



Air Conditioning & Heating

# GR9S80-U

HEATING INPUT : 40,000 – 80,000 BTU/H

*SINGLE-STAGE, MULTI-SPEED ECM,  
MULTI-POSITION, ULTRA-LOW NOX  
GAS FURNACE  
80% AFUE*



### Contents

Nomenclature.....	2
Product Specifications.....	3
Dimensions .....	4
Airflow Data .....	5
Wiring Diagrams .....	8
Accessories .....	9
Minimum Filter Sizes .....	9

## R32

### Standard Features

- Heavy-duty stainless-steel dual-diameter tubular heat exchanger
- Single-stage gas valve
- Durable Hot-surface igniter
- Quiet, modulating draft inducer
- Self-diagnostic control board
- Multi-speed ECM blower motor
- Eligible for installation in California’s South Coast Air Quality Management District (SCAQMD) and San Joaquin Valley Air Pollution Control District (SJVUAPCD). This furnace complies with the 14 ng/J NOx emission limit in SCAQMD Rule 1111 and SJVUAPCD Rule 4905.
- AHRI Certified; ETL Listed

### Cabinet Features

- Installation: upflow, horizontal left or right
- Convenient left or right connection for gas and electrical service
- Heavy-gauge steel cabinet with durable baked-enamel finish
- Foil faced insulated heat exchanger

**20** HEAT EXCHANGER LIMITED YEAR WARRANTY

**ONE-TIME** HEAT EXCHANGER REPLACEMENT LIMITED WARRANTY (100% YEARS 21/21)

**10** PARTS LIMITED YEAR WARRANTY\*



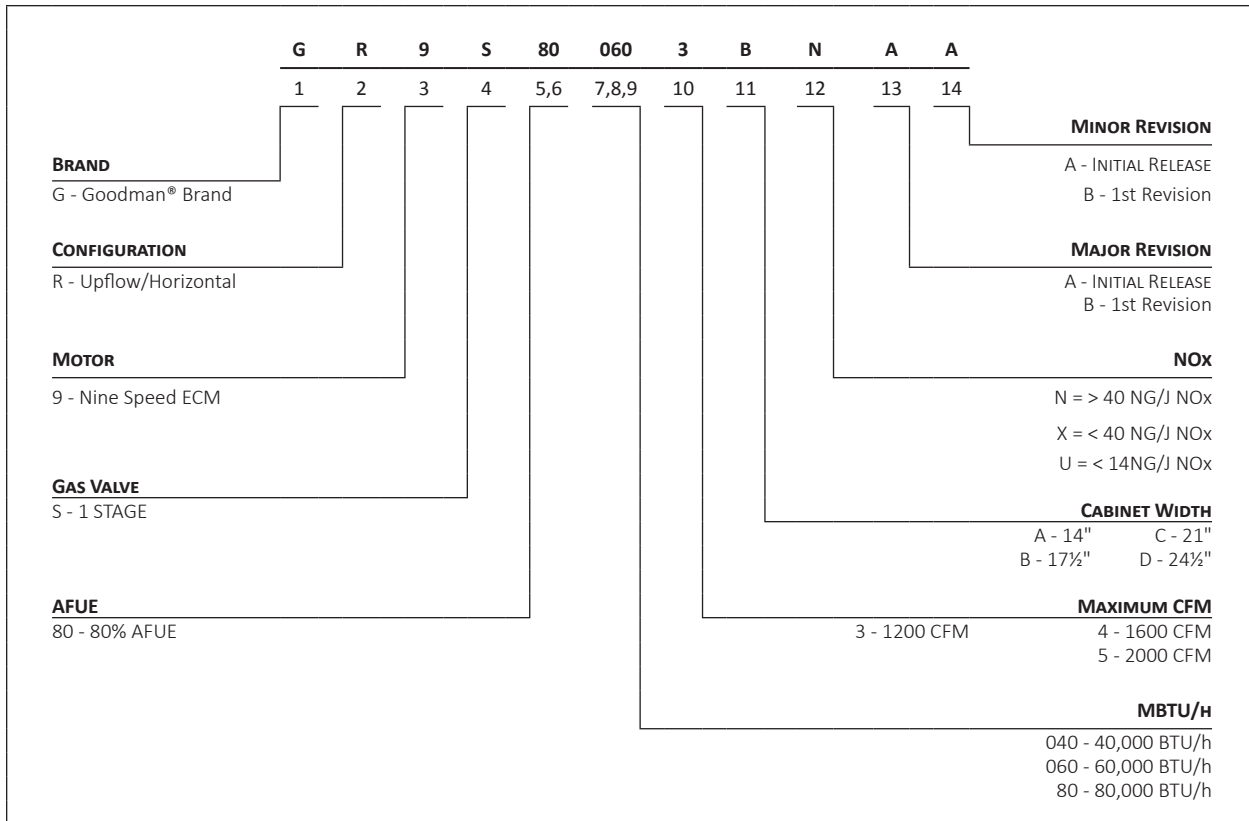
COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL

