A

TASK: create a circuit to automate the opening and closing of a gate connected to an electric three-phase direct-starting motor.
The gate closes automatically after the time set in a timer. There must be a device that senses the presence of a person or object in the passage way and that immediately opens the gate if it is already closing.
There are also a key for the opening and the closing of the gate from the outside and a lamp that signals the running of the motor.

ANALYSIS of the circuit
The circuit consists of two relays inserted in a reversing circuit. When the reversing pushbutton (PM1 for the opening of the gate) closes, the relay K1 gets excited and the gate opens until the limit switch FA opens. This limit switch starts the timer T1.
After the time set in the timer, T1 makes the gate close through the relay K2.
If a person or object interrupts the infrared barrier, the contacts RX start working and the gate opens again.

CONTROLS
PM1 running pushbutton for the opening of the gate
PM2 running pushbutton for the closing of the gate
PA1 stop pushbutton – the gate stops
CH pushbutton for the opening and closing of the gate by means of a key
FA limit switch – the gate is open
FC limit switch – the gate is closed

REGULATIONS
T1 Time setting for the opening of the gate
T2 Timer for signal lamp – the gate is moving

SIGNALLINGS
La green lamp – the gate is completely open
Lf red lamp – the motor is running
L yellow lamp – the gate is moving