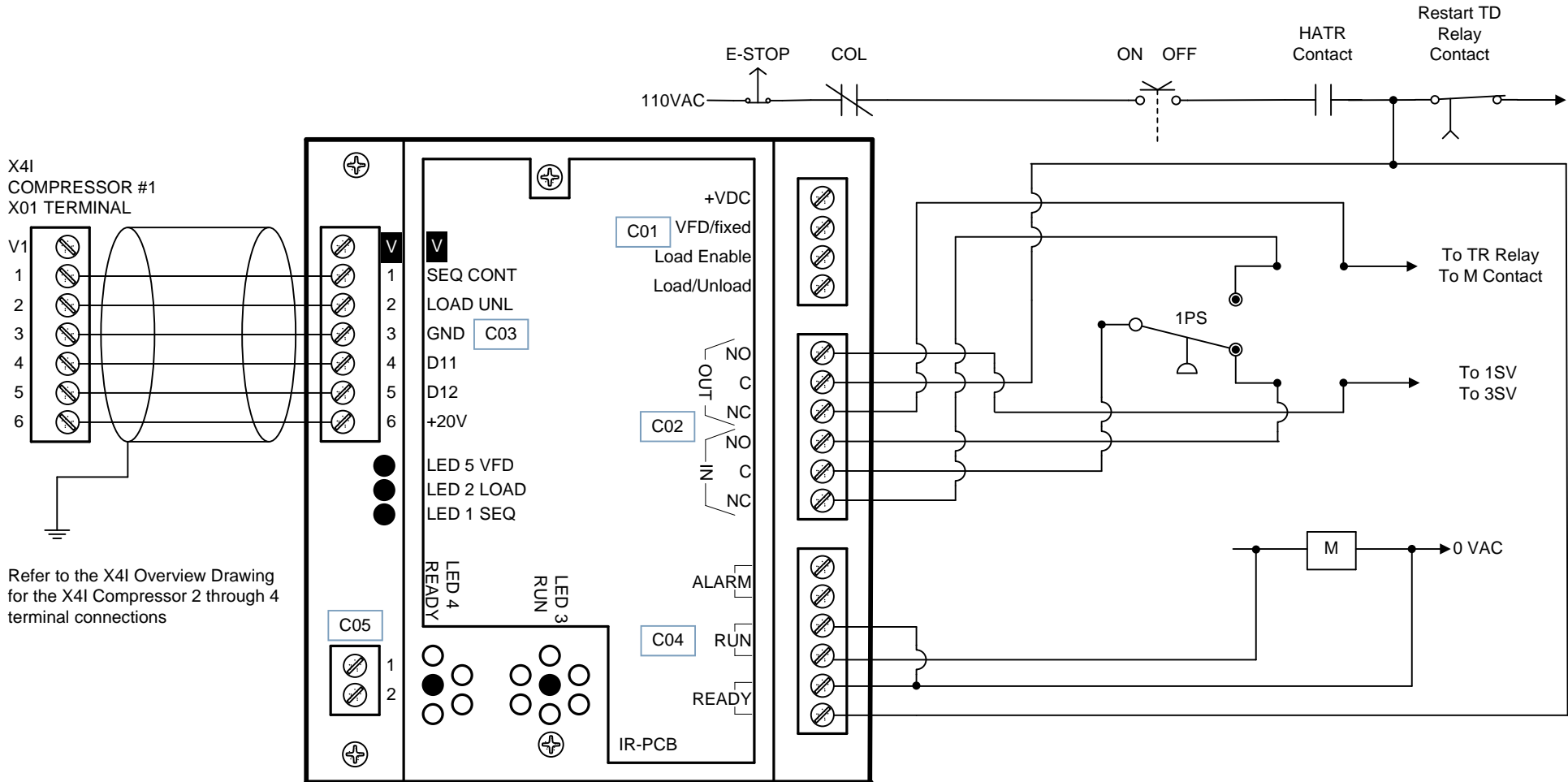
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

SSR UP5 22-37 SD



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REV D

SSR UP6 15-30 FV



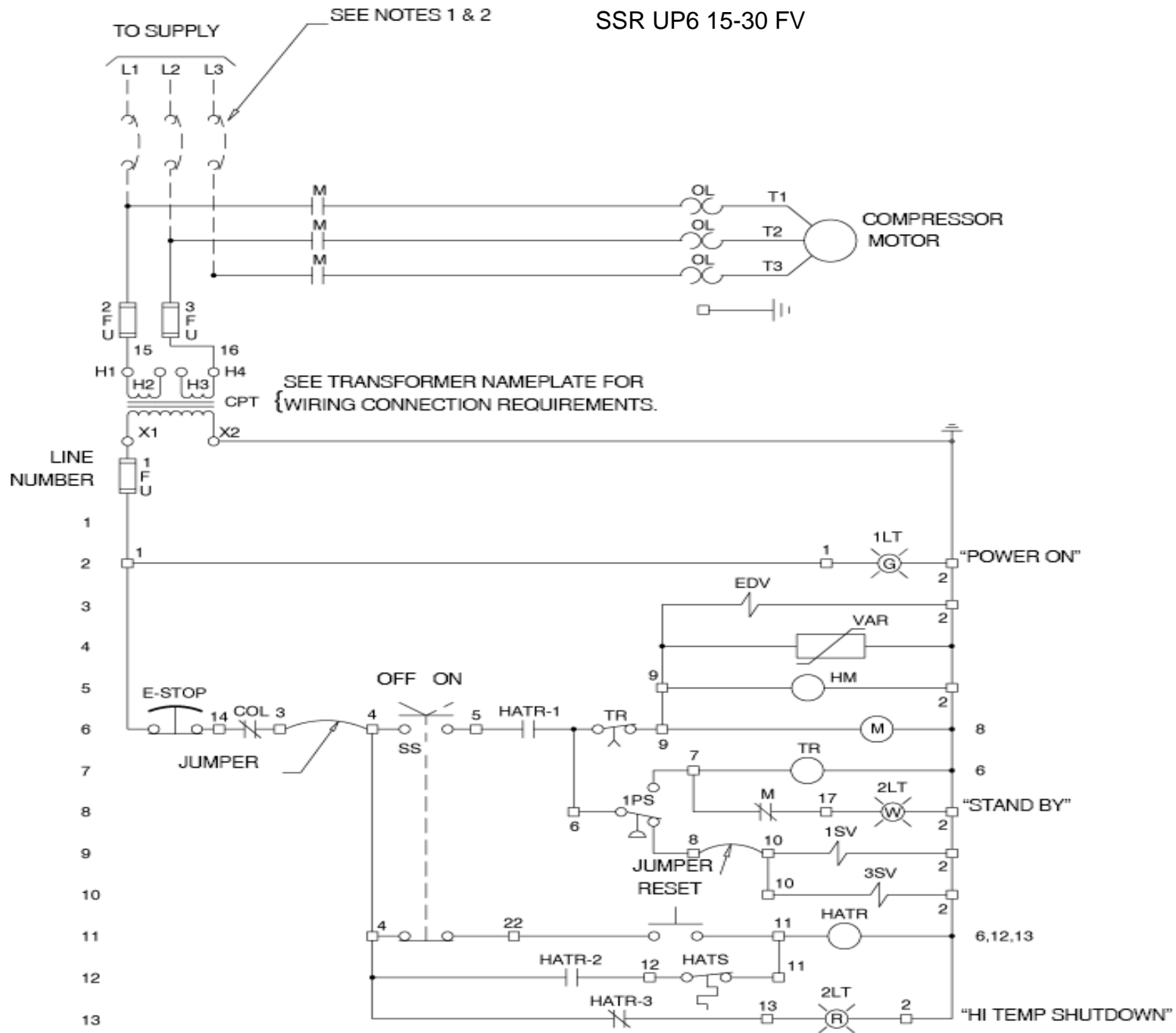
X4I
COMPRESSOR #1
X01 TERMINAL

Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 terminal connections



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

SSR UP6 15-30 FV



SEE NOTES 1 & 2

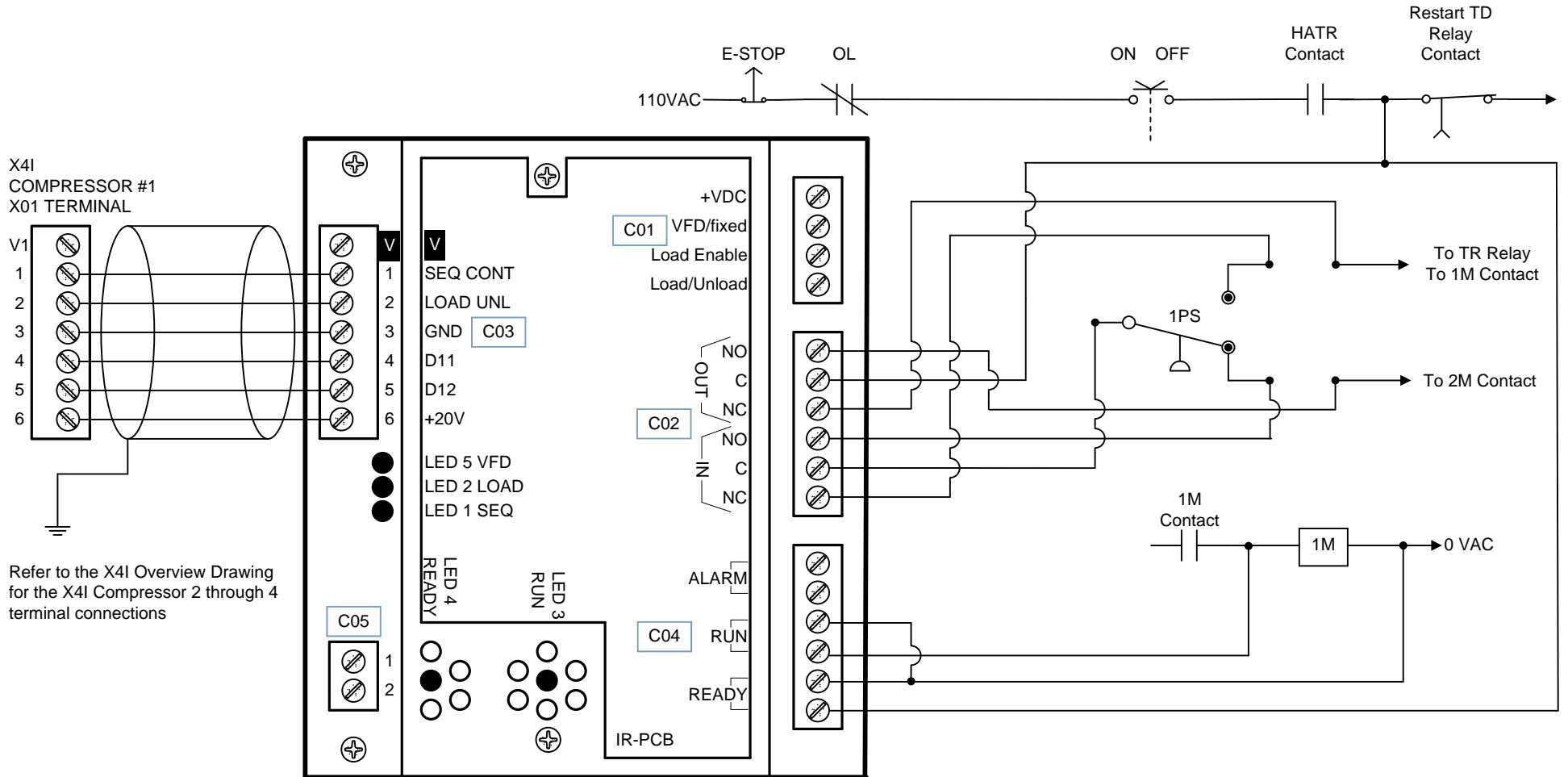
SEE TRANSFORMER NAMEPLATE FOR WIRING CONNECTION REQUIREMENTS.

LINE NUMBER

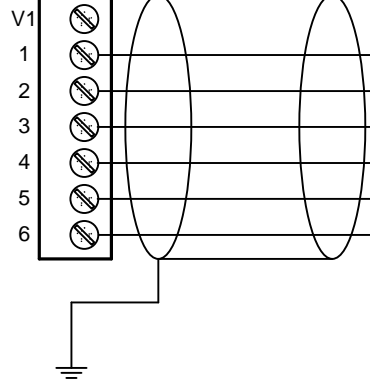
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13

85583409 Rev. D

SSR UP6 15-30 SD



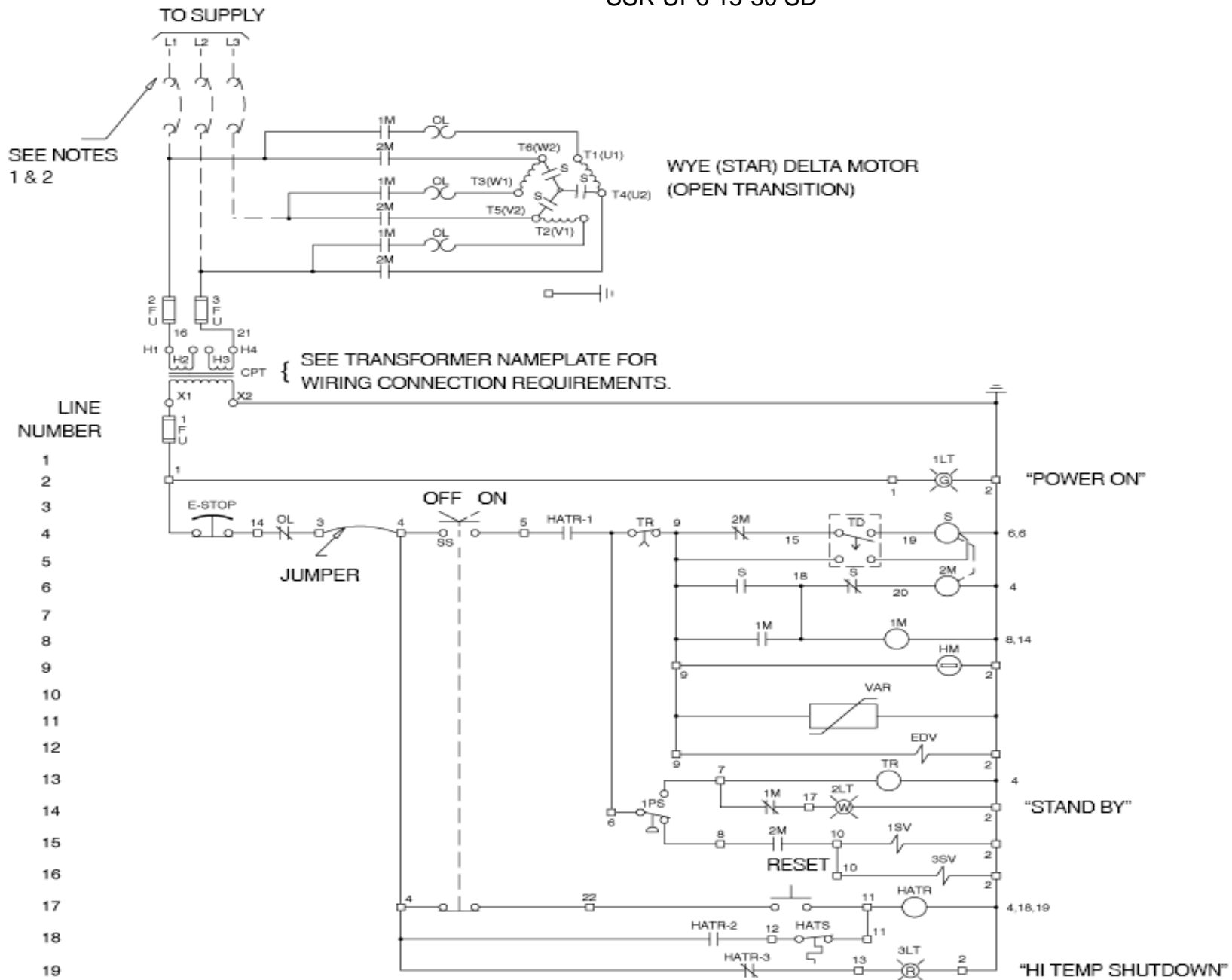
X4I
COMPRESSOR #1
X01 TERMINAL



Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 terminal connections

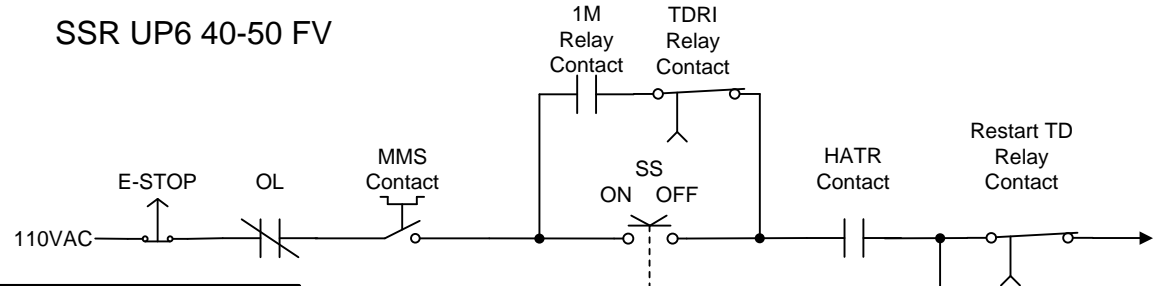
! Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