COMPANY WITH ENVIRONMENTAL SYSTEM CERTIFIED BY DNV GL



\* Complete warranty available from your local dealer or at [www.goodmanmfg.com](http://www.goodmanmfg.com). To receive the 10-Year Parts Limited Warranty and 99-Year Heat Exchanger Limited Warranty, online registration must be completed within 60 days of installation. The duration of warranty coverage may depend on the state in which you reside. Some states and provinces do not allow warranty coverage to be conditioned on registration. For a list of states and provinces that do not allow warranty coverage to be conditioned on registration, please visit [www.goodmanmfg.com/warranty-information](http://www.goodmanmfg.com/warranty-information) or, to request a paper copy of this information, please call us at 1-855-502-3903. Other limitations and exclusions apply, refer to complete warranty details for full list of limitations and exclusions.

NOMENCLATURE



	GR9S80 0403AU*	GR9S80 0603AU*	GR9S80 0604BU*	GR9S80 0804BU*	GR9S80 0805CU*
<b>HEATING CAPACITY</b>					
Input <sup>1</sup>	40,000	60,000	60,000	80,000	80,000
Natural Gas Output <sup>1</sup>	32,000	48,000	48,000	64,000	64,000
AFUE <sup>2</sup>	80	80	80	80	80
Available AC @ 0.5" ESP	1 - 3	1 - 3	1.5 - 4	1.5 - 4	2.5 - 5
Temperature Rise Range (°F)	25 - 55	20 - 50	20 - 50	35 - 65	35 - 65
<b>CIRCULATOR BLOWER</b>					
Size (D x W)	10" x 6"	10" x 6"	10" x 8"	10" x 8"	10" x 10"
Horsepower	1/2	1/2	3/4	3/4	1
No. of Speeds	9	9	9	9	9
Vent Diameter <sup>3</sup>	4"	4"	4"	4"	4"
No. of Burners	2	3	3	4	4
<b>ELECTRICAL DATA</b>					
Min. Circuit Ampacity <sup>4</sup>	9.1	9.1	12.7	12.7	15.7
Max. Overcurrent Device (amps) <sup>5</sup>	15	15	20	20	25
<b>SHIP WEIGHT (LBS)</b>					
	86	90	100	108	116

<sup>1</sup> Natural Gas BTU/h; for altitudes 0-4500' Only

<sup>2</sup> DOE AFUE based upon Isolated Combustion System (ICS)

<sup>3</sup> Vent and combustion air diameters may vary depending upon vent length. Refer to the latest editions of the National Fuel Gas Code NFPA 54/ANSI Z223.1 (in the USA) and the Canada National Standard of Canada, CAN/CSA B149.1 and CAN/CSA B142.2 (in Canada).

