

## SECTION VIII

### J471 I/O EXPANDER

#### 8.0 INTRODUCTION

The J471 I/O Expander enables the 484 Programmable Controller to access an additional 256 discrete I/O points beyond the basic 256 discrete I/O points. All register devices may also be used on the extended I/O bus. Any MODICON model 484 Programmable Controller equipped with any enhanced executive software package may make use of the J471.

#### 8.1 CONNECTIONS AND MOUNTING

The J471 I/O Expander is designed to be mounted on any flat vertical surface by the use of 4 EA 5/16" bolts. The J471 will attach to the remote end of any standard Now Bus duct, as well as the W514 flat cable and the W513 flexible shielded Now Bus extension cable. The Expanded Now Bus is then attached to the opposite side of the J471 chassis. Access to the Now Bus connectors on the J471 PC board is gained by loosening the two adjustable grip latches on the front cover and pulling the top of the front cover out and then down. The front cover is hinged at the bottom and also serves to house the power supply assembly (Figures VIII-1 and VIII-2). The expanded I/O is always connected to the right connector on the inside of the J471. Data from the 484 always comes into the left connector on the J471.

#### 8.2 DIMENSIONS

The J471 is approximately 18" H x 11" W x 6.75" D ( 460.8 CM x 281.6 CM x 172.8 CM) and weighs 30 lbs (13.6 kilograms) (Figures VIII-3 and VIII-4).

#### 8.3 ELECTRICAL CHARACTERISTICS

The J471 uses 250 ma at 12 VDC from the power supply of the 484 Controller. The + 5VDC I/O power from the 484 Controller is not used by the J471 to power any circuitry.

The J471 has an internal power supply that provides +12 VDC at 3.6 amps and + 5VDC at 4.5 amps (+5 I/O) to the Expanded Now Bus to power I/O devices. The power supply within the J471 contains undervoltage monitor circuitry that will shut off the +5 VI/O power to the Expanded Bus if the internal voltages fall to less the 90% of their nominal value, or if the +5 V I/O power from the 484 Controller is not present on the Now Bus.

The J471 is available with compatibility to the following power sources:

	<u>Voltage</u>	<u>Frequency</u>	<u>Current</u>	<u>Part No.</u>
A.	117 VAC + 10%	60 HZ + 2.5 Hz	1 amp	J471-600
B.	110 VAC $\pm$ 10%	50 HZ $\pm$ 2.5 Hz	1 amp	J471-500
C.	220 VAC $\pm$ 10%	50 HZ $\pm$ 2.5 Hz	0.6 amp	J471-500

The J471-500 is set at the factory for 110 VAC 60 Hz. An internal jumper change will convert it to 220 VAC 50 Hz. Power input protection is provided by a 1-1/2 slow-blow fuse.

#### 8.4 INDICATORS

On the front of the J471 are three indicator lights labeled and defined as follows:

**POWER:** When on, this light indicates that the J471 power supply voltages are within 10% of normal and +5V I/O from the 484 is present on the Now Bus.

**ACTIVE:** When on, this light indicates that the J471 is producing discrete read strobes on the extended bus as commanded by the 484.

**BUSY:** When on, this light indicates that the BUSY line on the Now Bus is being pulled to the true state (low level) by the J471. This will happen if any device connected to the Extended Bus is busy or if the J471's power supply voltages are less than 90% of their nominal level.

#### 8.5 ADDRESSING

Discrete I/O modules when used on the expanded I/O bus, occupy addresses 0129 to 0256 for output modules and 1129 to 1256 for input modules. When register modules are used on the expanded I/O bus, the addressing remains the same as it would be if the register modules were on the normal I/O bus. Table VIII-1 shows these listings.