SSR UP6 15-30 SD

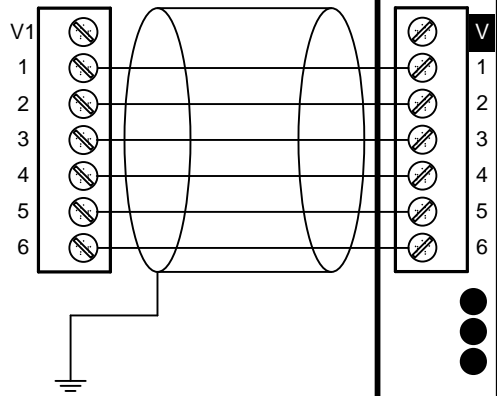


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Rev. D

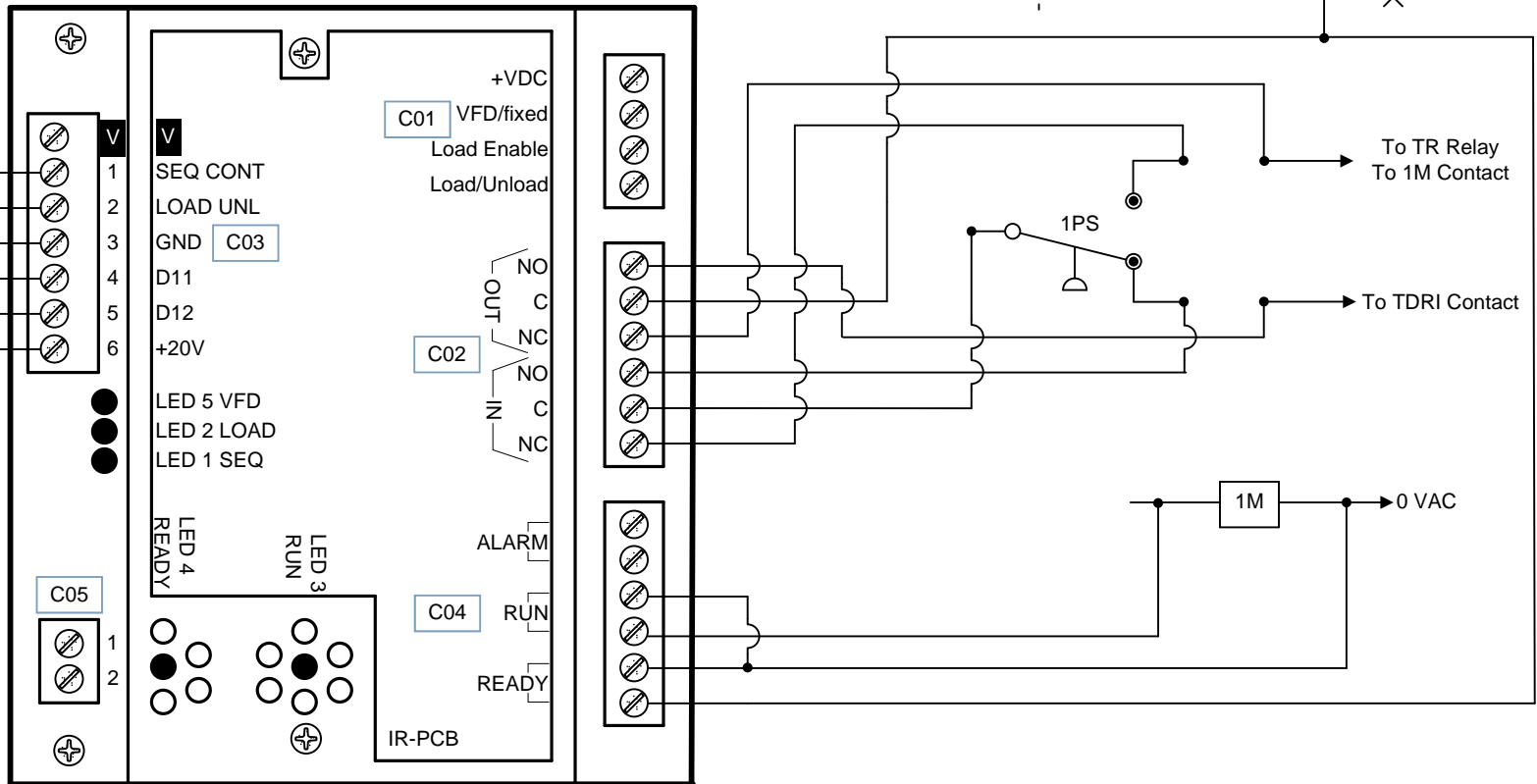
SSR UP6 40-50 FV



X4I
COMPRESSOR #1
X01 TERMINAL

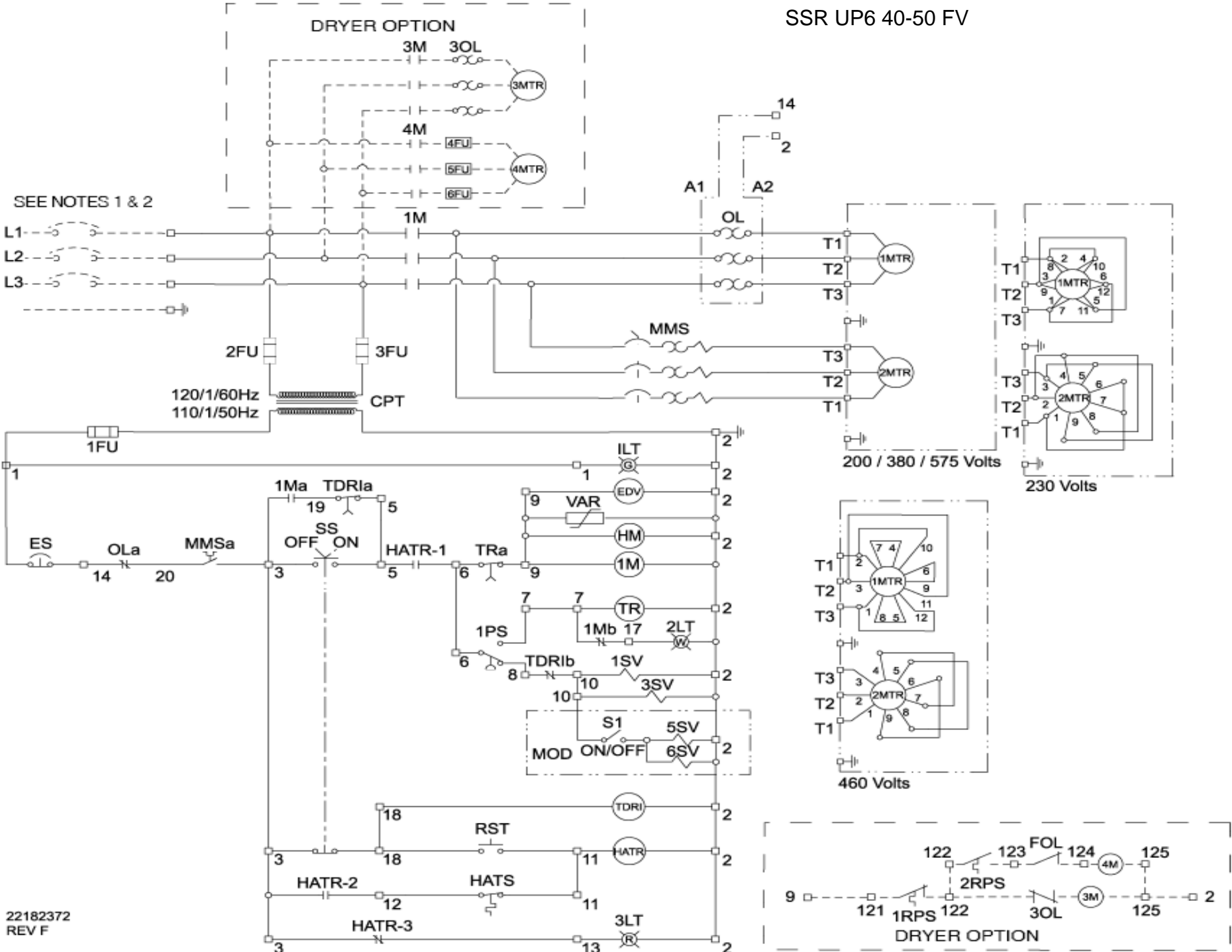


Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 terminal connections



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

SSR UP6 40-50 FV



SEE NOTES 1 & 2

L1
L2
L3

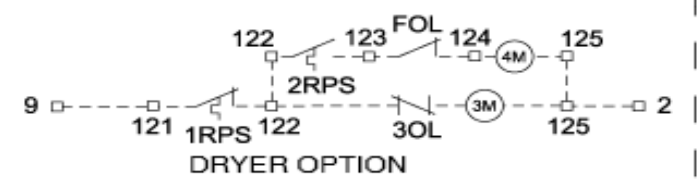
DRYER OPTION

A1
A2

200 / 380 / 575 Volts

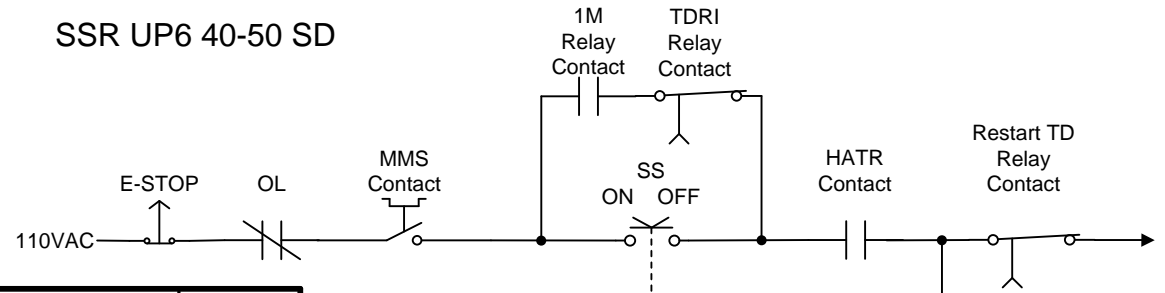
230 Volts

460 Volts

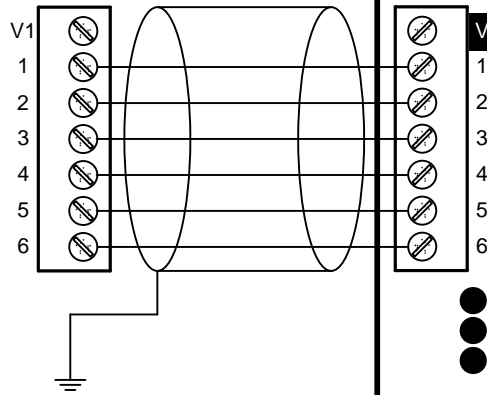


22182372
REV F

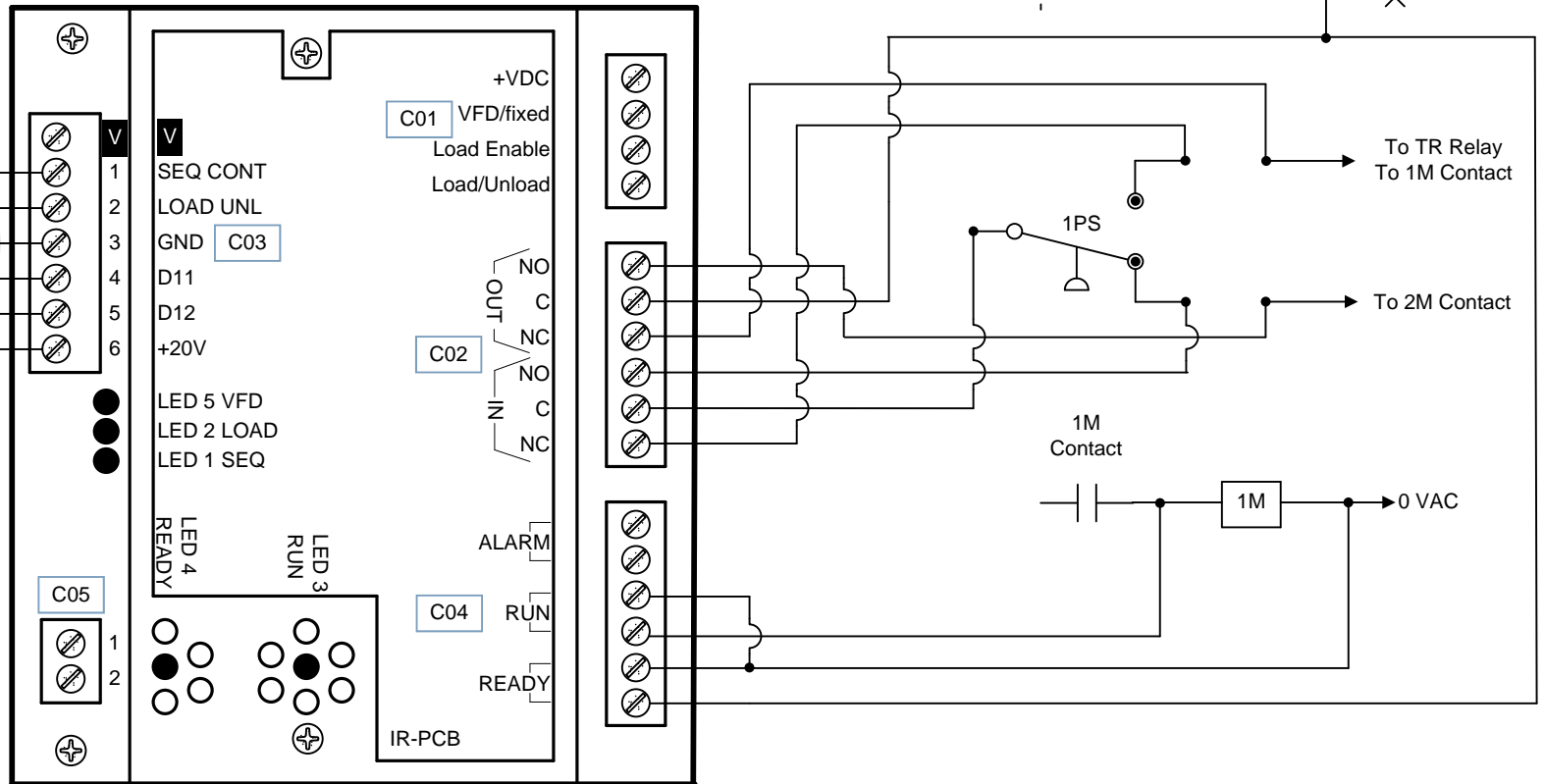
SSR UP6 40-50 SD



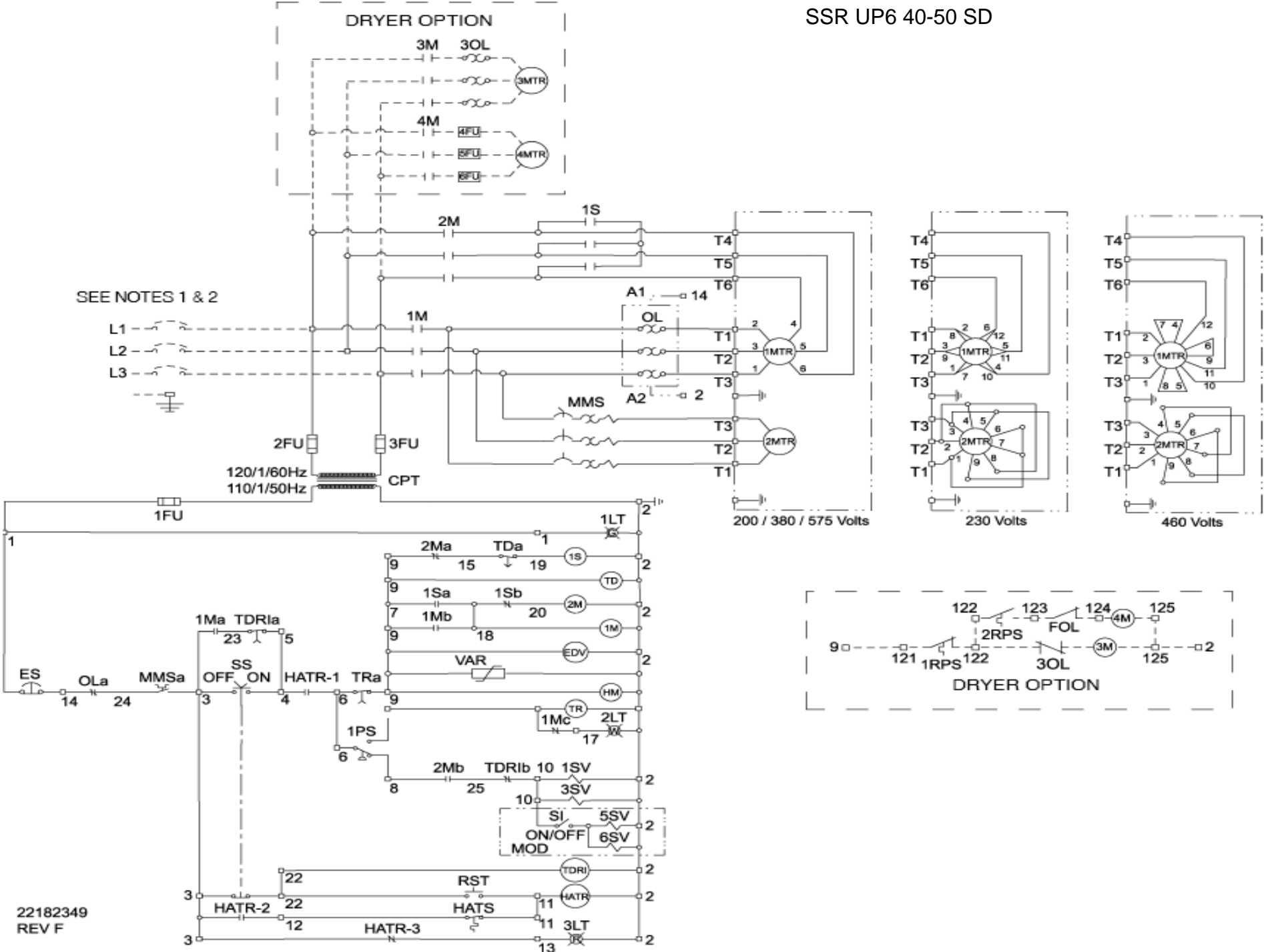
X4I
COMPRESSOR #1
X01 TERMINAL



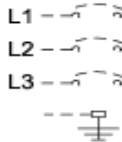
Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 terminal connections



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.



SEE NOTES 1 & 2



200 / 380 / 575 Volts

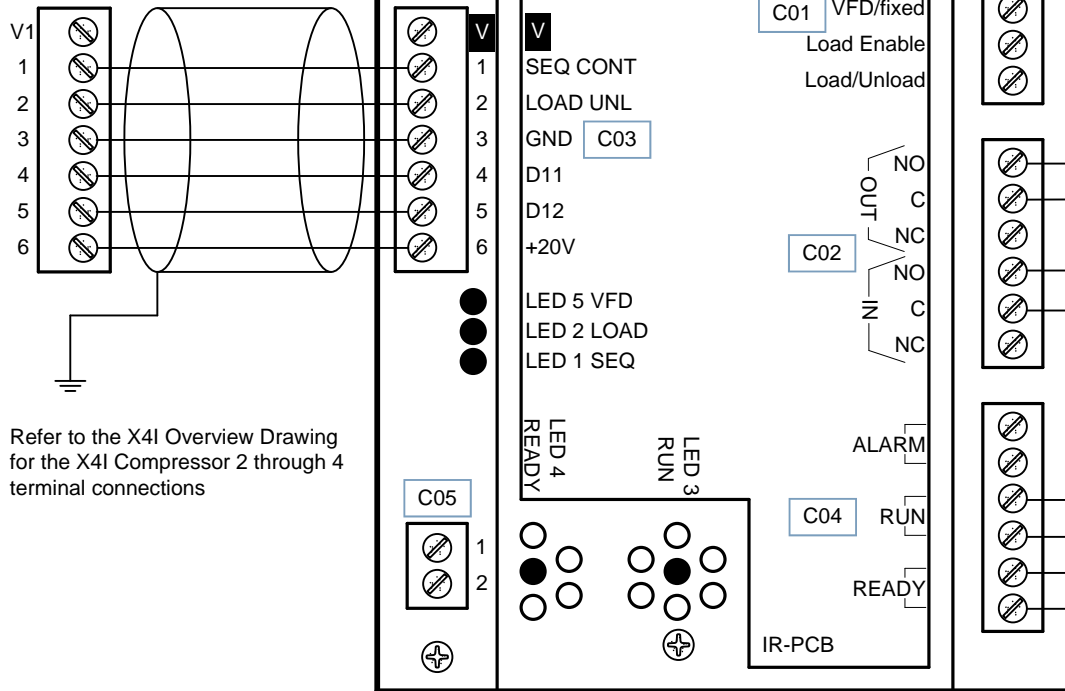
230 Volts

460 Volts

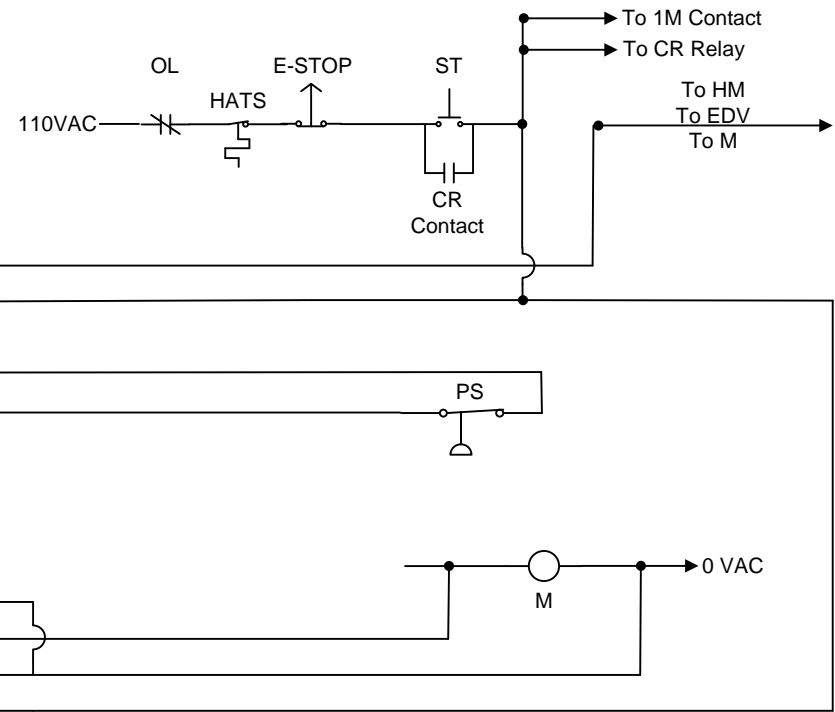
22182349
REV F

UP6 5-15 FV 1PH 60Hz

X41
COMPRESSOR #1
X01 TERMINAL



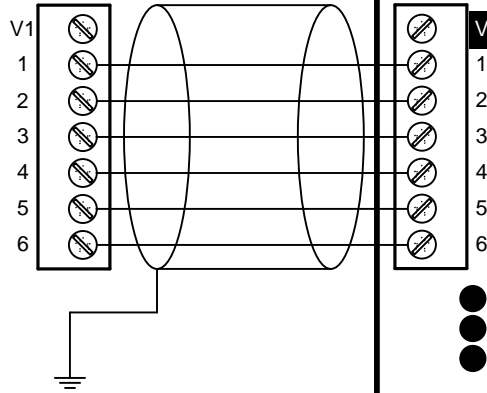
Refer to the X41 Overview Drawing for the X41 Compressor 2 through 4 terminal connections