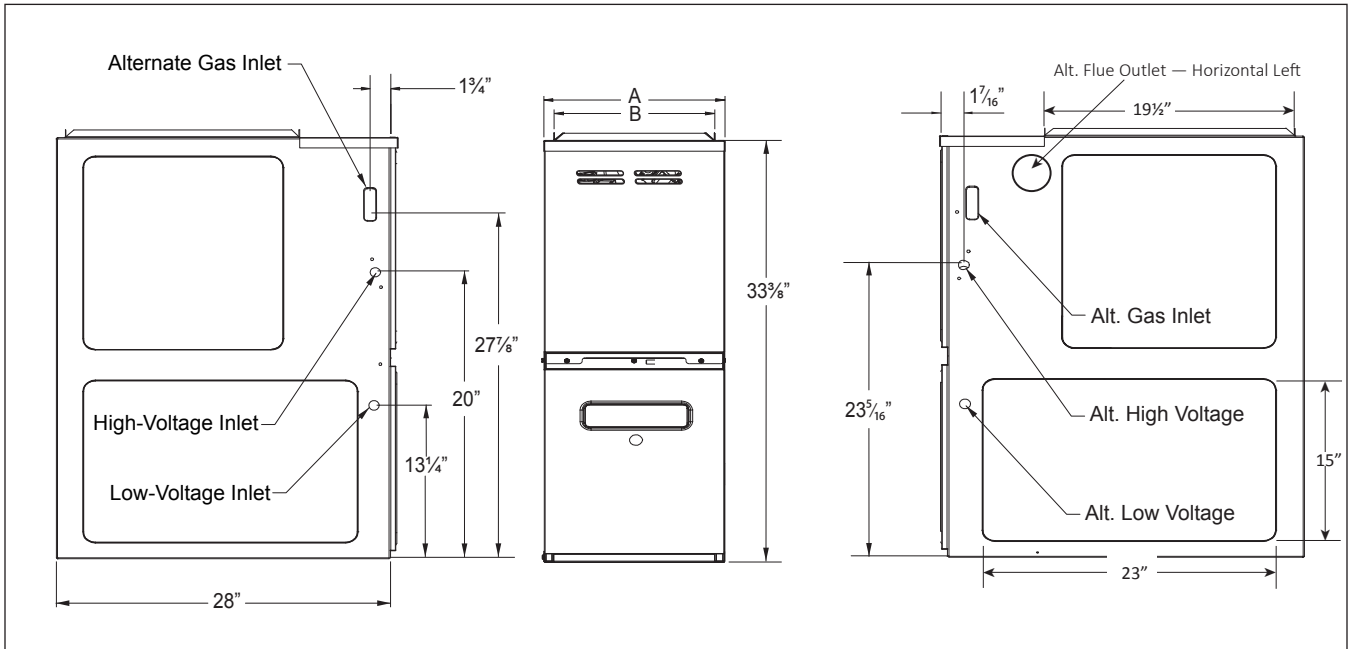
<sup>4</sup> Minimum Circuit Ampacity = (1.25 x Circulator Blower Amps) + ID Blower amps. Wire size should be determined in accordance with National Electrical Codes. Extensive wire runs will require larger wire sizes.

<sup>5</sup> Maximum Overcurrent Protection Device refers to maximum recommended fuse or circuit breaker size. May use fuses or HACR-type circuit breakers of the same size as noted.

#### NOTES

- All furnaces are manufactured for use on 120 VAC, 60 Hz, single-phase electrical supply.
- Gas Service Connection ½" FPT
- Important: Size fuses and wires properly and make electrical connections in accordance with the National Electrical Code and/or all existing local codes.

**GR9S80-U DIMENSIONS**



MODEL	A	B
GR9S800403AU*	14"	12 1/2"
GR9S800603AU*	14"	12 1/2"
GR9S800604BU*	17 1/2"	16"
GR9S800804BU*	17 1/2"	16"
GR9S800805CU*	21"	19 1/2"

**NOTES**

- voltage wiring can enter through the right or left side of furnace.  
Low-voltage wiring can enter through the right or left side of furnace.
- Installer must supply the following gas line fittings, according to which entrance is used:  
Left: One 2" pipe nipple; one 90° elbow; straight pipe; one ground joint union  
Right: Five 90° elbow; one ground joint union; various pipe nipples

**MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS**

SIDES	REAR	FRONT <sup>1</sup>	VENT <sup>2</sup>		TOP
			SW	B	
1"	0"	3"	6"	1"	1"

<sup>1</sup> 24" clearance for serviceability recommended.

<sup>2</sup> Single Wall Vent (SW) to be used only as a connector. Refer to the latest editions of the National Fuel Gas Code NFPA 54/ ANSI Z223.1 (in the USA) and the Canada National Standard of Canada, CAN/CSA B149.1 and CAN/CSA B142.2 (in Canada).