Table VIII-1. Address Listings

Module Number (Top To Bottom)	Circuit Number	Expanded Housing Number							
		One		Two		Three		Four	
		Output	Input	Output	Input	Output	Input	Output	Input
1	1	0129	1129	0161	1161	0193	1193	0225	1225
	2	0130	1130	0162	1162	0194	1194	0226	1226
	3	0131	1131	0163	1163	0195	1195	0227	1227
	4	0132	1132	0164	1164	0196	1196	0228	1228
2	1	0133	1133	0165	1165	0197	1197	0229	1229
	2	0134	1134	0166	1166	0198	1198	0230	1230
	3	0135	1135	0167	1167	0199	1199	0231	1231
	4	0136	1136	0168	1168	0200	1200	0232	1232
3	1	0137	1137	0169	1169	0201	1201	0233	1233
	2	0138	1138	0170	1170	0202	1202	0234	1234
	3	0139	1139	0171	1171	0203	1203	0235	1235
	4	0140	1140	0172	1172	0204	1204	0236	1236
4	1	0141	1141	0173	1173	0205	1205	0237	1237
	2	0142	1142	0174	1174	0206	1206	0238	1238
	3	0143	1143	0175	1175	0207	1207	0239	1239
	4	0144	1144	0176	1176	0208	1208	0240	1240
5	1	0145	1145	0177	1177	0209	1209	0241	1241
	2	0146	1146	0178	1178	0210	1210	0242	1242
	3	0147	1147	0179	1179	0211	1211	0243	1243
	4	0148	1148	0180	1180	0212	1212	0244	1244
6	1	0149	1149	0181	1181	0213	1213	0245	1245
	2	0150	1150	0182	1182	0214	1214	0246	1246
	3	0151	1151	0183	1183	0215	1215	0247	1247
	4	0152	1152	0184	1184	0216	1216	0248	1248
7	1	0153	1153	0185	1185	0217	1217	0249	1249
	2	0154	1154	0186	1186	0218	1218	0250	1250
	3	0155	1155	0187	1187	0219	1219	0251	1251
	4	0156	1156	0188	1188	0220	1220	0252	1252
8	1	0157	1157	0189	1189	0221	1221	0253	1253
	2	0158	1158	0190	1190	0222	1222	0254	1254
	3	0159	1159	0191	1191	0223	1223	0255	1255
	4	0160	1160	0192	1192	0224	1224	0256	1256