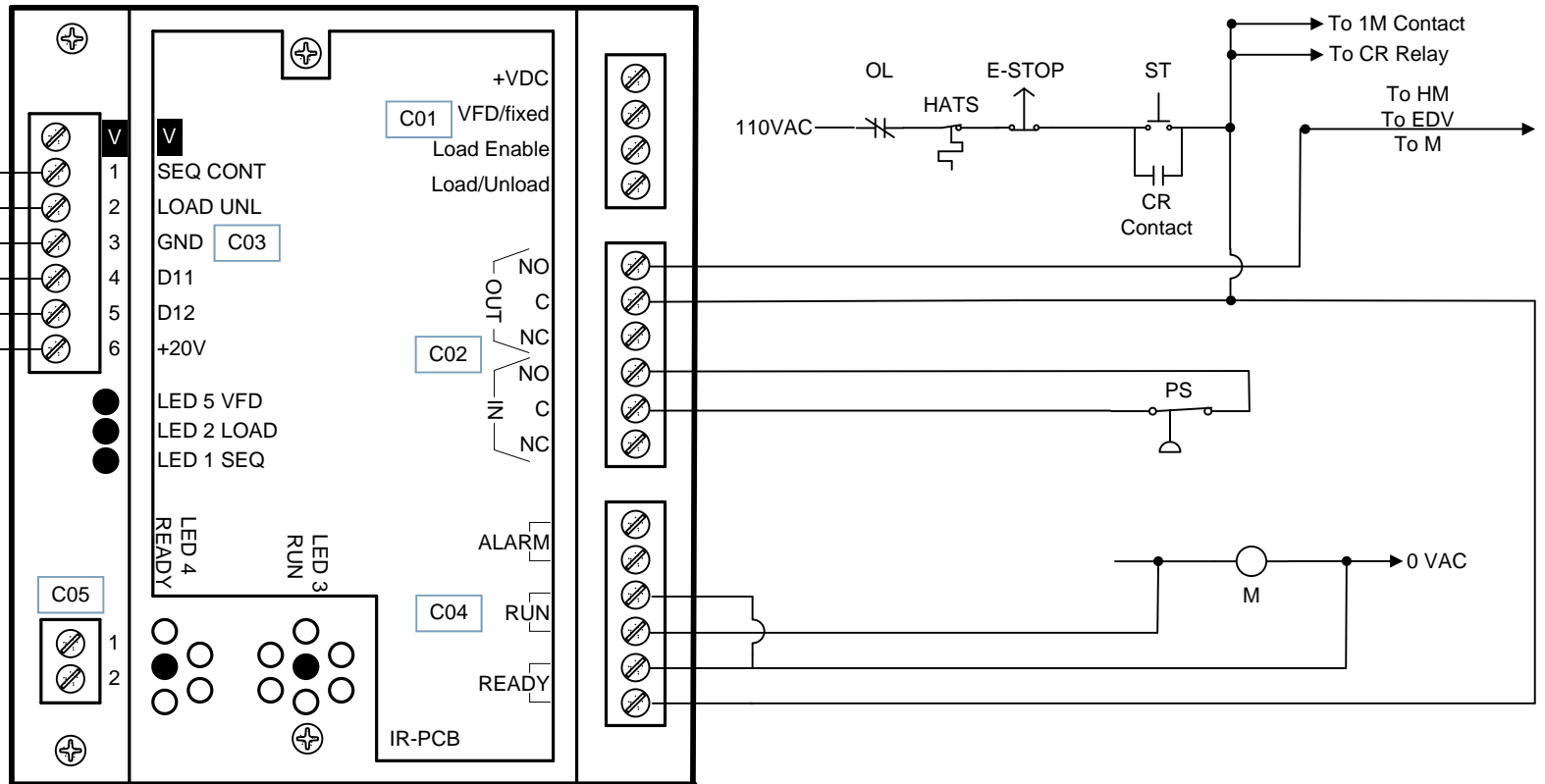
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

UP6 5-15 FV 3PH 60Hz

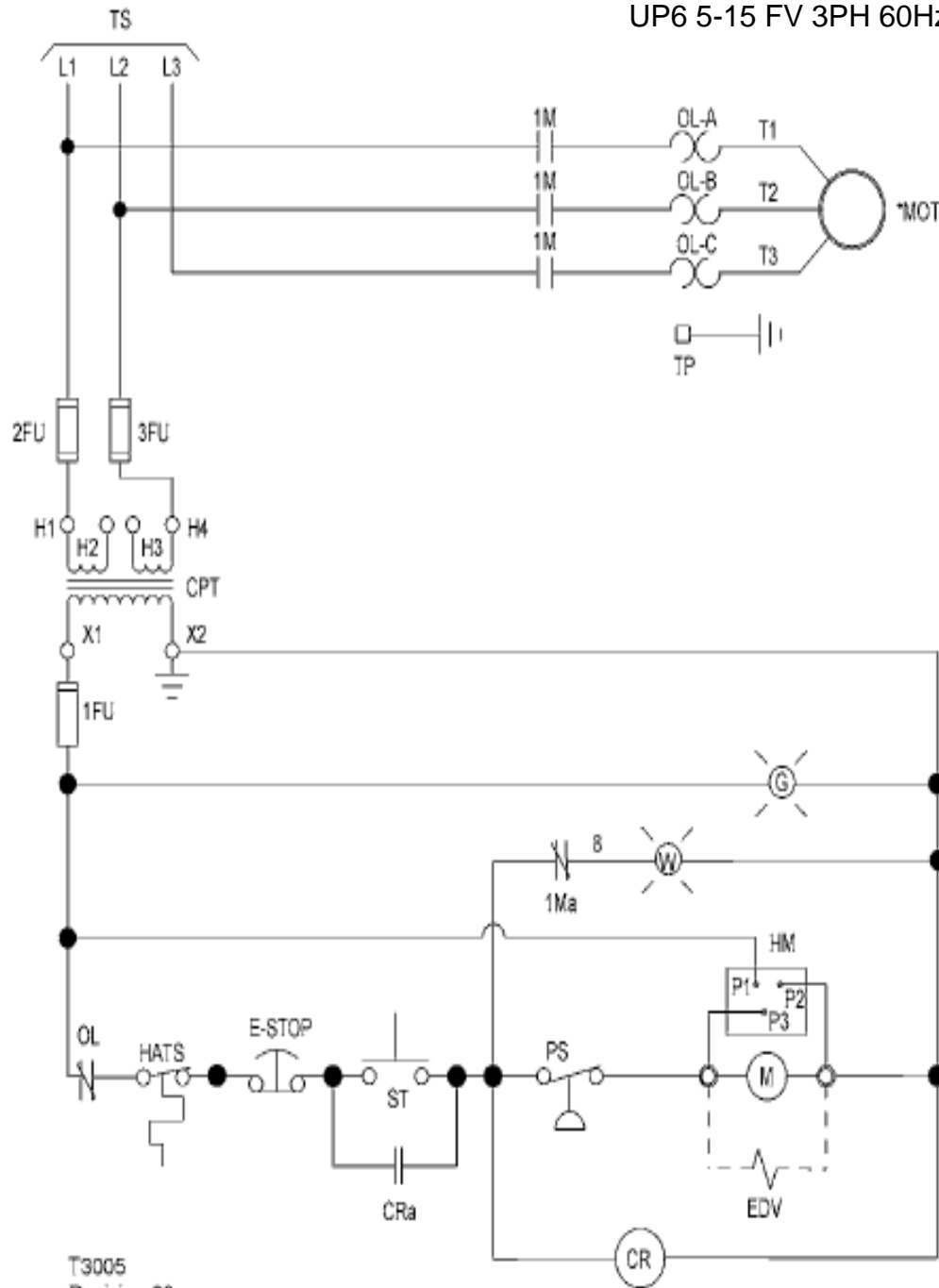
X41
COMPRESSOR #1
X01 TERMINAL



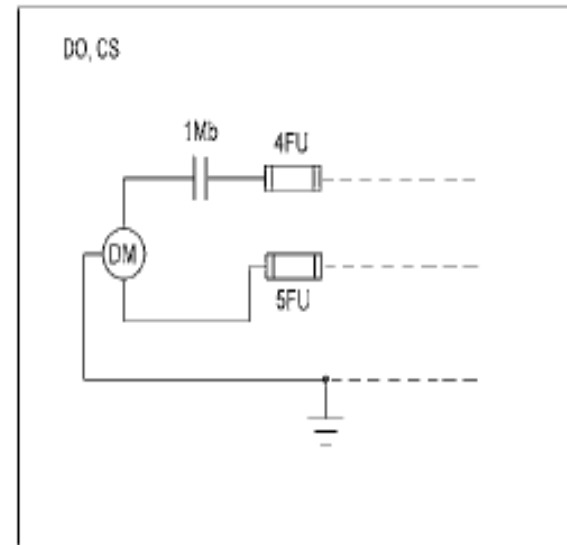
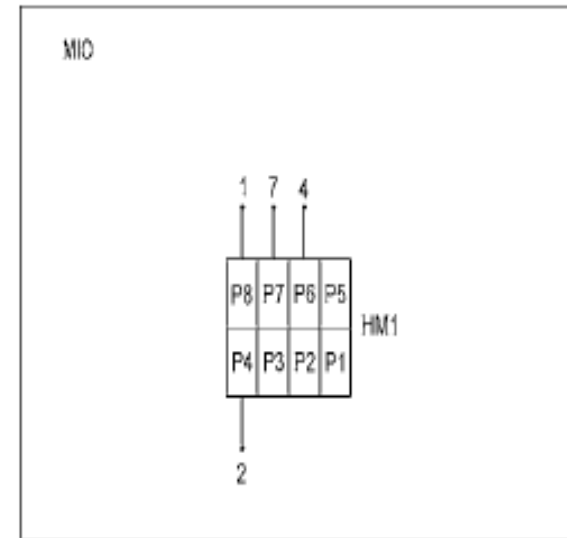
Refer to the X41 Overview Drawing for the X41 Compressor 2 through 4 terminal connections



UP6 5-15 FV 3PH 60Hz

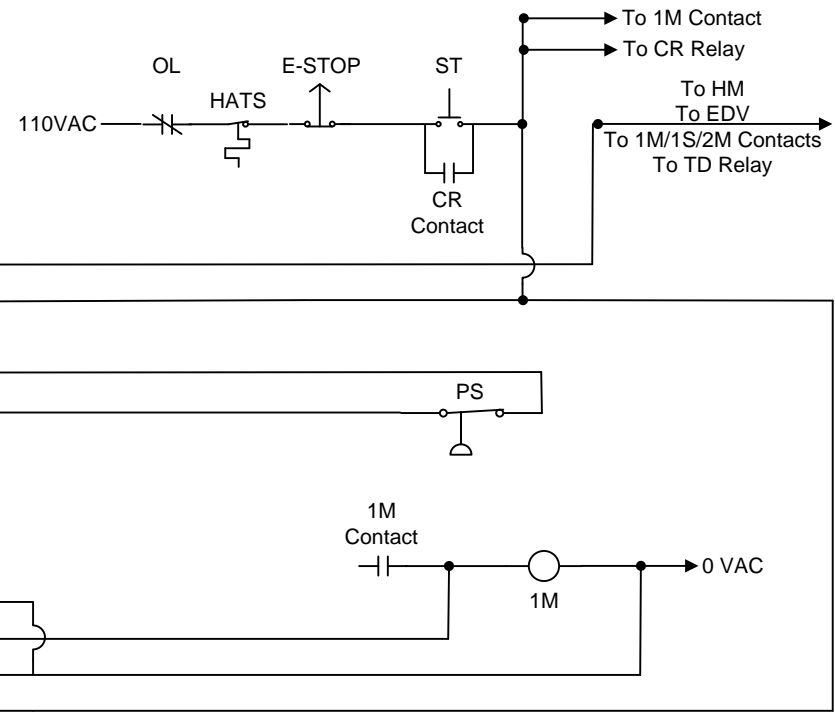
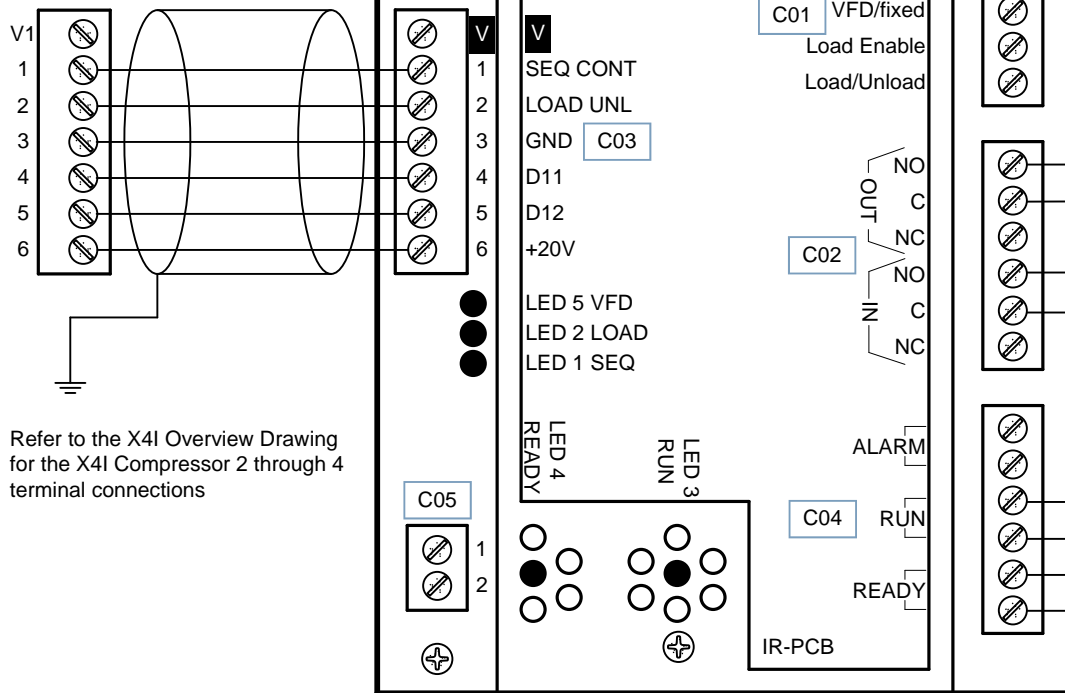


T3005
Revision 00
04/05



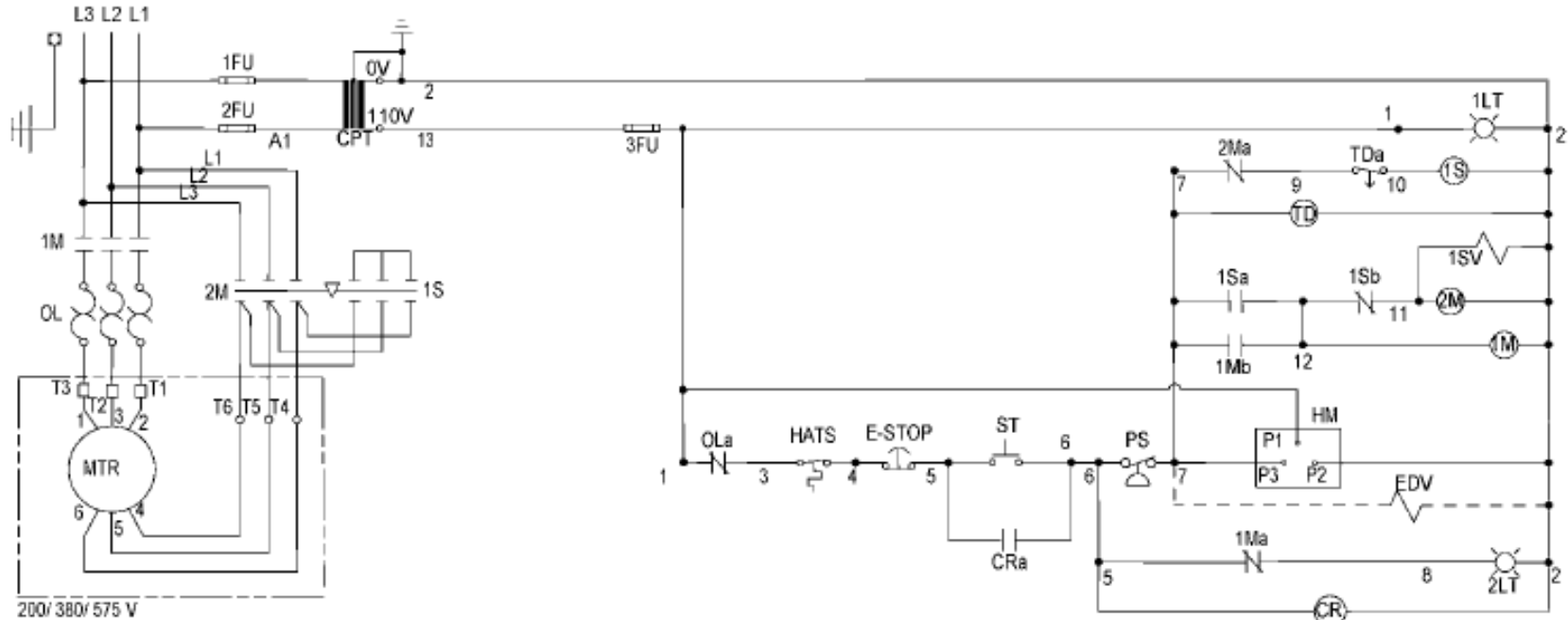
UP6 5-15 SD 3PH 60Hz

X41
COMPRESSOR #1
X01 TERMINAL

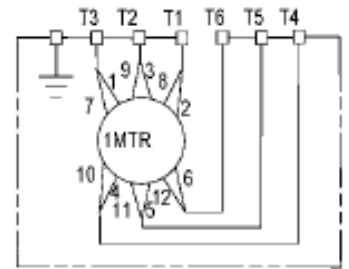


Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

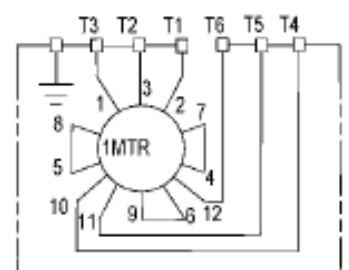
UP6 5-15 SD 3PH 60Hz



200/ 380/ 575 V

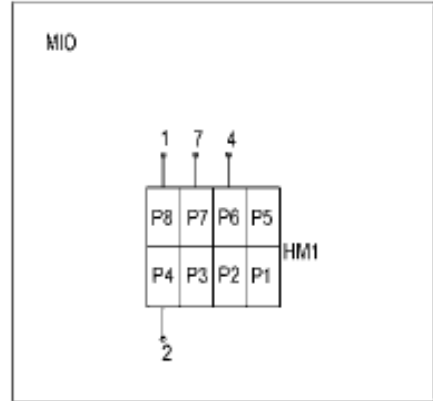
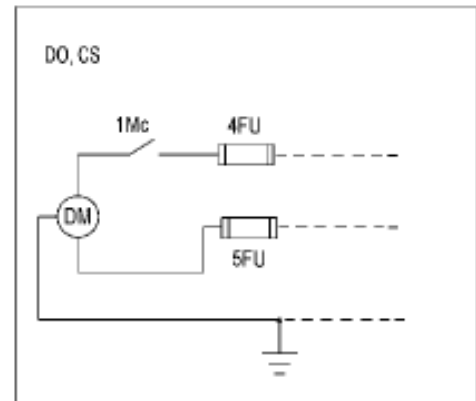