Note: AMES80 approved for line contact in the horizontal position.

MODEL	THERMOSTAT CALL	TAP #	EXTERNAL STATIC PRESSURE (INCHES OF WATER COLUMN)											
			0.10	0.20	0.30	0.40	0.50		0.60		0.70		0.80	
			CFM	CFM	CFM	CFM	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS
GR9S80 0403AU*	Y1/Y2/G	F01	590	540	483	429	369	72	311	78	247	84	203	89
		F02	690	643	597	547	498	90	443	96	389	102	343	109
		F03	750	702	660	618	572	104	525	110	477	116	421	124
		F04	876	832	794	758	716	138	678	146	641	152	598	157
		F05^	927	881	841	806	771	155	734	161	698	168	662	174
		F06	1058	1015	976	945	915	202	881	210	849	218	818	226
		F07	1116	1071	1036	1003	975	230	943	236	919	245	884	252
		F08^^	1238	1192	1158	1124	1098	291	1070	299	1044	308	1016	318
		F09	1398	1357	1320	1293	1269	396	1239	405	1216	411	1194	416
GR9S80 0603AU*	Y1/Y2/G	F01	587	542	490	437	382	75	318	82	266	88	207	93
		F02	685	638	590	543	498	92	448	98	392	105	339	112
		F03	856	814	774	732	693	136	657	142	622	148	581	154
		F04^	937	892	855	819	786	163	752	170	715	177	684	184
		F05	1060	1017	981	950	921	212	886	219	856	227	828	234
		F06^^	1108	1068	1033	1003	972	234	942	243	914	250	882	259
		F07	1274	1233	1203	1174	1146	327	1118	337	1089	345	1065	353
		F08	1374	1340	1306	1278	1254	399	1227	411	1201	414	1179	421
		F09	1437	1395	1362	1332	1305	473	1278	482	1253	492	1228	502
GR9S80 0604BU*	Y1/Y2/G	F01	836	774	711	655	596	108	523	116	456	124	397	130
		F02	1274	1228	1188	1147	1107	248	1064	256	1027	266	990	276
		F03	1295	1256	1214	1181	1140	260	1100	269	1062	279	1024	287
		F04	1385	1337	1301	1260	1222	298	1186	308	1149	315	1114	326
		F05	1454	1407	1372	1353	1325	349	1291	360	1255	370	1219	379
		F06^	1528	1485	1438	1409	1383	382	1349	391	1317	402	1285	412
		F07	1619	1579	1551	1523	1495	444	1463	454	1430	464	1402	476
		F08^^	1746	1697	1667	1642	1617	534	1593	545	1570	559	1540	571
		F09	1772	1735	1698	1674	1645	559	1622	571	1598	584	1574	597
GR9S80 0804BU*	Y1/Y2/G	F01	722	658	599	534	458	88	386	94	330	99	268	105
		F02	1270	1223	1179	1139	1105	250	1066	259	1029	267	996	277
		F03	1304	1254	1212	1173	1135	264	1104	273	1069	282	1032	290
		F04	1367	1318	1277	1236	1199	296	1169	306	1135	315	1102	327
		F05^	1473	1429	1386	1355	1320	354	1289	365	1258	372	1224	383
		F06	1560	1518	1476	1441	1409	409	1382	422	1350	429	1321	439
		F07	1647	1605	1562	1531	1497	460	1467	471	1440	481	1408	492
		F08^^	1720	1710	1674	1642	1611	544	1581	558	1553	565	1527	579
		F09	1796	1759	1721	1687	1655	582	1628	595	1604	607	1578	619
GR9S80 0805CU*	Y1/Y2/G	F01	1280	1228	1178	1134	1086	204	1036	214	986	226	936	236
		F02	1401	1356	1313	1273	1234	252	1190	262	1145	270	1099	282
		F03	1593	1550	1512	1475	1436	332	1399	341	1360	354	1319	364
		F04	1706	1662	1621	1586	1550	383	1515	395	1479	407	1444	414
		F05^	1821	1775	1736	1703	1669	443	1636	455	1605	468	1576	480
		F06	1836	1793	1757	1721	1689	459	1659	472	1628	486	1592	497
		F07	1932	1888	1855	1825	1794	517	1762	532	1733	545	1701	560
		F08^^	2184	2143	2110	2072	2048	706	2017	724	1989	741	1959	756
		F09	2221	2178	2145	2109	2082	731	2053	747	2025	764	1992	780

