## 5.6 Analog Output Module 6ES5 470-4UA11/-4UA12, 470-4UB11/-4UB12 and 470-4UC11/-4UC12

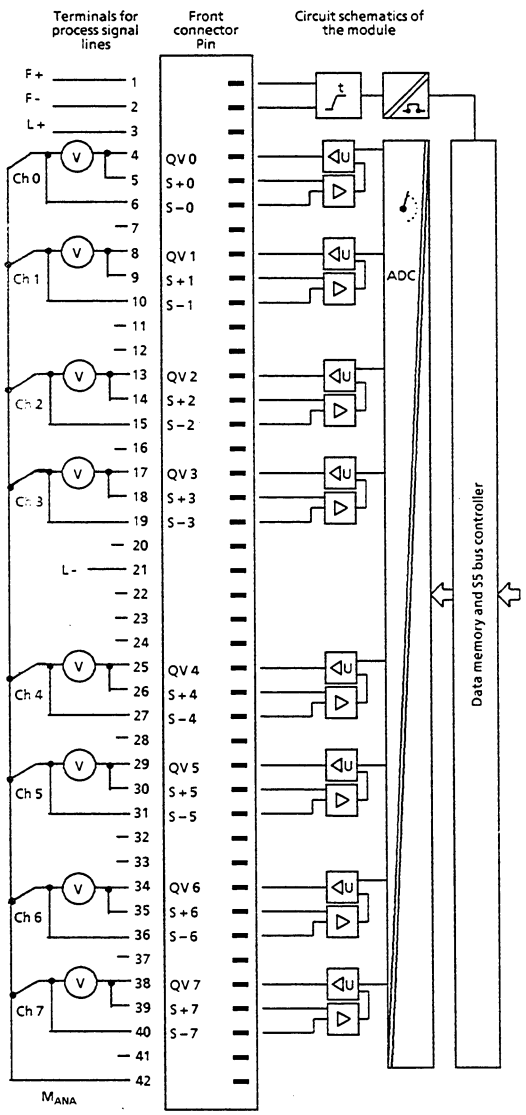
### 5.6.1 Technical Data

| | |
|---|---|
| Rated output range | |
| - 6ES5470-4UA11/-4UA12 | 0 to ±10 V and<br>0 to 20 mA parallel<br>with ±1024 units |
| - 6ES5470-4UB11/-4UB12 | ±10 V<br>with ±1024 units |
| - 6ES5470-4UC11/-4UC12 | 1 to 5 V and<br>4 to 20 mA parallel<br>with 0 to 1024 units |
| Number of outputs | 8 voltage and current outputs, open-circuit- and short-circuit-proof |
| Electrical isolation | Yes; 8 outputs with respect to $M_{ext}$ |
| Measured-value representation | 12 bits (two's complement) |
| Linearity in the range of ±1024 units | ±2 LSB = ±0.2% |
| Operating error limits (0 to 60°C) | ±0.6% |
| Permissible overdriving | Approx. 25%<br>(±1024 to ±1272 units) |
| Short-circuit current with voltage output | Approx. 25 mA |
| No-load voltage with current output | Max. 18 V |
| Output current with voltage output | Max. 3 mA |
| Max. capacitive load incl. line capacity | < 100 nF |
| Delay time between data transfer and analog value output | ≤ 1 ms |
| Load resistance | |
| - with voltage output | ≥ 3.3 kohms |
| - with current output | ≤ 300 ohms |
| Temperature coefficient for voltage and current outputs | $1 \times 10^{-4}$/K |
| Permissible voltage drop on voltage output lines | ±0.3 V at max. output voltage |

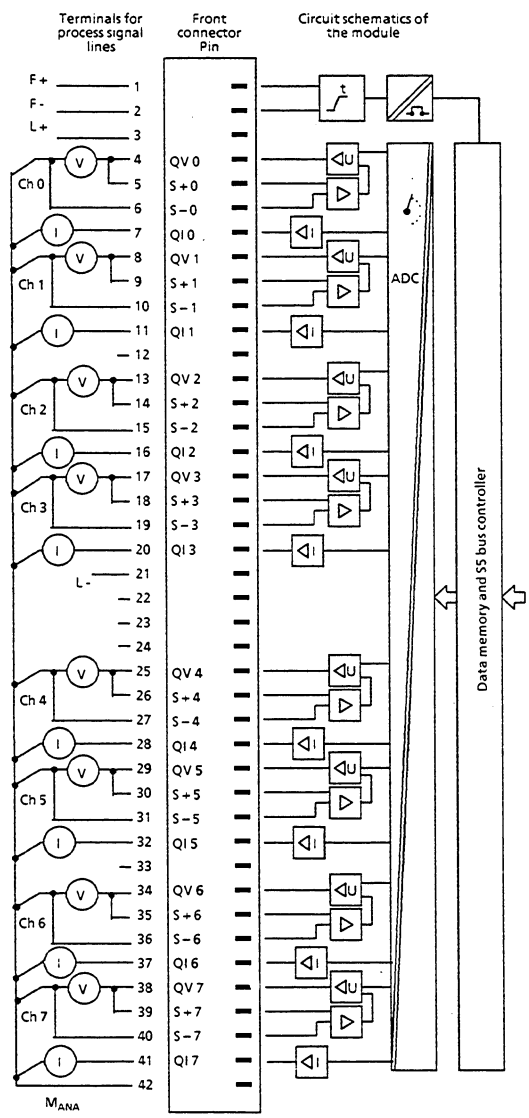
| | |
|---|---|
| Power supply | |
| - dig. section from system bus | 5 V ±5%; approx. 250 mA |
| - analog section from load volt. | 24 V; 200 to 400 mA |
| - module enable F+/F- | 24 V; approx. 7 mA |
| Perm. potential difference $U_{CM}$ between reference potentials of the load and the casing | Max. 60 V AC/75 V DC |
| Insulation voltage acc. to VDE 0160 | Betw. outputs and casing: tested with 500 V AC |
| Impulse test according to IEC 255-4 | Between outputs and L-: $U_s$ = 1 kV; 1.2/50 µs |

### 5.6.2 Pin Assignments of the Front Connector

6ES5470-4UB11
6ES5470-4UB12




6ES5470-4UA11/-4UC11
6ES5470-4UA12/-4UC12



Addressing of process interface modules with 16 channels

| Channel no. | | | | | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | 11 | | 12 | | 13 | | 14 | | 15 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Subaddress (internal) | | | | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| | | | | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| Start address | | | | 2 | 4 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| | | | | 3 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| ADB | 7 | 6 | 5 | 4 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| DW | 128 | 64 | 32 | ⟶ | | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB |
| Addressing switch | ● | | | | | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 |
| | ● | | ● | | | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 |
| | ● | ● | | | | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 |
| | ● | ● | ● | | | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 |

DW Binary significance
HB High byte
LB Low byte
● Dip switch pressed

Addressing of process interface modules with 8 channels

| Channel no. | | | | | 0 | | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Subaddress (internal) | | | | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| | | | | 1 | 2 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| Start address | | | | 2 | 4 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| | | | | 3 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| ADB | 7 | 6 | 5 | 4 | ⌋ | | | | | | | | | | | | | | | | |
| DW | 128 | 64 | 32 | 16 | ⌋ | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB | HB | LB |
| Addressing switch | ● | | | | | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 |
| | ● | | | ● | | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 |
| | ● | | ● | | | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 |
| | ● | | ● | ● | | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 |
| | ● | ● | | | | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 |
| | ● | ● | | ● | | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 |
| | ● | ● | ● | | | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 |
| | ● | ● | ● | ● | | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 |