230 V



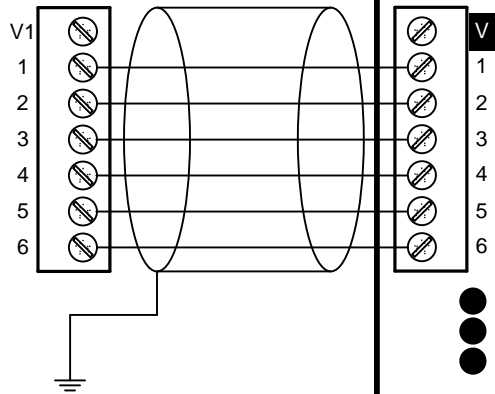
460 V

T3006
Revision 00
04/05

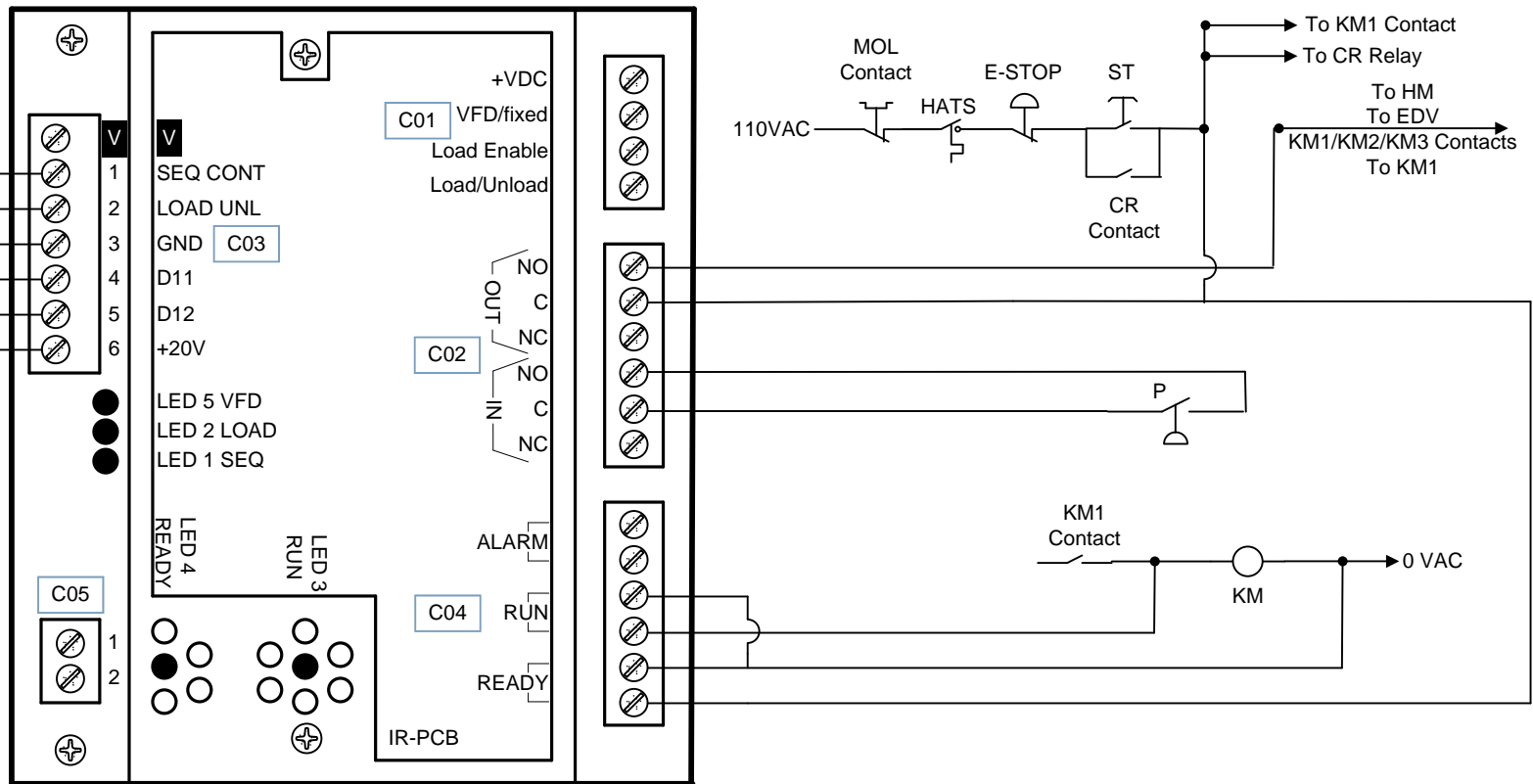


UP6 5-15 FV 3PH 50Hz

X41
COMPRESSOR #1
X01 TERMINAL

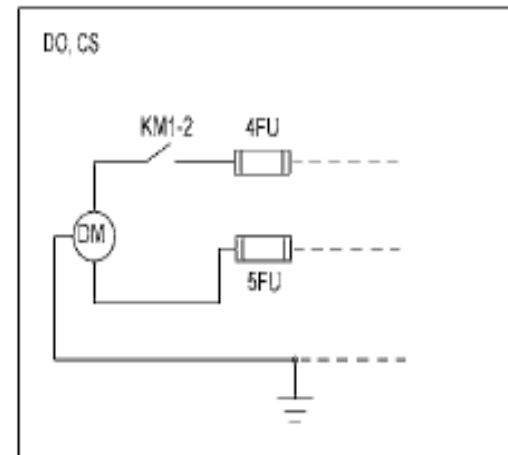
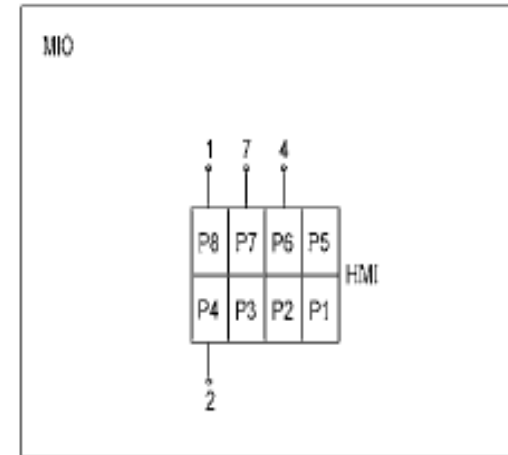
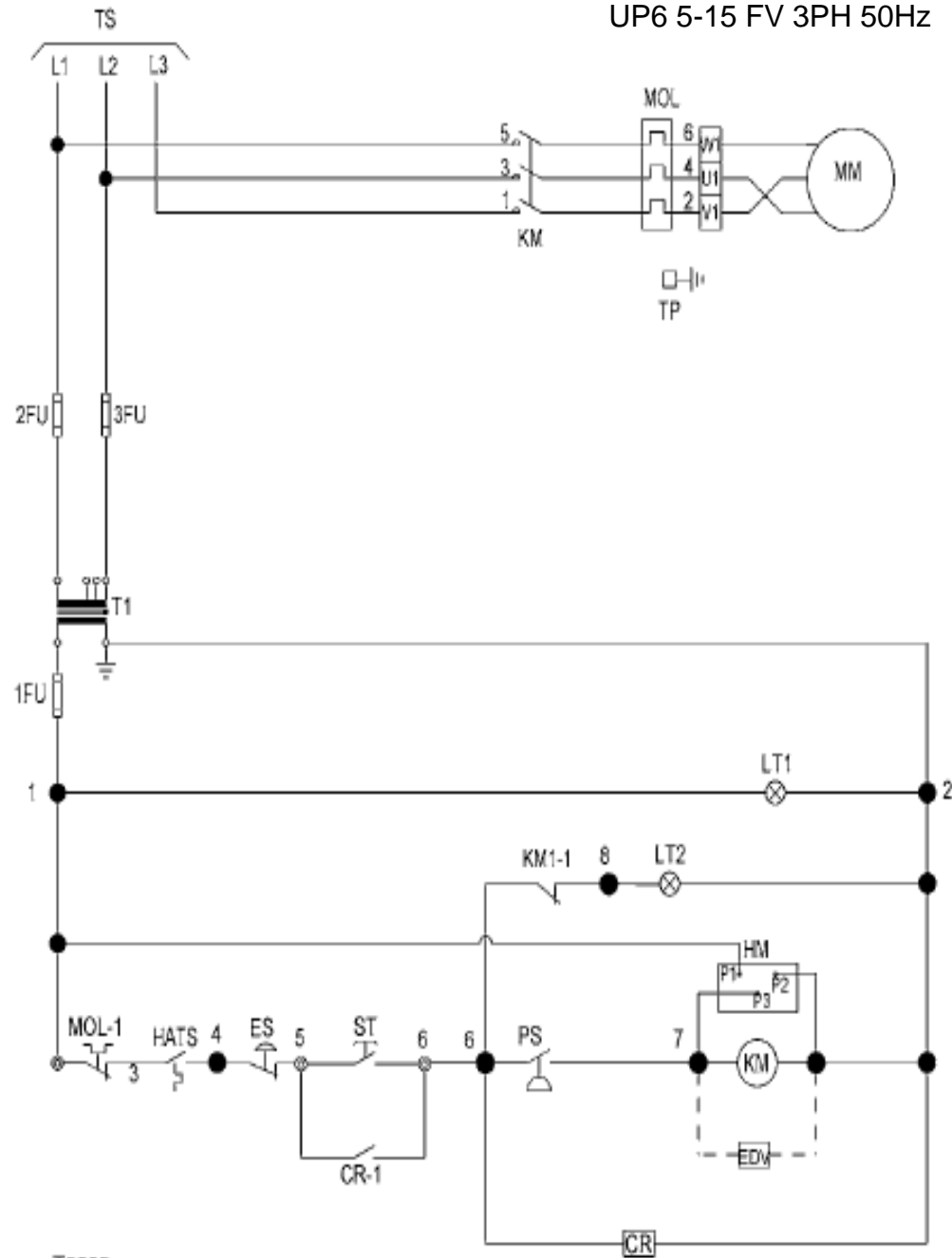


Refer to the X41 Overview Drawing for the X41 Compressor 2 through 4 terminal connections



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

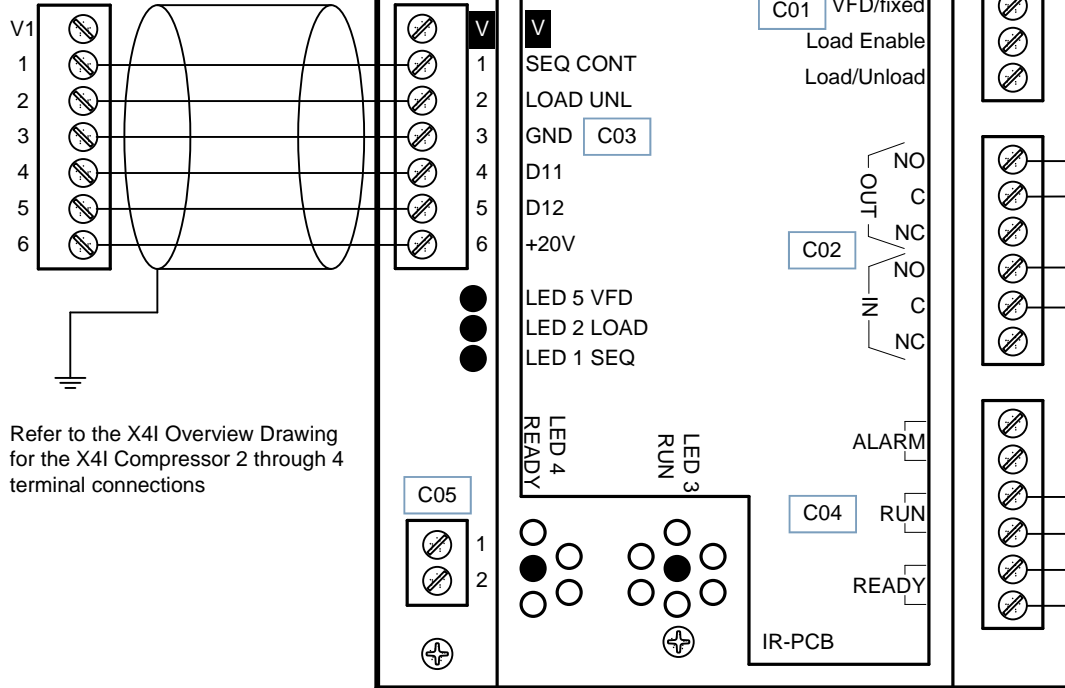
UP6 5-15 FV 3PH 50Hz



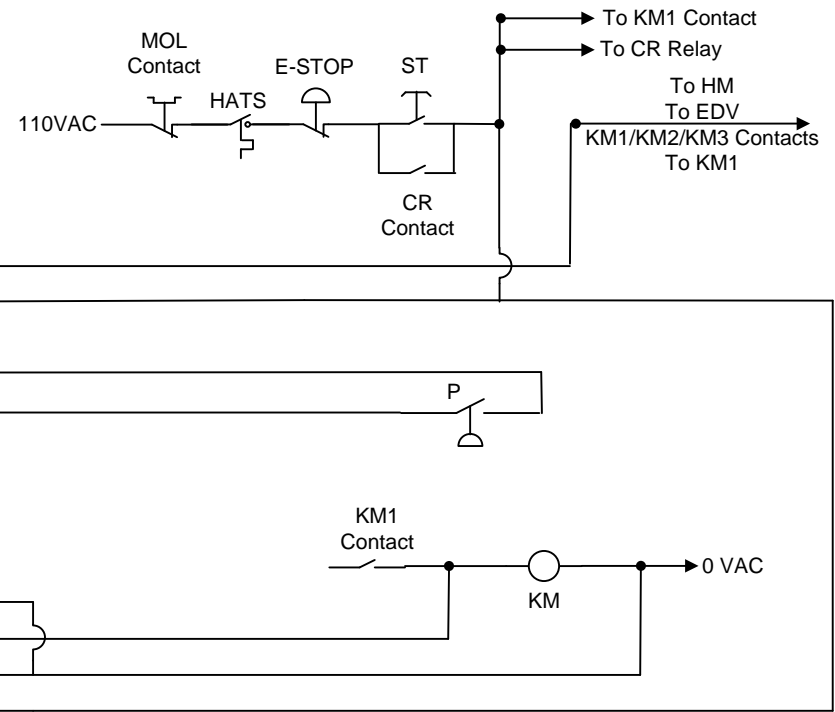
T3C08
Revision 00
04/05

UP6 5-15 SD 3PH 50Hz

X41
COMPRESSOR #1
X01 TERMINAL

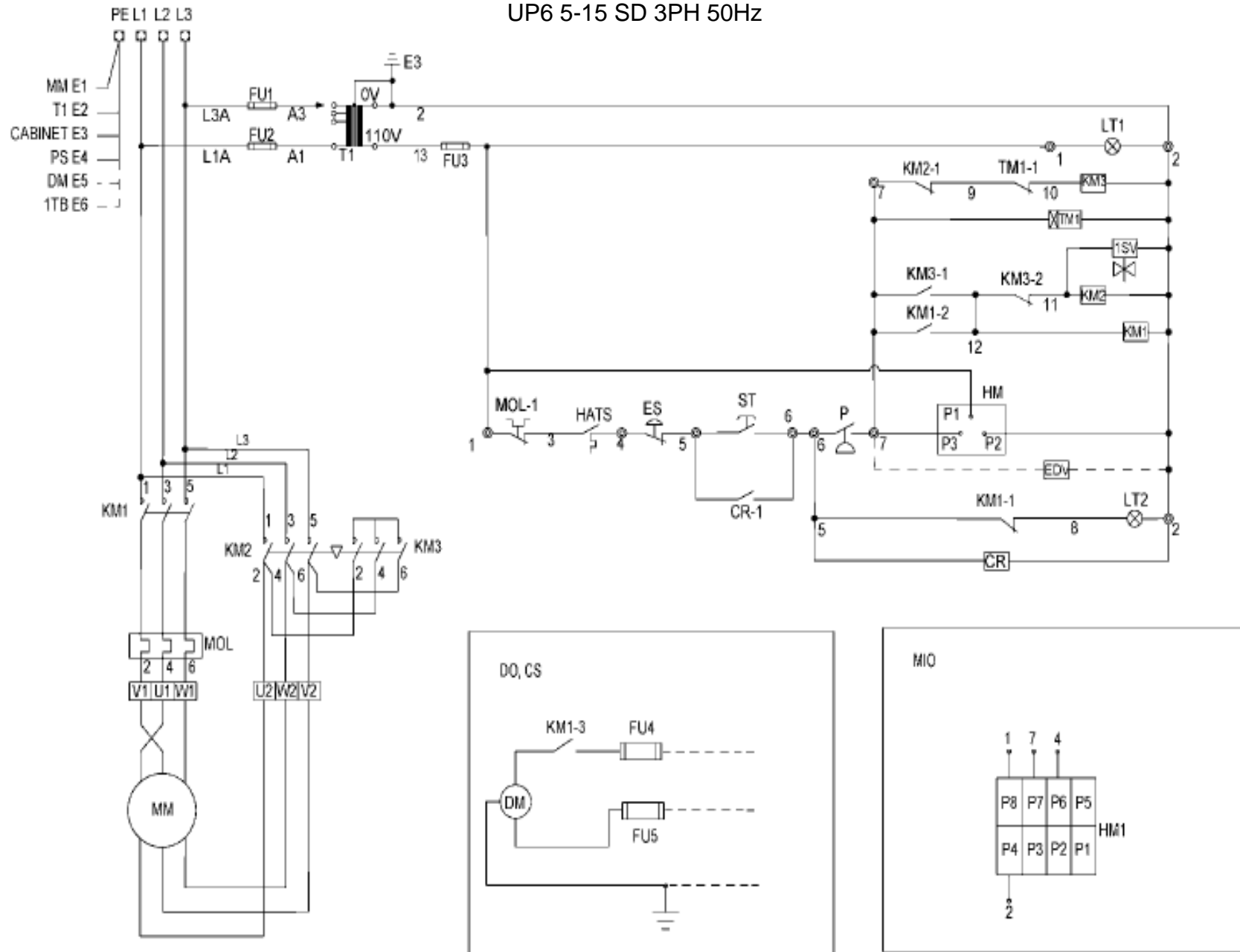


Refer to the X41 Overview Drawing for the X41 Compressor 2 through 4 terminal connections