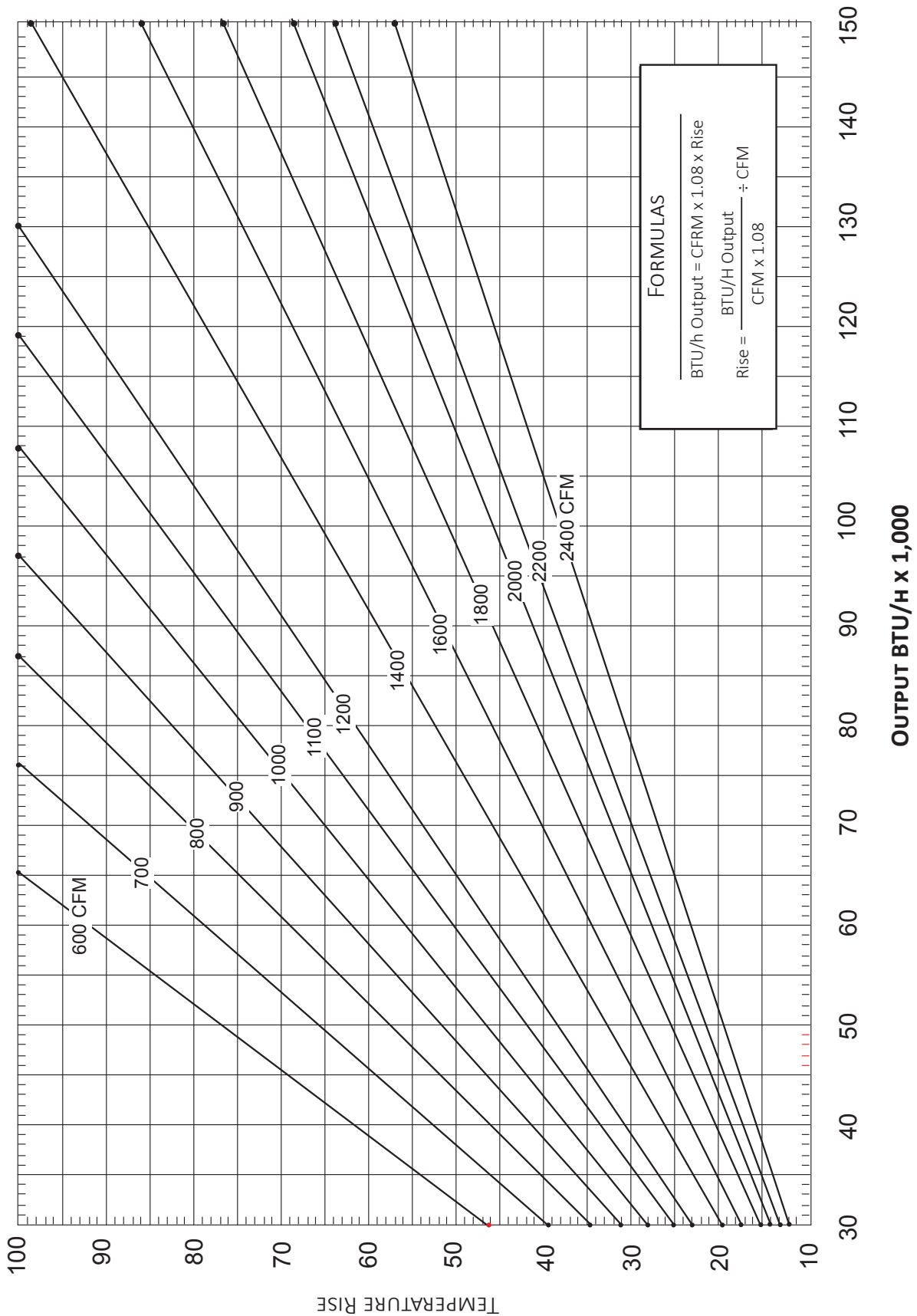
- Notes:
- Default speed is F01 for circulation for all models
  - ^ Default Y1 speed
  - ^^ Default Y2 speed