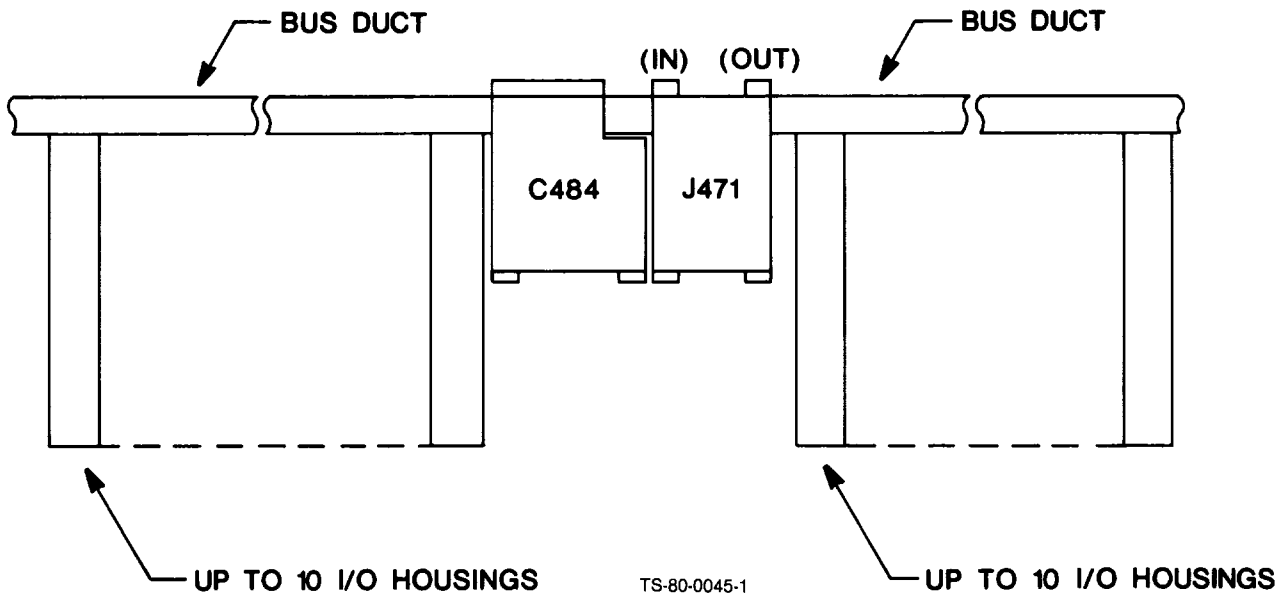
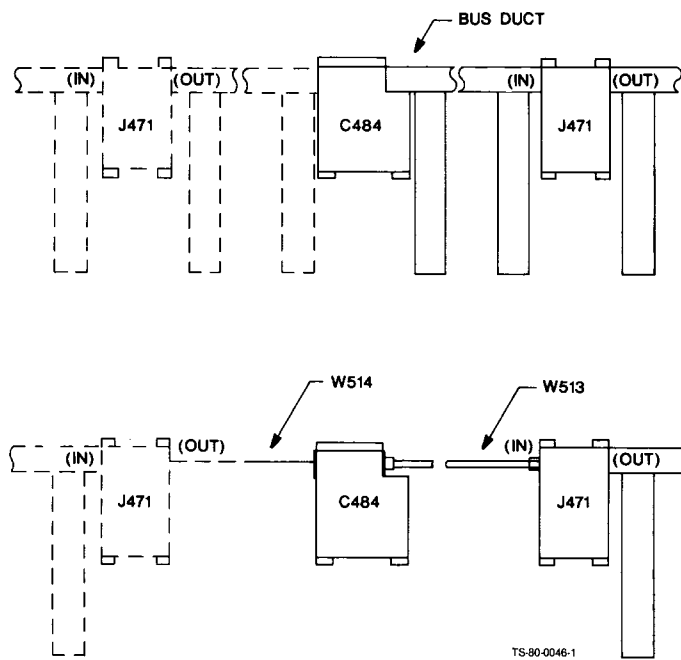