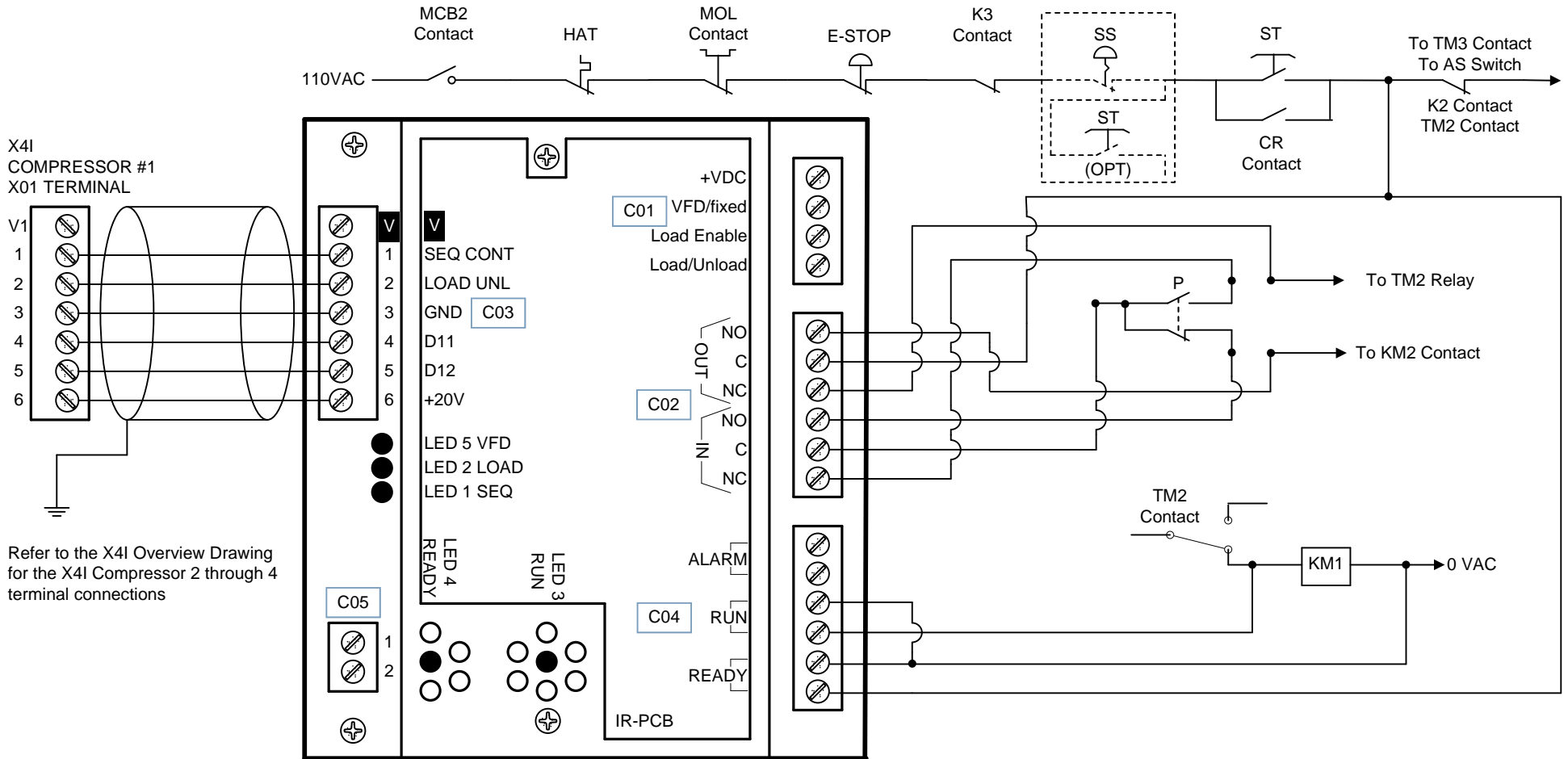
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

UP6 5-15 SD 3PH 50Hz



T3009
Revision 00
04/05

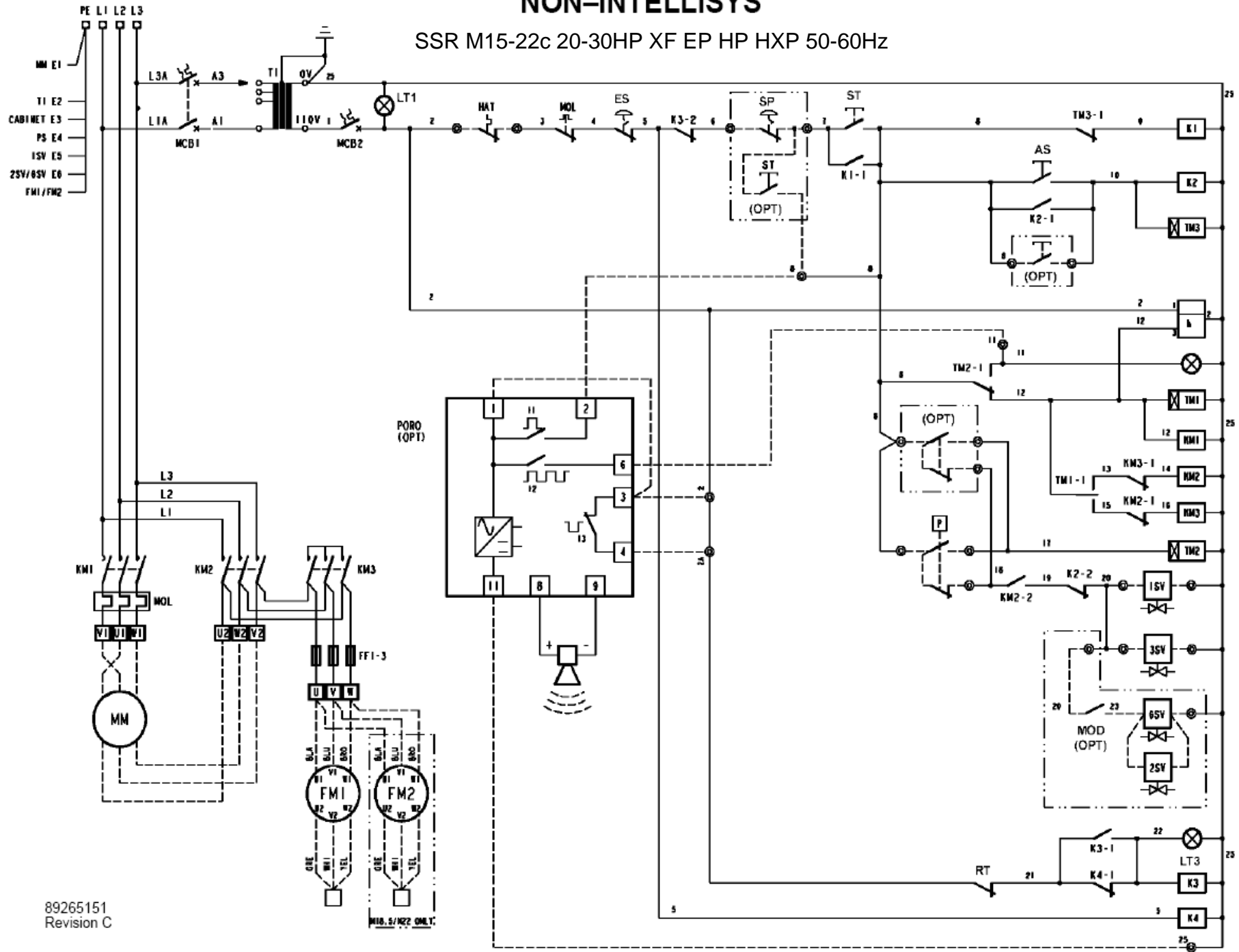
SSR M15-22c 20-30HP XF EP HP HXP 50-60Hz



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

NON-INTELLISYS

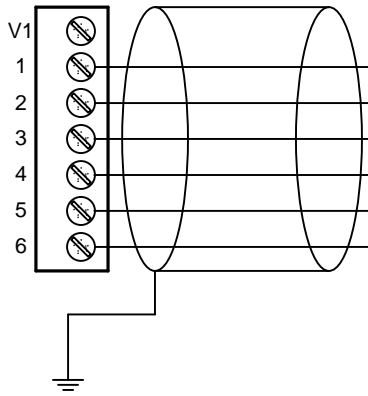
SSR M15-22c 20-30HP XF EP HP HXP 50-60Hz



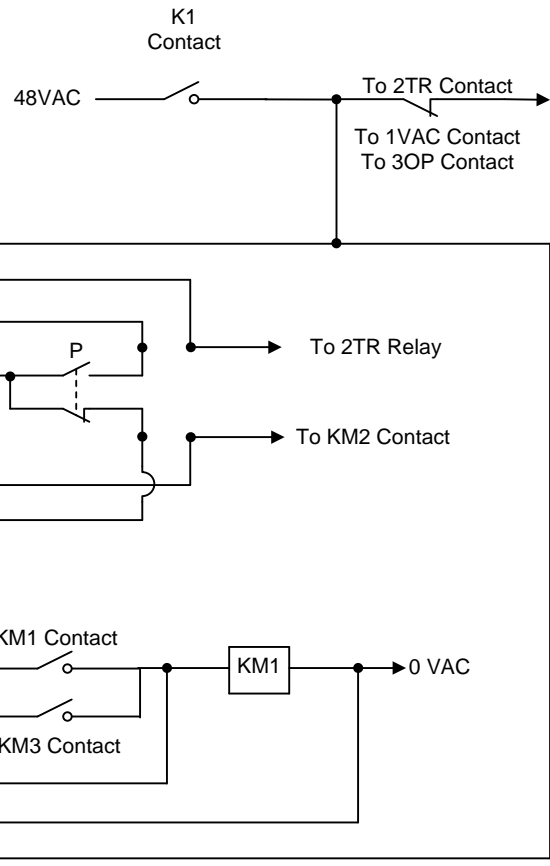
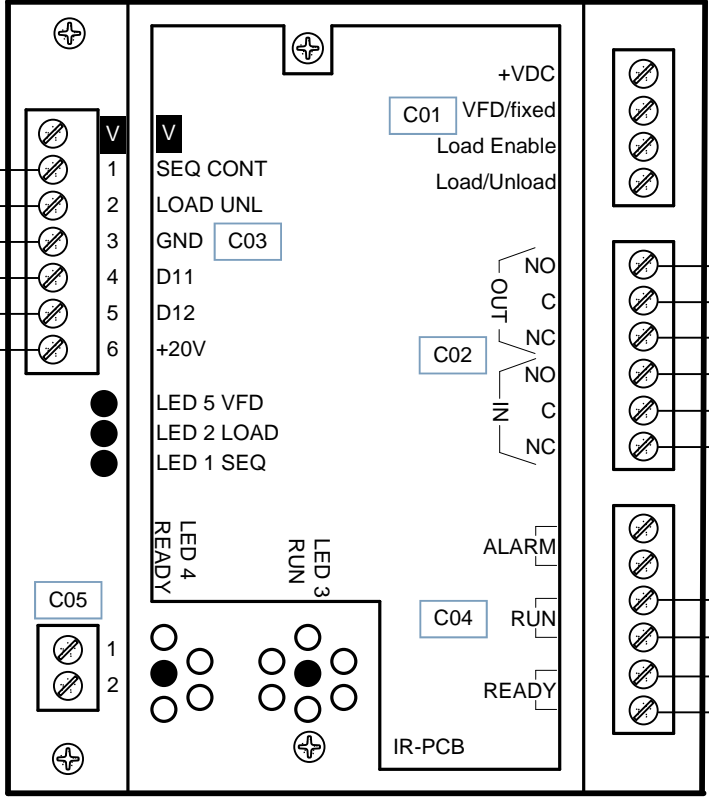
89265151
Revision C

M37-50

X41
COMPRESSOR #1
X01 TERMINAL



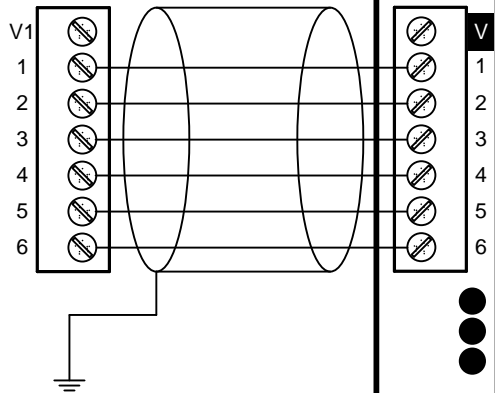
Refer to the X41 Overview Drawing for the X41 Compressor 2 through 4 terminal connections



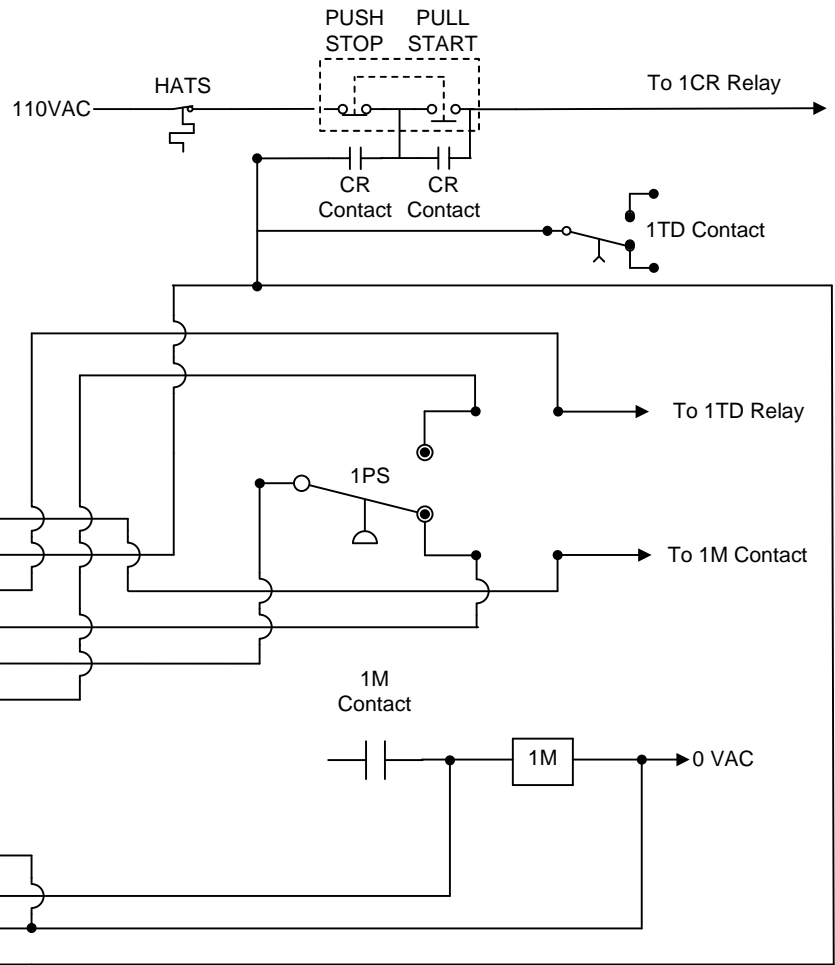
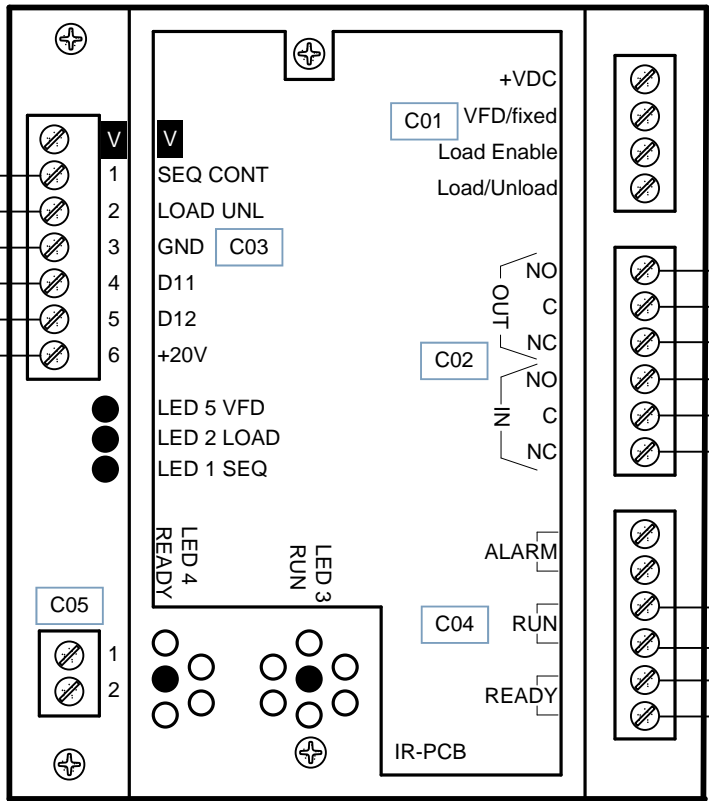
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

EP 20-30 ESP FV

X4I
COMPRESSOR #1
X01 TERMINAL



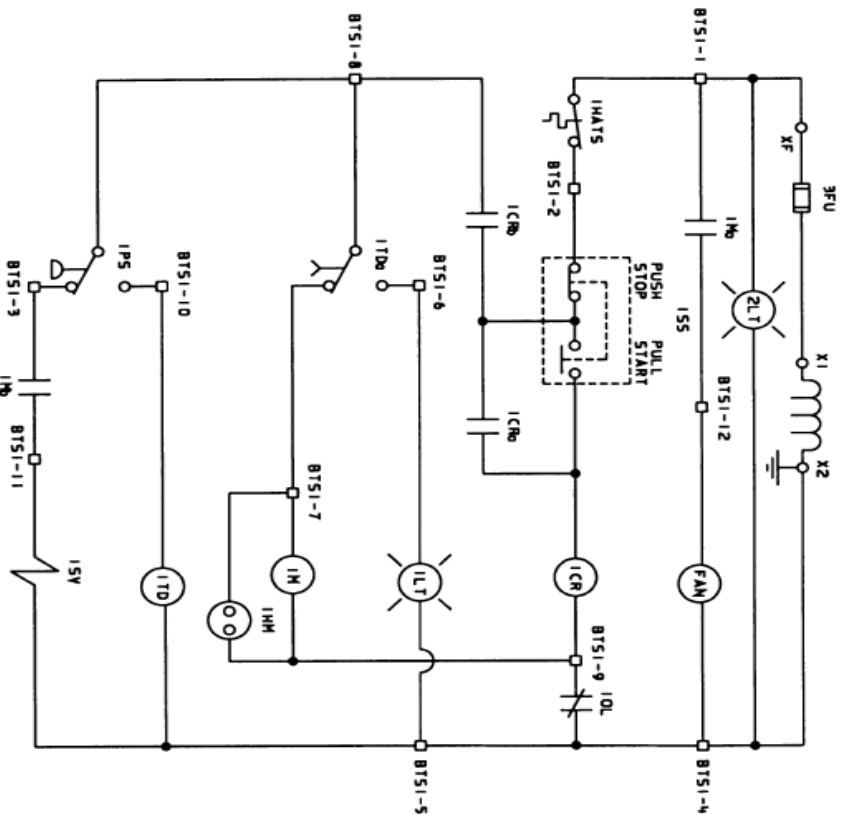
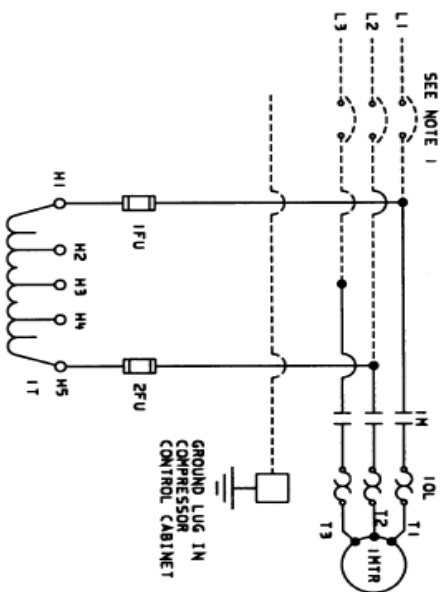
Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 terminal connections



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

EP 20-30 ESP FV

39884143
REV 01



TRANSFORMER RATING (VA)	1FU & 2FU PRIMARY FUSES (AMPS)	3FU SECONDARY FUSE (AMPS)
350	3.0	3.2
750	6.25	8.0

NOTES:

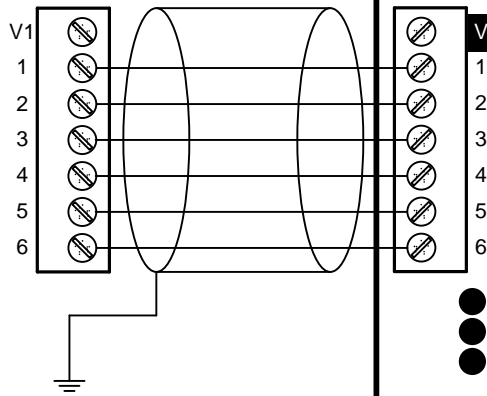
1. APPROVED FUSED DISCONNECT OR CIRCUIT BREAKER PER N.E.C. REQUIREMENTS MUST BE PROVIDED BY CUSTOMER.
2. DASHED LINES REPRESENT WIRING BY CUSTOMER.
3. SIZING OF ELECTRICAL COMPONENTS NOT SUPPLIED BY INGERSOLL-RAND IS THE RESPONSIBILITY OF THE CUSTOMER AND SHOULD BE DONE IN ACCORDANCE WITH THE INFORMATION ON THE COMPRESSOR DATA PLATE, N.E.C. AND LOCAL ELECTRICAL CODES.