GM9S80-U HEATING AIRFLOW DATA

HEATING AIRFLOW																TEMP RANGE
MODEL	THERMOSTAT CALL	TAP #	EXTERNAL STATIC PRESSURE, (INCHES WATER COLUMN)													
			0.1		0.2		0.3		0.4		0.5		0.6	0.7	0.8	
			CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	RISE	CFM	CFM	CFM	
GR9S80 0403AU*	W/W1	F02^	690	42	643	46	597	49	547	53	498	55	443	389	343	25 - 55
		F03	750	39	702	42	660	45	618	48	572	52	525	477	421	
		F04	876	34	832	36	794	37	758	39	716	41	678	641	598	
		F05	927	32	881	34	841	35	806	37	771	38	734	698	662	
		F06	1058	28	1015	29	976	30	945	31	915	32	881	849	818	
		F07	1116	27	1071	28	1036	29	1003	30	975	30	943	919	884	
GR9S80 0603AU*	W/W1	F05	1060	42	1017	44	981	45	950	47	921	48	886	856	828	20 - 50
		F06	1108	40	1068	42	1033	43	1003	44	972	46	942	914	882	
		F07^	1274	35	1233	36	1203	37	1174	38	1146	39	1118	1089	1065	
GR9S80 0604BU*	W/W1	F02	1274	35	1228	36	1188	37	1147	39	1107	40	1064	1027	990	20 - 50
		F03	1295	34	1256	35	1214	37	1181	38	1140	39	1100	1062	1024	
		F04^	1385	32	1337	33	1301	34	1260	35	1222	36	1186	1149	1114	
		F05	1454	31	1407	32	1372	32	1353	33	1325	34	1291	1255	1219	
GR9S80 0804BU*	W/W1	F02^	1270	47	1223	48	1179	50	1139	52	1105	54	1066	1029	996	35 - 65
		F03	1304	45	1254	47	1212	49	1173	51	1135	52	1104	1069	1032	
		F04	1367	43	1318	45	1277	46	1236	48	1199	49	1169	1135	1102	
		F05	1473	40	1429	41	1386	43	1355	44	1320	45	1289	1258	1224	
		F06	1560	38	1518	39	1476	40	1441	41	1409	42	1382	1350	1321	
GR9S80 0805CU*	W/W1	F01^	1280	46	1228	48	1178	50	1134	52	1086	55	1036	986	936	35 - 65
		F02	1401	42	1356	44	1313	45	1273	47	1234	48	1190	1145	1099	
		F03	1593	37	1550	38	1512	39	1475	40	1436	41	1399	1360	1319	
		F04	1706	35	1662	36	1621	37	1586	37	1550	38	1515	1479	1444	