Figure VIII-1. J471 Block Diagram

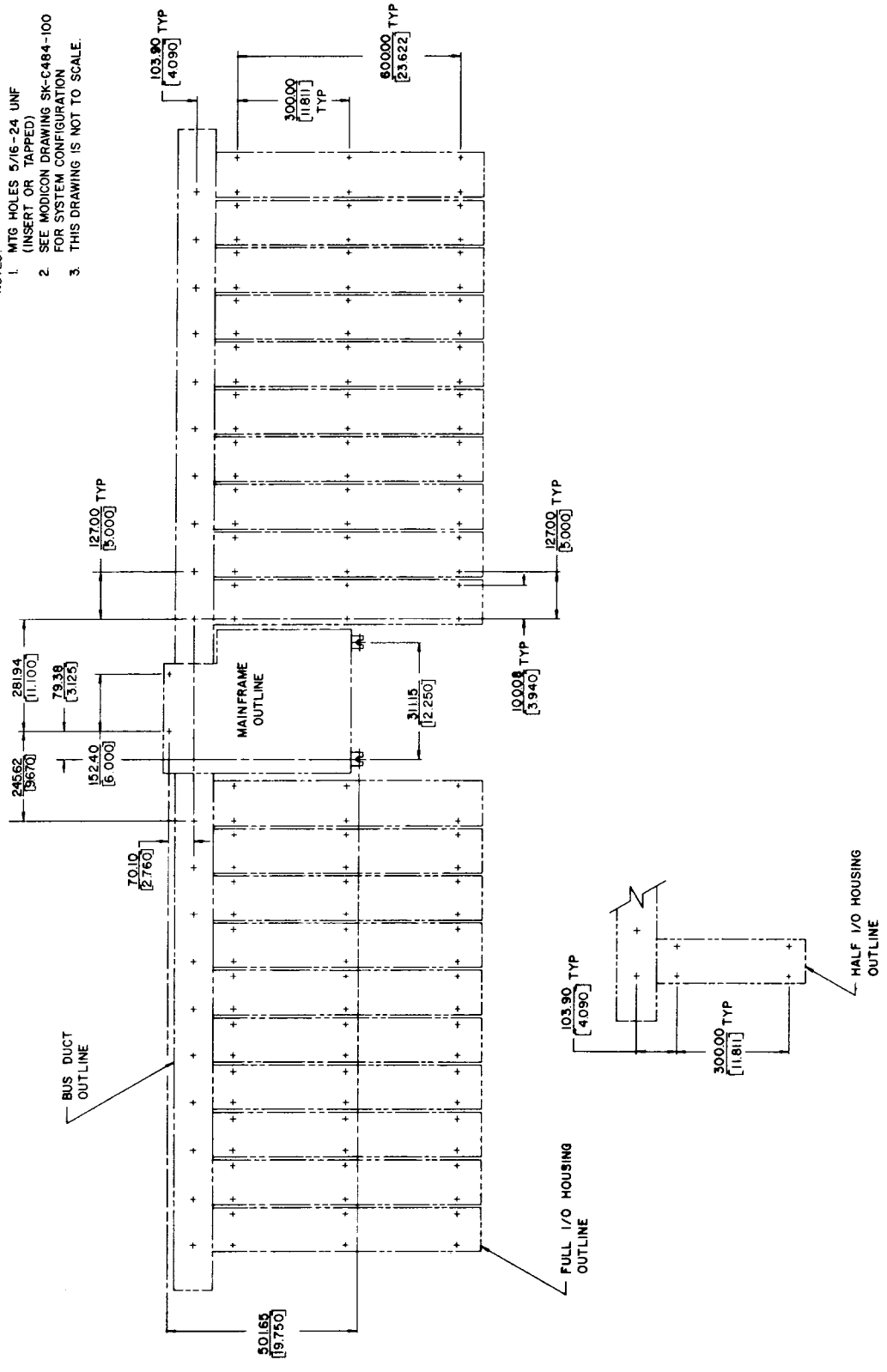


**NOTE**

J471 may be mounted to either side of the C484. It may be attached by any one of the following cables: W513, W514, or W515.