6.0 REFERENCE DRAWINGS

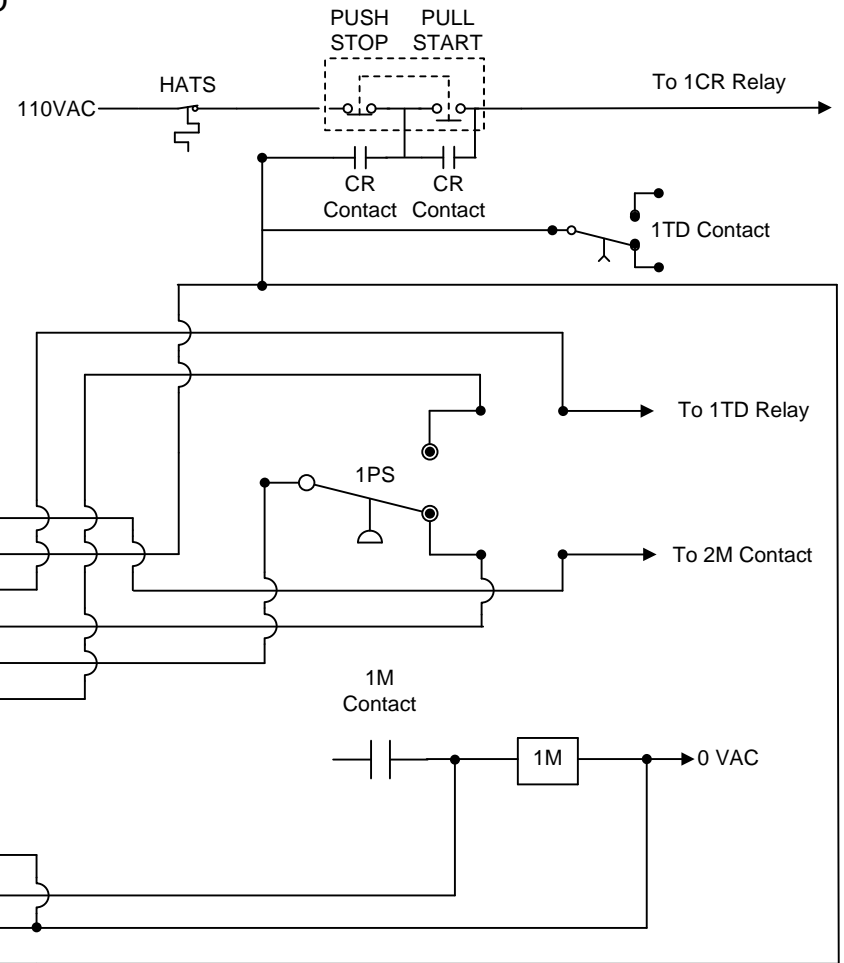
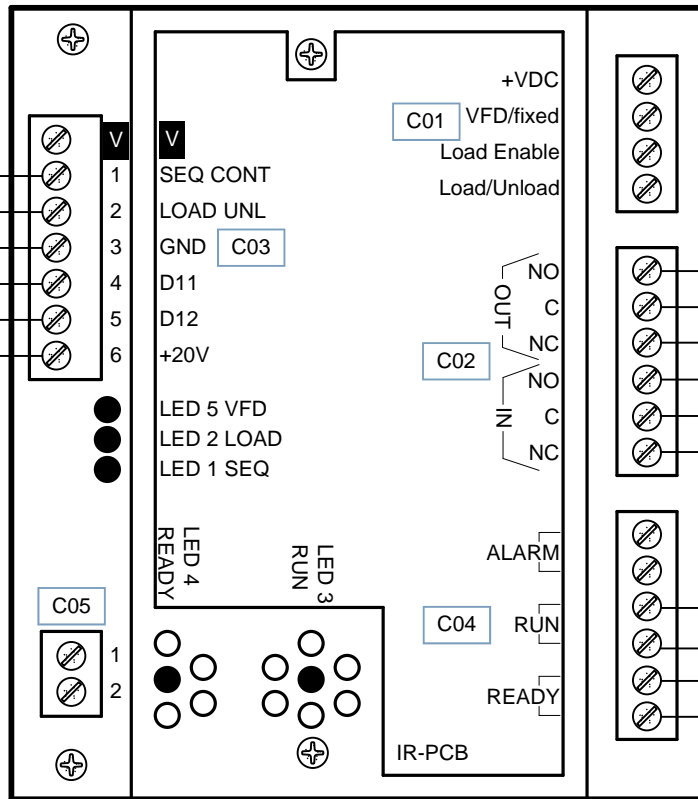
6.1 ELECTRICAL SCHEMATIC - FULL VOLTAGE

EP 20-30 ESP SD

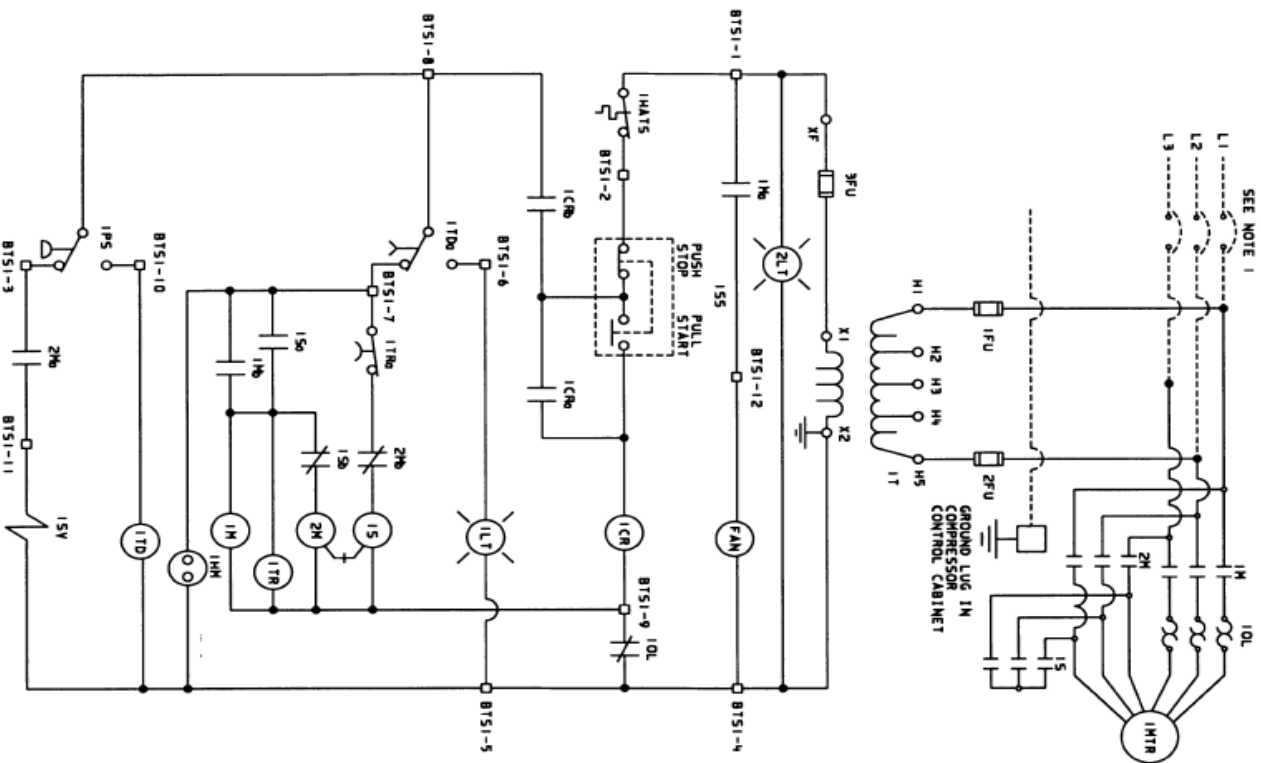
X4I
COMPRESSOR #1
X01 TERMINAL



Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 terminal connections



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.



SEE NOTE 1

COMPONENTS SUPPLIED AND WIRED BY 1-R:

1HR ----- COMPRESSOR MOTOR
 1HA15 ----- HIGH AIR TEMPERATURE SWITCH
 15S ----- RESISTOR (WATT)
 17D ----- AUTO RESTART TIME DELAY RELAY
 FAN ----- FAN MOTOR(S)

COMPONENTS SUPPLIED AND WIRED BY STARTER MFG.:

1FU, 2FU ----- PRIMARY VOLTAGE FUSES
 3FU ----- SECONDARY VOLTAGE FUSE (115VAC)
 1M ----- START-RUN CONTACTOR
 1M.b ----- STARTER AUXILIARY CONTACT (1M CONTACTOR)
 2M ----- RUN CONTACTOR
 2M.b ----- STARTER AUXILIARY CONTACT (2M CONTACTOR)
 1S.a ----- STARTER CONTACTOR
 1S.b ----- STARTER AUXILIARY CONTACT (1S CONTACTOR)
 1HM ----- HOURMETER
 1OL ----- MOTOR OVER LOAD RELAY
 155 ----- START/STOP SWITCH
 17 ----- TRANSFORMER
 17R ----- STAR DELTA TIMER
 17S ----- STAR DELTA TIEER CONTACT
 17T ----- AUTO RESTART TIME DELAY RELAY
 17U ----- AUTO RESTART TIME DELAY RELAY
 2LT ----- POWER ON INDICATOR LIGHT
 1CR ----- CONTROL RELAY
 1CR.b ----- CONTROL RELAY CONTACTS
 17D ----- AUTO RESTART TIME DELAY RELAY
 17E ----- AUTO RESTART TIME DELAY RELAY CONTACT

TRANSFORMER RATING (VA)	1FU & 2FU PRIMARY FUSES (AMPS)	3FU SECONDARY FUSE (AMPS)
950	3.0	3.2
750	6.25	8.0

- NOTES:
1. APPROVED FUSED DISCONNECT OR CIRCUIT BREAKER PER N.E.C. REQUIREMENTS MUST BE PROVIDED BY CUSTOMER.
 2. DASHED LINES REPRESENT WIRING BY CUSTOMER.
 3. SIZING OF ELECTRICAL COMPONENTS NOT SUPPLIED BY INGERSOLL-RAND IS THE RESPONSIBILITY OF THE CUSTOMER AND SHOULD BE DONE IN ACCORDANCE WITH THE INFORMATION ON THE COMPRESSOR DATA PLATE, N.E.C. AND LOCAL ELECTRICAL CODES.

X4I Interconnect To Ingersoll Rand Intellisys SGN / SGNe Controlled Compressors

Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 X01 to IR-PCB terminal connections

For SGN/SGNe Intellisys Controlled Machines:

- The SI1 interface (CCN: 42425710) must be used to allow the SGN/SGNe Controller to be sequenced/controlled by the X4I
- The 'SEQUENCER' setting of the Intellisys controller must be set to 'ON'.
- Auto Restart must be turned 'ON' to allow the machines to stop in Auto restart when unloaded by the X4I.
- The Intellisys must be run in the Online/Offline regulation mode. Do not use Modulation or ACS.
- Check the Intellisys software revision level. Always update to the latest revision prior to operation.

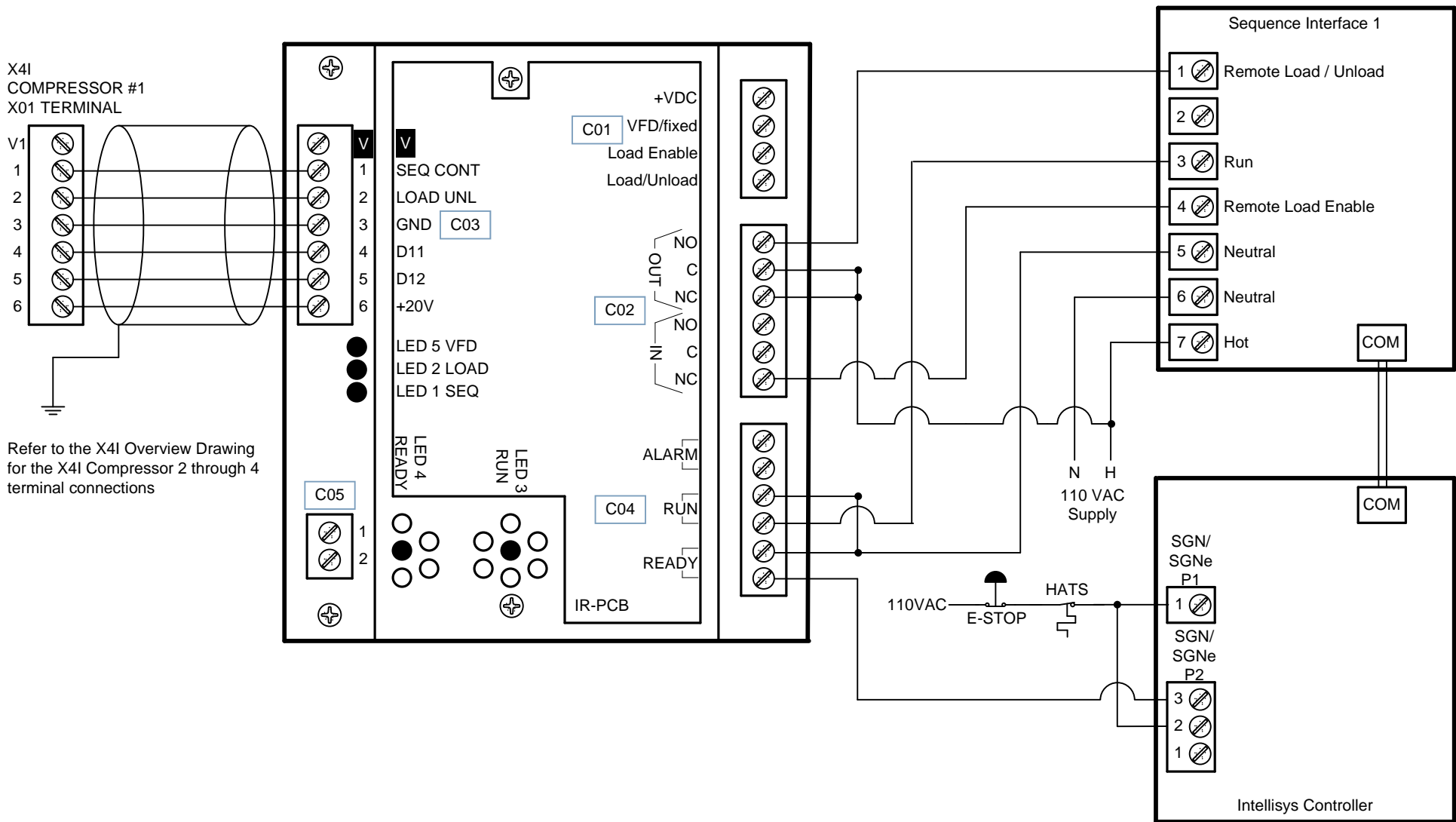
Drawing Notes For Nirvana Machines:

- Note: The Nirvana Target Pressure "MUST" be set equal to the Midpoint of the X4I pressure control band.
- Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 X01 to IR-PCB terminal connections



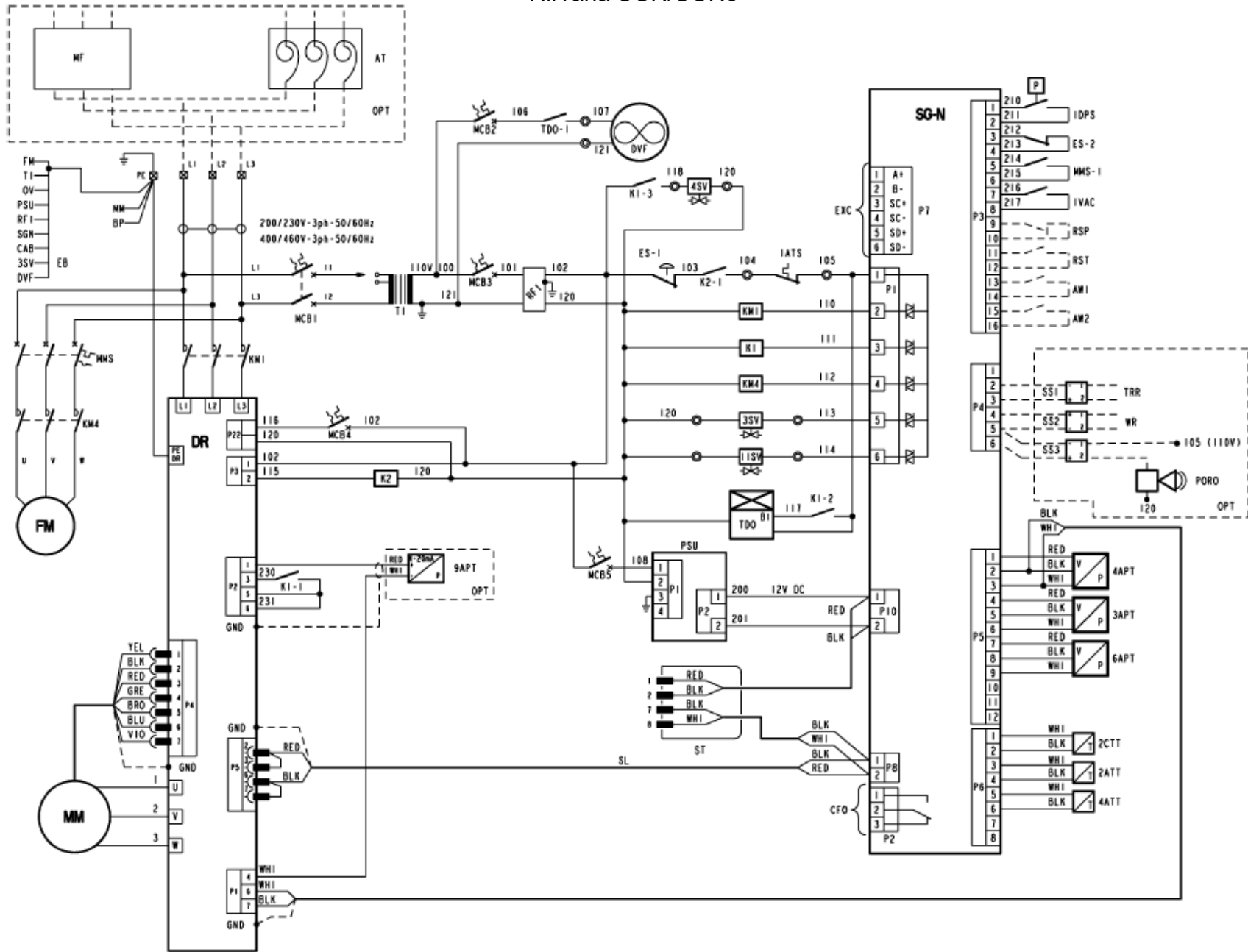
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