- Notes:
- ^ Default Heat Speed

BTU/H OUTPUT VS. TEMPERATURE RISE CHART

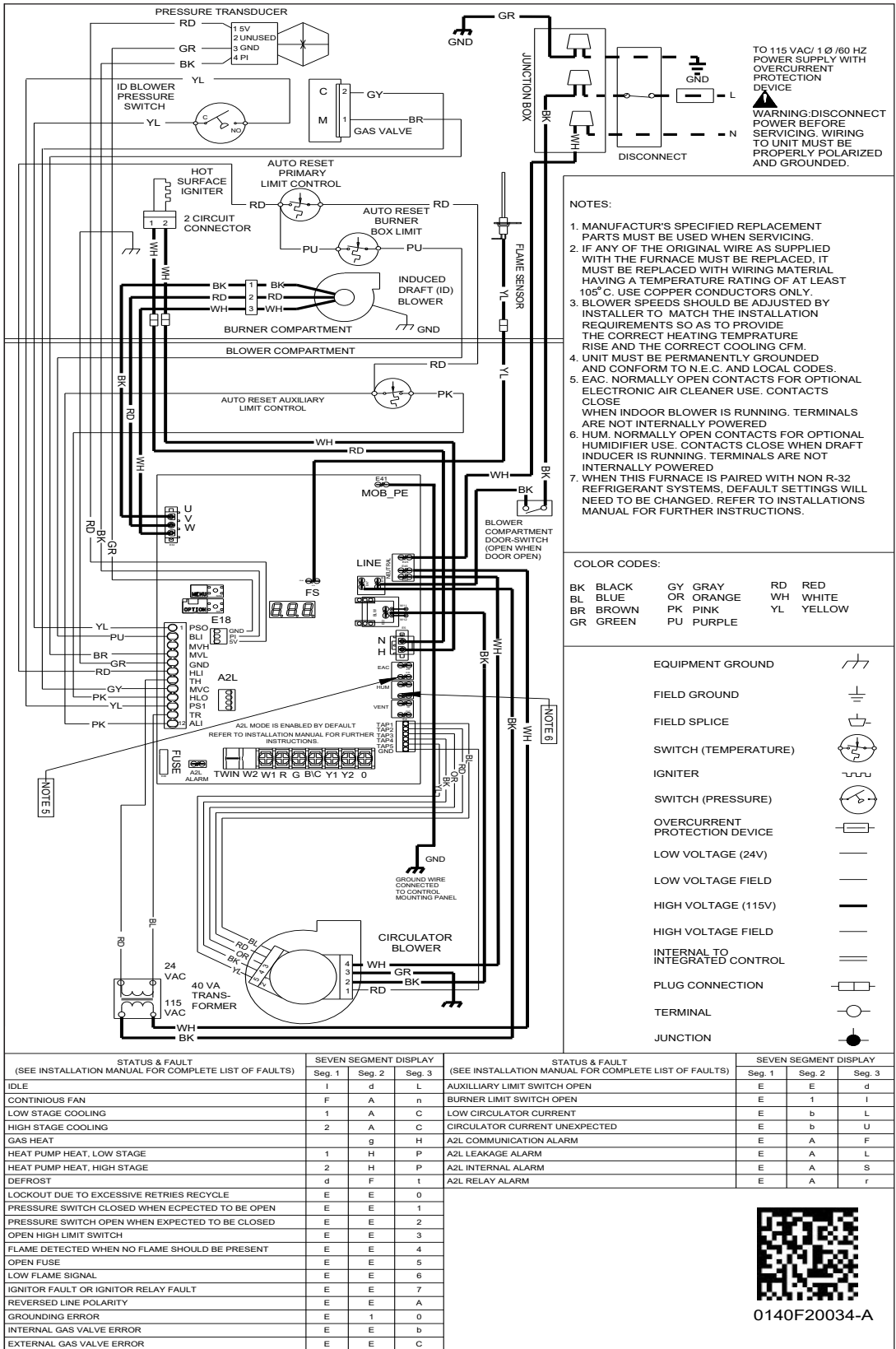


**FORMULAS**

BTU/h Output = CFM x 1.08 x Rise

Rise =  $\frac{\text{BTU/h Output}}{\text{CFM} \times 1.08}$

# WIRING DIAGRAM



**High Voltage:** Disconnect all power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury, or death.

**WARNING**

Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

MODEL	DESCRIPTION	GR9S80 0403AU*	GR9S80 0603AU*	GR9S80 0604BU*	GR9S80 0804BU*	GR9S80 0805CU*
AFE18-60A	Fossil Fuel (Dual Fuel) Kit	√	√	√	√	√
MVK-01 <sup>1</sup>	Masonry Vent Kit	√	√	√	√	√

<sup>1</sup> Upflow applications only

### MINIMUM FILTER SIZES

MODEL #	GR9S80 0403AU*	GR9S80 0603AU*	GR9S80 0604BU*	GR9S80 0804BU*	GR9S80 0805CU*
Filter Size (in <sup>2</sup> )	(1) 16 x 25 (Side) or (1) 14 x 24 (Bottom)		(1) 16 x 25 (Side or Bottom)		(2) 16 x 25 (Side) or (1) 20 x 25 (Bottom) <sup>1</sup>

Note: Larger filters may be used; filters may also be centrally located.

<sup>1</sup> Use 2 - 16 x 25 filters on side returns or 20 x 25 filter on bottom return if furnace is connected to a cooling unit over 4 tons nominal capacity.