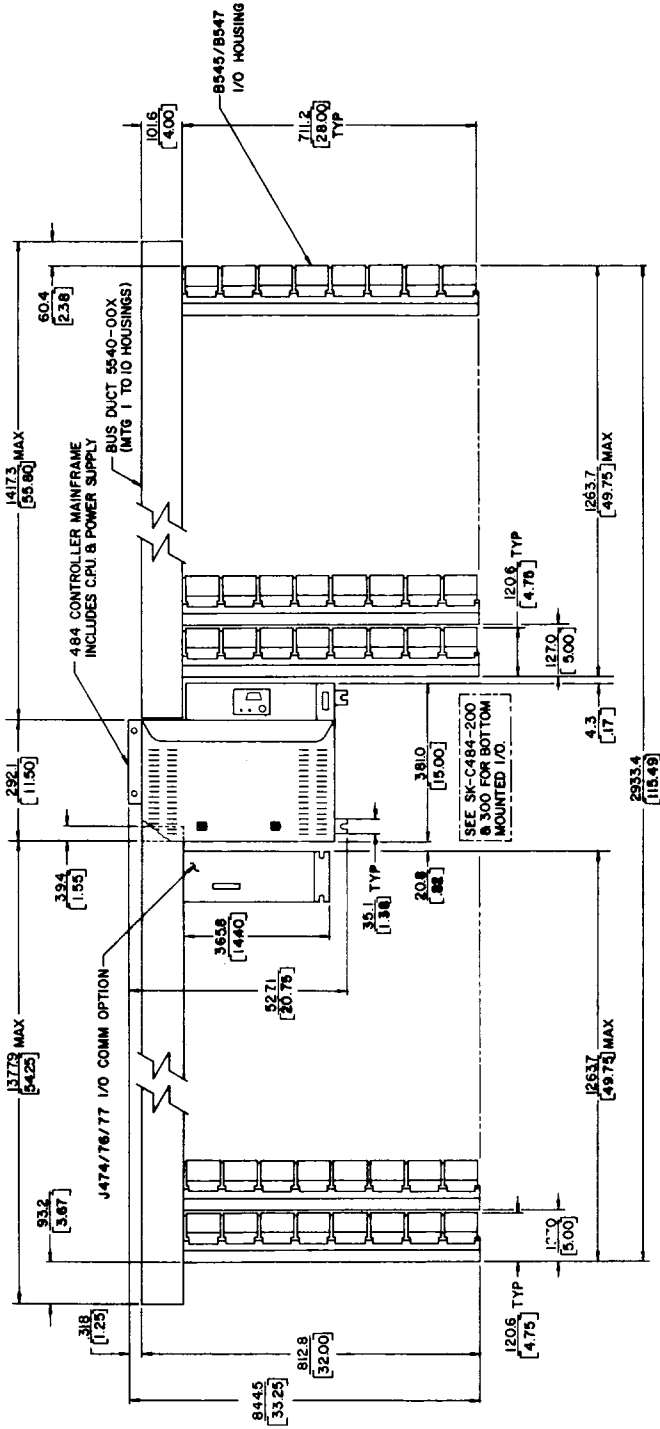
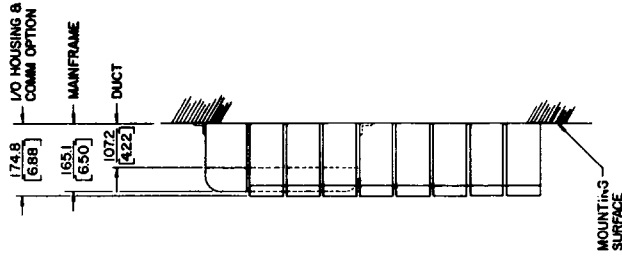
Figure VIII-2. J471 Mounting

- NOTES:
1. MTG HOLES 5/16-24 UNF (INSERT OR TAPPED)
  2. SEE MODICON DRAWING SK-C484-100 FOR SYSTEM CONFIGURATION
  3. THIS DRAWING IS NOT TO SCALE.



SK-C484-101

Figure VIII-3. J471 Installation



- NOTES:
1. ALL DIMENSIONS ARE FOR REFERENCE INFORMATION ONLY.
  2. SEE MODICON DRAWING SK-C484-101 FOR MOUNTING DIMENSIONS.
  3. MAX I/O SYSTEM WITHOUT I/O EXPANDER IS 8 DISCRETE I/O HOUSINGS & 2 REGISTER I/O HOUSINGS.
  4. THE COMM OPTIONS MUST BE MOUNTED IMMEDIATELY ADJACENT TO THE MAINFRAME ON LEFT, RIGHT OR BOTTOM. THEY OCCUPY THE SPACE OF A HALF HIGH I/O HOUSING.

BUS DUCT LENGTH	
IO HOUSINGS	55.80 MAX 1417.3 MM
9 HOUSINGS	
8 HOUSINGS	48.80 MAX 1163.3 MM
7 HOUSINGS	
6 HOUSINGS	35.80 MAX 909.3 MM
5 HOUSINGS	
4 HOUSINGS	25.80 MAX 655.3 MM
3 HOUSINGS	20.80 MAX 528.3 MM
2 HOUSINGS	15.80 MAX 401.3 MM

SK-C484-100

Figure VIII-4. J471 Configuration