Nirvana SGN/SGNe

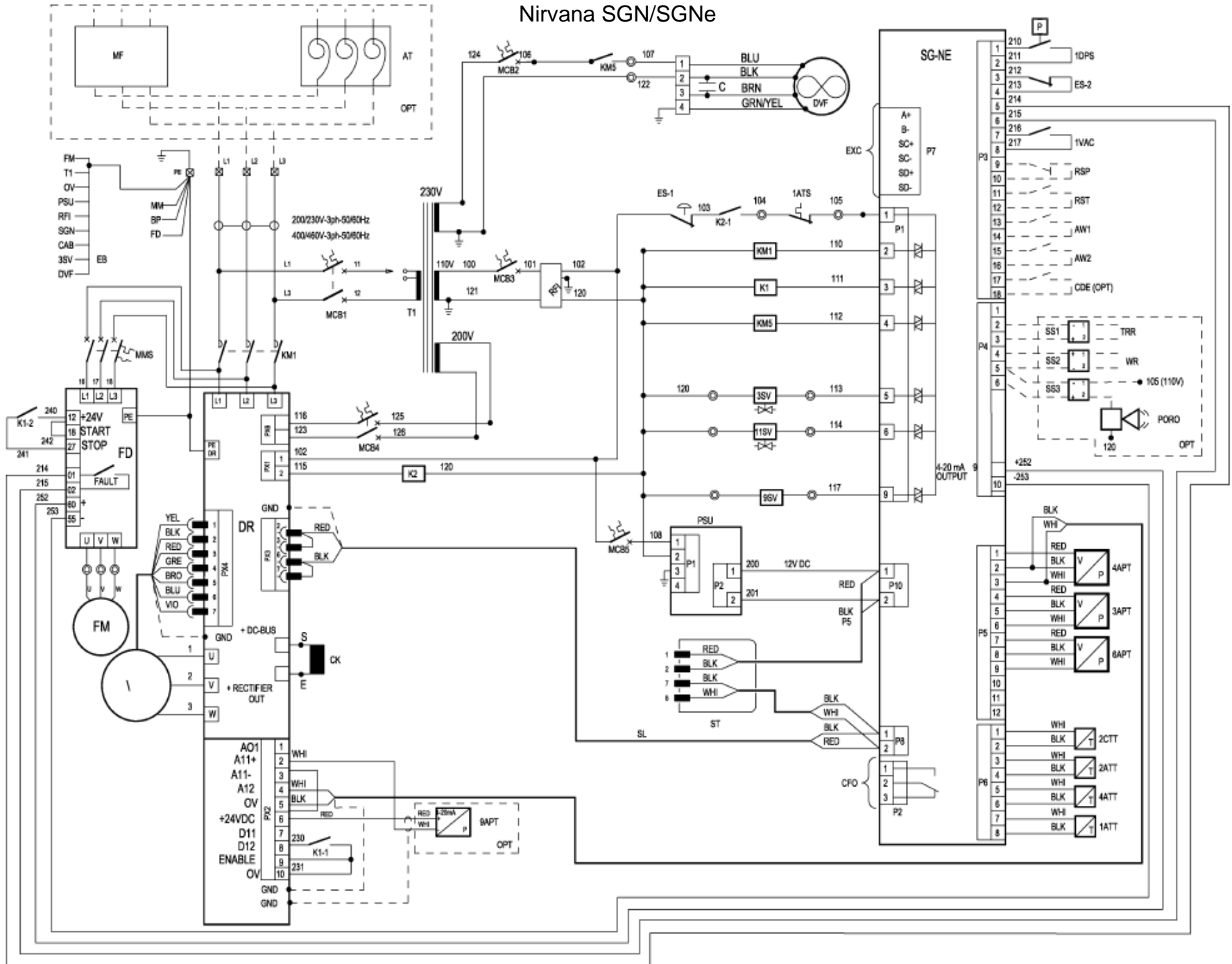


Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

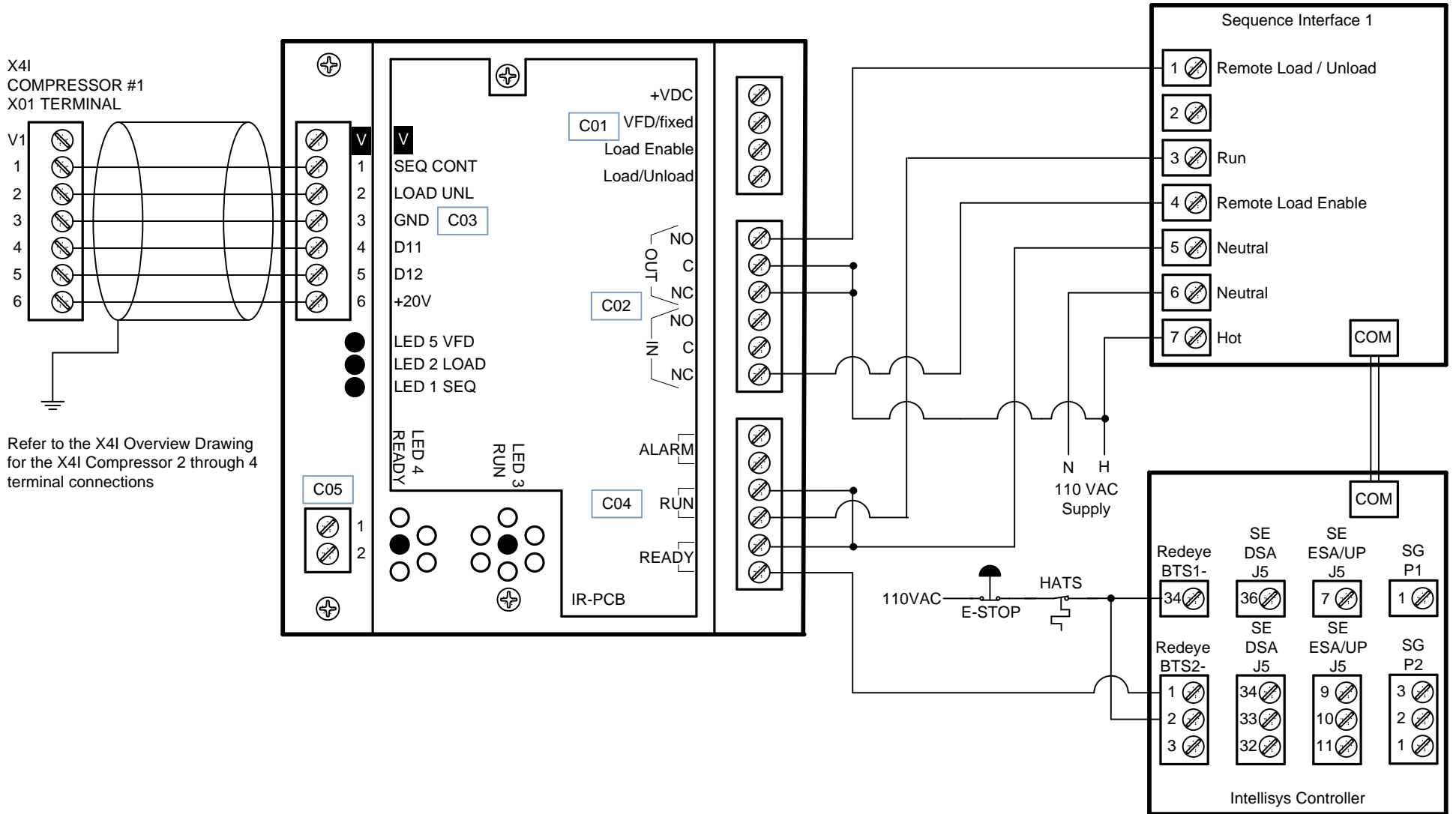
Nirvana SGN/SGNe



Nirvana SGN/SGNe



S11 Interface to Redeye, SE, SG Controllers



Refer to the X41 Overview Drawing for the X41 Compressor 2 through 4 terminal connections



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

X4I Interconnect To Ingersoll Rand Intellisys S3

Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 X01 to IR-PCB terminal connections

For All S3 Intellisys Controlled Machines:

- The 'REMOTE CONTROL' setting "RC" of the Intellisys controller must be set to 'ON'.
- Auto Restart must be turned 'ON' to allow the machines to stop in Auto restart when unloaded by the X4I.
- The Intellisys must be run in the Online/Offline regulation mode. Do not use Modulation.
- Check the Intellisys software revision level. Always update to the latest revision prior to operation.

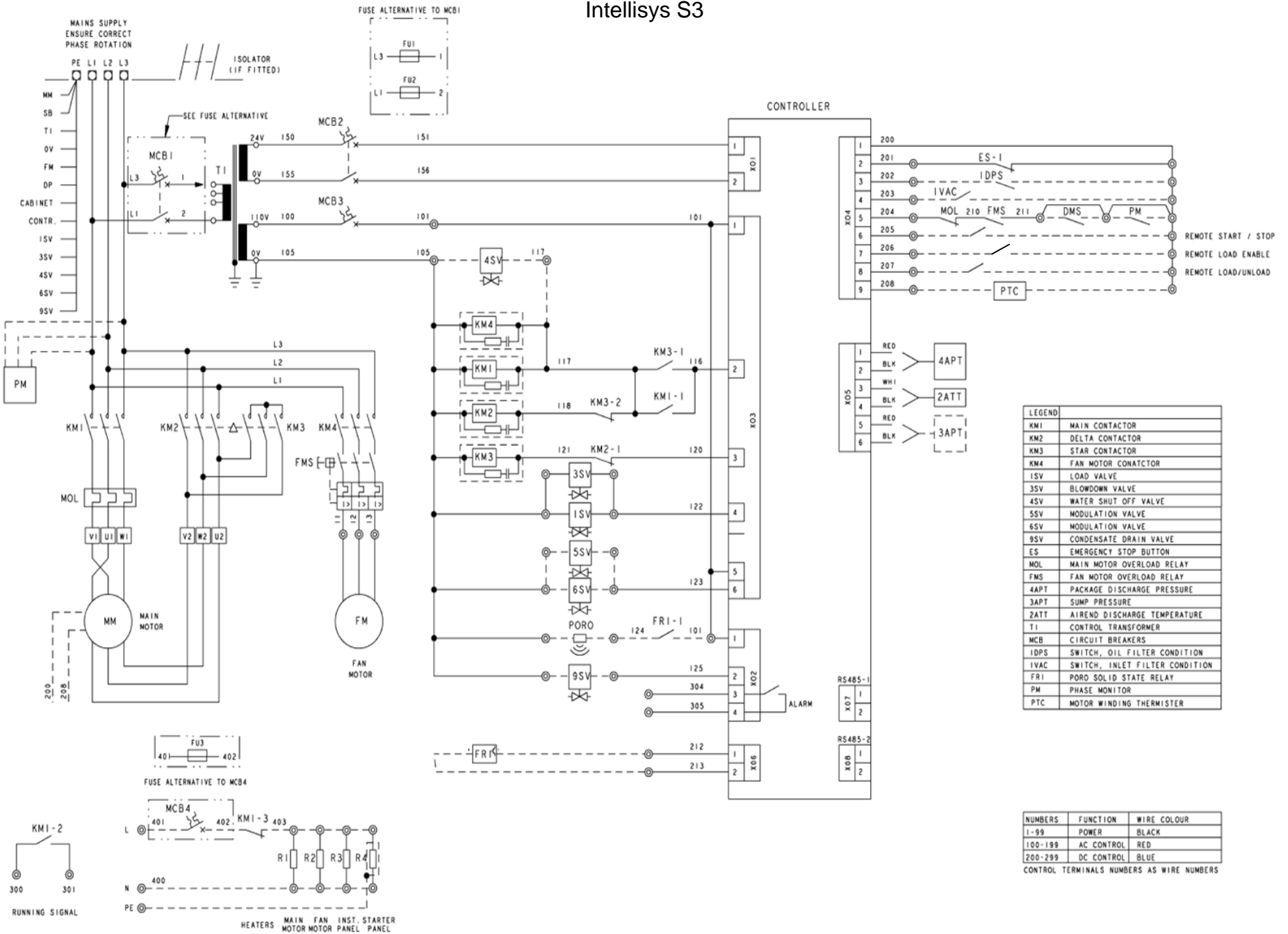
Drawing Notes For Intellisys S3 Machines:

- Note: R1 Relay - IR CCN: 39403290
- Note: R1 Relay Base – IR CCN: 39125091



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

Intellisys S3



LEGEND	
KM1	MAIN CONTACTOR
KM2	DELTA CONTACTOR
KM3	STAR CONTACTOR
KM4	FAN MOTOR CONTACTOR
1SV	LOAD VALVE
3SV	BLOWDOWN VALVE
4SV	WATER SHUT OFF VALVE
5SV	MODULATION VALVE
6SV	MODULATION VALVE
9SV	CONDENSATE DRAIN VALVE
ES	EMERGENCY STOP BUTTON
MOL	MAIN MOTOR OVERLOAD RELAY
FMS	FAN MOTOR OVERLOAD RELAY
4APT	PACKAGE DISCHARGE PRESSURE
3APT	SUMP PRESSURE
2ATT	AIREND DISCHARGE TEMPERATURE
T1	CONTROL TRANSFORMER
MCB	CIRCUIT BREAKERS
IDPS	SWITCH, OIL FILTER CONDITION
IVAC	SWITCH, INLET FILTER CONDITION
FRI	PORO SOLID STATE RELAY
PM	PHASE MONITOR
PTC	MOTOR WINDING THERMISTER

NUMBERS	FUNCTION	WIRE COLOUR
1-99	POWER	BLACK
100-199	AC CONTROL	RED
200-299	DC CONTROL	BLUE

CONTROL TERMINALS NUMBERS AS WIRE NUMBERS

X4I Interconnect To Ingersoll Rand Small Reciprocating Air Compressors

Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 X01 to IR-PCB terminal connections

For All Compressors:

- Compressors to be connected must have automatic Start / Stop capability .

Drawing Notes For Pressure Switch Controller Machines:

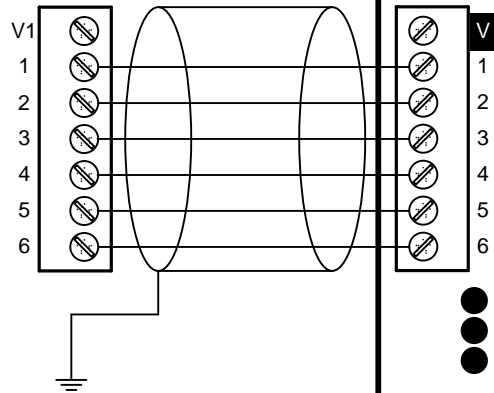
- Ensure each compressor is equipped with independent Excessive Pressure Shutdown Switch. An increase in pressure differential across air treatment equipment can result in excess compressor discharge pressure. See Pages 84 and 85 for an example drawing. In most applications, the model and type of pressure switch supplied with the compressor can be used as the Excessive Pressure Shutdown Switch. If this is specific model/type of pressure switch is not readily available, any pressure switch can be utilized as long as it equals or exceeds the specifications of the pressure switch found on the compressor.
- Set the Excessive Pressure Shutdown Switch to “OPEN” 5 PSI less than the maximum discharge pressure recommended by the compressor manufacturer.
- Note: R1 and R2 Relay - IR CCN: 39403290
- Note: R1 and R2 Relay Base – IR CCN: 39125091



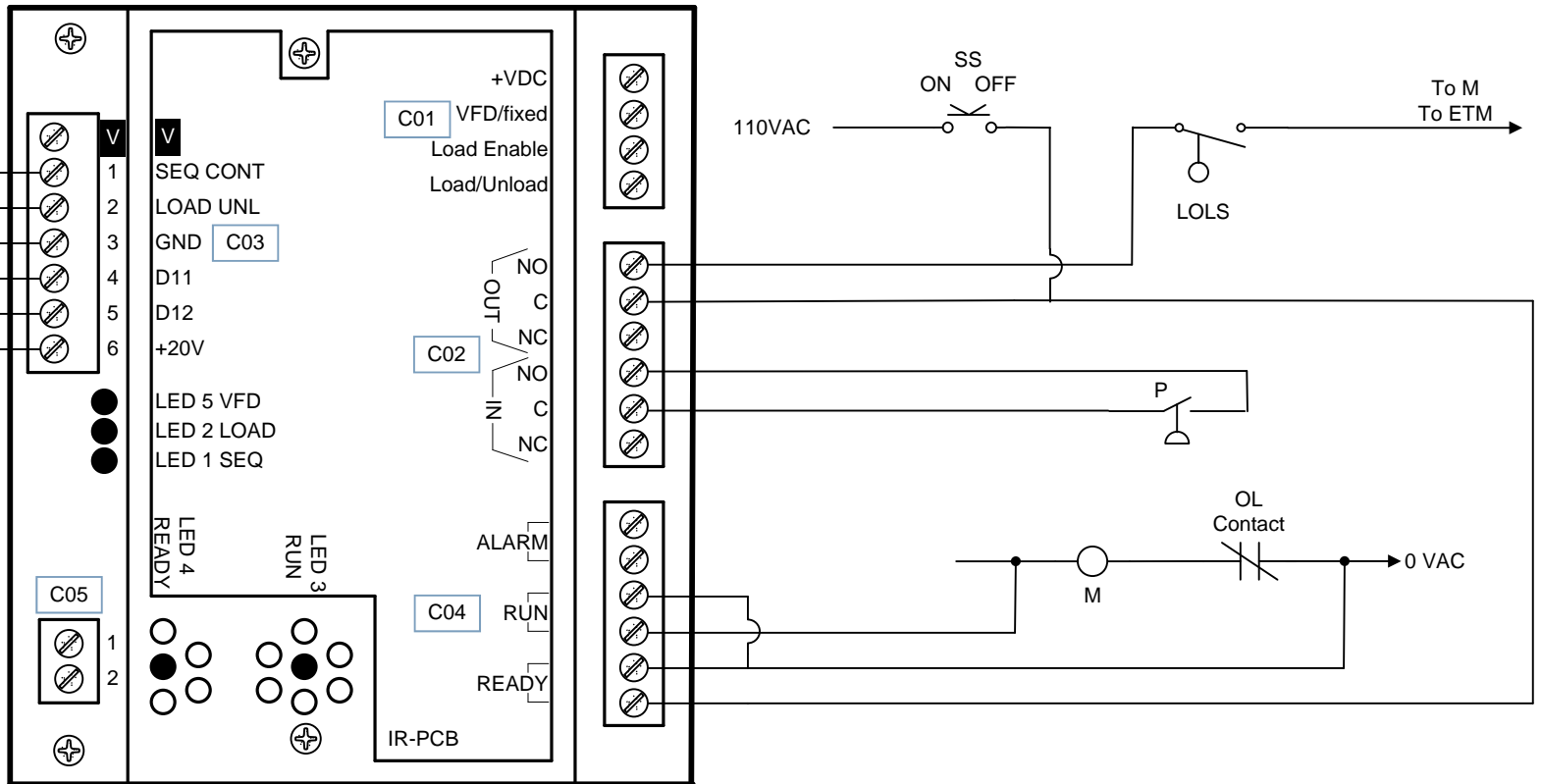
Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor’s original control circuit diagram.

UP6RE 7.5–15 175, UP6RX 7.5–15 175

X4I
COMPRESSOR #1
X01 TERMINAL



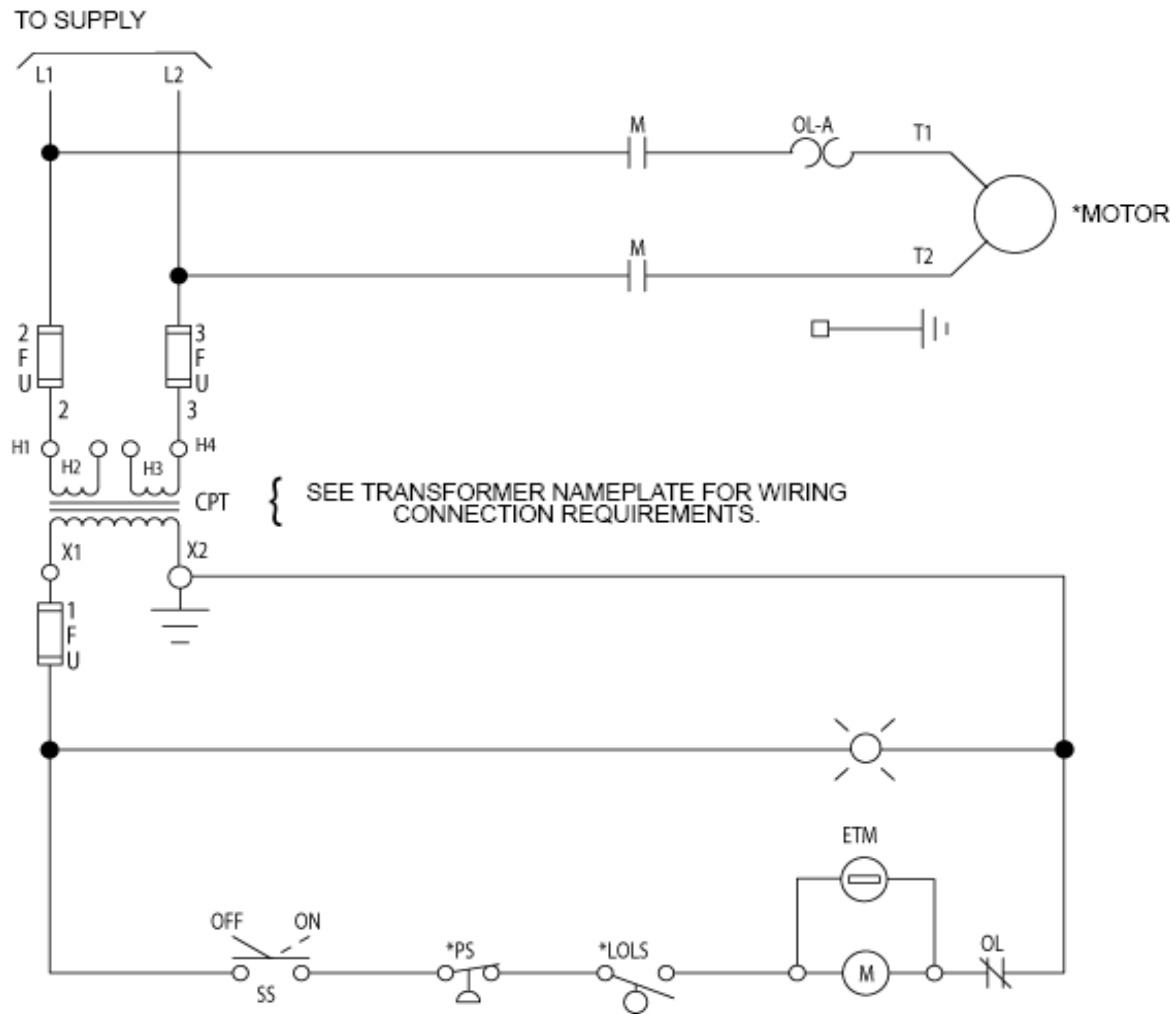
Refer to the X4I Overview Drawing for the X4I Compressor 2 through 4 terminal connections



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

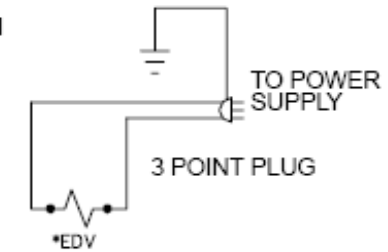
Single Phase Wiring

UP6RE 7.5–15 175, UP6RX 7.5–15 175



CONTROL PANEL OPTIONS

OPTION 1



LEGEND

CPT – TRANSFORMER, CONTROL 120/1/50–60

EDV – VALVE, ELECTRIC DRAIN 120/1/50–60

ETM – METER, ELAPSED TIME

FU – FUSE, CONTROL CIRCUIT

LOLS – SWITCH, LOW OIL LEVEL

M – COIL, MOTOR STARTER

OL – OVERLOAD, MOTOR STARTER

PS – SWITCH, PRESSURE (OR VACUUM)

SS – SWITCH, SELECTOR

□ – TERMINAL POINTS

SS – SWITCH, SELECTOR

□ – TERMINAL POINTS

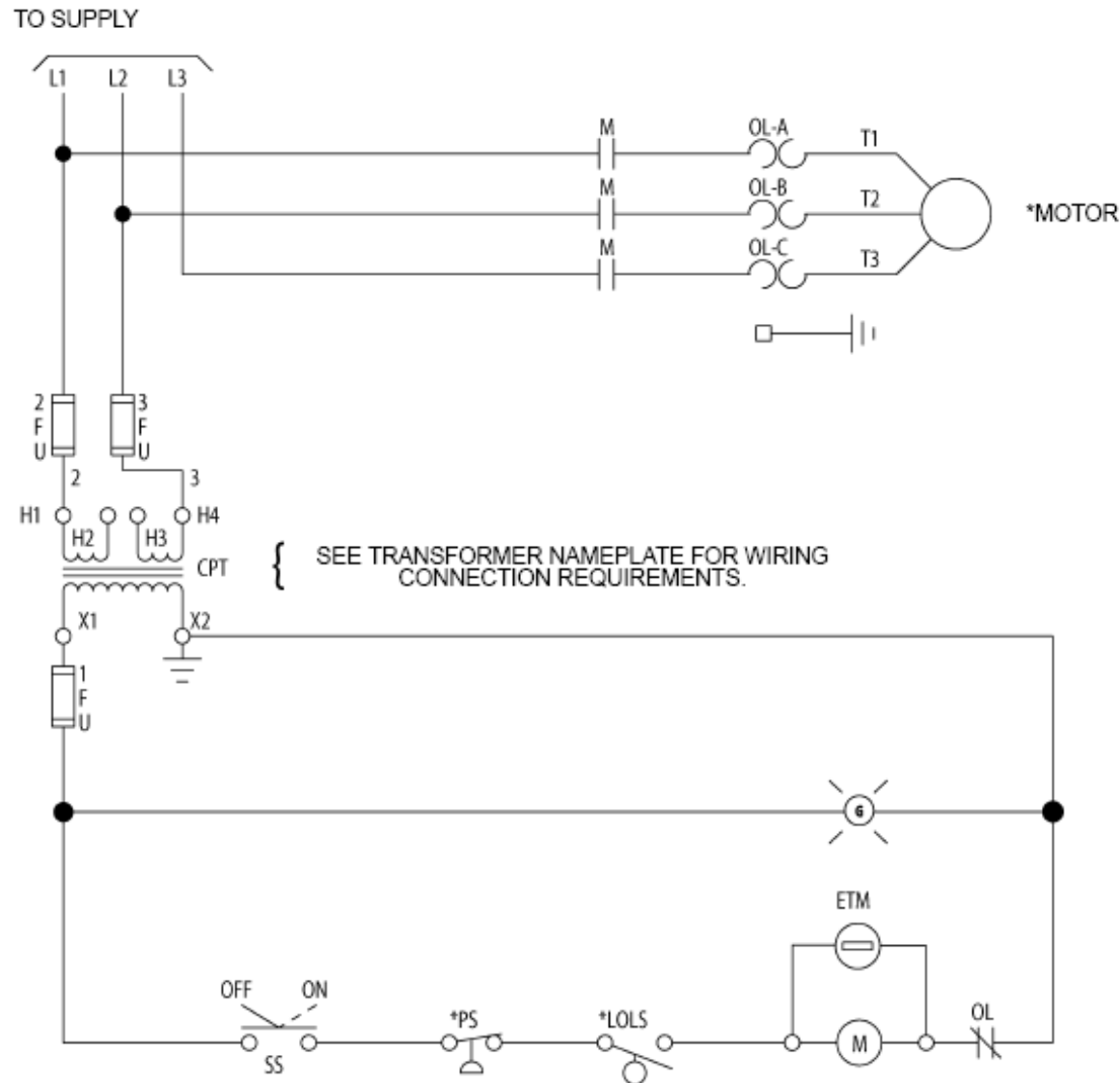
⊙ – POWER ON LIGHT

NOTES:

- (*) FURNISHED, MOUNTED & WIRED OUTSIDE OF CONTROL PANEL, IF REQUIRED BY ORDER.
- CIRCUIT SHOWN IN NORMAL POSITION DE-ENERGIZED.
- ALL WIRING TO BE MARKED IN ACCORDANCE WITH THIS SCHEMATIC.
- ALL WIRING TO BE IN ACCORDANCE WITH NEC.

Three Phase Wiring

UP6RE 7.5–15 175, UP6RX 7.5–15 175



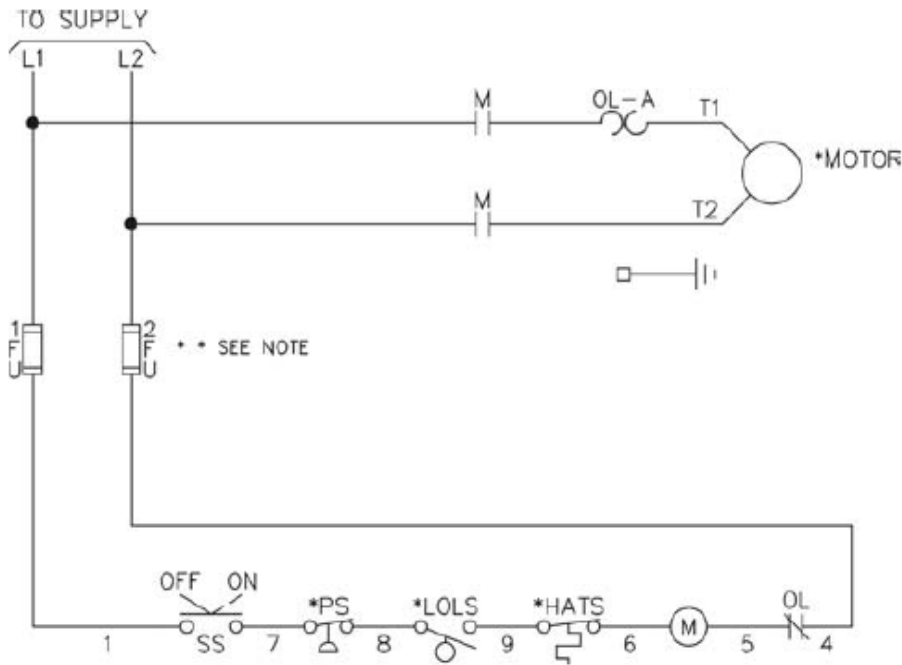
CONTROL PANEL OPTIONS	
OPTION 1	
LEGEND	
CPT	– TRANSFORMER, CONTROL 120/1/50–60
EDV	– VALVE, ELECTRIC DRAIN 120/1/50–60
ETM	– METER, ELAPSED TIME
FU	– FUSE, CONTROL CIRCUIT
LOLS	– SWITCH, LOW OIL LEVEL
M	– COIL, MOTOR STARTER
OL	– OVERLOAD, MOTOR STARTER
PS	– SWITCH, PRESSURE (OR VACUUM)
SS	– SWITCH, SELECTOR
□	– TERMINAL POINTS
SS	– SWITCH, SELECTOR
□	– TERMINAL POINTS
	– POWER ON LIGHT

- NOTES:
- (*) FURNISHED, MOUNTED & WIRED OUTSIDE OF CONTROL PANEL, IF REQUIRED BY ORDER.
 - CIRCUIT SHOWN IN NORMAL POSITION DE-ENERGIZED.
 - ALL WIRING TO BE MARKED IN ACCORDANCE WITH THIS SCHEMATIC.
 - ALL WIRING TO BE IN ACCORDANCE WITH NEC.

UP6RE-7.5–175, UP6RE-10–175, UP6RE-15–175,
UP6RX-7.5–175, UP6RX-10–175, UP6RX-15–175

Models 2340, 2475, 2545, 7100, 15T & 3000

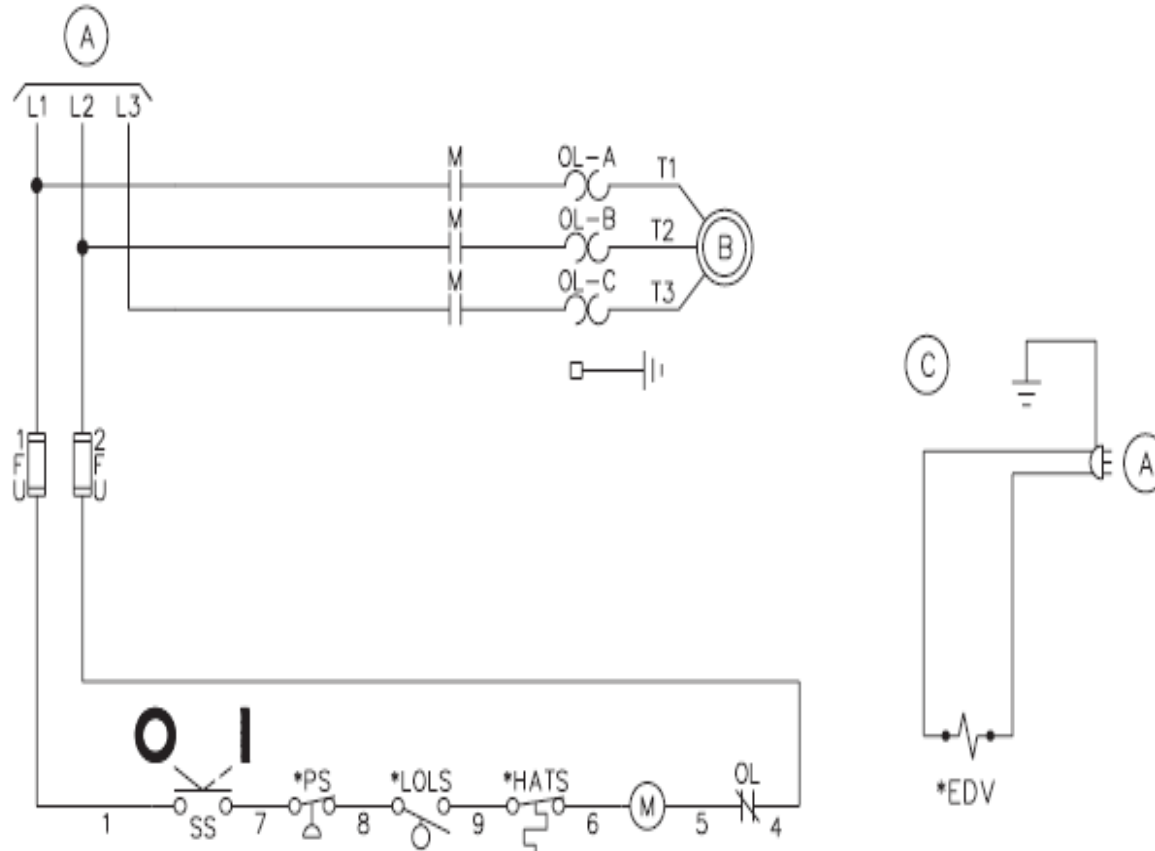
Single Phase Wiring



- A To supply
- C Wiring for optional electric drain valve
- EDV Electric drain valve
- T Supply Line Terminal
- L Load Terminal
- FU Control Circuit Fuse
- HATS High Air Temperature Switch (#)
- LOLS Low Oil Level Switch (#)
- M Motor Starter Coil
- OL Motor Starter Overload
- PS Pressure Switch
- SS Selector Switch (#)
- * Alternate wiring for converting 3 phase starter to 1 phase application
- (#) = if provided

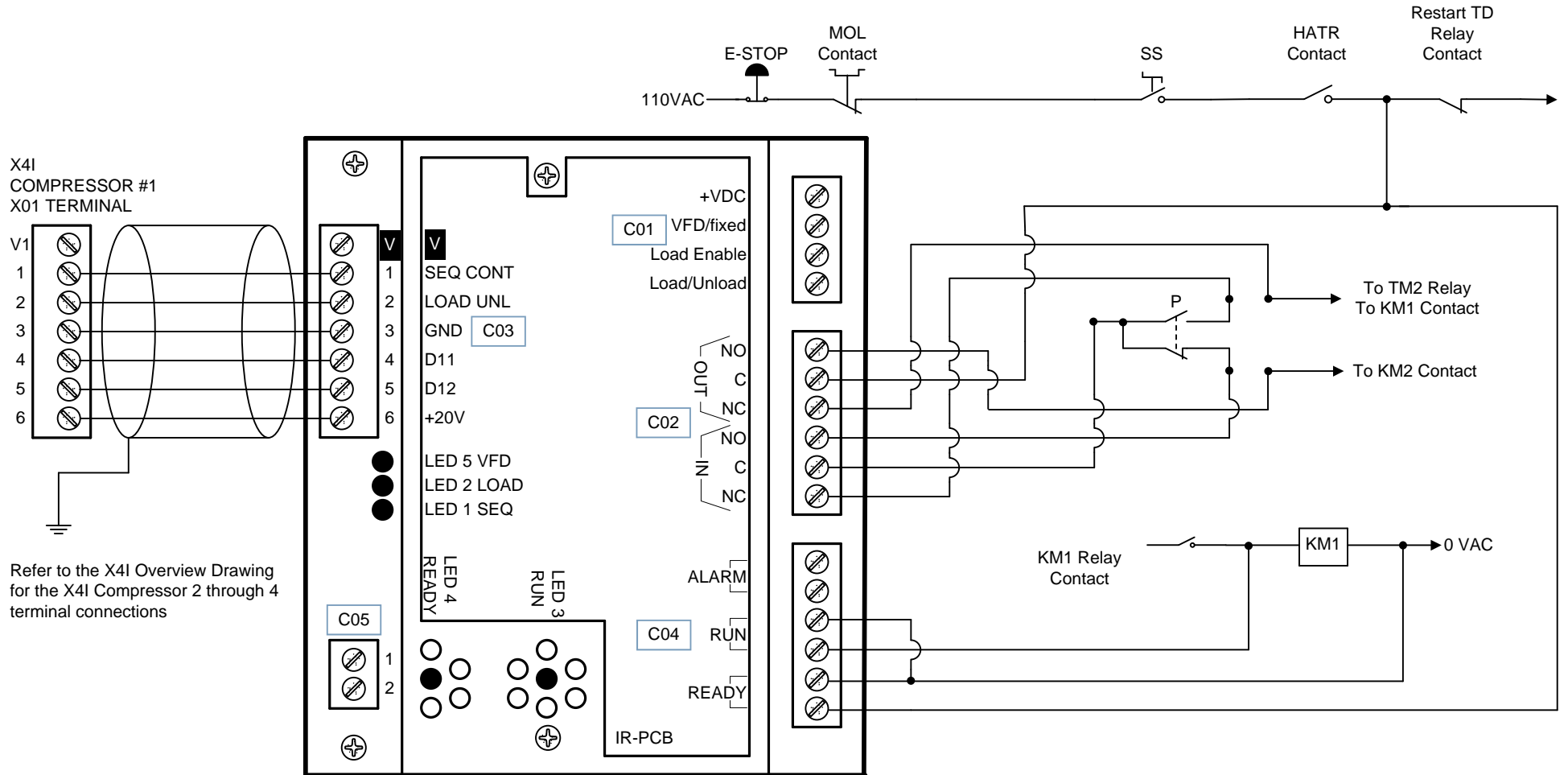
Three Phase Wiring

Models 2340, 2475, 2545, 7100, 15T & 3000



Excessive Pressure Shutdown Switch Example Before Installation

SSR UP5 11-22 SD



Guidance only; connections may differ with date, model, type, variant, special, custom or concession builds. This information is intended to be used in conjunction with the compressor's original control circuit diagram.

